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Rare Cancers in the Flemish Region

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PART I

INTRODUCTION

The Belgian Cancer Registry (BCR), founded in 2005, progressively achieves more results on population based cancer statistics. Data on cancer incidence are available for Belgium from 2004 on and for the Flemish Region from 1999 onwards. Since 2009, the BCR is authorised to use the national number for social security (NNSS) as the unique patient identifier, to link the data from this BCR database with data on cancer-related diagnostic and therapeutic procedures and pharmaceuticals [1], which are obtained from all seven Belgian health insurance companies via the Intermutualistic Agency. The NNSS can also be used to retrieve the vital status from the "Kruispuntbank van de Sociale Zekerheid/Banque Carrefour de la Sécurité Sociale". Previous publications on cancer incidence (2004-2005 [2], 2008 [3] and 2010 [4]) and survival [5] have mainly provided general results by cancer type (ICD-10 [6]) at both the national and regional level. The current project is the first to provide a detailed inventory of rare cancer incidence, survival and clinical care in the Flemish Region.

RARECARE has been set up as a European initiative to estimate the epidemiology, treatment and survival of rare cancers. Within the RARECARE working group, rare cancers have been defined as groups of rare malignancies with an incidence rate lower than 6/100,000 per year, for both sexes combined [7,8]. Numerous international publications within and outside the RARECARE initiative have shown that clinical management of rare cancers is often poorly organized, resulting in suboptimal treatment outcomes [7-9]. In concrete, a lack of medical expertise in the management of rare cancers, poor referral rates from general practitioners and pathological misdiagnoses may lead to an impaired quality of care for these cancer types. On the other hand, rare cancers are often not prioritized by the public health system due to their relatively low burden at the population level. The same is true for pharmaceutical industry which considers rare cancers to be less profitable than their common counterparts. Therefore, research on diagnosis and treatment of these tumour entities gains less attention.
Several initiatives possibly leading to an improvement of this situation have been formulated such as the creation of evidence based guidelines and the establishment of reference networks or centres of expertise.

To date, little is known on the burden and clinical management of these tumour types in the Flemish Region. The current project aimed therefore to estimate the incidence and survival of an extended list of rare cancers in the Flemish Region, and to provide more detailed insight in the clinical care for a selection of rare malignancies in this region. The selection of rare cancers in the current project was based on the RARECARE cancer list [10]. This list is based on a combination of topography and morphology codes according to ICD-0-3 [11] for incidences between 2002 and 2010. For incidence year 2001, selection was based on ICD-O-2 [12], which might cause a small, negligible bias.

The first part of this issue describes incidences, trends and survival (observed and relative) for an extended list of rare cancers across different organ systems. Analyses were performed at the overall level and for subgroups according to sex, age and stage. For this part, all Belgian patients with residence in the Flemish Region and a first diagnosis of a rare cancer between 2001 and 2010 were included.

The second part presents detailed analyses of clinical care for a selection of 11 rare cancers, namely: Nasopharynx, Salivary Glands, Hypopharynx, Larynx, Oropharynx, Oral Cavity, Lip, Anal Canal, Vulva, Vagina and Mesothelioma. For this part, all Belgian patients living in the Flemish Region, with an incidence of a rare cancer between 2004 and 2007 were considered. Each tumour type within this part is introduced by a review of its epidemiology, aetiology, diagnostic and therapeutic management. Detailed analyses of different patient (age, sex) and tumour (stage, histology) characteristics are provided. In addition, clinical care for these tumour entities in terms of multidisciplinary oncological discussion, diagnosis and treatment is described. Survival analyses are presented for the overall level and for different subgroups, in line with the major differences in patient or tumour characteristics or treatment schemes. Finally, data on how clinical management for these patients is spread amongst different hospitals and the major differences in treatment schemes between low- and high-volume centres are shown.

Hopefully, this project can increase knowledge on rare cancer burden and management in the Flemish Region. These insights could be of use in future reflections on optimization of clinical rare for patients diagnosed with rare malignancies.

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PART II

METHODOLOGY

1. General methodology

1.1 RARECARE Selection Rare Tumours

During recent years, rare cancers have been intensively studied by RARECARE, a research group to estimate the burden of rare cancers in Europe [1]. They defined a cancer as rare when the incidence is lower than 6 per 100,000. Based on this criterion, a list of common and rare cancers has been created and publically made available. The definition of each tumour entity is done based on a combination of morphology and topography codes. The list is organised into three layers: bottom, middle and top layers [2]. The bottom layer corresponds to the WHO names of the individual cancers with their corresponding ICD-O-3 codes, for example mucinous adenocarcinoma of colon [3]. These bottom layers are grouped into middle layers that are considered to require similar clinical management and research, for example adenocarcinoma with variants of colon. The middle layers are further grouped to top layers that are considered to involve the same clinical expertise and patient referral structure, for example epithelial tumours of colon. To select the rare cancers for this study, we used the RARECARE list published online in march 2011 [4]. From this list, we selected the top layers and underlying middle layers for the analyses. Bottom layers were not taken into account in this report.

It should be noted that these layers are not exhaustive. For example, not all tumours included in a top layer, are also included in one of the underlying middle layers. This means that the sum of the number of tumours in the different middle layers is often smaller than the number of tumours included in the related top layer.

1.2 Incidence

Incidence is the number of new cases arising in a given period in a specified population. This measure provides a direct estimate of the probability or risk of illness, and it can be expressed in different ways. In this report, it is expressed as:

- Crude incidence rate (CR): calculated by dividing the number of new cases observed during a given time period by the corresponding number of people in the population at risk. The crude rate is expressed as a number of new cases per 100,000 persons per year.
- Age specific incidence rate: the number of newly diagnosed cases in a particular 5-year age group over a specified time period and expressed per 100,000 persons per year.
- Age standardised incidence rate: a weighted average of the individual age specific rates using an external standard population. It is the incidence that would be observed if the population had the age structure of the standard population (European or World Standard population). Since age has a powerful influence on the risk of cancer, this standardisation is necessary when comparing several populations that differ with respect to their age structure. Age standardised incidence rates are expressed as the number of new cases per 100,000 persons per year.

1.3 Trends

Trends over the incidence years are studied by calculating the Estimated Annual Percentage Change (EAPC). In this method, a regression line is fitted to the natural logarithm of the rates using calendar years as a regressor variable, i.e. y=mx + b where y = ln (rate) and x = calendar year. Then the EAPC = 100 x (e^m-1). Testing the hypothesis that the EAPC is equal to zero is equivalent to testing the hypothesis that the slope of the line in the above equation is equal to zero. The latter hypothesis is tested using the t-distribution of m/SEm, while the number of degrees of freedom equals the number of calendar years minus two. The standard error of m, i.e. SEm, is obtained from the fit of the regression line. This calculation assumes that the rates increased/decreased at a constant rate over the entire period, although the accuracy of this assumption has not been tested [5].

1.4 Survival

For the adequate calculation of survival results, some patients were removed from the selection:

- Cases with uncertain date of diagnosis
- Cases without a unique national number. The vital status was retrieved from the Kruispuntbank van de Sociale Zekerheid based on patients' unique social security number (INSZ/NISS).
- Second and subsequent tumours. For each person, only the first diagnosed cancer (known to the Belgian Cancer Registry, non-melanoma skin cancers not taken into account) was considered for the analyses, consistent with other (inter)national cancer survival analyses [6, 7,8].
- Cases with a date of diagnosis equal to the date of death
- Cases lost to follow-up at the date of incidence

Two types of survival are reported: observed survival and relative survival.

Because of these additional exclusion criteria used for the survival analyses compared with the analyses on incidence, the number of patients included in the survival analyses is most often lower.

It should be noted that the interpretation of survival analyses is uncertain if the number of patients is smaller than 35. Therefore, survival analyses are restricted to groups of 35 or more patients at the start of the observation period (i.e. the number at risk equal to or higher than 35). If the numbers at risk are lower than 35, an asterisk (*) is used and no results are shown.

1.4.1 Observed Survival

Observed survival is the proportion of patients that is still alive after a specified period of time. In this study, we report the observed survival rates until ten years of follow-up for the first part and until five years of follow-up for the second part. Patients whose observation period was shorter than the maximum time for which survival probability was calculated (i.e., ten years or five years for the first and second part, respectively) were censored at the date of the last information on vital status. Observed survival was calculated with the Kaplan-Meier method [9] using a semi-complete analysis

approach [10]. The 1-, 3- , 5- and 10-year observed survival is the proportion of patients that is still alive one, three , five and ten years after their diagnosis, respectively.

1.4.2 Relative Survival

A problem with measuring observed survival is that the estimates do not only include deaths due to the cancer itself, but also deaths due to other causes, including older age, other diseases, trauma and any other possible causes of death. Calculation of a disease-specific survival (which takes only the cancer itself into account as a cause of death) is impossible because the exact cause of death for each individual is unknown in this study and is hard to achieve at a population level.

To overcome this problem, relative survival has been developed as a proxy for net survival which is defined as the survival that would occur if mortality from other causes of death is removed [11]. Relative survival is calculated as the ratio of the observed survival to the expected survival (=survival that would be expected if the cancer patients had the same age and sex specific mortality in each period as the general population). Relative survival is widely used for comparisons between different populations and countries. Life tables are required to estimate the expected survival. For the survival analyses performed in this study, expected survival calculations were based on sex-, age-, region- and calendar-year-specific Belgian lifetables [12], according to the Ederer II method [13]. Relative survival rates were estimated using a SAS code written by Paul Dickman from the Karolinska Institute, Stockholm Sweden using a semi-complete analysis approach [14].

1.4.3 Staging

Staging is done according the TNM classification as defined by the International Union Against Cancer (5^{th} edition for the incidence years 2001-2002 [15], 6^{th} edition for the incidence years 2003-2009 [16], 7^{th} edition for the incidence year 2010 [17]). Stage can be reported as the clinical stage, the pathological stage or the combined stage. The combined stage is a compilation of the pathological (pTNM) and the clinical (cTNM) stage. If both the pTNM and the cTNM are available, pTNM is used for the combined stage. An exception to this rule is a case with clinical metastases (cM=1): in this case, the combined stage is IV. If either the pathological or the clinical stage is available, the combined stage is derived from the available stage. If both pStage and cStage are absent, the combined stage is considered unknown ('X'). For some tumours TNM staging is not applicable because of their morphology (e.g. sarcoma) or because of their localisation (e.g. some sublocalisations for anal canal). These tumours are reported as 'NA' and are excluded from the analyses by stage. Note that in the current report, 'stage' refers to the combined stage, unless specified otherwise.

2. Methodology of the First Part: Rare Cancers in the Flemish Region, 2001-2010: Incidence, Trends and Survival

2.1 Selection of Tumours

Because of the goal to give a broad overview in this first part of the study, a broad range of tumours was selected. The following inclusion- and exclusion criteria were used:

2.1.1 Inclusion Criteria

- Tumours first diagnosed during the years 2001-2010 (incidence date)
- Patients with their official residence in the Flemish Region
- The topography/morphology combinations from the RARECARE list are used to define the tumour entities. Selection was based on ICD-O-3 [3] for incidences between 2002 and 2010. For incidence year 2001, selection was based on ICD-O-2 [18], which might cause a negligible bias.

2.1.2 Exclusion Criteria

- The following tumours are excluded:
    - All types of sarcoma
    - The embryonal neoplasms
    - The extragonadal germ tumours
    - All central nervous system tumours
    - All haematological malignancies
    - Rare skin tumours

2.2 Common versus Rare Cancers

To be able to compare the results for rare cancers to those for common cancers, incidence, trends and survival results are also shown for the common cancers. However, because of the goal of this study to report on rare cancers, rare cancers are described in more detail. This implies that if a top layer (e.g. epithelial tumours of colon) has only common middle layers which can be described (because the rare middle layers hardly contain any patients, e.g. squamous cell carcinoma with variants of colon), only general results and no detailed results are provided.

2.3 Incidence

- Incidence is reported in terms of the raw numbers, the crude rate and the age standardised rate using the world population (WSR).
- An additional column was added next to the incidence rates to indicate whether a cancer type (top or middle layer) is rare (R) or common (C) according to the selection of included incidence years (2001-2010), region (Flemish Region) and sex (both sexes together, males or females) based on the crude rate.

2.4 Trends

- Results are only displayed when at least one patient is diagnosed in each included incidence year.
- Because of the small numbers of patients for several tumours, trends are often calculated making use of the technique of three year moving averages. Using this technique, the preceding and following year are taken into account to calculate the age standardised rates. For example, to calculate the rate for 2004, the years 2003, 2004 and 2005 are taken into account. As a consequence, trend curves become smoother.

2.5 Survival

For all survival analyses reported in this part, a minimum follow-up was guaranteed until June 30, 2012. This implies that for the majority of patients, no complete ten year follow-up was available and censoring was needed. If the 10-year observed and relative survival could not be calculated because none of the patients had a follow-up period of ten years or more, this is indicated with a hyphen ('-'). Because the number of patients with a follow-up of ten years is rather limited (this is only the case for patients diagnosed between January 1, 2001 and June 30, 2002), 10-year survival is only reported for the overall survival and not for the more detailed analyses.

The following survival analyses are reported (not necessary all for all tumours):

- Overall survival: survival for both sexes together. 1-, 3-, 5- and 10-year observed and relative survival results are reported, together with the confidence interval (CI) for the 5-year survival (observed and relative).
- Survival by sex: 1-, 3- and 5-year observed and relative survival by sex, together with the CI for the 5-year survival (observed and relative) are reported.
- Survival by stage: 5-year relative survival analyses were performed for the different stages.
- Survival by age group: 5-year relative survival analyses were performed for three different age groups. The age groups were chosen to have three groups of more or less the same size.

3. Methodology of the Second Part: Clinical Care for Selected Rare Cancers in the Flemish Region, 2004-2007

3.1 Selection of Tumours

3.1.1 Inclusion Criteria

To be able to conduct in depth analyses on the clinical care of rare cancers in the Flemish Region, inclusion criteria for this second part are different from the inclusion criteria for the first part of this study:

- Tumours first diagnosed during the years 2004-2007 (incidence date)
- Patients with their official residence in the Flemish Region

- Eleven tumours were selected based on the RARECARE list (see Appendix A for the selected topography and morphology codes per tumour), according to ICD-O-3 [3]. In alignment with the original project application, the major focus was on cancers of the head and neck region. This reflection led to the following list of studied tumour types:
    - Head and Neck Tumours:
        - Nasopharynx
        - Salivary Glands
        - Hypopharynx
        - Larynx
        - Oropharynx
        - Oral Cavity
        - Lip
    - Anal Canal
    - Vulva
    - Vagina
    - Mesothelioma

3.1.2 Exclusion Criteria

The following tumours were excluded:

- Patients without a national security number (INSZ) available
- Second and subsequent tumours. For each person, only the first diagnosed cancer (known to the Belgian Cancer Registry, non-melanoma skin cancers not taken into account) was considered for the analyses.
- Cases with a date of diagnosis equal to the date of death
- Patients younger than 15 years because treatment in children can differ from treatment in adults
- Patients that could not be linked with the health insurance data

3.2 Linkage of Cancer Registry Data with Health Insurance Data

To enable analyses on the diagnosis and treatment of the patients, the BCR data are linked to the health insurance data. Since 2009, the Belgian Cancer Registry is authorised to link data from the BCR database with data on cancer-related diagnostic and therapeutic procedures and pharmaceuticals [19], which are obtained from all seven Belgian health insurance companies (HIC) via the Intermutualistic Agency (IMA/AIM). Via this linkage procedure, the Cancer Registry receives for each registered patient, health insurance data starting from January 1 of the year preceding the incidence year, until December 31 of the third year after the incidence year (further mentioned as HIC data). At the start of the final analyses, HIC data were available to the Cancer Registry until 2009. Because at least two years of follow-up could be guaranteed for each individual patient, it was decided that the available HIC data were sufficient to analyse the clinical care.

3.3 Limitations Concerning the Use of Health Insurance Data to Analyse Clinical Care

The use of HIC data to analyse the medical acts concerning diagnosis and treatment of cancer patients has some limitations. A first limitation is that only medical acts that are charged are available in the HIC data. For example, acts that are not charged because they took place in the context of a sponsored clinical study are not available in the HIC dataA second limitation is that the description of the registered medical acts does not directly refer to the diagnosis. A third shortcoming is that small deviations are possible in both the incidence date and the date of invoice of the medical act. To overcome the two latter limitations, timeframes are used to restrict the possibility of including medical acts that were conducted for other purposes than the ones of interest.

For diagnosis and staging, a timeframe of three months before until three months after the incidence date is taken (one month is always defined as 30 days). For the medical oncological consult (MOC), a timeframe of one month before until three months after the incidence date is taken. The timeframes taken into account for treatment (surgery, radiotherapy and chemotherapy) are different per tumour type and are therefore summarized in Appendix C. When multiple acts took place, the act closest to the incidence date is always chosen. It should be noted that for radiotherapy, the date of the last radiotherapy session is registered in the HIC data. For MOC and treatment acts, priority is given for those acts that took place from one month before the incidence date onwards.

Nomenclature codes were selected for all studied medical acts per tumour, and are reported in Appendix D. It should be noted that nomenclature codes are often rather unspecific and can be used for different techniques or different parts of the body. For example, no specific nomenclature codes are available for a CT scan of the neck or the thorax: for both regions, the same code is registered. On the other hand, no specified code is available for some medical acts. In sum, the use of health insurance data gives a good indication of the medical acts that took place but may show some minor deviations to the true values.

3.4 Patient Characteristics

Incidence is reported both in terms of the raw numbers, but also in terms of age standardised rates, using the European Standard Population (ESR). Analyses of incidence by sex (if applicable) and by age group are presented.

3.5 Tumour Characteristics

- Sublocalisation is reported based on the ICD-10 codes [20].
- The observed morphology codes are grouped into morphology groups. For an overview of the observed morphology codes per tumour: see Appendix B.

3.6 Diagnostic and Staging Procedures

For each tumour, all diagnostic and staging procedures are reported for the whole observation period, and by incidence year. It should be noted that for histological diagnosis, both nomenclature codes for taking biopsies and codes for the anatomo-pathological examination are included.

3.7 Multidisciplinary Oncological Consult

For each tumour, the proportion of patients discussed at a multidisciplinary oncological consult is calculated for the whole observation period, and by incidence year.

3.8 Therapeutic Procedures

3.8.1 Surgery

Different types of surgery are included for the different tumours. For most of the tumours, these can be divided into major surgery, minor surgery and lymphadenectomy. The nomenclature codes for the surgeries that are included in these three categories can be found in Appendix D. Within each type of surgery, the surgery closest to the incidence date is selected (with a restriction that the surgery could not have had taken place more than one month before the incidence date).When different types of surgery had taken place (e.g. major surgery and lymphadenectomy), priority rules are used to choose one of the surgeries (as such, only one surgery is withheld for each patient). Major surgery always received priority when performed within the studied timeframe because this type of surgery is most likely used for curative purposes. Minor surgeries received less priority because these surgeries are more aspecific (e.g. no localisation is defined in the nomenclature code) and can be done for diagnostic purposes. Therefore, these minor surgeries are only taken into account when no major surgery was performed within the timeframe.

Lymphadenectomies can most of the time not be curative on their own, but may be performed together with a curative surgery. Because only one surgery (the one with the highest reimbursement) can be charged when different surgeries have taken place together in the same anatomical region [21], it is possible that the curative surgery was not registered in the HIC data. Therefore for all head and neck cancers except nasopharynx and lip, patients without major surgery but with a lymphadenectomy are also considered to have undergone surgery. These surgeries are taken into account with a lower priority. When both a minor surgery and a lymphadenectomy took place within the timeframe, the surgery closest to the incidence date is selected.

An exception to these rules is laryngeal cancer for which minor surgeries are regarded as important as major surgeries and are therefore treated with the same priority. When both a major and a minor surgery took place within the defined timeframe, the surgery closest to the incidence date was selected. When none of them took place, lymphadenectomies are taken into.

A second exception is salivary glands cancer, for which the surgeries are divided into salivary gland surgery and head and mouth surgery. In line with laryngeal cancer, both types of surgeries are treated with the same priority. When both types of surgery took place within the defined timeframe,

the surgery closest to the incidence date was selected. When none of them took place, lymphadenectomies are taken into.

For lip cancer, no distinction was made between major and minor surgery. However, nomenclature codes for surgery were taken together with codes for plastic surgery (Appendix D). The decision to group these codes has been made because for several patients, nomenclature codes for plastic surgery were found within the studied timeframe, without the occurrence of nomenclature codes for oncological surgery. Plastic surgery in lip cancer patients without oncological surgery is very unlikely. Therefore, it is supposed that also these patients had received oncological surgery at the time of plastic surgery or before. For lip cancer, lymphadenectomies are not taken into account for surgery.

For anal canal cancer and nasopharyngeal cancer which are both primarily treated with radiotherapy, surgery is studied in relation to radiotherapy (i.e. before or after radiotherapy). For vagina, surgery and radiotherapy are regarded independently.

3.8.2 Radiotherapy (RT)

Radiotherapy is (unless otherwise stated) analysed for all types of RT (external RT, brachytherapy and combined external and brachytherapy) together. The timeframes used to study RT are different for the different tumours and are reported in Appendix C.

3.8.3 Chemotherapy

Chemotherapy products are selected based on the ATC (Anatomical Therapeutic Chemical Classification System) codes. For this study, all cytostatics (level L01) are included for analyses. For an overview of all included products, see Appendix D. For an overview of all timeframes used to study chemotherapy for the different tumours, see Appendix C.

3.8.4 Treatment Schemes

Information on surgery, radiotherapy and chemotherapy is combined into treatment schemes. The description of treatment schemes differs for the different tumours and is based on the literature. Only treatment schemes that were observed are presented. It should be noted that based on the nomenclature, it is very difficult to find out whether for a patient who underwent both radiotherapy and chemotherapy this is given in the setting of concomitant chemoradiotherapy. Therefore, we report that the patient has had chemoradiotherapy when both chemotherapy and radiotherapy took place within the predefined timeframe.

3.9 Survival

For all survival analyses reported in this part, a minimum follow-up was guaranteed until May 18, 2013. This implies that for all patients, a complete five year follow-up was available and censoring was only needed for patients lost to follow-up within the first five years after diagnosis. Additionally to the above mentioned exclusion criteria for this part of the study, patients who were lost to follow-up at the day of incidence were removed from the survival analyses.

The following survival analyses are reported when at least two subgroups have a number at risk of 35 patients or more:

- Overall survival: survival for both sexes together
- Relative survival by sex (if applicable)
- Relative survival by age group
- Relative survival by stage
- Relative survival by sublocalisation (ICD-10)
- Relative survival by primary treatment

3.10 Analyses by Volume

3.10.1 Assignment of Each Patient to One Centre

To analyse hospital volume, it was for methodological reasons necessary to identify one centre per patient, although patients might have consulted different physicians in different hospitals. Specific algorithms were designed to identify for each patient the centre with the most important impact on the quality of care. The following medical acts were taken into account in the algorithms:

- Surgery (major surgery, minor surgery and lymphadenectomy)
- Radiotherapy
- Chemotherapy
- The centre were the patient was discussed at a MOC

For each type of those medical acts the identified centre was the one where the medical act that was closest to the incidence date (or the date of major surgery in case of adjuvant treatment) and within a certain timeframe around the incidence date (or date of major surgery) was performed (Appendix C). When both neoadjuvant and adjuvant chemotherapy, or both neoadjuvant and adjuvant radiotherapy were performed in a different centre, the centre of the neoadjuvant therapy prevailed over the centre of the adjuvant therapy. For tumours for which the primary treatment was radiotherapy, the surgery or chemotherapy conducted before RT received priority above the surgery or chemotherapy performed after RT if both took place in a different centre.

Hospital merges were taken into account until the end of the most recent incidence year that was included in this study, i.e. December 2007.

A set of rules was used to assign each patient to one centre. The order indicates the priority between the rules (1 = highest priority):

1. When only one centre could be identified for surgery, chemotherapy, radiotherapy and/or discussion at the multidisciplinary oncological consult (MOC), this centre was always chosen (NB: to apply this rule, not all of these medical acts should have taken place)

If more than one centre was identified for these acts:

2. The centre where the major surgery (if applicable) took place was chosen.
3. The centre where RT took place.
4. The centre where minor surgery or lymphadenectomy took place when no major surgery was performed.
5. The centre where chemotherapy took place.

An exception to these rules is nasopharyngeal cancer, for which the second rule was not applied. The other rules are applied in the same order, and all nasopharyngeal surgeries are treated as minor surgeries or lymphadenectomies in the centre assignment. Another exception is lip cancer, for which all surgeries are taken into account in the second rule and the fourth rule was not taken into account. For salivary gland cancer, the second rule applies for salivary gland surgery and for head and mouth surgery while the fourth rule only applies for lymphadenectomies.

3.10.2 Analyses by Volume

To compare the volume of the different hospitals, all Flemish centres were selected. However, as it is possible that patients with an official residence in the Brussels-Capital Region or in the Walloon Region are treated in Flemish centres, these patients are also taken into account in the calculation of the centre's volume.

To study whether the volume of the centre has an influence on the treatment of the patient, centres are divided into high-volume and low-volume centres. Because the literature concerning the threshold to consider a centre as high- or low-volume is scarce , the threshold is arbitrarily set for each tumour with a minimum of ten patients per year (40 patients for the period 2004-2007). Tumours for which none or only one of the centres has treated ten or more patients per year are not divided into high- and low-volume hospitals and therefore no further analyses were performed. Because RT got a rather high priority in the rules to assign a patient to a centre, RT- centres are often over represented in the group of high-volume centres. This may to some extent influence the results.

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Belgian Cancer Registry

PART III

RARE CANCERS IN THE FLEMISH REGION, 2001-2010: INCIDENCE, TRENDS AND SURVIVAL

CHAPTER 1. RARE TUMOURS OF HEAD AND NECK

1. Epithelial Tumours of Nasal Cavity and Sinuses

1.1 General Results

Table 1. Epithelial Tumours of Nasal Cavity and Sinuses: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF NASAL CAVITY AND SINUSES	R	268	0.44	0.25	64	5.3	0.024	218	50.7
Squamous cell carcinoma with variants of nasal cavity and sinuses	R	184	0.30	0.16	65	0.6	0.869	156	51.5
Lymphoepithelial carcinoma of nasal cavity and sinuses	R	9	0.01	0.01	61	*	*	7	*
Undifferentiated carcinoma of nasal cavity and sinuses	R	21	0.03	0.02	57	*	*	18	*
Intestinal type adenocarcinoma of nasal cavity and sinuses	R	30	0.10	0.06	63	*	*	28	*
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF NASAL CAVITY AND SINUSES	R	192	0.64	0.37	64	3.9	0.105	165	53.0
Squamous cell carcinoma with variants of nasal cavity and sinuses	R	131	0.44	0.24	66	-2.4	0.482	114	55.7
Lymphoepithelial carcinoma of nasal cavity and sinuses	R	5	0.02	0.01	57	*	*	4	*
Undifferentiated carcinoma of nasal cavity and sinuses	R	17	0.06	0.04	56	*	*	15	*
Intestinal type adenocarcinoma of nasal cavity and sinuses	R	30	0.10	0.06	63	*	*	28	*
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF NASAL CAVITY AND SINUSES	R	76	0.25	0.14	65	11.8	0.102	53	44.0
Squamous cell carcinoma with variants of nasal cavity and sinuses	R	53	0.17	0.10	64	15.6	0.138	42	40.6
Lymphoepithelial carcinoma of nasal cavity and sinuses	R	4	0.01	0.01	67	*	*	3	*
Undifferentiated carcinoma of nasal cavity and sinuses	R	4	0.01	0.01	64	*	*	3	*
Intestinal type adenocarcinoma of nasal cavity and sinuses	R	0	-	-	-	-	-	0	-

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

1.2 Incidence

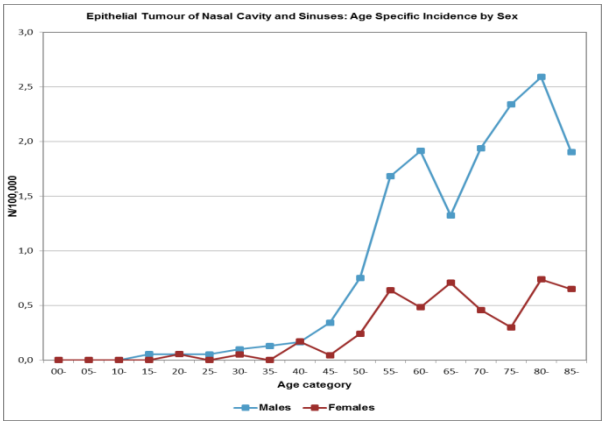
- 268 new epithelial tumours of the nasal cavity and sinuses are diagnosed in the Flemish Region between 2001 and 2010.
- More males are diagnosed than females (M/F ratio = 5.0).

Table 2. Epithelial Tumours of Nasal Cavity and Sinuses: Morphological Distribution by Localisation.

Nasal cavity and sinuses - Middle layer	Nasal cavity & sinuses		Nasal cavity		Sinuses	
Squamous cell carcinoma with variants	184	75.4%	66	82.5%	118	72.0%
Lymphoepithelial carcinoma	9	3.7%	2	2.5%	7	4.3%
Undifferentiated carcinoma	21	8.6%	2	2.5%	19	11.6%
Intestinal type adenocarcinoma	30	12.3%	10	12.5%	20	12.2%

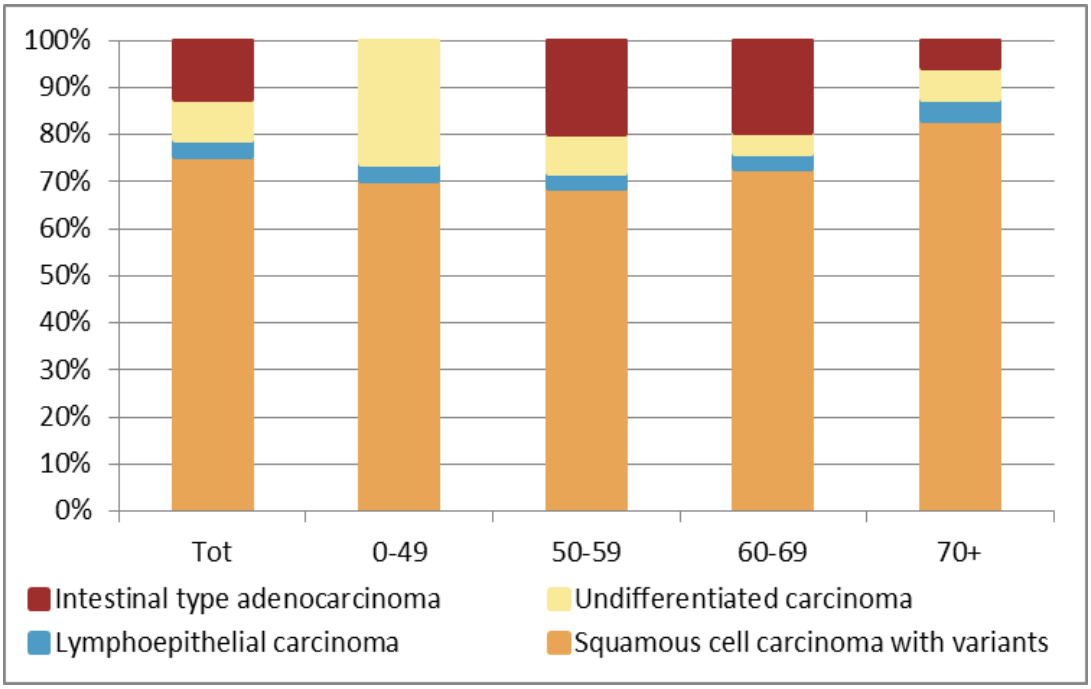
- RARECARE defines four rare tumour entities of nasal cavity and sinuses.
  - Squamous cell carcinoma with variants is the most frequent subtype and accounts for 75% of all diagnoses. At the sinuses they account for 72% of the cases, in the nasal cavity they represent more than 80% of all diagnoses.
  - Intestinal type adenocarcinoma is the 2nd most frequent entity (11%) and is only diagnosed in males.
  - Undifferentiated carcinomas (8.6%) are more frequently diagnosed at the sinuses than in the nasal cavity.
  - Lymphoepithelial carcinomas are the least common entity and represent 4% of all diagnoses in the nasal cavity and sinuses.

Figure 1. Epithelial Tumours of Nasal Cavity and Sinuses: Age Specific Incidence by Sex



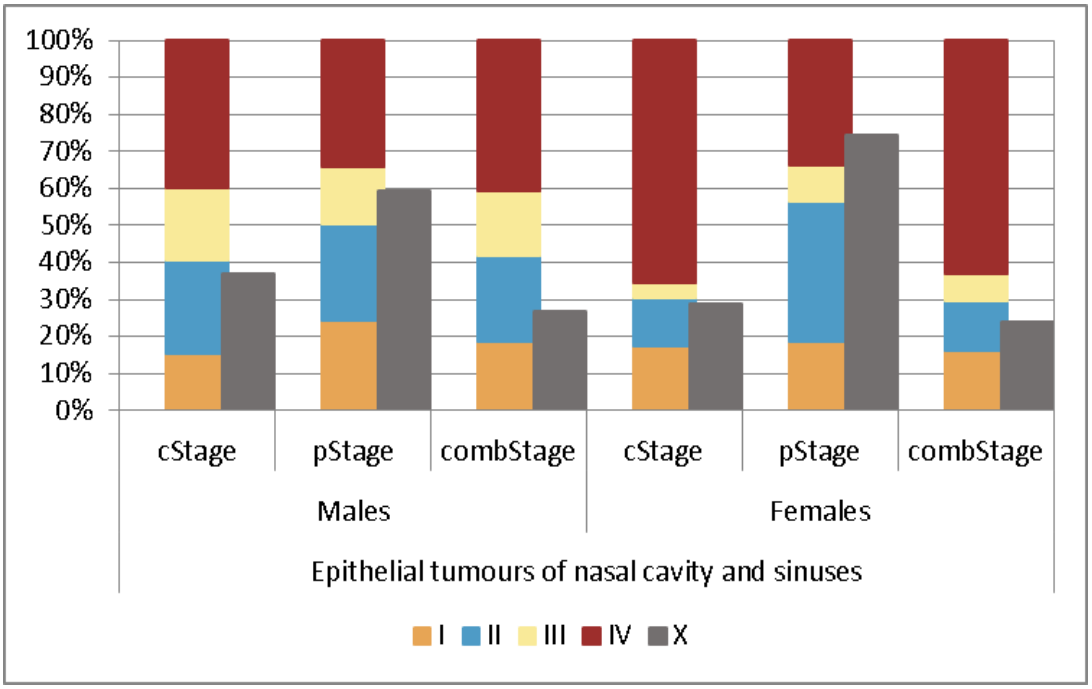
- From the age of 50 years, incidence rates increase with age. This increase is more pronounced in males than females.

Figure 2. Epithelial Tumours of Nasal cavity and Sinuses: Histology Distribution by Age Group



- Intestinal type adenocarcinoma is most frequently seen in the age groups 50-59 and 60-69 years and is not seen in the age group 0-49 years.
- Squamous cell carcinoma represents the most common entity in all age groups.
- Lymphoepithelial carcinoma seldom occurs in any age group.
- The highest percentage of undifferentiated carcinoma is observed in patients younger than 50 years.

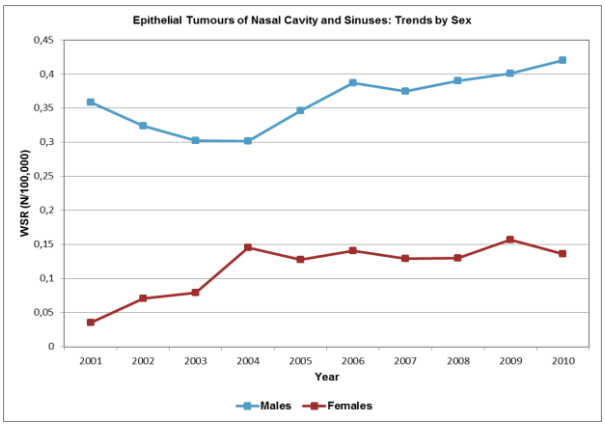
Figure 3. Epithelial Tumours of Nasal Cavity and Sinuses: Stage Distribution by Sex



- Information on pathological stage is missing in 60-70% of all tumours of nasal cavity and sinuses. Clinical stage information is missing in 30-35%.
- Clinical stage IV is more frequently seen in females but pathological stage IV is comparable between males and females.

1.3 Trends

Figure 4. Epithelial Tumours of Nasal Cavity and Sinuses: Trends by Sex (three year moving averages)



- Incidence rates for epithelial tumours of nasal cavity and sinuses reveal no significant trend in males, for females they increase annually with 10%.

1.4 Survival

1.4.1 Overall Survival

Table 3. Epithelial Tumours of Nasal Cavity and Sinuses - Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF NASAL CAVITY AND SINUSES	218	75.2	57.2	45.1	33.3	[37.7 ; 52.2]	77.4	61.3	50.7	44.5	[42.4 ; 58.7]
Squamous Cell Carcinoma with variants	156	75.0	55.1	45.2	31.5	[36.6 ; 53.4]	77.1	59.5	51.5	43.8	[41.6 ; 60.9]
Lymphoepithelial carcinoma	7	*	*	*	*	*	*	*	*	*	*
Undifferentiated carcinima	18	*	*	*	*	*	*	*	*	*	*
Intestinal type adenocarcinoma	28	*	*	*	*	*	*	*	*	*	*

- Epithelial tumours of the nasal cavity and sinuses have a moderate prognosis, with a 5-year relative survival of a little more than 50%.

1.4.2 Survival by Sex

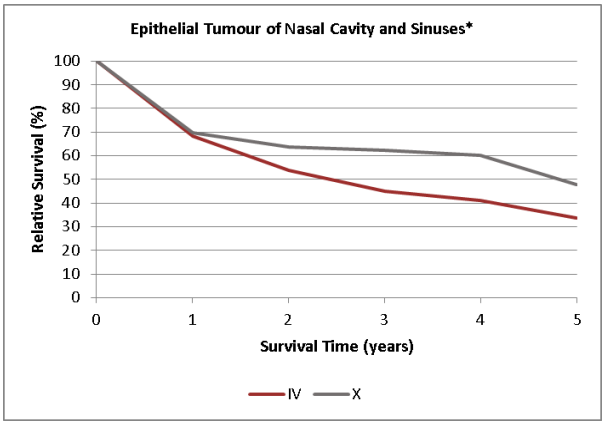
Table 4. Epithelial Tumours of Nasal Cavity and Sinuses - Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF NASAL CAVITY AND SINUSES	165	76.4	56.3	46.6	[38.1 ; 54.6]	78.6	60.7	53.0	[43.3 ; 62.1]
Squamous Cell Carcinoma with variants	114	74.6	52.8	47.9	[38.0 ; 57.2]	76.9	57.6	55.7	[44.1 ; 66.5]
Lymphoepithelial carcinoma	4	*	*	*	*	*	*	*	*
Undifferentiated carcinima	15	*	*	*	*	*	*	*	*
Intestinal type adenocarcinoma	28	*	*	*	*	*	*	*	*
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF NASAL CAVITY AND SINUSES	53	71.7	59.9	40.4	[25.5 ; 54.8]	73.5	63.2	44.0	[27.8 ; 59.6]
Squamous Cell Carcinoma with variants	42	76.2	61.1	37.2	[21.1 ; 53.4]	77.7	64.4	40.6	[23.1 ; 58.1]
Lymphoepithelial carcinoma	3	*	*	*	*	*	*	*	*
Undifferentiated carcinima	3	*	*	*	*	*	*	*	*
Intestinal type adenocarcinoma	0	-	-	-	-	-	-	-	-

Prognosis is clearly better in males although caution has to be taken because of the small number of involved females.

1.4.3 Survival by Stage

Figure 5. Epithelial Tumours of Nasal Cavity and Sinuses - Relative Survival by Stage

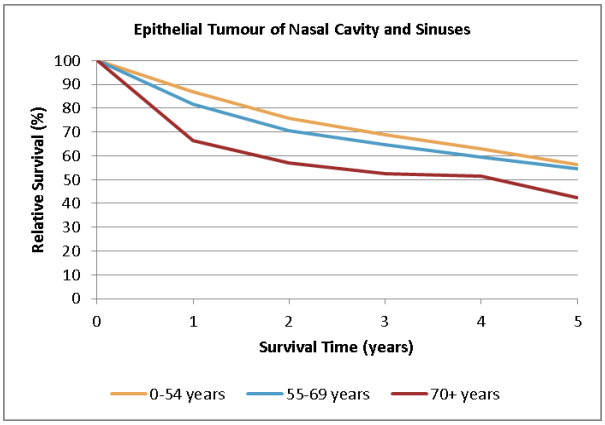


* Survival of Stage I, II, III is not shown because the number at risk is smaller than 35.

- There is a difference of almost 15% in the 5-year relative survival between the “unknown” stage and the stage IV group.

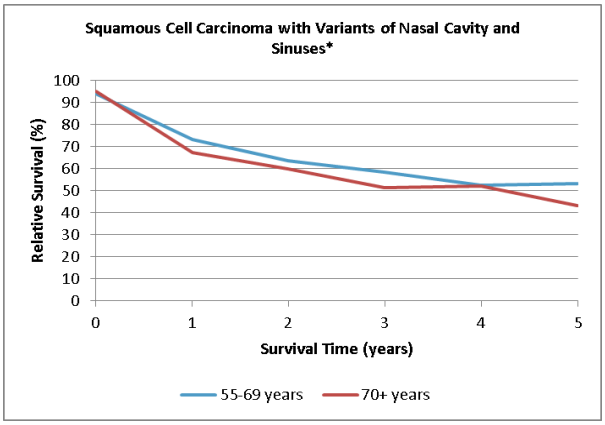
1.4.4 Survival by Age Group

Figure 6. Epithelial Tumours of Nasal Cavity and Sinuses - Relative Survival by Age Group



- The relative survival between the 0-54 and 55-69 years group is comparable.
- There is a difference in relative survival over 5 year of almost 10% between the 2 youngest and the oldest group.

Figure 7. Squamous Cell Carcinoma with Variants of Nasal Cavity and Sinuses - Relative Survival by Age Group



* Survival of the age group 0-54 years is not displayed because the number at risk is smaller than 35.

- For the patients of 70 years and older, tumours of the nasal cavity and sinuses are squamous cell carcinoma have a similar prognosis as the same age group for all epithelial tumours together.
- In the age-group 55-69 years, survival is worse than survival for the same age group for all epithelial tumours together.

2. Epithelial Tumours of Nasopharynx

2.1 General Results

Table 5. Epithelial Tumours of Nasopharynx: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF NASOPHARYNX	R	236	0.39	0.26	57	2.6	0.135	210	57.0
Squamous cell carcinoma with variants of nasopharynx	R	219	0.36	0.25	57	5.2	0.024	196	58.3
Papillary adenocarcinoma of nasopharynx	R	1	0.00	0.00	69	*	*	1	*
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF NASOPHARYNX	R	183	0.61	0.42	57	1.4	0.459	160	54.9
Squamous cell carcinoma with variants of nasopharynx	R	173	0.58	0.40	57	3.1	0.130	152	56.3
Papillary adenocarcinoma of nasopharynx	R	0	-	-	-	-	-	0	-
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF NASOPHARYNX	R	53	0.17	0.12	57	7.1	0.135	50	63.9
Squamous cell carcinoma with variants of nasopharynx	R	46	0.15	0.10	56	13.9	0.022	44	65.9
Papillary adenocarcinoma of nasopharynx	R	1	0.00	0.00	69	*	*	1	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

2.2 Incidence

- 236 new epithelial tumours of the nasopharynx are diagnosed in the Flemish Region between 2001 and 2010.
- Males are more frequently diagnosed with a nasopharyngeal epithelial tumour than females (M/F ratio = 3.6).

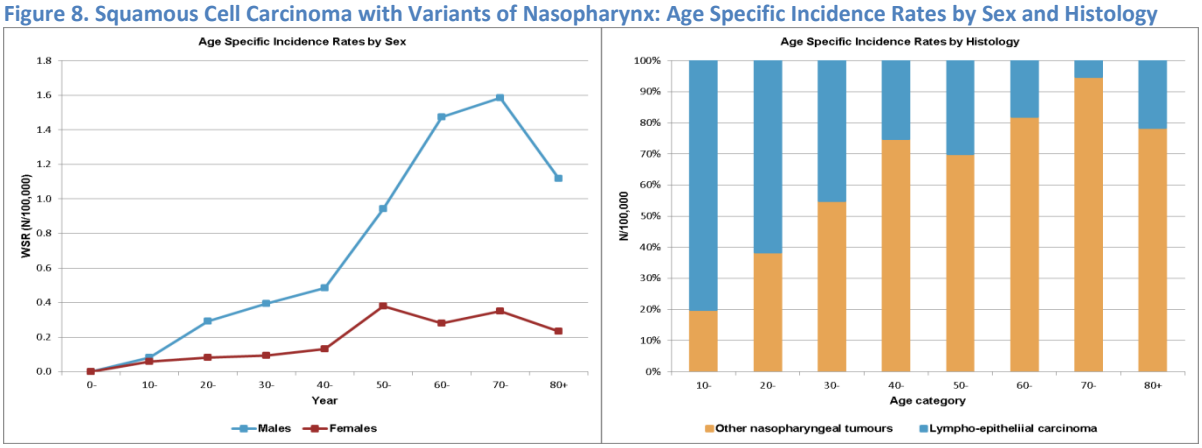
Table 6. Epithelial Tumours of Nasopharynx: Histological Distribution by Sex

Flemish Region 2001-2010	Males		Females	
Squamous cell carcinoma with variants of nasopharynx	173		46	
Squamous carcinoma, NOS	83	48.0%	24	52.2%
Squamous cell carcinoma nonkeratinizing, NOS	18	10.4%	3	6.5%
Squamous cell carcinoma keratinizing, NOS	6	3.5%	2	4.3%
Papillary squamous cell carcinoma	-	-	-	-
Basaloid squamous cell carcinoma	-	-	-	-
Squamous cell carcinoma, adenoid	-	-	-	-
Lymphoepithelial carcinoma	42	24.3%	15	32.6%
Undifferentiated carcinoma	16	9.2%	2	4.3%
Verrucous carcinoma	1	0.6%	-	-
Squamous cell carcinoma, small cell, nonkeratinizing	6	3.5%	-	-
Carcinosarcoma, NOS	1	0.6%	-	-

- RARECARE defines two rare tumour entities of the nasopharynx:
  - Papillary adenocarcinoma is only diagnosed once in the Flemish Region between 2001 and 2010.

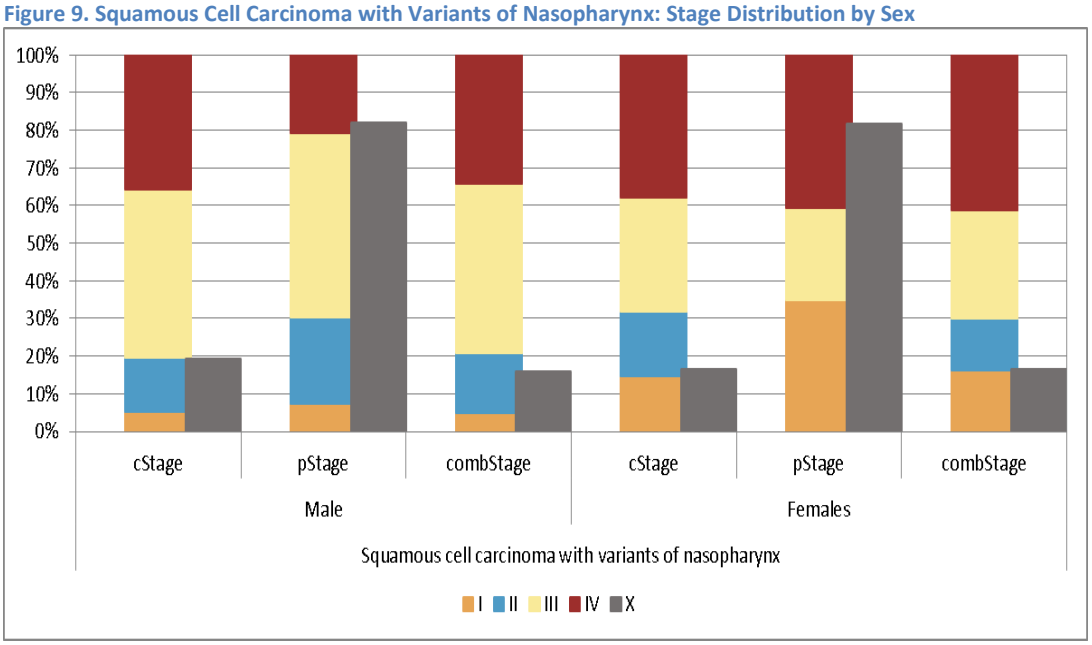
- Squamous cell carcinoma represents almost all nasopharyngeal epithelial tumours.
  - Half of the squamous cell carcinoma are NOS.
  - One out of four male and one out of three female nasopharyngeal squamous cell carcinomas are lymphoepithelial carcinomas.

Figure 8. Squamous Cell Carcinoma with Variants of Nasopharynx: Age Specific Incidence Rates by Sex and Histology



- Nasopharyngeal carcinoma occur already at an early age.
- After the age of 40 years, incidence rates increase rapidly in males. In females, the age specific rates remain more stable.
- The tumours in younger patients (< 40 years) are more frequently lymphoepithelial carcinoma. The percentage of lymphoepithelial carcinoma decreases with age category.

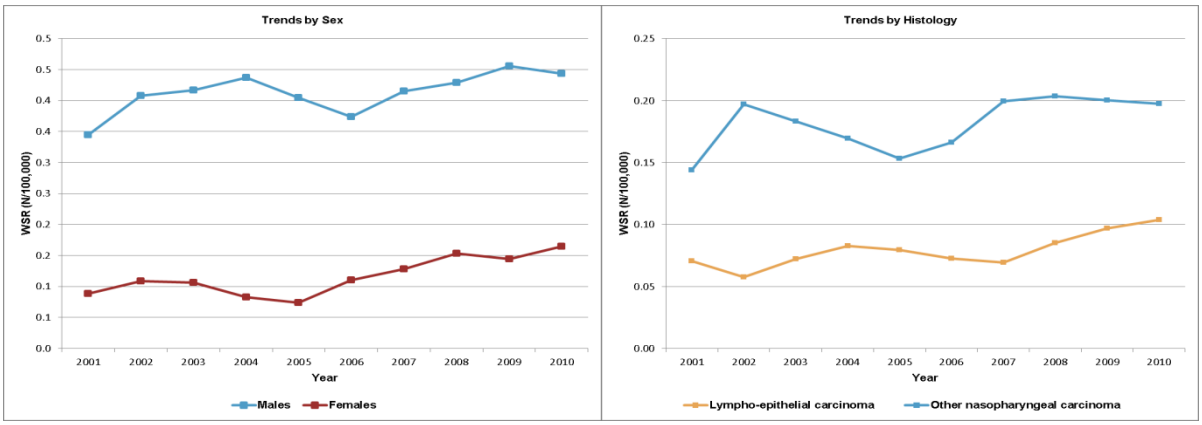
Figure 9. Squamous Cell Carcinoma with Variants of Nasopharynx: Stage Distribution by Sex



- Information on pathological stage is missing in 80% of all diagnoses, while clinical information on stage is available in 80% of the tumours.
- For males, there are somewhat more stage III and less stage I diagnoses compared to the female stage distribution.

2.3 Trends

Figure 10. Epithelial Tumours of Nasopharynx: Age-Standardised Incidence Rates by Sex and Histology (three year moving averages)



- Incidence rates increase for epithelial tumours of nasopharynx in males and females but no significant trend is observed.
- For lymphoepithelial carcinoma, a significant annual increase is observed (EAPC = 6.2% [p = 0.048]). Other types combined show a non-significant increase with 1.4% (p = 0.627).

2.4 Survival

2.4.1 Overall Survival

Table 7. Epithelial Tumours of Nasopharynx - Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF NASOPHARYNX	210	84.2	63.7	53.4	38.0	[45.6 ; 60.5]	85.4	66.2	57.0	42.5	[48.7 ; 64.5]
Squamous cell carcinoma with variants	196	84.6	65.2	54.6	37.0	[46.5 ; 62.1]	85.8	67.9	58.3	41.3	[49.6 ; 66.2]
Papillary adenocarcinoma	1	*	*	*	*	*	*	*	*	*	*

- Epithelial tumours of nasopharynx, almost fully represented by squamous cell carcinoma with variants, have a 5-year observed survival of 53.4% and a 5-year relative survival of 57.0%.

2.4.2 Survival by Sex

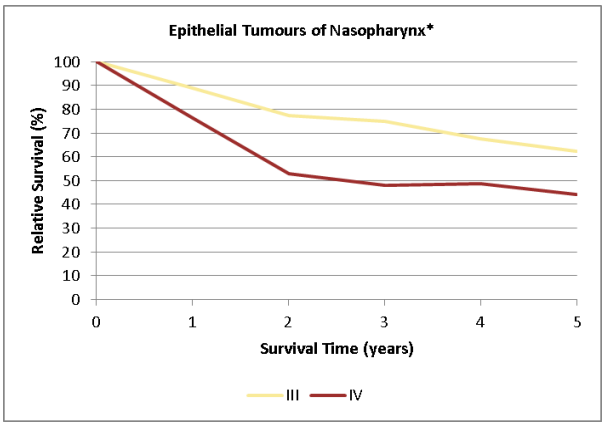
Table 8. Epithelial Tumours of Nasopharynx - Survival by Sex

	N	Observed Survival				Relative Survival			
Males	at risk	1 year	3 year	5 year	5 year CI	1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF NASOPHARYNX	160	84.3	62.6	51.2	[42.2 ; 59.4]	85.6	65.3	54.9	[45.3 ; 63.7]
Squamous cell carcinoma with variants	152	84.8	64.7	52.5	[43.2 ; 60.9]	86.1	67.5	56.3	[46.4 ; 65.3]
Papillary adenocarcinoma	0	-	-	-	-	-	-	-	-
	N	Observed Survival				Relative Survival			
Females	at risk	1 year	3 year	5 year	5 year CI	1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF NASOPHARYNX	50	84.0	66.8	61.2	[45.2 ; 73.7]	85.0	68.9	63.9	[47.2 ; 77.0]
Squamous cell carcinoma with variants	44	84.1	66.7	63.2	[46.0 ; 76.2]	85.1	68.9	65.9	[48.0 ; 79.7]
Papillary adenocarcinoma	1	*	*	*	*	*	*	*	*

- Survival is better in females, although caution has to be taken because the small numbers of females. This difference in survival becomes more pronounced with increasing time interval.

2.4.3 Survival by Stage

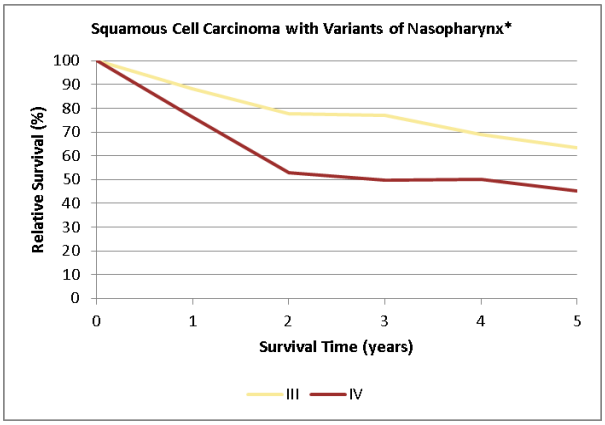
Figure 11. Epithelial Tumours of Nasopharynx – Relative Survival by Stage



* Survival of Stage I, II and X is not shown because the number at risk is smaller than 35.

- Stage III disease has a significantly better prognosis than stage IV. There is a difference in 5-year relative survival of more than 15%.

Figure 12. Squamous Cell Carcinoma with Variants of Nasopharynx – Relative Survival by Stage

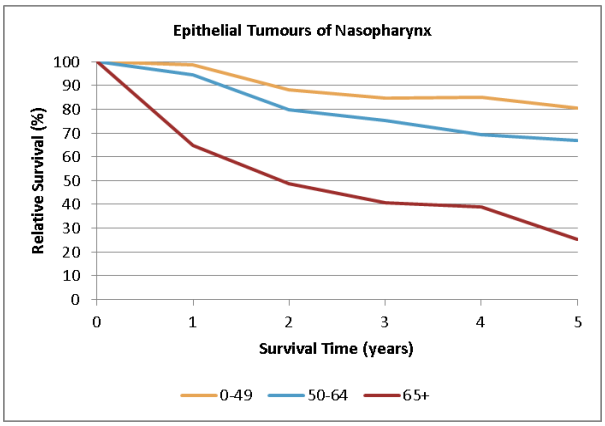


* Survival of Stage I, II and X is not shown because the number at risk is smaller than 35.

- Because almost all patients with an epithelial tumour of the nasopharynx are diagnosed with a squamous cell carcinoma, survival by stage is very similar to the results for all epithelial tumours of the nasopharynx together.

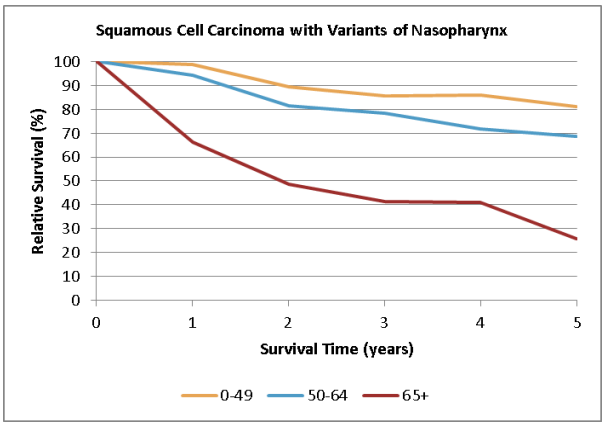
2.4.4 Survival by Age Group

Figure 13. Epithelial Tumours of Nasopharynx – Relative Survival by Age Group



- There is a distinct difference in survival between the age groups. The youngest age group (0-49 years) has the best prognosis, the oldest age group (65+ years) the worst. There is a difference in 5-year relative survival of more than 50% between them.

Figure 14. Squamous Cell Carcinoma with Variants of Nasopharynx – Relative Survival by Age Group



- Because almost all patients with an epithelial tumour of the nasopharynx are diagnosed with a squamous cell carcinoma, survival by age group is very similar to the results for all epithelial tumours of the nasopharynx together.

3. Epithelial Tumours of Major Salivary Glands and Salivary-Gland Type Tumours

3.1 General Results

Table 9. Epithelial Tumours of Major Salivary Glands and Salivary-Gland Type Tumours: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF MAJOR SALIVARY GLANDS AND SALIVARY-GLAND TYPE TUMOURS	R	1,103	1.81	1.05	63	1.0	0.292	1,027	66.8
Epithelial tumours of major salivary glands	R	637	1.05	0.60	64	3.0	0.093	588	67.3
Salivary gland type tumours of head and neck	R	466	0.77	0.45	63	-2.3	0.234	439	66.2
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF MAJOR SALIVARY GLANDS AND SALIVARY-GLAND TYPE TUMOURS	R	531	2.38	1.41	64	-0.7	0.880	657	63.1
Epithelial tumours of major salivary glands	R	359	1.20	0.69	65	1.0	0.622	322	62.7
Salivary gland type tumours of head and neck	R	355	1.18	0.71	63	-9.5	0.095	335	63.3
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF MAJOR SALIVARY GLANDS AND SALIVARY-GLAND TYPE TUMOURS	R	373	1.26	0.75	61	3.4	0.069	370	73.3
Epithelial tumours of major salivary glands	R	278	0.90	0.54	61	5.8	0.066	266	72.4
Salivary gland type tumours of head and neck	R	111	0.36	0.21	62	-0.8	0.846	104	75.4

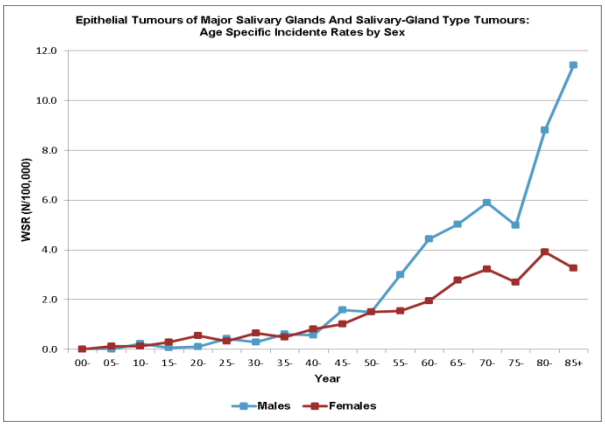
R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

3.2 Incidence

- 1,103 new epithelial tumours of salivary glands and salivary gland tumours are diagnosed in the Flemish Region between 2001 and 2010.
- Slightly more males are diagnosed than females (M/F ratio = 1.9).
- RARECARE defines two rare tumour entities:
    - Epithelial tumours of major salivary glands is the most common entity (58% of all diagnoses).
        - In males, three out of four diagnoses are found in the parotid gland and are primarily squamous carcinoma NOS or adenocarcinoma NOS.
        - In females, parotid gland tumours are often acinic cell adenocarcinoma or mucoepidermoid carcinoma.
        - Salivary gland tumours (C08) are more common in females than in males, primarily because of a higher number of mucoepidermoid carcinoma.

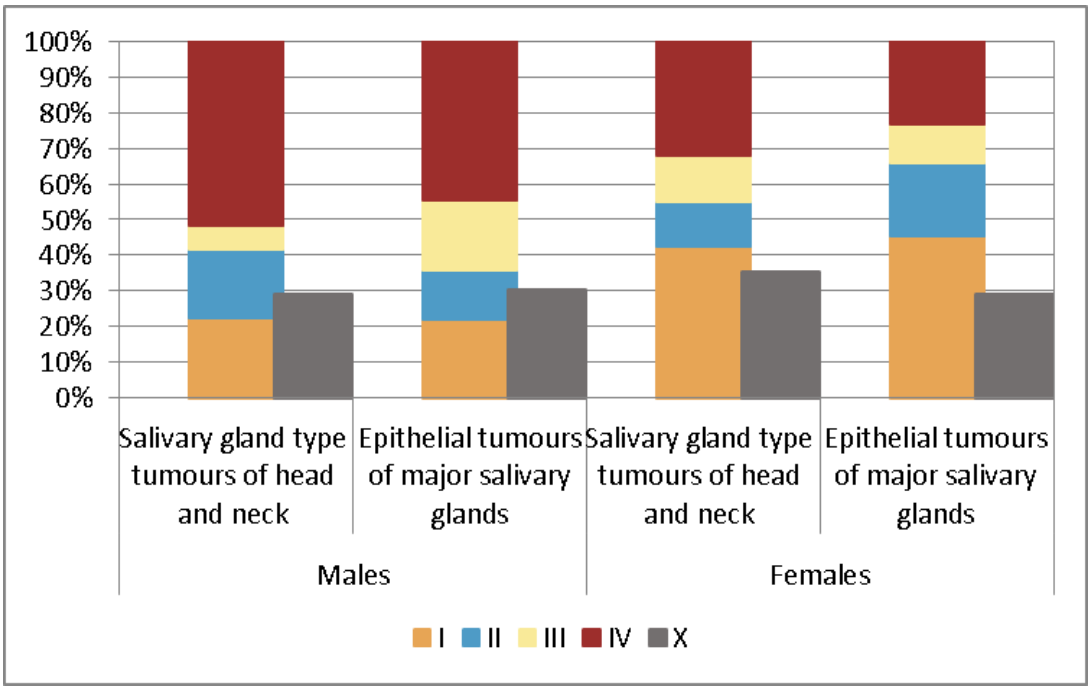
    - Salivary gland type tumours of head and neck represent one third of the diagnoses.
        - In males the dominant histological subtype is mucinous adenocarcinoma, in females this is adenoid cystic carcinoma.
        - The tumours most often originate from the sinuses in males and the palatum in females.

Figure 15. Epithelial Tumours of Major Salivary Glands and Salivary Gland Type Tumours: Age Specific Incidence Rates by Sex



- Incidence rates increase gradually from young adults until the age of 50 years. For these ages, no difference is observed between males and females.
- From the age of 50 years, incidence rates in males increase more rapidly than in females.

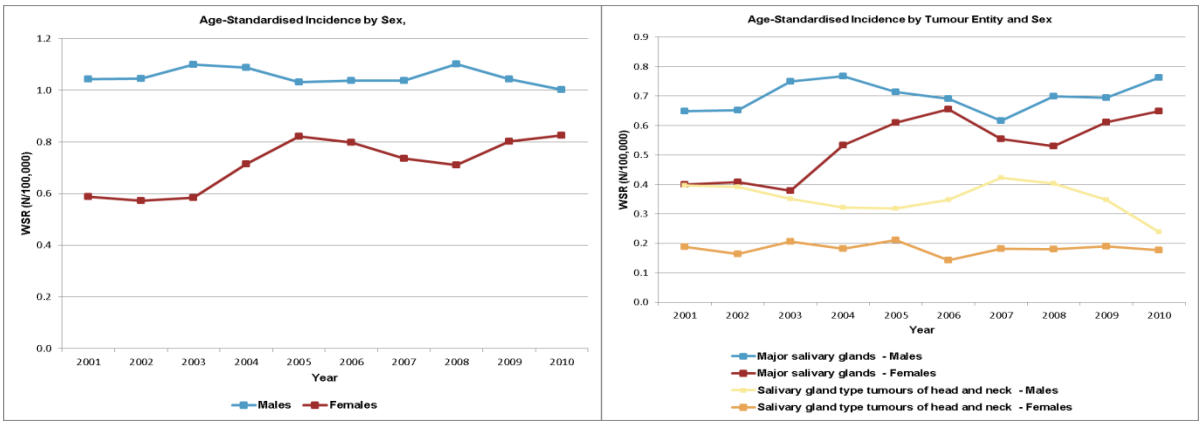
Figure 16. Epithelial Tumours of Major Salivary Glands and Salivary Gland Type Tumours: Stage Distribution by Morphology and Sex



- Males are less often diagnosed in stage I and more in stage IV than females. Stage distribution between salivary gland type tumours and tumours of major salivary glands is comparable.

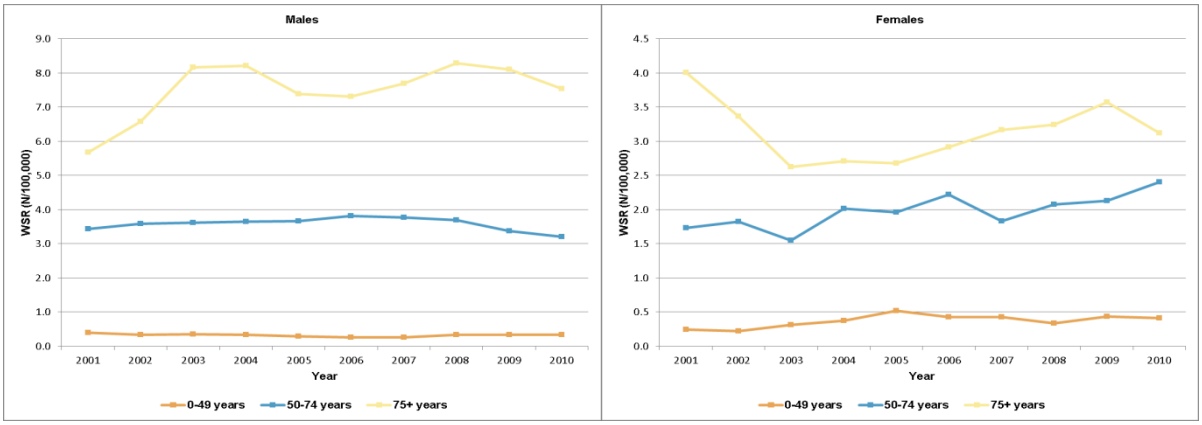
3.3 Trends

Figure 17. Epithelial Tumours of Salivary Glands and Salivary Gland Tumours : Age-Standardised Incidence by Sex and by Tumour Entity and Sex (three year moving averages)



- Incidence rates for epithelial tumours of salivary glands and salivary gland tumours reveal no significant trend in males. For females, rates increase (non-significantly) with 4% each year.
- The increase in females is mainly observed for tumours of major salivary glands.

Figure 18. Age Standardised Incidence by Age Group, Males and Females (three year moving averages)



- Under the age of 50 years, incidence rates remain stable for males and increase (non-significantly) for females annually with 7%.
- In older age groups, males have higher incidence rates than females.
- An increase of 3% in males is observed for patients of 75 years and older and in females for the age group 50-74 years, but none are significant.

3.4 Survival

3.4.1 Overall Survival

Table 10. Epithelial Tumours of Major Salivary Glands and Salivary Gland Type Tumours – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF MAJOR SALIVARY GLANDS AND SALIVARY-GLAND TYPE TUMOURS	1,027	84.8	69.7	58.5	43.6	[55.2 ; 61.7]	87.2	75.5	66.8	57.8	[63.0 ; 70.5]
Epithelial tumours of major salivary glands	588	84.5	69.4	58.2	45.6	[53.8 ; 62.4]	87.3	75.8	67.3	61.5	[62.2 ; 72.2]
Salivary gland type tumours of head and neck	439	85.2	70.2	58.9	40.6	[53.7 ; 63.7]	87.1	75.1	66.2	52.5	[60.3 ; 71.5]

- Prognosis is comparable between epithelial tumours of major salivary glands and salivary gland type tumours of head and neck.

3.4.2 Survival by Sex

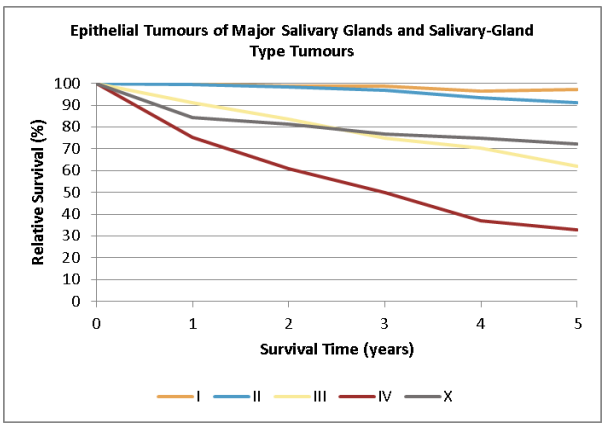
Table 11. Epithelial Tumours of Major Salivary Glands and Salivary Gland Type Tumours – Survival by Sex

	N	Observed Survival				Relative Survival			
Males	at risk	1 year	3 year	5 year	5 year CI	1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF MAJOR SALIVARY GLANDS AND SALIVARY-GLAND TYPE TUMOURS	657	83.5	67.1	54.0	[49.7 ; 58.0]	86.2	73.6	63.1	[58.1 ; 67.8]
Epithelial tumours of major salivary glands	322	83.2	66.5	51.9	[45.7 ; 57.8]	86.6	74.5	62.7	[55.2 ; 69.8]
Salivary gland type tumours of head and neck	335	83.8	67.7	55.8	[49.8 ; 61.3]	85.8	72.8	63.3	[56.6 ; 69.6]
	N	Observed Survival				Relative Survival			
Females	at risk	1 year	3 year	5 year	5 year CI	1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF MAJOR SALIVARY GLANDS AND SALIVARY-GLAND TYPE TUMOURS	370	87.0	74.3	66.8	[61.3 ; 71.6]	89.0	78.8	73.3	[67.3 ; 78.6]
Epithelial tumours of major salivary glands	266	86.1	72.8	65.7	[59.2 ; 71.4]	88.2	77.3	72.4	[65.3 ; 78.7]
Salivary gland type tumours of head and neck	104	89.4	78.1	69.6	[58.6 ; 78.1]	91.1	82.3	75.4	[63.6 ; 84.7]

- Prognosis is much better in females compared with males, with a difference in 5-year relative survival of more than 10%.

3.4.3 Survival by Stage

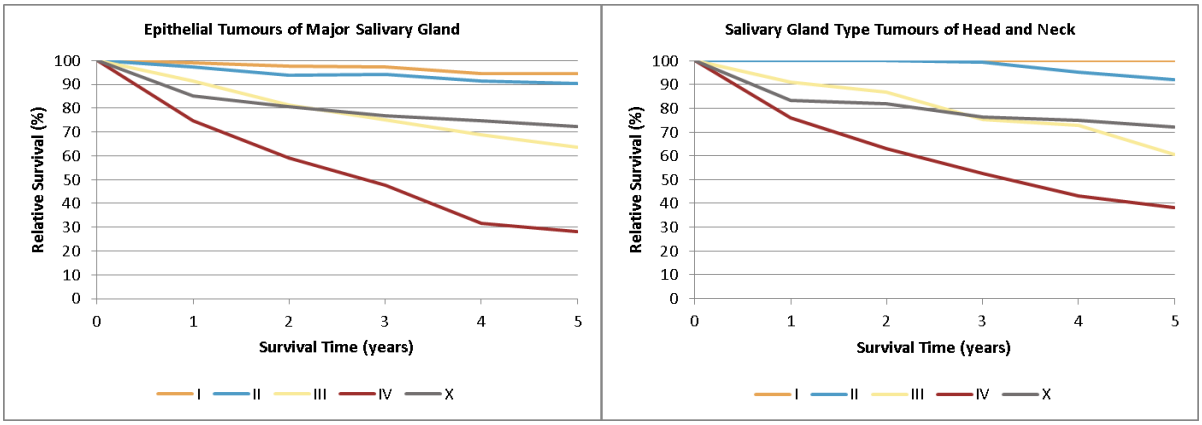
Figure 19. Epithelial Tumours of Major Salivary Glands and Salivary Gland Type Tumours – Relative Survival by Stage



- Prognosis depends on the stage of the disease. The relative survival between stage I and II is comparable.

- Stage IV has a much worse prognosis, with a 5-year relative survival of less than 35%.

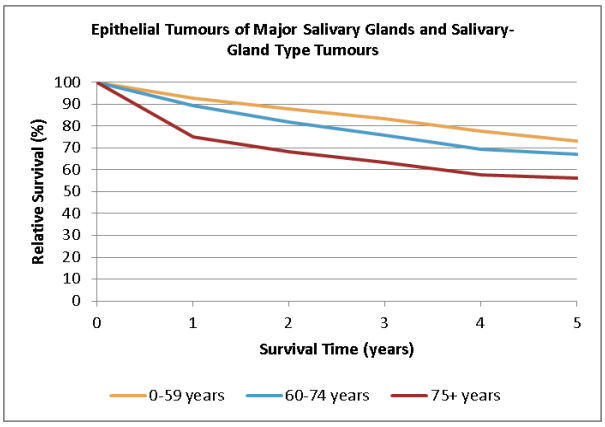
Figure 20. Epithelial Tumours of Major Salivary Gland and Salivary Gland Type Tumours of Head and Neck– Relative Survival by Stage



- Prognosis of epithelial tumours of major salivary gland and salivary gland type tumours of head and neck is comparable for stage I, II, III and X.
- For stage IV, prognosis is worse for epithelial tumours of major salivary glands than for the salivary gland type tumours of head and neck.

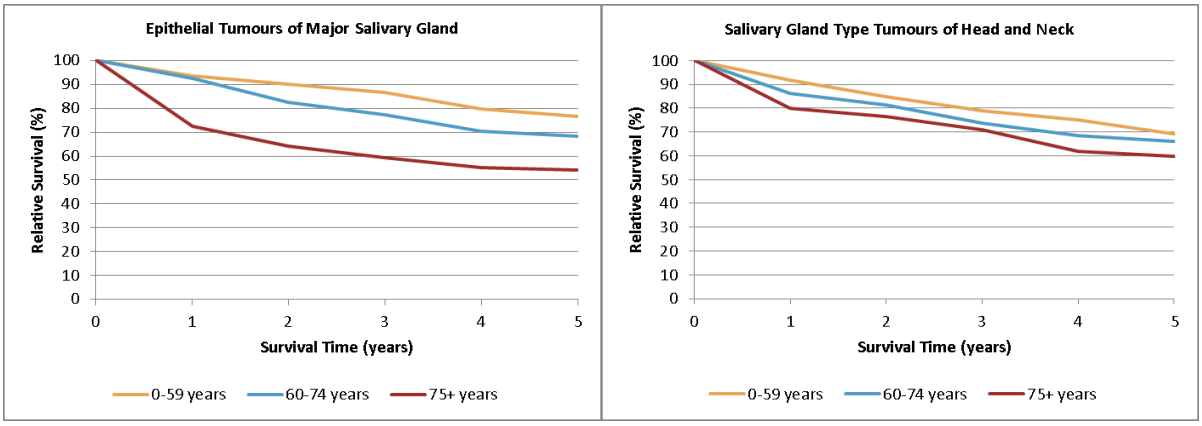
3.4.4 Survival by Age Group

Figure 21. Epithelial Tumours of Major Salivary Glands and Salivary Gland Type Tumours – Relative Survival by Age Group



- Prognosis is inversely proportional to the age group the patient belongs to, with the worst prognosis in the oldest age group.

Figure 22. Epithelial Tumours of Major Salivary Gland and Salivary Gland Type Tumours – Relative Survival by Age Group



- Difference in survival between the different age groups is more pronounced in the group of the epithelial tumours of major salivary gland.

4. Epithelial Tumours of Hypopharynx and Larynx

4.1 General Results

Table 12. Epithelial Tumours of Hypopharynx and Larynx: Incidence, Trends, Survival

Flemish Region 2001-2010	C/R	Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF HYPOPHARYNX AND LARYNX	C	4,696	7.72	4.44	64	-1.5	0.127	4,172	55.9
Squamous cell carcinoma with variants of hypopharynx	R	1,016	1.67	1.06	60	1.2	0.545	900	28.8
Squamous cell carcinoma with variants of larynx	R	3,611	5.94	3.33	65	-2.5	0.010	3,215	63.8
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF HYPOPHARYNX AND LARYNX	C	4,166	13.89	8.15	64	-2.7	0.008	3,713	56.2
Squamous cell carcinoma with variants of hypopharynx	R	880	2.93	1.87	60	0.4	0.821	785	28.4
Squamous cell carcinoma with variants of larynx	C	3,231	10.77	6.18	65	-3.5	<0.001	2,882	64.0
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF HYPOPHARYNX AND LARYNX	R	530	1.72	0.98	64	0.2	0.891	459	53.8
Squamous cell carcinoma with variants of hypopharynx	R	136	0.44	0.26	62	4.3	0.198	115	31.6
Squamous cell carcinoma with variants of larynx	R	380	1.23	0.70	64	-0.6	0.740	333	61.8

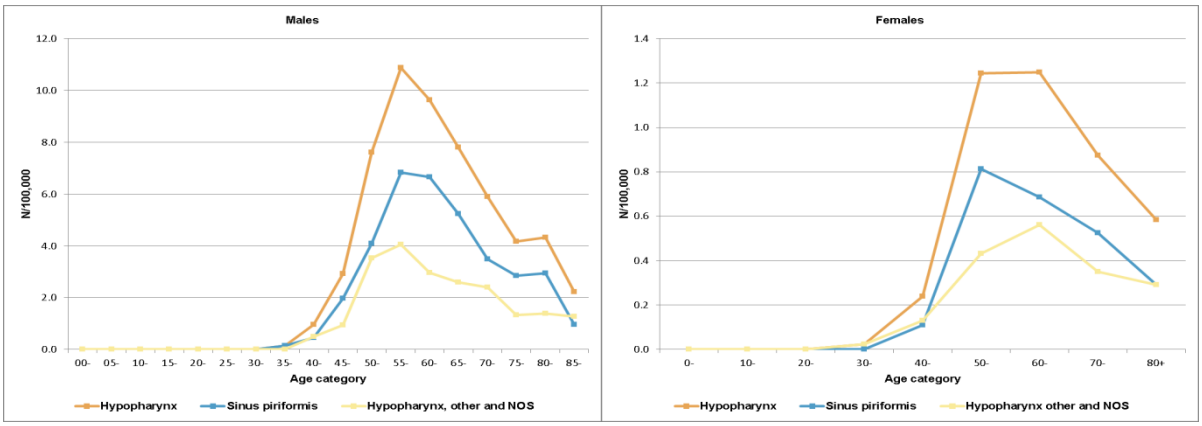
R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

4.2 Incidence

- 4,696 new epithelial tumours of hypopharynx and larynx are diagnosed in the Flemish Region between 2001 and 2010.

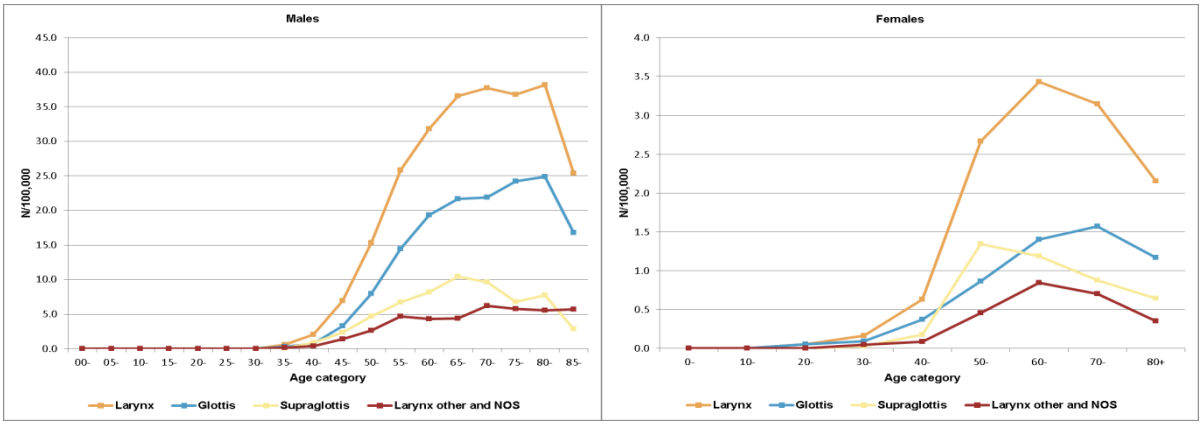
- This group consists of two major entities based on primary site: hypopharynx and larynx.
- Larynx is the most commonly affected subsite, only one out of five male and one out of four female diagnoses originated from the hypopharynx.
- The majority of the diagnoses are males, the male/female ratio is 7.1 for hypopharyngeal tumours and 8.8 for laryngeal cancer.

Figure 23. Epithelial Tumours of Hypopharynx: Age Specific Incidence Rate by Sublocalisation, Males and Females



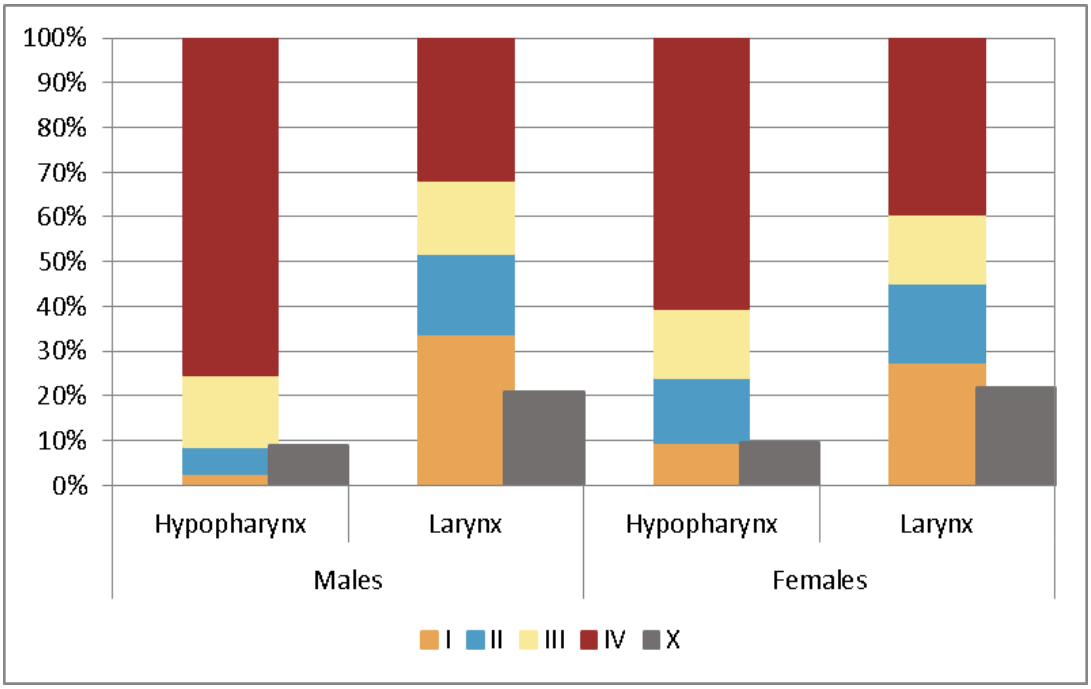
- The incidence rates for hypopharyngeal cancers increase rapidly from the age of 40 years until a peak is reached around the age of 55 years. Thereafter, incidence rates decrease rapidly with age.

Figure 24. Epithelial Tumours of Larynx: Age Specific Incidence Rate by Sublocalisation, Males and Females



- The incidence rates for laryngeal cancer increase from the age of 40 years in males and females.
- In males the increase for glottic cancer is higher than for supraglottic cancer.
- Female glottic and supraglottic cancer rates are more comparable, especially in the younger age groups.

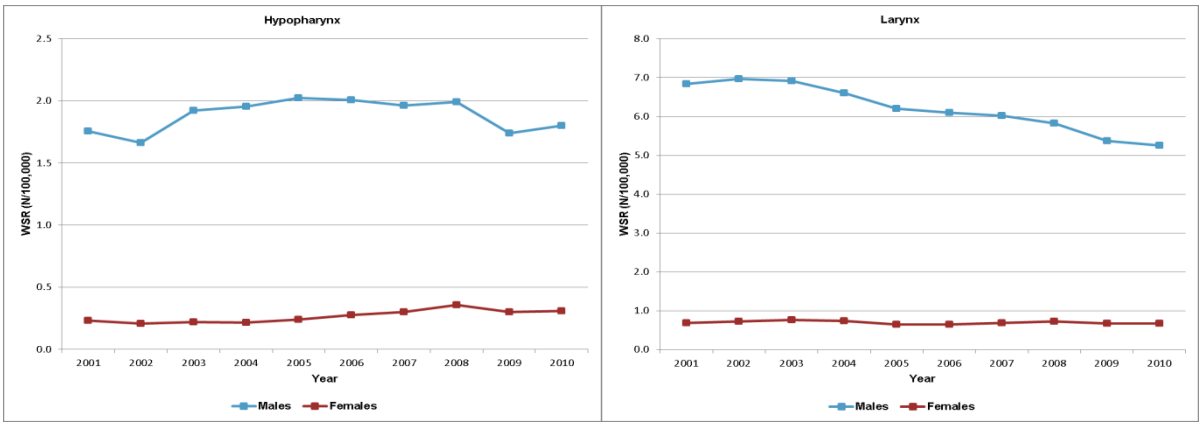
Figure 25. . Squamous Cell Carcinoma with Variants of Hypopharynx and Larynx: Stage Distribution by Sex



- The majority of hypopharyngeal cancers are stage IV when diagnosed, with a much higher percentage of this prognostic worse stage in males than in females.
- Laryngeal cancer has a prognostic more favourable stage distribution than hypopharyngeal cancer.
- About one out of four laryngeal tumours in males and females are diagnosed in stage I.
- For laryngeal cancer, stage IV tumours are proportionally more frequent in females (40%) than in males (30%).

4.3 Trends

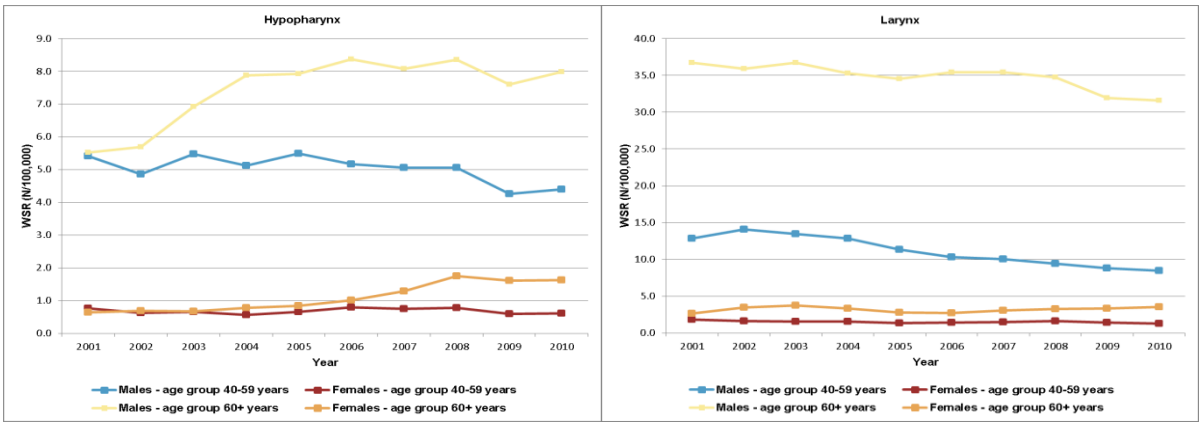
Figure 26. Squamous Cell Carcinoma with Variants of Hypopharynx and Larynx: Age Standardised Incidence Rates by Sex (three years moving average)



- No trend is observed for hypopharyngeal cancers in males, in females the rates increase with 4% each year but the trend is not significant.

- Laryngeal cancer decreases significantly with 3.5% per year for males but no trend is observed for females.

Figure 27. Squamous Cell Carcinoma with Variants of Hypopharynx and Larynx: Age Standardised Incidence Rates by Sex and Age Group (three years moving average)



- Incidence rates for hypopharyngeal cancer decrease in males of between 40 and 59 years with 2.4% (p = 0.322), and increase with 4.8% (p = 0.058) in males of 60 years and older .
- Hypopharyngeal cancer in females shows no trend for patients between 40 and 60 years. For patients of 60 years and older, a significant increase is observed (EAPC = 11.9% [0.035]).
- In males from the age group 40-59 years, incidence rates for laryngeal cancer decrease significantly with 6.3% (p = 0.000). The rates for males older than 60 years of age decrease with 1.4% (p = 0.100).
- Laryngeal cancers decrease in females between 40 and 59 years (EAPC = -2.1% [p = 0.308]). No trend is observed for females over 60 years (EAPC = 0.8% [p = 0.795]).

4.4 Survival

4.4.1 Overall Survival

Table 13. Epithelial Tumours of Hypopharynx and Larynx – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF HYPOPHARYNX AND LARYNX	4,172	80.1	59.9	49.2	32.8	[47.5 ; 50.8]	82.0	64.5	55.9	43.9	[54.1 ; 57.7]
Squamous cell carcinoma with variants of hypopharynx	900	67.7	37.4	26.6	13.5	[23.5 ; 29.8]	68.7	39.2	28.8	16.2	[25.5 ; 32.2]
Squamous cell carcinoma with variants of larynx	3,215	84.0	66.5	55.6	38.1	[53.8 ; 57.4]	86.2	71.9	63.8	51.7	[61.7 ; 65.9]

- Patients with a squamous cell carcinoma of the hypopharynx have a much worse prognosis than patients with a squamous cell carcinoma of the larynx (5-year relative survival: 28.8% versus 63.8%).

4.4.2 Survival by Sex

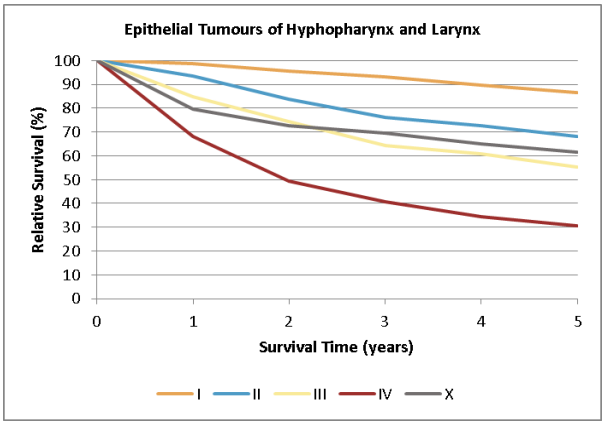
Table 14. Epithelial Tumours of Hypopharynx and Larynx – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF HYPOPHARYNX AND LARYNX	3,713	80.3	60.1	49.1	[47.4 ; 50.8]	82.2	64.9	56.2	[54.2 ; 58.1]
Squamous cell carcinoma with variants of hypopharynx	785	68.2	37.5	26.2	[22.9 ; 29.6]	69.2	39.3	28.4	[24.8 ; 32.1]
Squamous cell carcinoma with variants of larynx	2,882	83.9	66.5	55.5	[53.5 ; 57.4]	86.2	72.2	64.0	[61.8 ; 66.2]
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF HYPOPHARYNX AND LARYNX	459	78.9	58.2	49.6	[44.6 ; 54.5]	80.1	61.1	53.8	[48.4 ; 59.0]
Squamous cell carcinoma with variants of hypopharynx	115	64.4	36.8	29.5	[20.9 ; 38.6]	65.2	38.5	31.6	[22.4 ; 41.3]
Squamous cell carcinoma with variants of larynx	333	85.0	66.3	57.0	[51.0 ; 62.5]	86.3	69.6	61.8	[55.4 ; 67.9]

- Survival rates for epithelial tumours of hypopharynx and larynx are comparable between males and females.

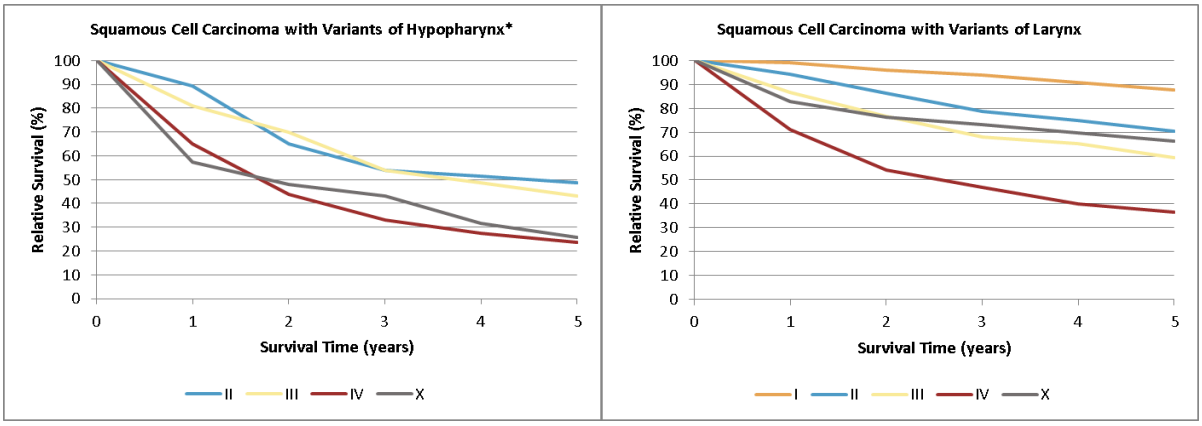
4.4.3 Survival by Stage

Figure 28. Epithelial Tumours of Hypopharynx and Larynx – Relative Survival by Stage



- Relative survival depends on the stage of the disease: best prognosis is seen in stage I and worst in stage IV.
- The 5-year relative survival of stage IV disease is about 30%.

Figure 29. Squamous Cell Carcinoma with Variants of Hypopharynx and Larynx – Relative Survival by Stage

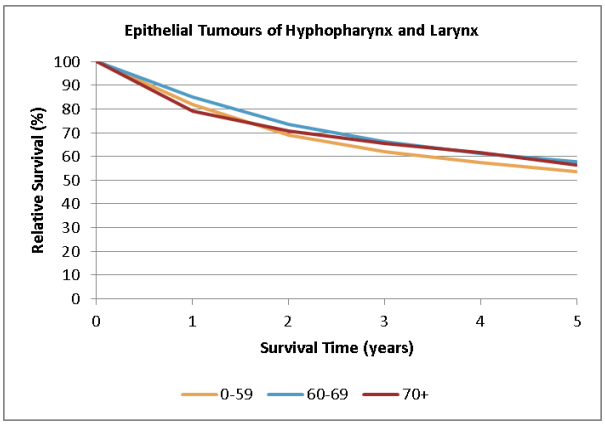


* Survival of Stage I is not shown because the number at risk is smaller than 35.

- For each of the analysed stages, prognosis is better for laryngeal cancer than for hypopharyngeal cancer.

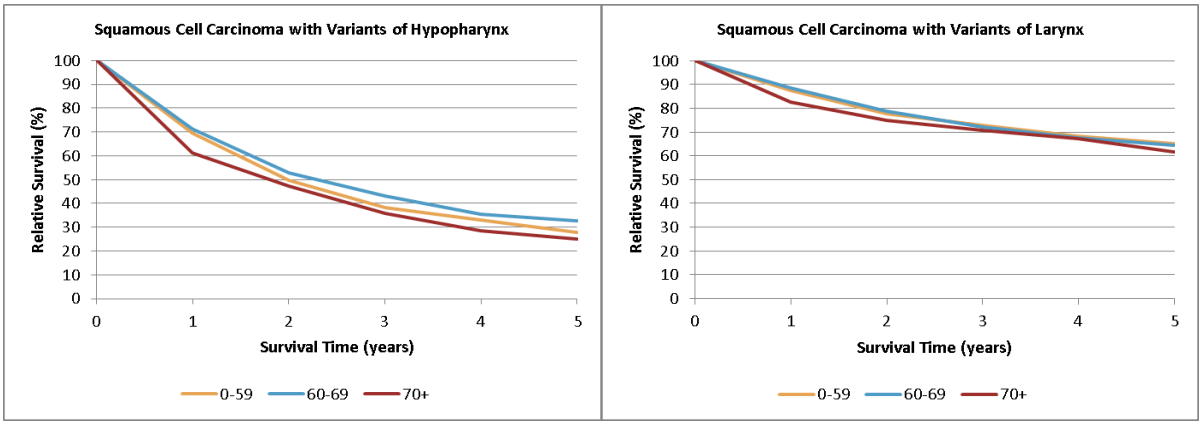
4.4.4 Survival by Age Group

Figure 30. Epithelial Tumours of Hypopharynx and Larynx – Relative Survival by Age Group



- Prognosis is comparable between the different age groups.

Figure 31. Squamous Cell Carcinoma with Variants of Hypopharynx and Larynx – Relative Survival by Age Group



- For both hypopharyngeal and laryngeal cancer, survival hardly differs between the different age groups.

5. Epithelial Tumours of Oropharynx

5.1 General Results

Table 15. Epithelial Tumours of Oropharynx: Incidence, Trends, Survival

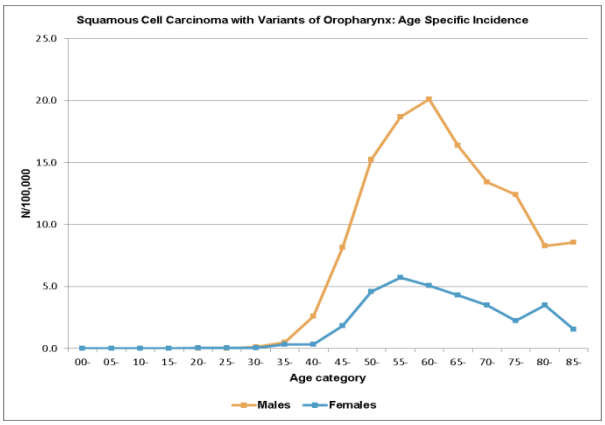
Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF OROPHARYNX	R	2,465	4.05	2.53	61	3.8	0.007	2,163	44.5
Squamous cell carcinoma with variants of oropharynx	R	2,418	3.98	2.49	61	4.1	0.005	2,127	44.8
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF OROPHARYNX	C	1,915	6.39	4.04	60	3.2	0.020	1,684	41.4
Squamous cell carcinoma with variants of oropharynx	C	1,878	6.26	3.97	60	3.4	0.015	1,655	41.7
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF OROPHARYNX	R	550	1.79	1.09	62	5.7	0.011	479	55.7
Squamous cell carcinoma with variants of oropharynx	R	540	1.75	1.07	62	6.0	0.007	472	56.0

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

5.2 Incidence

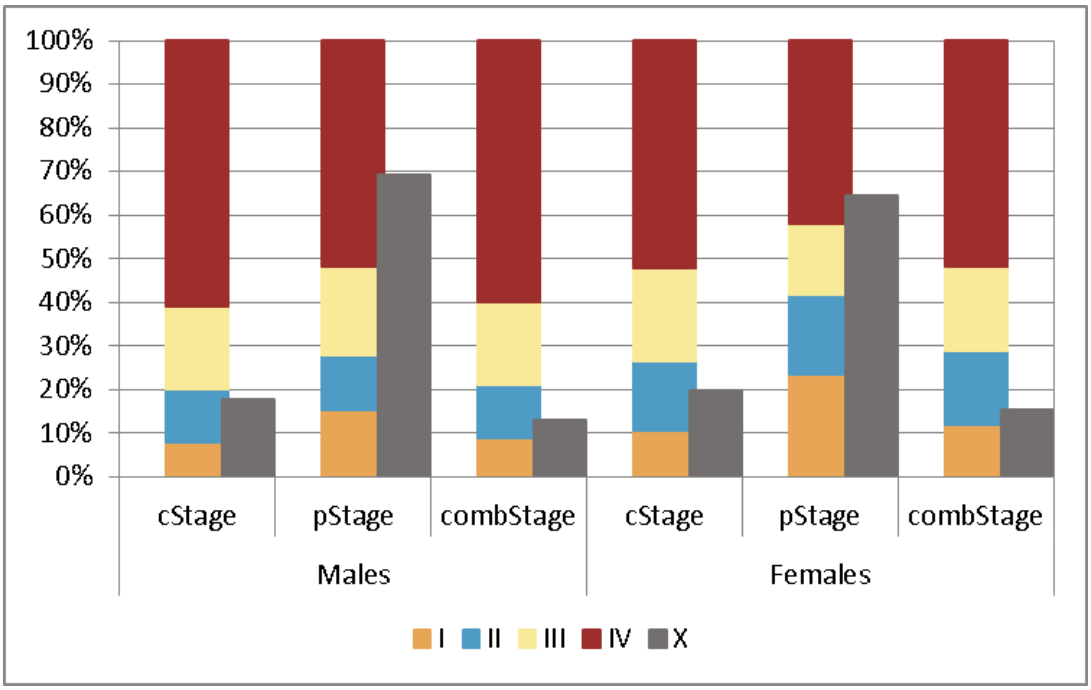
- 2,465 new epithelial tumours of oropharynx are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 3.7.
- 98.5% of the cancers are squamous cell carcinoma variants.

Figure 32. Squamous Cell Carcinoma with Variants of Oropharynx: Age Specific Incidence



- Incidence rates increase rapidly from the age of 40 years in males and 45 years in females.
- After the age of 60 years, incidence rates decrease.

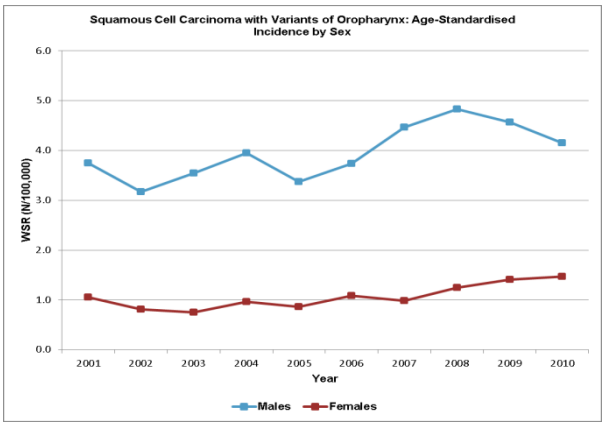
Figure 33. Squamous Cell Carcinoma with Variants of Oropharynx: Stage Distribution by Sex



- Information on stage is available in 85% of the diagnoses, mainly due to the high occurrence of clinical stage information (>80%). Pathological staging is only available in one out of three diagnoses.
- Males have a slightly worse stage distribution: 60% of tumours in males and 50% in females is stage IV at time of diagnosis.

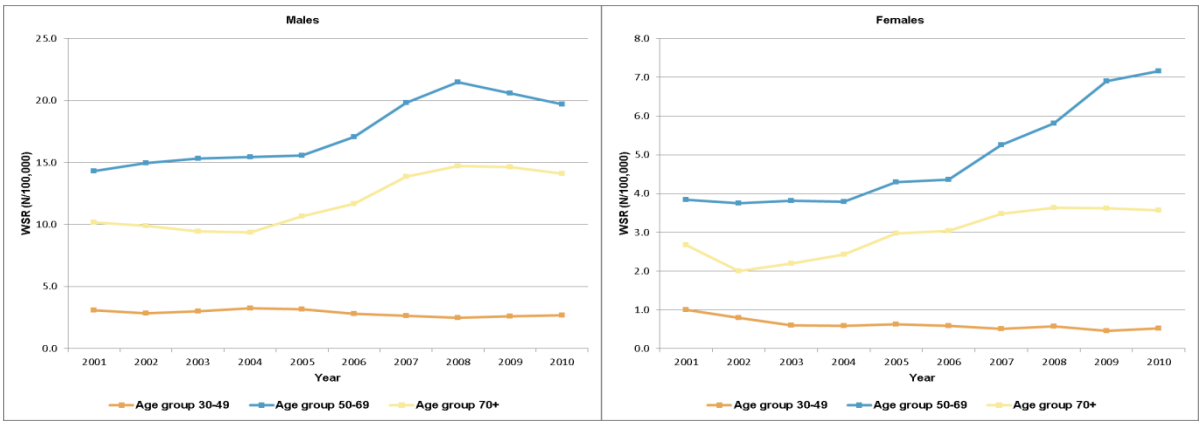
5.3 Trends

Figure 34. Squamous Cell Carcinoma with Variants of Oropharynx: Age Standardised Incidence by Sex



- Significant increases in incidence rates are observed in males and females, the rates annually increase respectively with 3.4% and 6.0%.

Figure 35. Squamous Cell Carcinoma with Variants of Oropharynx: Age Standardised Incidence by Age Group, Males and Females (three years moving average)



- Incidence rates for tumours diagnosed between the age of 30 and 49 years decrease in males (EAPC = -1.6% [p = 0.382]) and females (EAPC = -7.9% [p = 0.085]).
- In the other age groups, significant increases in incidence rates are observed for males and females.
    - Age group 50-69: males = 4.3% (p = 0.012) ; females = 8.5% (p = 0.001)
    - Age group 70+: males = 5.1% (p = 0.018) ; females = 7.7% (p = 0.012)

5.4 Survival

5.4.1 Overall Survival

Table 16. Epithelial Tumours of Oropharynx - Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF OROPHARYNX	2,163	74.6	51.1	41.0	22.4	[38.7 ; 43.2]	75.7	53.5	44.5	27.2	[42.0 ; 46.9]
Squamous cell carcinoma	2,127	75.1	51.4	41.3	22.5	[39.0 ; 43.6]	76.3	53.9	44.8	27.2	[42.3 ; 47.3]

- Prognosis of oropharyngeal cancer is rather poor, with a 5-year relative survival of less than 50%.

5.4.2 Survival by Sex

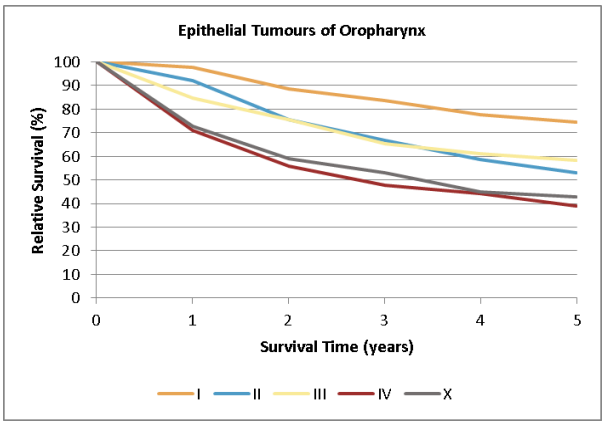
Table 17. Epithelial Tumours of Oropharynx - Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF OROPHARYNX	1,684	72.7	48.3	37.8	[35.3 ; 40.4]	73.9	50.8	41.4	[38.6 ; 44.1]
Squamous cell carcinoma	1,655	73.4	48.8	38.2	[35.7 ; 40.8]	74.6	51.3	41.7	[38.9 ; 44.5]
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF OROPHARYNX	479	81.0	60.8	52.4	[47.3 ; 57.2]	82.0	63.0	55.7	[50.3 ; 60.8]
Squamous cell carcinoma	472	81.1	60.9	52.7	[47.6 ; 57.5]	82.1	63.0	56.0	[50.6 ; 61.1]

- Prognosis is much better for females than for males, with a difference of almost 15% in 5-year relative survival. This difference is present from the first year but becomes larger with increasing time interval.

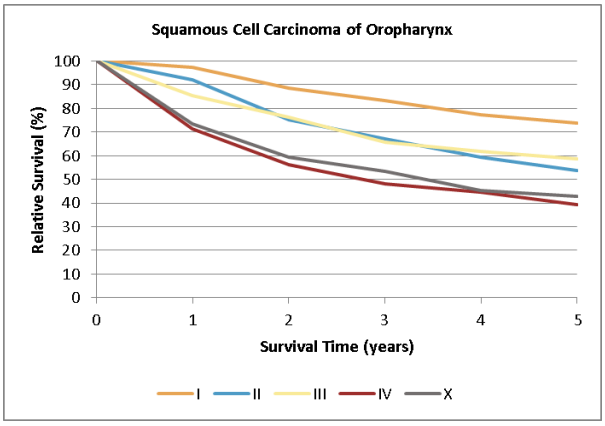
5.4.3 Survival by Stage

Figure 36. Epithelial Tumours of Oropharynx - Relative Survival by Stage



- Lower stages of the disease are associated with better prognosis and survival.
- The worst prognosis is seen in stage IV of oropharyngeal cancer.

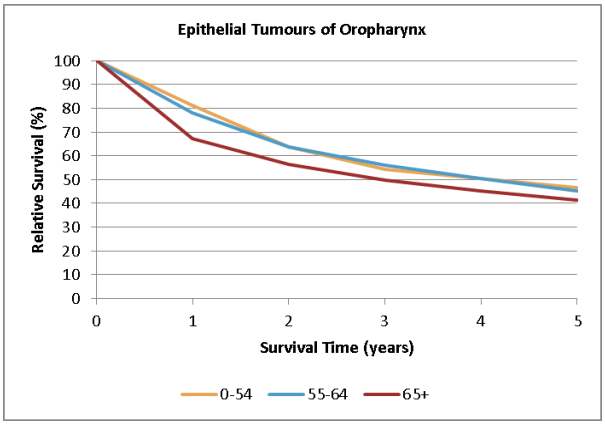
Figure 37. Squamous Cell Carcinoma of Oropharynx - Relative Survival by Stage



- Because almost all patients with an epithelial tumour of the oropharynx are diagnosed with a squamous cell carcinoma, survival by stage is very similar to the results for all epithelial tumours of the oropharynx together.

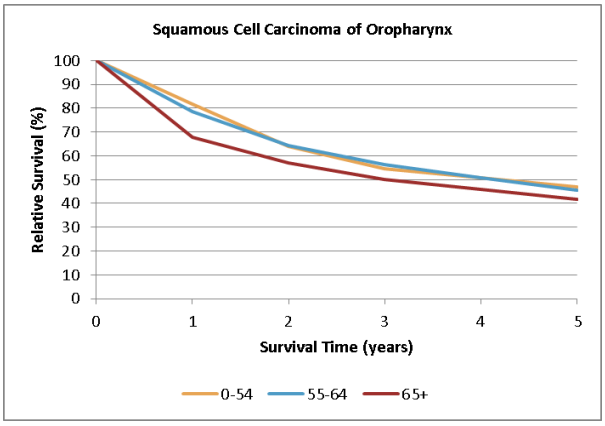
5.4.4 Survival by Age Group

Figure 38. Epithelial Tumours of Oropharynx - Relative Survival by Age Group



- Survival is comparable between the different age groups, with a limited benefit for the 2 youngest age groups (0-54 and 55-64 years).

Figure 39. Squamous Cell Carcinoma of Oropharynx - Relative Survival by Age Group



- Because almost all patients with an epithelial tumour of the oropharynx are diagnosed with a squamous cell carcinoma, survival by age group is very similar to the results for all epithelial tumours of the oropharynx together.

6. Epithelial Tumours of Oral Cavity and Lip

6.1 General Results

Table 18. Epithelial Tumours of Oral Cavity and Lip: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF ORAL CAVITY AND LIP	R	3,403	5.60	3.27	63	-1.1	0.366	3,044	55.1
Squamous cell carcinoma with variants of oral cavity	R	2,884	4.74	2.89	61	0.0	0.988	2,573	49.9
Squamous cell carcinoma with variants of lip	R	484	0.80	0.35	71	-7.0	0.015	439	86.4
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF ORAL CAVITY AND LIP	C	2,464	8.22	5.01	62	-2.1	0.101	2,197	53.9
Squamous cell carcinoma with variants of oral cavity	C	2,064	6.88	4.35	60	-0.9	0.438	1,835	48.0
Squamous cell carcinoma with variants of lip	R	373	1.24	0.61	71	-7.4	0.021	338	86.5
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF ORAL CAVITY AND LIP	R	939	3.05	1.61	66	1.8	0.379	847	58.4
Squamous cell carcinoma with variants of oral cavity	R	820	2.66	1.46	65	3.0	0.194	738	54.9
Squamous cell carcinoma with variants of lip	R	111	0.36	0.14	74	-7.0	0.073	101	86.1

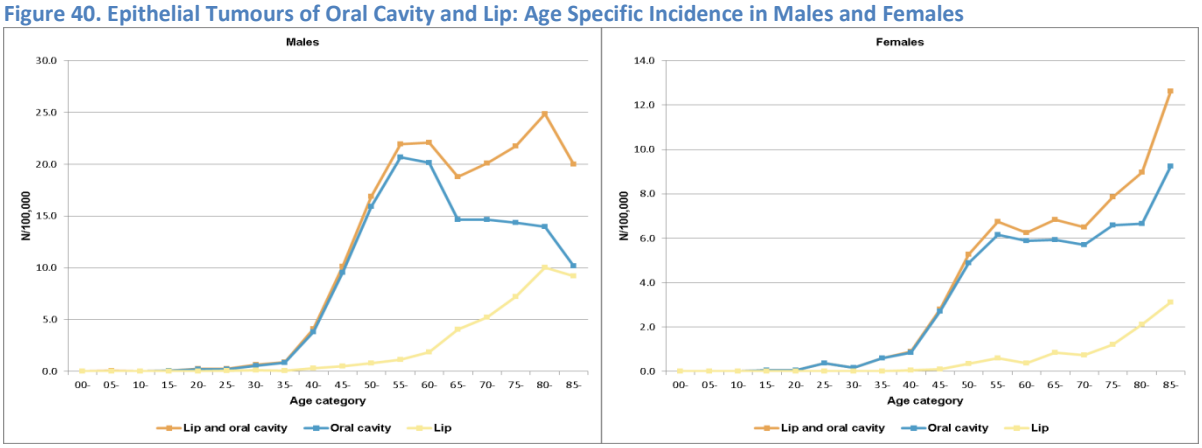
R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
AvgAge: average age at diagnosis

6.2 Incidence

- 3,403 new epithelial tumours of oral cavity and lip are diagnosed in the Flemish Region between 2001 and 2010.
- More males are diagnosed than females (M/F ratio = 3.1). The male to female ratio for lip cancer (4.3) is higher than for oral cavity (3.0).
- RARECARE differentiates between squamous cell carcinoma of lip and squamous cell carcinoma of oral cavity.

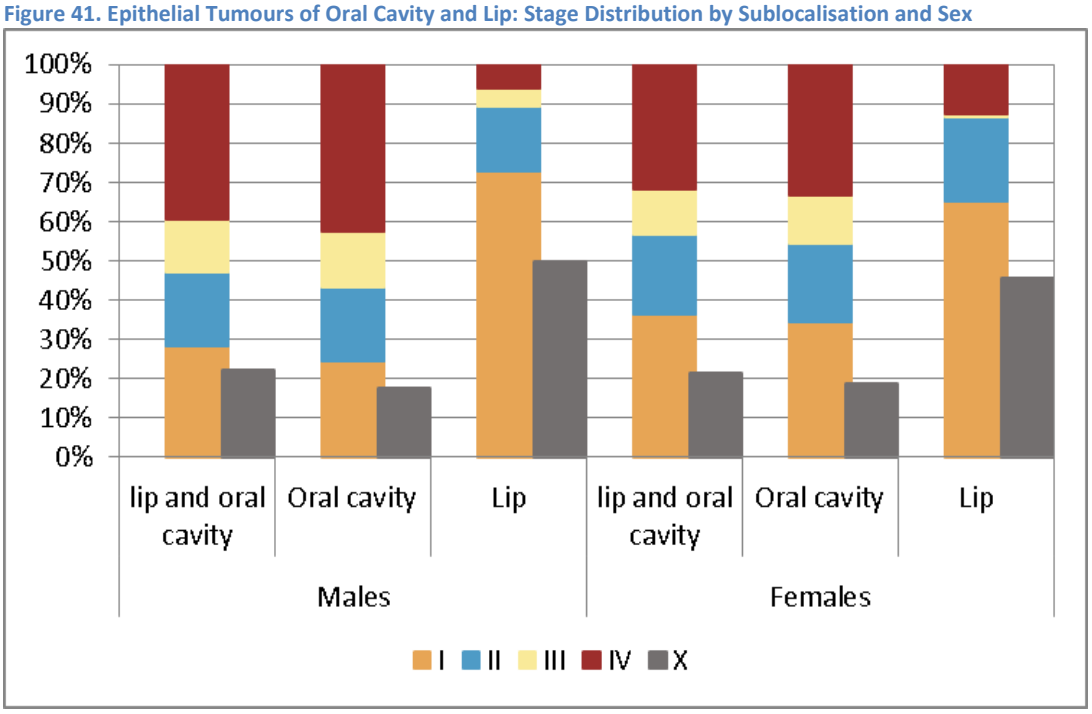
- In males, oral cavity cancer in Belgium can be considered as a common entity (>6/100,000).
- Squamous cell carcinoma of the lips is rare in both sexes.

Figure 40. Epithelial Tumours of Oral Cavity and Lip: Age Specific Incidence in Males and Females



- Squamous cell carcinoma of lip is more often diagnosed at an older age than oral cavity cancer.
- Incidence rates for squamous cell carcinoma of oral cavity increase rapidly between the ages of 40 and 55 years. In males the rates then decrease to reach a plateau from the age of 65 years. In females, the incidence rates remain stable until the age of 65 years and then increase further.
- Age specific lip cancer incidence rates increase gradually from the age of 55 years. In males, the rates for lip cancer reach the rates for oral cavity cancer, in females the incidence rates remain more than two times lower.

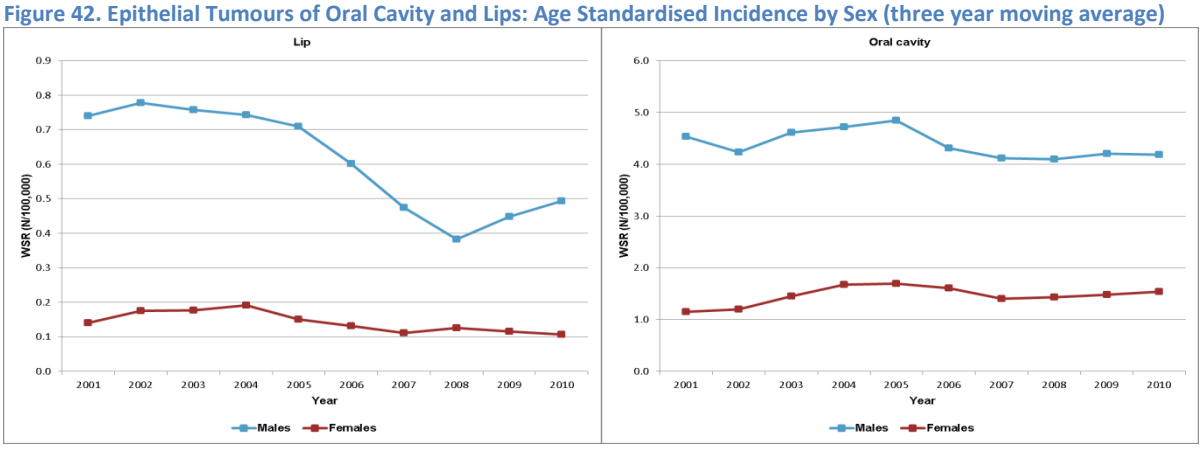
Figure 41. Epithelial Tumours of Oral Cavity and Lip: Stage Distribution by Sublocalisation and Sex



- Cancers of the lip are diagnosed in an earlier stage than cancers of oral cavity.
- For epithelial tumours of oral cavity, males have a prognostically worse stage distribution then females.

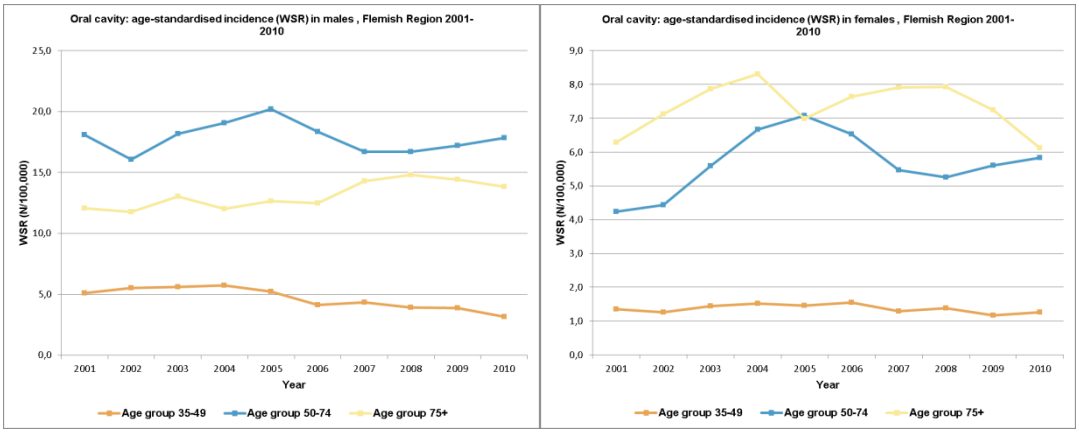
6.3 Trends

Figure 42. Epithelial Tumours of Oral Cavity and Lips: Age Standardised Incidence by Sex (three year moving average)



- Incidence rates for lip cancer decrease annually in males and females with approximately 7%.
- Oral cavity cancers seem to decrease slightly in males (EAPC = 0.9%), while in females the rates increase annually with 3%, although no significant changes are observed.

Figure 43. Epithelial Tumours of Oral Cavity: Age-Standardised Incidence in Males and Females (three year moving average)



- In the age group 35-49 years, a significant annual decrease with 7% (p = 0.017) is observed for males. In females the rates decrease with 1%, but the trend is not significant (p = 0.769).
- The male incidence rates for the age group 50-74 years are higher than for patients of 75 years and older. In the latter age group, an increasing trend (EAPC = 2% [p =0.171]) is observed, while the rates remain stable in the age group 50-74 years (EAPC = 0%).
- In females, a non-significant increase in incidence rates is observed in both age groups (50-74 years: EAPC = 3% [p = 0.258] and 75+ years: EAPC = 1% [p = 0.717]).

6.4 Survival

6.4.1 Overall Survival

Table 19. Epithelial Tumours of Oral Cavity and Lip - Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF ORAL CAVITY AND LIP	3,044	78.3	59.1	48.7	31.2	[46.8 ; 50.6]	80.2	63.5	55.1	41.4	[53.0 ; 57.2]
Squamous cell carcinoma with variants of oral cavity	2,573	76.2	55.9	45.5	29.6	[43.4 ; 47.6]	77.7	59.1	49.9	36.3	[47.7 ; 52.2]
Squamous cell carcinoma with variants of lip	439	91.6	78.6	67.0	40.1	[62.0 ; 71.4]	96.4	91.4	86.4	71.3	[80.0 ; 92.1]

- Survival rates of epithelial tumours of the oral cavity an lip are moderate, with a 5-year relative survival of approximately 55%.
- There is a pronounced difference in survival between the oral cavity, with a much worse prognosis, and the lips.
- The 5-year relative survival of squamous cell carcinoma of lips is more than 85%.

6.4.2 Survival by Sex

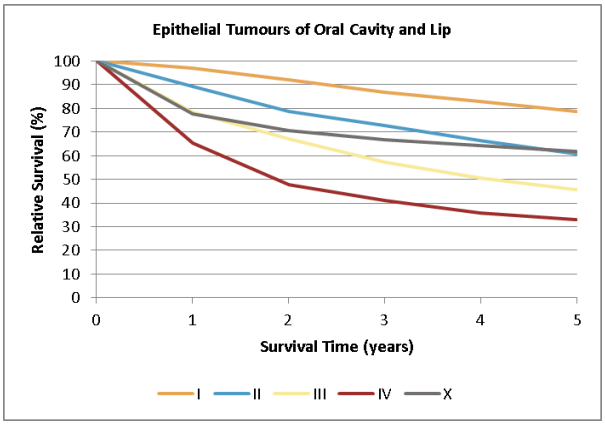
Table 20. Epithelial Tumours of Oral Cavity and Lip - Survival by Sex

	N	Observed Survival				Relative Survival			
Males	at risk	1 year	3 year	5 year	5 year CI	1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF ORAL CAVITY AND LIP	2,197	78.7	58.7	47.9	[45.6 ; 50.0]	80.5	62.9	53.9	[51.4 ; 56.4]
Squamous cell carcinoma with variants of oral cavity	1,835	76.5	55.0	44.1	[41.6 ; 46.5]	77.8	57.8	48.0	[45.3 ; 50.6]
Squamous cell carcinoma with variants of lip	338	91.4	79.5	67.5	[61.9 ; 72.5]	96.2	92.3	86.5	[79.3 ; 92.9]
	N	Observed Survival				Relative Survival			
Females	at risk	1 year	3 year	5 year	5 year CI	1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF ORAL CAVITY AND LIP	847	77.2	59.9	51.0	[47.4 ; 54.5]	79.5	65.2	58.4	[54.3 ; 62.5]
Squamous cell carcinoma with variants of oral cavity	738	75.4	58.1	49.2	[45.3 ; 53.0]	77.3	62.3	54.9	[50.7 ; 59.2]
Squamous cell carcinoma with variants of lip	101	92.1	75.4	65.4	[54.5 ; 74.2]	97.2	88.4	86.1	[71.8 ; 97.7]

- Prognosis is slightly better in females than males. This difference in survival becomes larger with longer observation interval.
- The pronounced poorer survival for oral cavity cancers in comparison with lip cancers is also observed in the male and female subpopulation.

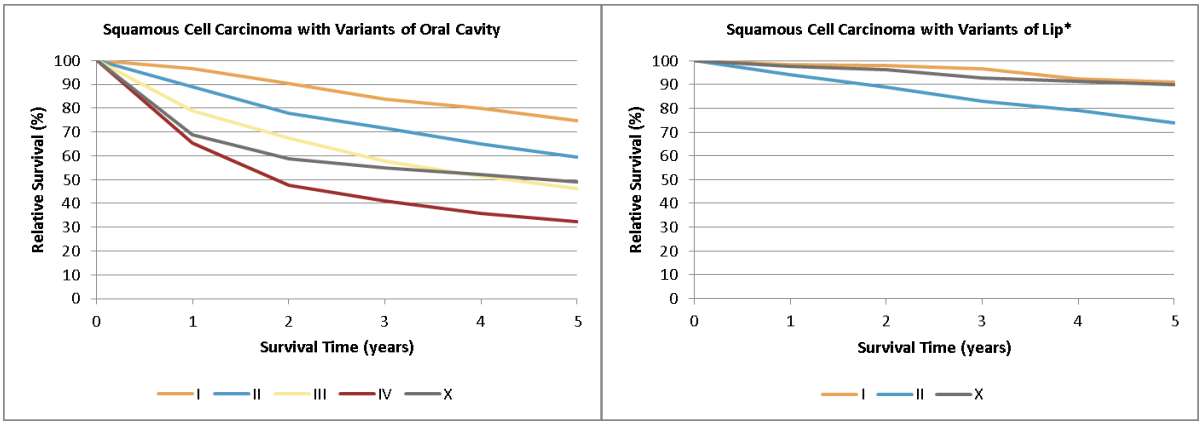
6.4.3 Survival by Stage

Figure 44. Epithelial Tumours of Oral Cavity and Lip - Relative Survival by Stage



- Prognosis is highly dependent on the stage at diagnosis.
- Survival varies between a 5-year relative survival of 80% for stage I diseases, to a little more than 30% in stage IV diseases.

Figure 45. Squamous Cell Carcinoma of Oral Cavity and Lip - Relative Survival by Stage

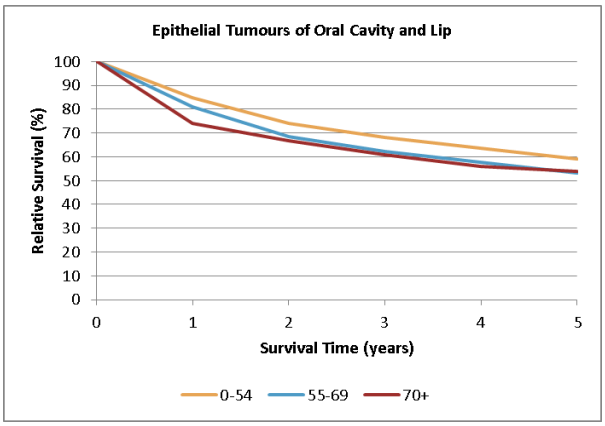


* Survival of Stage III and IV is not shown because the number at risk is smaller than 35.

- The survival by stage for squamous cell carcinoma with variant of oral cavity is comparable to the results for all epithelial tumours of oral cavity and lip together.
- Survival for lip cancers is markedly better than for tumours of the oral cavity. The 5-year relative survival for stage I disease is about 90% and for stage II almost 75%.

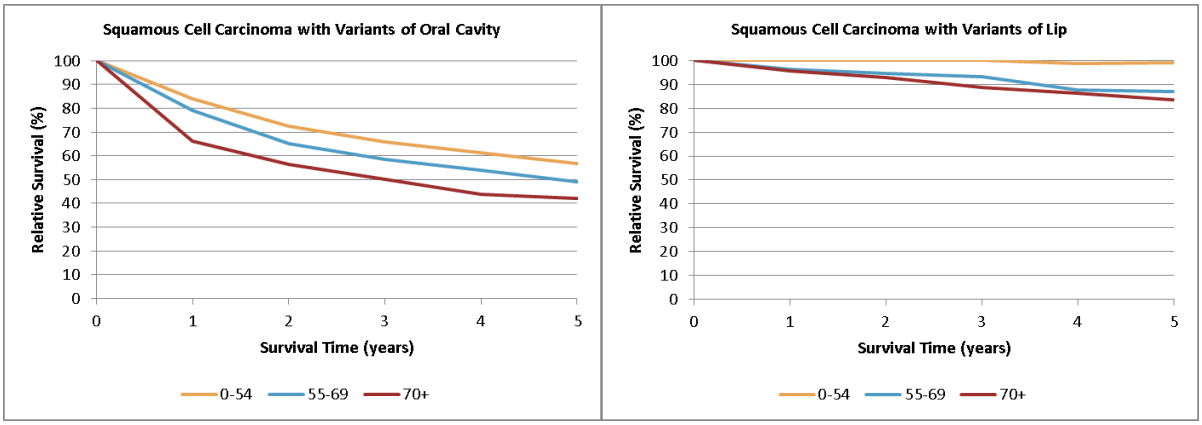
6.4.4 Survival by Age Group

Figure 46. Epithelial Tumours of Oral Cavity and Lip - Relative Survival by Age Group



- There are no pronounced differences in survival between the different age groups.
- The youngest age group (0-54 years) has a slightly better prognosis, with a relative 5 year survival of 70%.

Figure 47. Squamous Cell Carcinoma of Oral Cavity and Lip - Relative Survival by Age Group



- Compared with all epithelial tumours of oral cavity and lip together, oral cavity cancers have more pronounced differences in survival between the different age groups.
- In lip cancer, the age group 0-54 years with lip-cancer has the best prognosis. The prognosis of the age group 55-69 years and 70 years and older is comparable.

CHAPTER 2. RARE DIGESTIVE TUMOURS

1. Epithelial Tumours of Oesophagus

1.1 General Results

Table 21. Epithelial Tumours of Oesophagus: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF OESOPHAGUS	C	4,938	8.12	4.29	67	0.3	0.711	4,249	23.6
Squamous cell carcinoma with variants of oesophagus	R	2,350	3.87	2.17	65	-1.3	0.080	1,965	19.7
Adenocarcinoma with variants of oesophagus	R	2,442	4.02	2.00	68	1.9	0.202	2,152	27.3
Salivary gland type tumours of oesophagus	R	9	0.01	0.01	64	*	*	8	*
Undifferentiated carcinoma of oesophagus	R	34	0.06	0.03	68	*	*	31	*
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF OESOPHAGUS	C	3,799	12.67	7.18	66	-0.9	0.202	3,253	23.6
Squamous cell carcinoma with variants of oesophagus	R	1,682	5.61	3.35	64	-2.7	0.005	1,398	18.1
Adenocarcinoma with variants of oesophagus	C	2,010	6.70	3.65	67	1.5	0.235	1,757	28.1
Salivary gland type tumours of oesophagus	R	8	0.03	0.02	65	*	*	8	*
Undifferentiated carcinoma of oesophagus	R	22	0.07	0.04	68	*	*	22	*
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF OESOPHAGUS	R	1,139	3.70	1.63	71	1.3	0.390	996	23.6
Squamous cell carcinoma with variants of oesophagus	R	668	2.17	1.06	68	1.4	0.273	567	24.0
Adenocarcinoma with variants of oesophagus	R	432	1.40	0.52	74	2.2	0.523	395	23.4
Salivary gland type tumours of oesophagus	R	1	0.00	0.00	55	*	*	0	-
Undifferentiated carcinoma of oesophagus	R	12	0.04	0.02	69	*	*	9	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

1.2 Incidence

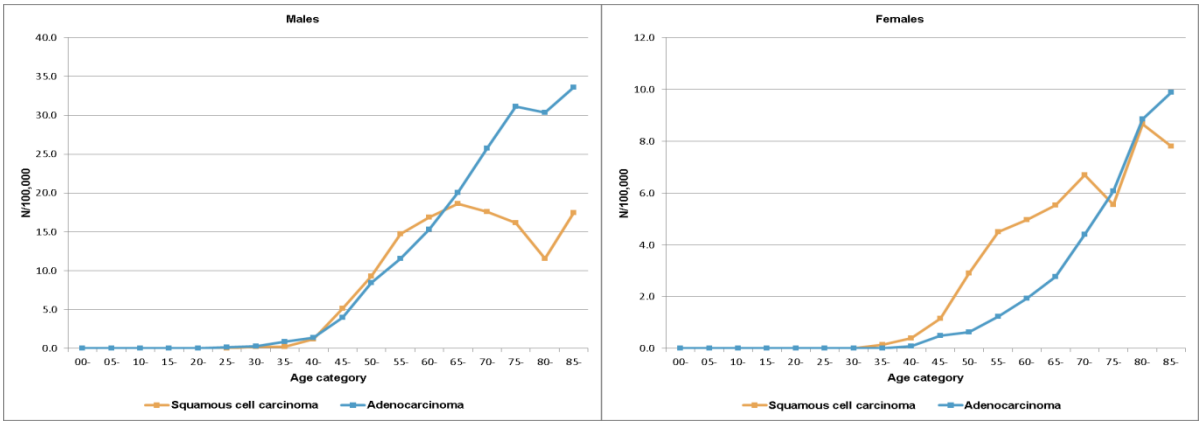
- 4,938 new epithelial tumours of oesophagus are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 4.4.

Table 22. Epithelial Tumours of Oesophagus: Morphological Distribution by Localisation.

Primary site	Squamous cell		Adenocarcinoma		Salivary gland type		Undifferentiated	
Cervical oesophagus	64	2.7%	8	0.3%	1	11.1%	0	0.0%
Thoracic oesophagus	29	1.2%	11	0.5%	0	0.0%	0	0.0%
Abdominal oesophagus	2	0.1%	15	0.6%	0	0.0%	0	0.0%
Upper third of oesophagus	221	9.4%	24	1.0%	0	0.0%	1	2.9%
Middle third of oesophagus	425	18.1%	78	3.2%	2	22.2%	1	2.9%
Lower third of oesophagus	392	16.7%	1114	45.6%	1	11.1%	5	14.7%
Oesophagus, NOS	1217	51.8%	1192	48.8%	5	55.6%	27	79.4%

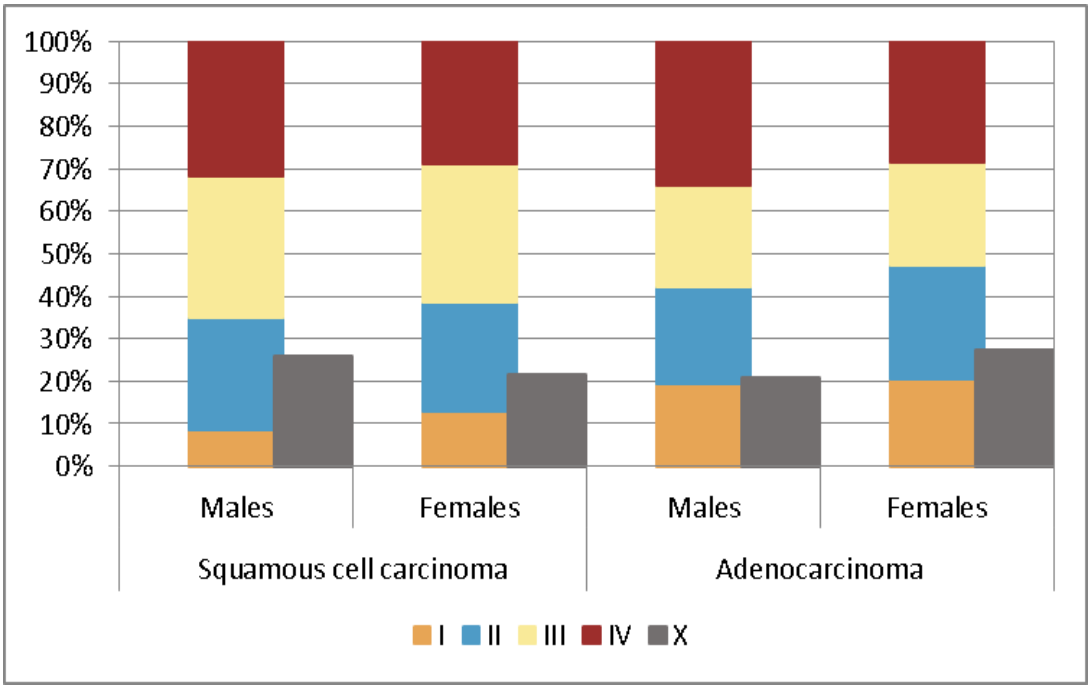
- Four histological entities are considered in the RARECARE list:
  - Squamous cell carcinoma is the most frequent entity in females. The majority of cases in both sexes originate from the middle and lower third of the oesophagus.
  - In males more adenocarcinoma are diagnosed than squamous cell carcinoma. 90% of the adenocarcinoma with a specified primary site is found at the lower third of the oesophagus.
  - Only 9 diagnoses of salivary gland type tumours of oesophagus are registered in the Flemish Region.
  - Undifferentiated carcinomas account for 34 diagnoses.

Figure 48. Epithelial Tumours of Oesophagus: Age Specific Incidence by Histology and Sex



- Incidence rates in males increase from the age of 40 years old. This increase is similar for both major subtypes until the age of 65 years old, when the rates for adenocarcinoma increase further with age while squamous cell carcinoma rates decrease.
- Female adenocarcinomas start to increase at a later age than squamous cell carcinoma. From the age of 75 years, the rates for both histology groups are more comparable.

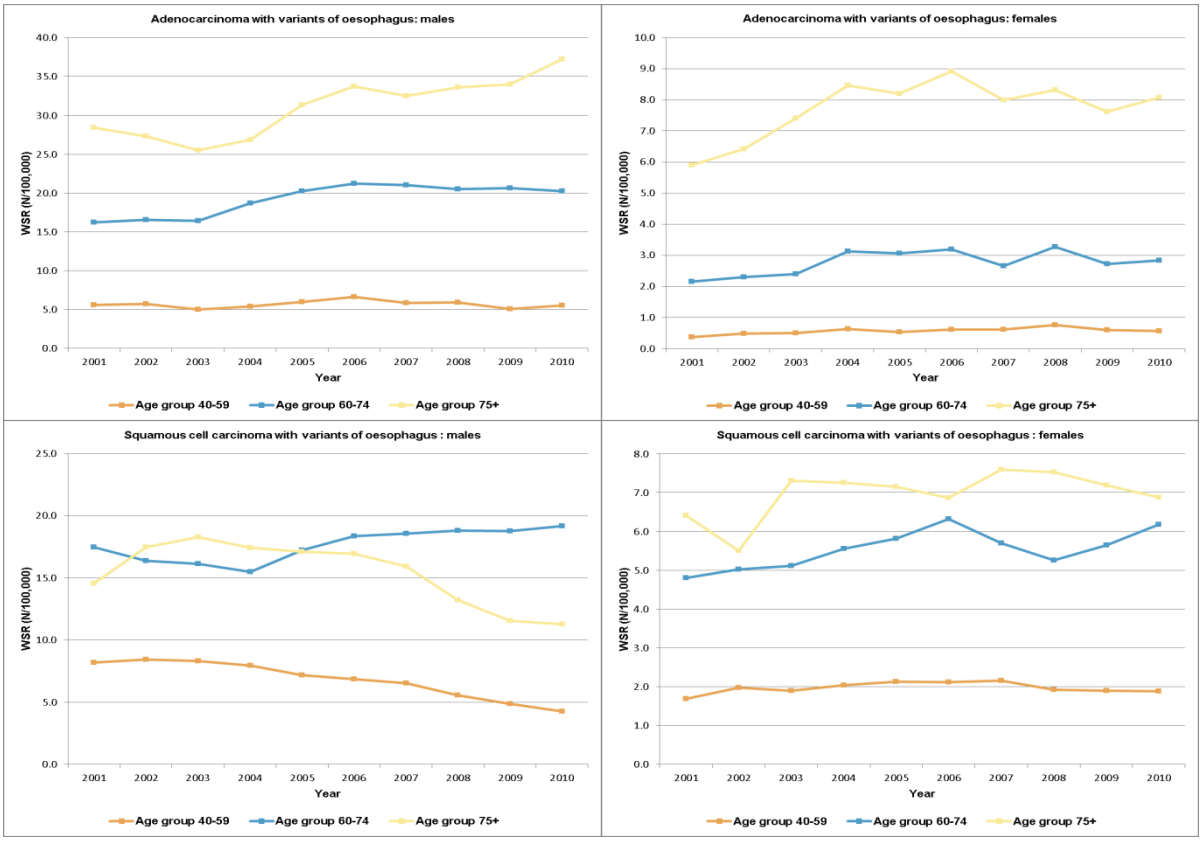
Figure 49. Epithelial Tumours of Oesophagus: Stage Distribution by Histology and Sex



- Stage distribution is similar for both sexes and both histological entities.

1.3 Trends

Figure 50. Adenocarcinoma and Squamous Cell Carcinoma with Variants of Oesophagus: Age Standardised Incidence by Sex



- Incidence rates for males show a significant decrease for squamous cell carcinoma in the period 2001-2010. This significant decrease can only be observed for patients between 40 and 59 years old (EAPC = -7.7% [p = 0.004]) and for patients of 75 years and older (EAPC = -4.7% [p = 0.024]). For the age group 60-74 years, the incidence rates increase annually with 2.2% (p = 0.096).
- Adenocarcinoma incidence rates increase for males of 60 years and older (age group 60-74: EAPC = 3.2% [p = 0.036]; age group 75+: EAPC = 3.2% [p = 0.091]). For the age group 40-59 years the rates seems to decrease (EAPC = -1.4% [p = 0.545]).
- In females, squamous cell carcinomas show no trend for patients between 40 and 59 years of age (EAPC = 0.1% [p = 0.949]) and a non-significant increase for the older age groups (age group 60-74: EAPC = 2.7% [p = 0.181]); age group 75+: EAPC = 3.6% [p = 0.186]).
- The incidence rates for adenocarcinoma in females increase primarily in the age group 75+ (EAPC = 3.8% [p = 0.126]). The rates for the other age groups remain more stable (age group 40-59: EAPC = 0.5% [p = 0.948]; age group 60-74: EAPC = 0.7% [p = 0.844]).

1.4 Survival

1.4.1 Overall Survival

Table 23. Epithelial Tumours of Oesophagus – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF OESOPHAGUS	4,249	51.6	27.3	20.8	14.0	[19.6 ; 22.2]	53.1	29.5	23.6	18.2	[22.1 ; 25.1]
Squamous cell carcinoma	1,965	49.0	24.3	17.9	11.0	[16.2 ; 19.8]	50.1	25.8	19.7	13.7	[17.8 ; 21.8]
Adenocarcinoma with variants	2,152	54.8	30.3	23.6	17.1	[21.7 ; 25.5]	56.6	33.1	27.3	22.8	[25.1 ; 29.5]
Salivary gland type tumours	8	*	*	*	*	*	*	*	*	*	*
Undifferentiated carcinoma	31	*	*	*	*	*	*	*	*	*	*

- Survival of oesophageal cancer rapidly decreases after diagnosis, with nearly half of the patients dying within one year after diagnosis (1-year observed survival: 51.6%, 1-year relative survival: 53.1%).
- Survival rates further diminish to a 10-year observed survival of 14.0% and a 10-year relative survival of 18.2%.
- Although prognosis is low for all types of epithelial tumours of the oesophagus, adenocarcinoma have a remarkably better prognosis than squamous cell carcinoma with 10-year relative survival rates equal to 22.8% and 13.7%, respectively.

1.4.2 Survival by Sex

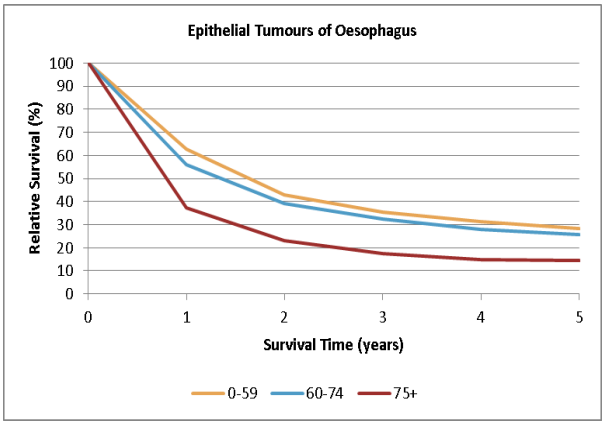
Table 24. Epithelial Tumours of Oesophagus – Survival by Sex

	N	Observed Survival				Relative Survival			
Males	at risk	1 year	3 year	5 year	5 year CI	1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF OESOPHAGUS	3,253	52.6	27.2	20.9	[19.4 ; 22.4]	54.1	29.3	23.6	[21.9 ; 25.3]
Squamous cell carcinoma	1,398	49.0	22.6	16.4	[14.4 ; 18.5]	50.1	24.0	18.1	[15.9 ; 20.4]
Adenocarcinoma with variants	1,757	56.4	31.1	24.5	[22.4 ; 26.7]	58.1	33.8	28.1	[25.7 ; 30.6]
Salivary gland type tumours	8	*	*	*	*	*	*	*	*
Undifferentiated carcinoma	22	*	*	*	*	*	*	*	*
	N	Observed Survival				Relative Survival			
Females	at risk	1 year	3 year	5 year	5 year CI	1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF OESOPHAGUS	996	48.4	28.0	20.8	[18.2 ; 23.5]	50.0	30.3	23.6	[20.7 ; 26.8]
Squamous cell carcinoma	567	49.0	28.7	21.9	[18.4 ; 25.6]	50.2	30.3	24.0	[20.1 ; 28.0]
Adenocarcinoma with variants	395	47.9	27.0	19.5	[15.5 ; 23.9]	49.9	30.2	23.4	[18.6 ; 28.6]
Salivary gland type tumours	0	-	-	-	-	-	-	-	-
Undifferentiated carcinoma	9	*	*	*	*	*	*	*	*

- Survival differs between males and females for the different histological subtypes. In line with other publications [1], survival benefit for adenocarcinoma over squamous cell carcinoma can be observed in males (5-year relative survival rates of 28.1% versus 18.1%). In females however, a slightly higher survival for squamous cell carcinoma compared with adenocarcinoma is noted (5-year relative survival of 24.0% for squamous cell carcinoma versus 23.4% for adenocarcinoma).

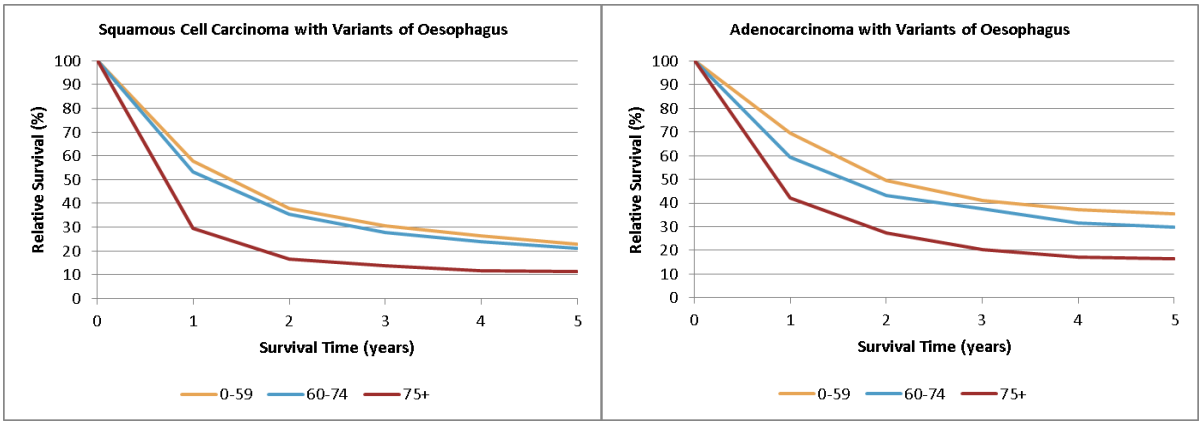
1.4.3 Survival by Age Group

Figure 51. Epithelial Tumours of Oesophagus – Relative Survival by Age Group



- Survival is comparable between the age groups 0-59 years and 60-74 years old, but lower for the patients of 75 years and older.

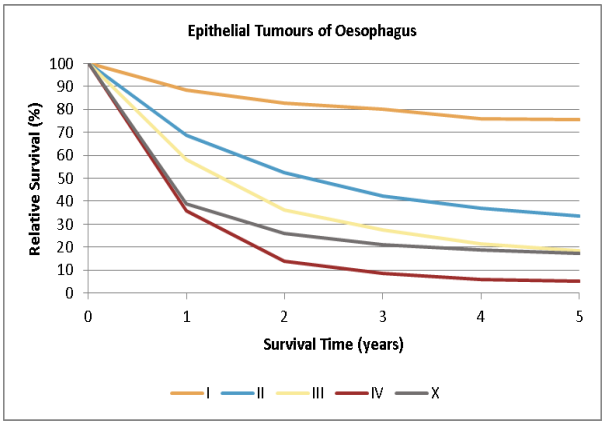
Figure 52. Squamous Cell Carcinoma and Adenocarcinoma of Oesophagus – Relative Survival by Age Group



- Survival is lower for squamous cell carcinoma than for adenocarcinoma in all age groups.

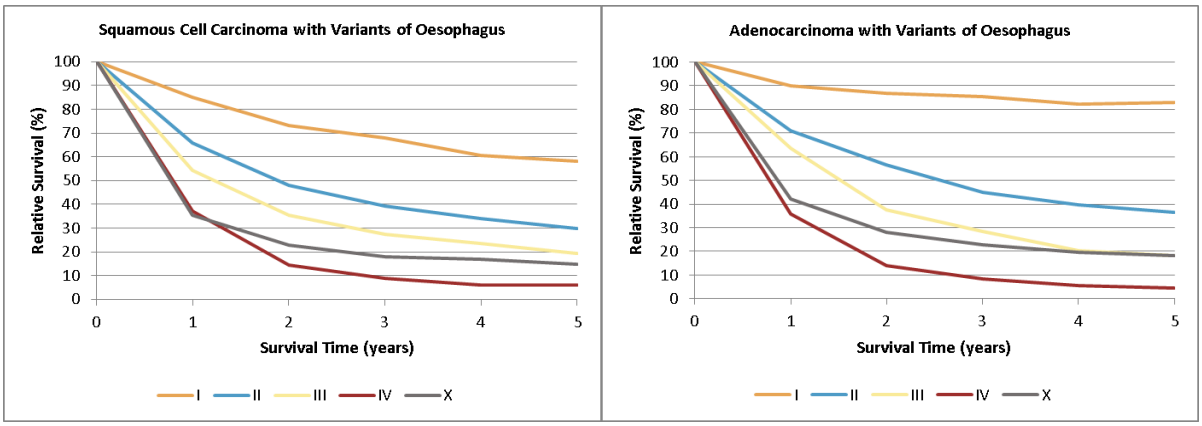
1.4.4 Survival by Stage.

Figure 53. Epithelial Tumours of Oesophagus – Relative Survival by Stage



- Survival highly depends on the stage at diagnosis.
- Patients diagnosed with a stage I tumour have a 5-year relative survival of about 75%.
- Prognosis is worst for patients diagnosed with a stage IV tumour, for whom survival declines from 35.9% one year after diagnosis to a 5-year relative survival of only 5.1%.

Figure 54. Squamous Cell Carcinoma and Adenocarcinoma of Oesophagus – Relative Survival by Stage and Histology



- Prognosis of Stage I tumours is remarkably worse for squamous cell carcinoma compared to adenocarcinoma of the oesophagus.
- Survival for patients diagnosed with a Stage III and IV tumour is almost similar for squamous cell carcinoma and adenocarcinoma.

2. Epithelial Tumours of Stomach

2.1 General Results

Table 25. Epithelial Tumours of Stomach: Incidence, Trends, Survival

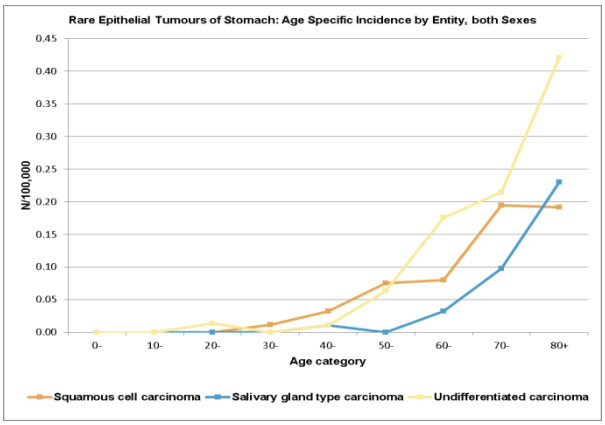
Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF STOMACH	C	7,886	12.97	5.71	72	-1.7	0.004	6,999	27.4
Adenocarcinoma with variants of stomach	C	7,630	12.55	5.53	72	-1.7	0.008	6,773	27.5
Squamous cell carcinoma with variants of stomach	R	30	0.05	0.03	66	*	*	27	*
Salivary gland-type tumours of stomach	R	14	0.02	0.01	75	*	*	12	*
Undifferentiated carcinoma of stomach	R	40	0.07	0.03	70	-10.6	0.199	37	17.7
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF STOMACH	C	4,998	16.67	8.33	71	-2.1	<0.001	4,371	26.4
Adenocarcinoma with variants of stomach	C	4,847	16.16	8.08	71	-1.7	<0.001	4,239	26.6
Squamous cell carcinoma with variants of stomach	R	18	0.06	0.04	62	*	*	17	*
Salivary gland-type tumours of stomach	R	8	0.03	0.01	78	*	*	7	*
Undifferentiated carcinoma of stomach	R	27	0.09	0.05	68	*	*	25	*
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF STOMACH	C	2,888	9.37	3.52	74	-2.3	0.082	2,628	29.1
Adenocarcinoma with variants of stomach	C	2,783	9.03	3.40	74	-2.3	0.109	2,534	29.0
Squamous cell carcinoma with variants of stomach	R	12	0.04	0.01	73	*	*	10	*
Salivary gland-type tumours of stomach	R	6	0.02	0.01	70	*	*	5	*
Undifferentiated carcinoma of stomach	R	13	0.04	0.02	75	*	*	12	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

2.2 Incidence

- 7,886 new epithelial tumours of stomach are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 2.4.
- RARECARE defines four different entities:
  - The very common adenocarcinomas represent 97% of the epithelial stomach tumours and are not considered as rare cancers.
  - Squamous cell carcinoma is less common and primarily diagnosed at the cardia.
  - 14 diagnoses of salivary gland type tumours are registered between 2001 and 2010.
  - Undifferentiated carcinoma represents 40 new cases.

Figure 55. Rare Epithelial Tumours of Stomach: Age Specific Incidence by Histological Subtype



- Under the age of 60 years, the squamous cell carcinomas are the most common of the rare stomach cancer entities.
- The age specific incidence rates for undifferentiated carcinomas increase from the age of 50 years old. The increase continues with age and in the elderly (age group 80+) this histology type is twice as common as the other 2 rare entities.
- Salivary gland type tumours increase from the age of 60 years.

2.3 Survival

2.3.1 Overall Survival

Table 26. Epithelial Tumours of Stomach – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF STOMACH	6,999	49.5	27.1	21.8	14.4	[20.8 ; 22.8]	51.8	31.1	27.4	23.6	[26.1 ; 28.7]
Adenocarcinoma with variants	6,773	50.0	27.3	21.9	14.2	[20.8 ; 22.9]	52.4	31.3	27.5	23.2	[26.2 ; 28.8]
Squamous cell carcinoma with variants	27	*	*	*	*	*	*	*	*	*	*
Salivary gland-type tumours	12	*	*	*	*	*	*	*	*	*	*
Undifferentiated carcinoma	37	24.3	15.1	15.1	-	[5.6 ; 29.0]	25.3	17.4	17.7	-	[6.8 ; 33.4]

- Survival is low for patients diagnosed with an epithelial tumour of the stomach. One year after diagnosis, half of the patients has already died (1-year observed survival: 49.5%, 1-year relative survival: 51.8%).
- Relative survival decreases to 23.6% after ten years of follow-up.

2.3.2 Survival by Sex

Table 27. Epithelial Tumours of Stomach – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF STOMACH	4,371	50.7	26.7	21.0	[19.8 ; 22.3]	53.0	30.5	26.4	[24.8 ; 28.0]
Adenocarcinoma with variants	4,239	51.3	27.0	21.2	[19.9 ; 22.5]	53.6	30.8	26.6	[25.0 ; 28.3]
Squamous cell carcinoma with variants	17	*	*	*	*	*	*	*	*
Salivary gland-type tumours	7	*	*	*	*	*	*	*	*
Undifferentiated carcinoma	25	*	*	*	*	*	*	*	*
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF STOMACH	2,628	47.4	27.8	23.0	[21.4 ; 24.7]	49.8	32.0	29.1	[27.0 ; 31.3]
Adenocarcinoma with variants	2,534	48.0	27.9	23.0	[21.3 ; 24.8]	50.3	32.1	29.0	[26.9 ; 31.2]
Squamous cell carcinoma with variants	10	*	*	*	*	*	*	*	*
Salivary gland-type tumours	5	*	*	*	*	*	*	*	*
Undifferentiated carcinoma	12	*	*	*	*	*	*	*	*

- Five-year relative survival is higher in females than males (29.1% and 26.4%).

3. Epithelial Tumours of Small Intestine

3.1 General Results

Table 28. Epithelial Tumours of Small Intestine: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF SMALL INTESTINE	R	462	0.76	0.34	71	-3.0	0.191	381	36.4
Adenocarcinoma with variants of small intestine	R	426	0.70	0.31	71	-1.8	0.370	349	34.9
Squamous cell carcinoma with variants of small intestine	R	4	0.01	0.00	60	*	*	2	*
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF SMALL INTESTINE	R	260	0.87	0.43	70	-2.4	0.411	205	36.4
Adenocarcinoma with variants of small intestine	R	241	0.80	0.39	71	-1.5	0.595	190	33.9
Squamous cell carcinoma with variants of small intestine	R	3	0.01	0.01	60	*	*	1	*
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF SMALL INTESTINE	R	202	0.66	0.26	72	-4.8	0.234	176	35.9
Adenocarcinoma with variants of small intestine	R	185	0.60	0.24	72	-3.3	0.413	159	35.4
Squamous cell carcinoma with variants of small intestine	R	1	0.00	0.00	61	*	*	1	*

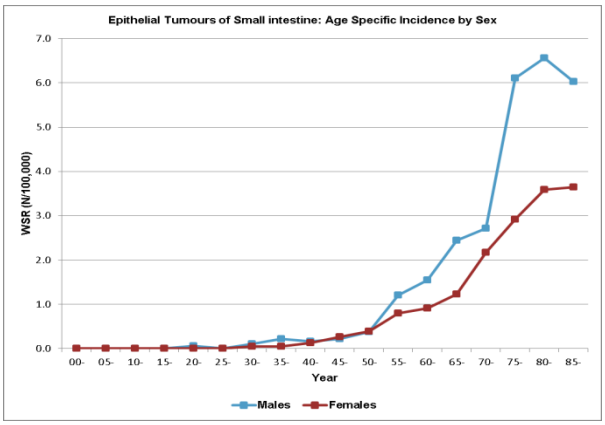
R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

3.2 Incidence

- 462 new epithelial tumours of small intestine are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 1.6.
- RARECARE defines two different entities:

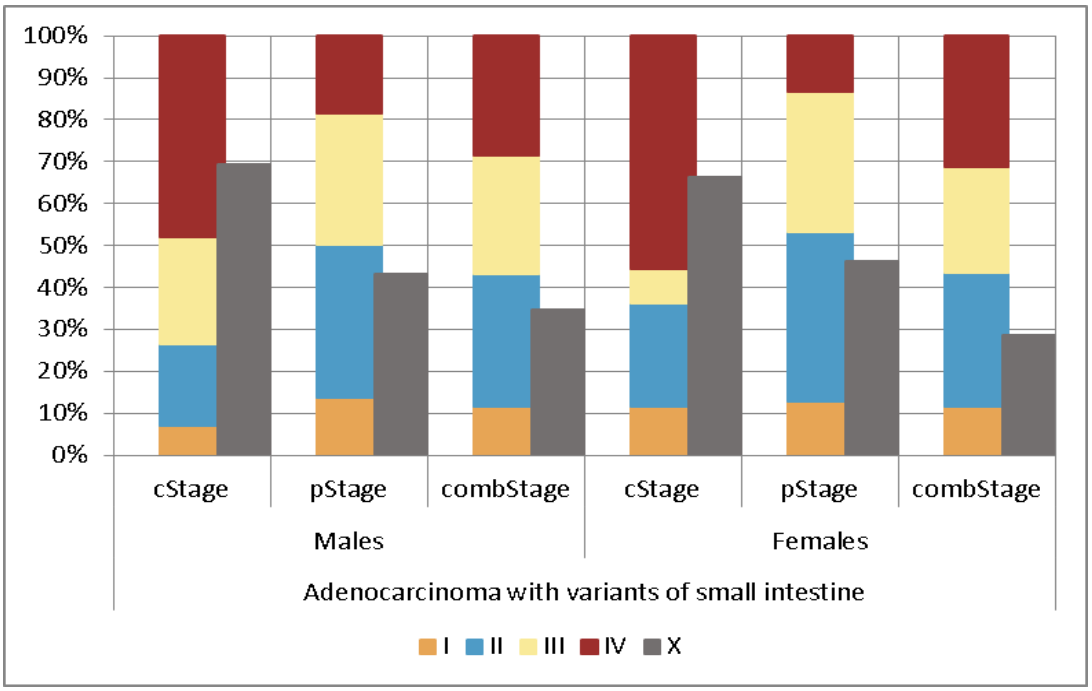
- The very common adenocarcinomas represent 92% of the epithelial small intestine tumours.
- Squamous cell carcinoma accounts for only 4 cases of small intestine carcinomas, registered at the small intestine between 2001 and 2010 in the Flemish Region.

Figure 56. Epithelial Tumours of Small Intestine: Age Specific Incidence by Sex



- Until the age of 50 years old, the incidence rates between males and females are very comparable.
- After the age of 50 years old, age specific incidence rates increases fast, with higher rates in males than in females.

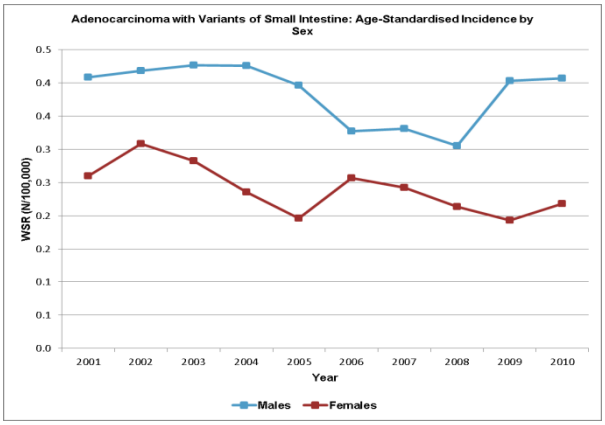
Figure 57. Adenocarcinoma with Variants of Small Intestine: Stage Distribution by Sex



- In about one out of three adenocarcinomas, no information on stage is available. Pathological staging (~45% missing) is more available than clinical staging (~68% missing).
- A high proportion of cancers present in advanced clinical stage, with more than 70% of males and 60% of females diagnosed in clinical stage III or IV.

3.3 Trends

Figure 58. Adenocarcinoma with Variants of Small Intestine: Age Standardised Incidence by Sex (three year moving average)



- No significant trend is observed in males nor in females

3.4 Survival

3.4.1 Overall Survival

Table 29. Epithelial Tumours of Small Intestine – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF SMALL INTESTINE	381	53.5	35.9	30.9	20.2	[26.1 ; 35.8]	55.6	39.6	36.4	29.8	[30.7 ; 42.2]
Adenocarcinoma with variants	349	53.0	34.4	29.4	18.9	[24.5 ; 34.6]	55.0	37.9	34.9	28.9	[29.0 ; 40.9]
Squamous cell carcinoma with variants	2	*	*	*	*	*	*	*	*	*	*

- Survival decreases rapidly after diagnosis with only slightly more than half of the patients surviving after the first year of diagnosis(1-year relative survival: 55.6%).
- Thereafter, survival decreases more slowly to reach a 10-year relative survival of about 30%.

3.4.2 Survival by Sex

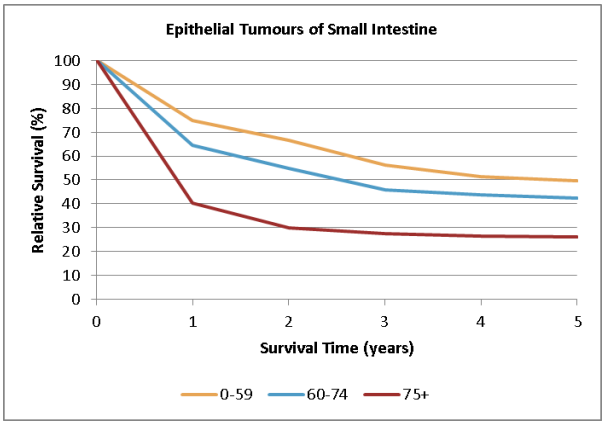
Table 30. Epithelial Tumours of Small Intestine – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF SMALL INTESTINE	205	54.2	36.8	30.4	[23.8 ; 37.2]	56.3	41.1	36.4	[28.5 ; 44.6]
Adenocarcinoma with variants	190	52.1	34.6	28.0	[21.3 ; 35.1]	54.3	38.7	33.9	[25.8 ; 42.5]
Squamous cell carcinoma with variants	1	*	*	*	*	*	*	*	*
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF SMALL INTESTINE	176	52.8	34.8	31.2	[24.3 ; 38.4]	54.6	37.9	35.9	[27.9 ; 44.1]
Adenocarcinoma with variants	159	54.1	34.0	30.7	[23.4 ; 38.3]	55.8	36.9	35.4	[27.0 ; 44.1]
Squamous cell carcinoma with variants	1	*	*	*	*	*	*	*	*

- Survival is similar for males and females at all follow-up points.

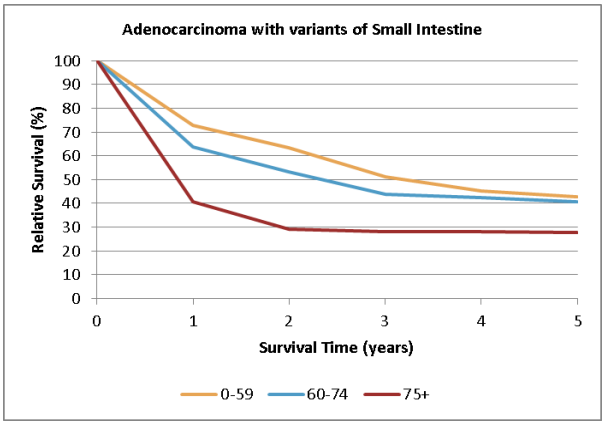
3.4.3 Survival by Age Group

Figure 59. Epithelial Tumours of Small Intestine - Relative Survival by Age Group



- Survival is slightly better in the age group 0-59 years compared with the age group 60-74 years, but worse for patients of 75 years and older.

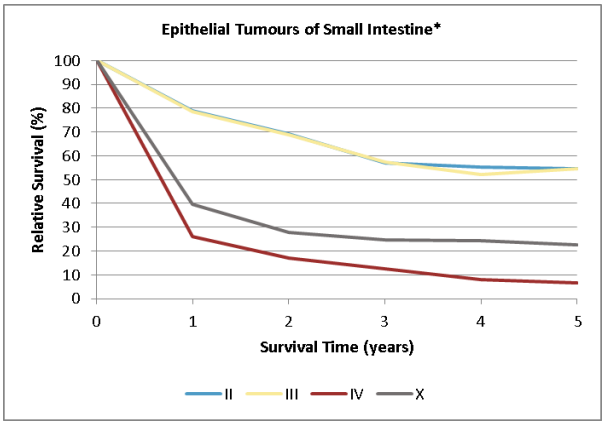
Figure 60. Adenocarcinoma with Variants of Small Intestine – Relative Survival by Age Group



- As almost all patients with an epithelial tumour of small intestine are diagnosed with an adenocarcinoma, survival by age group for the adenocarcinomas is very similar to survival of all epithelial tumours of small intestine together.

3.4.4 Survival by Stage

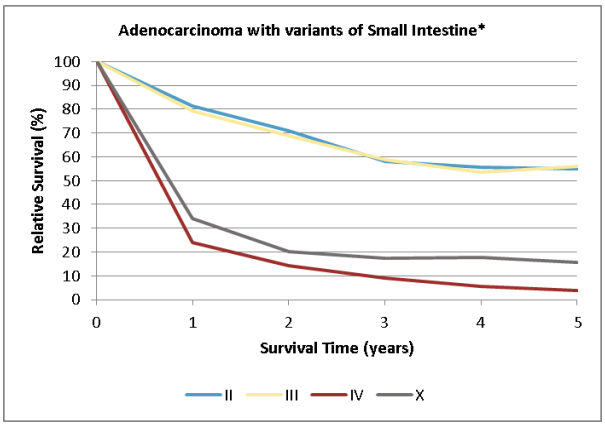
Figure 61. Epithelial Tumours of Small Intestine - Relative Survival by Stage



* Survival of Stage I is not shown because the number at risk is smaller than 35.

- Prognosis is almost the same for patients diagnosed with a stage II or III cancer (5-year relative survival about 55%).
- Relative survival for patients diagnosed with a tumour stage IV cancer of the small intestine is very poor at one year after diagnosis (26.0%) and further decreases to only 6.6% after five years.

Figure 62. Adenocarcinoma with Variants of Small Intestine – Relative Survival by Stage



* Survival of Stage I is not shown because the number at risk is smaller than 35.

- Because almost all patients with an epithelial tumour of small intestine are diagnosed with an adenocarcinoma, survival by stage for the adenocarcinomas is very similar to the survival rates for all epithelial tumours of small intestine together.

4. Epithelial Tumours of Colon

4.1 General Results

Table 31. Epithelial Tumours of Colon: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF COLON	C	31,504	51.82	22.90	72	0.5	0.210	27,579	62.7
Adenocarcinoma with variants of colon	C	30,796	50.65	22.46	72	1.0	0.020	26,929	63.6
Squamous cell carcinoma with variants of colon	R	9	0.01	0.01	68	*	*	8	*
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF COLON	C	16,815	56.07	27.59	71	0.6	0.170	14,396	62.0
Adenocarcinoma with variants of colon	C	16,487	54.98	27.08	71	1.0	0.031	14,103	62.8
Squamous cell carcinoma with variants of colon	R	2	0.01	0.00	74	*	*	2	*
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF COLON	C	14,689	47.67	19.08	73	0.5	0.407	13,183	63.5
Adenocarcinoma with variants of colon	C	14,309	46.44	18.70	72	0.9	0.056	12,826	64.4
Squamous cell carcinoma with variants of colon	R	7	0.02	0.01	66	*	*	6	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

4.2 Incidence

- 31,504 new epithelial tumours of colon are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 1.4.
- RARECARE differentiates between two entities:
  - The very common adenocarcinoma.
  - The very rare squamous cell carcinoma. Only 9 cases are diagnosed in the Flemish Region between 2001 and 2010 of which the majority are females.

4.3 Survival

4.3.1 Overall Survival

Table 32. Epithelial Tumours of Colon – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF COLON	27,579	78.4	60.3	50.5	36.0	[49.9 ; 51.1]	81.7	68.3	62.7	58.3	[61.9 ; 63.5]
Adenocarcinoma with variants	26,929	79.5	61.2	51.2	36.4	[50.5 ; 51.8]	82.9	69.3	63.6	59.1	[62.8 ; 64.4]
Squamous cell carcinoma with variants	8	*	*	*	*	*	*	*	*	*	*

- Survival is rather good for patients diagnosed with an epithelial tumour of colon (5-year relative survival: 62.7%, 10-year relative survival: 58.3%).

4.3.2 Survival by Sex

Table 33. Epithelial Tumours of Colon – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF COLON	14,396	78.7	59.9	49.3	[48.4 ; 50.2]	82.1	68.4	62.0	[60.9 ; 63.0]
Adenocarcinoma with variants	14,103	79.7	60.7	49.9	[49.0 ; 50.8]	83.2	69.3	62.8	[61.6 ; 63.9]
Squamous cell carcinoma with variants	2	*	*	*	*	*	*	*	*
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF COLON	13,183	78.2	60.7	51.8	[50.9 ; 52.7]	81.3	68.2	63.5	[62.4 ; 64.6]
Adenocarcinoma with variants	12,826	79.4	61.6	52.6	[51.6 ; 53.5]	82.5	69.2	64.4	[63.3 ; 65.5]
Squamous cell carcinoma with variants	6	*	*	*	*	*	*	*	*

- Prognosis is comparable for males and females diagnosed with an epithelial colon tumour (5-year relative survival of 62.0% and 63.5% respectively).

5. Epithelial Tumours of Rectum

5.1 General Results

Table 34. Epithelial Tumours of Rectum: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF RECTUM	C	13,062	21.48	10.49	69	1.2	0.015	11,803	64.9
Adenocarcinoma with variants of rectum	C	12,881	21.19	10.36	69	1.5	0.004	11,636	65.2
Squamous cell carcinoma with variants of rectum	R	21	0.03	0.02	69	5.9	0.493	20	*
Basaloid carcinoma of rectum	R	1	0.00	0.00	68	*	*	1	*
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF RECTUM	C	7,946	26.50	14.00	68	1.1	0.012	7,096	65.1
Adenocarcinoma with variants of rectum	C	7,853	26.19	13.85	68	1.5	0.004	7,010	65.4
Squamous cell carcinoma with variants of rectum	R	9	0.03	0.01	69	*	*	9	*
Basaloid carcinoma of rectum	R	0	-	-	-	-	-	-	-
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF RECTUM	C	5,116	16.60	7.46	70	1.1	0.136	4,707	64.6
Adenocarcinoma with variants of rectum	C	5,028	16.32	7.35	70	1.3	0.062	4,626	65.0
Squamous cell carcinoma with variants of rectum	R	12	0.04	0.02	70	*	*	11	*
Basaloid carcinoma of rectum	R	1	0.00	0.00	68	*	*	1	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

5.2 Incidence

- 13,062 new epithelial tumours of the rectum are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 1.9.
- RARECARE differentiates between three entities:
  - The very common adenocarcinoma.
  - The very rare squamous cell carcinoma of which only 21 cases are diagnosed in the Flemish Region between 2001 and 2010.

- Only one diagnosis of basaloid rectal carcinoma is registered.

5.3 Survival

5.3.1 Overall Survival

Table 35. Epithelial Tumours of Rectum – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF RECTUM	11,803	83.2	65.8	54.7	39.8	[53.7 ; 55.6]	86.1	72.8	64.9	57.9	[63.8 ; 66.1]
Adenocarcinoma with variants	11,636	83.6	66.2	55.0	39.9	[54.0 ; 55.9]	86.5	73.2	65.2	58.1	[64.1 ; 66.4]
Squamous cell carcinoma with variants	20	*	*	*	*	*	*	*	*	*	*
Basaloid carcinoma	1	*	*	*	*	*	*	*	*	*	*

- Survival at one year after diagnosis is rather high, with more than 80% of patients surviving.
- Relative survival decreases to 57.9% at ten years after diagnosis.

5.3.2 Survival by Sex

Table 36. Epithelial Tumours of Rectum – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF RECTUM	7,096	83.3	65.6	54.3	[53.0 ; 55.5]	86.4	73.1	65.1	[63.6 ; 66.6]
Adenocarcinoma with variants	7,010	83.7	65.9	54.5	[53.2 ; 55.8]	86.7	73.4	65.4	[63.9 ; 67.0]
Squamous cell carcinoma with variants	9	*	*	*	*	*	*	*	*
Basaloid carcinoma	0	-	-	-	-	-	-	-	-
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF RECTUM	4,707	82.9	66.0	55.3	[53.7 ; 56.8]	85.6	72.3	64.6	[62.8 ; 66.4]
Adenocarcinoma with variants	4,626	83.5	66.5	55.6	[54.1 ; 57.2]	86.1	72.8	65.0	[63.1 ; 66.7]
Squamous cell carcinoma with variants	11	*	*	*	*	*	*	*	*
Basaloid carcinoma	1	*	*	*	*	*	*	*	*

- Survival does almost not differ between males and females.

6. Epithelial Tumours of Anal Canal

6.1 General Results

Table 37. Epithelial Tumours of Anal Canal: Incidence, Trends, Survival

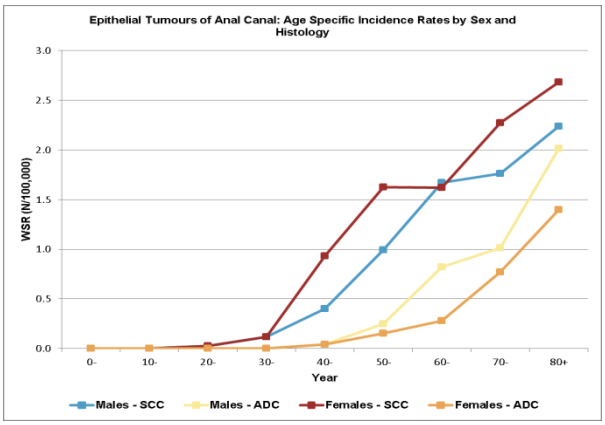
Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF ANAL CANAL	R	609	1.00	0.53	66	2.8	0.199	539	68.6
Squamous cell carcinoma with variants of anal canal	R	452	0.74	0.42	64	2.9	0.191	405	73.9
Adenocarcinoma with variants of anal canal	R	141	0.23	0.10	72	1.9	0.673	123	51.4
Paget's disease of anal canal	R	5	0.01	0.00	67	*	*	0	-
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF ANAL CANAL	R	264	0.88	0.50	65	2.4	0.282	230	63.9
Squamous cell carcinoma with variants of anal canal	R	176	0.59	0.35	64	2.4	0.385	156	69.6
Adenocarcinoma with variants of anal canal	R	78	0.26	0.13	70	1.2	0.844	68	50.9
Paget's disease of anal canal	R	4	0.01	0.01	66	*	*	0	-
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF ANAL CANAL	R	345	1.12	0.56	67	2.8	0.325	309	72.0
Squamous cell carcinoma with variants of anal canal	R	276	0.90	0.48	65	3.0	0.248	249	76.6
Adenocarcinoma with variants of anal canal	R	63	0.20	0.07	75	1.8	0.712	55	52.4
Paget's disease of anal canal	R	1	0.00	0.00	70	*	*	0	-

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

6.2 Incidence

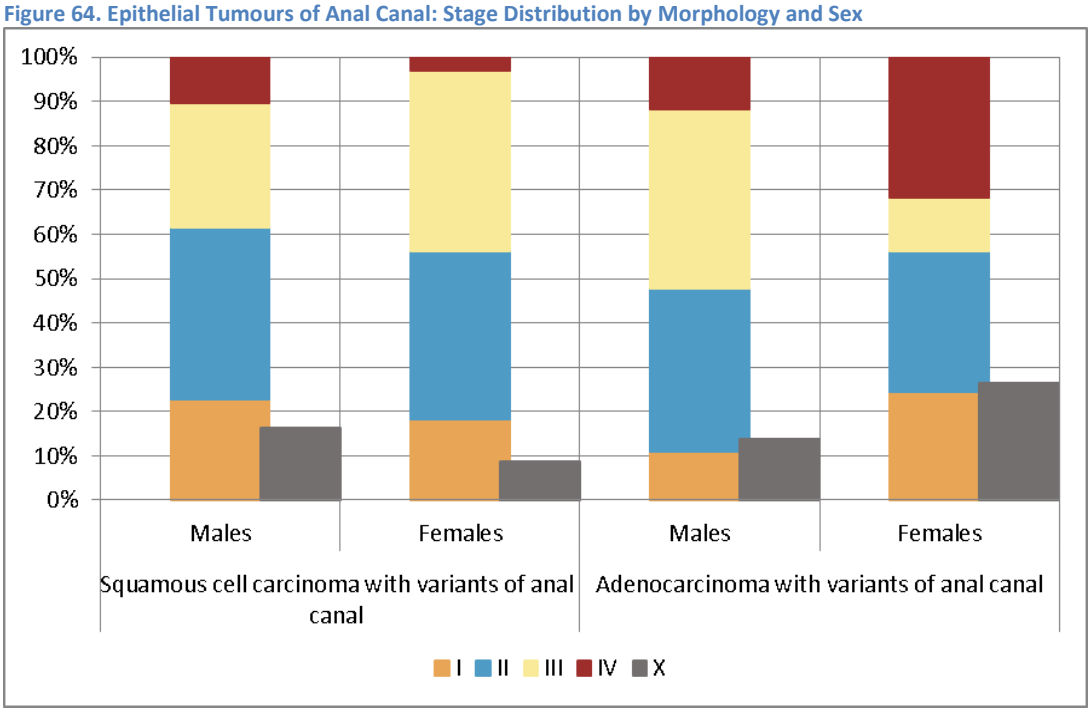
- 609 new epithelial tumours of the anal canal are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 0.9.
- RARECARE differentiates between three rare entities:
  - Squamous cell carcinoma represents two out of three diagnoses in males and four out of five in females. More females are diagnosed than males (M/F ratio = 0.7).
  - Adenocarcinomas occur more frequently in males (M/F ratio = 1.8).
  - Only 5 Paget's diseases of anal canal are diagnosed in the Flemish Region between 2001 and 2010.

Figure 63. Epithelial tumours of Anal Canal: Age Specific Incidence Rates by Sex and Histology



- Incidence rates increase for squamous cell carcinoma from the age of 30 years old. In females, the increase is faster than in males.
- Adenocarcinoma incidence rates increase from the age of 50 years old. The increase in males is more pronounced than in females.

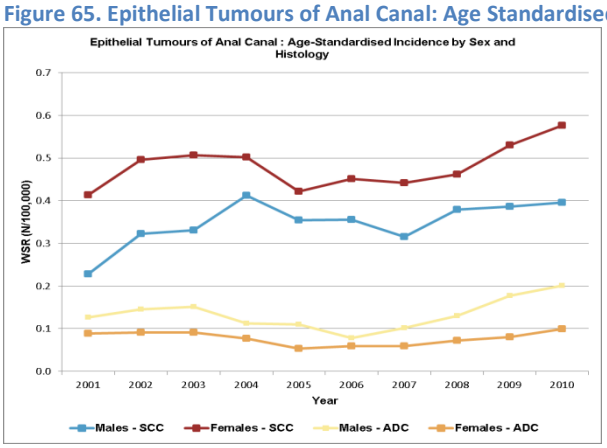
Figure 64. Epithelial Tumours of Anal Canal: Stage Distribution by Morphology and Sex



- Squamous cell carcinomas have a prognostic better stage distribution than adenocarcinomas.
    - In males, stage I and II represent more than 60% of the squamous cell carcinoma cases and less than 50% of the adenocarcinomas.
    - In females, more than 30% of the adenocarcinomas are diagnosed in stage IV. This should be interpreted with caution due to the very limited number of adenocarcinoma cases.

6.3 Trends

Figure 65. Epithelial Tumours of Anal Canal: Age Standardised Incidence by Sex and Histology



- Incidence rates for squamous and adenocarcinoma increase in both sexes, but none of the trends is significant.
- The increase in squamous cell carcinoma incidence is almost twice the increase in adenocarcinoma.

6.4 Survival

6.4.1 Overall Survival

Table 38. Epithelial Tumours of Anal Canal – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF ANAL CANAL	539	83.3	66.9	59.3	45.6	[54.7 ; 63.6]	86.0	73.0	68.6	59.7	[63.2 ; 73.6]
Squamous cell carcinoma with variants	405	86.4	71.7	65.3	50.2	[60.1 ; 70.0]	88.9	77.2	73.9	63.0	[68.0 ; 79.2]
Adenocarcinoma with variants	123	75.6	53.8	40.8	31.1	[30.9 ; 50.4]	79.0	61.3	51.4	48.2	[38.9 ; 63.5]
Paget's disease	0	-	-	-	-	-	-	-	-	-	-

- Patients with an epithelial tumour of the anal canal have a rather good prognosis ranging from an relative survival of 86.0% at one year to 59.7% at ten years after diagnosis.
- Squamous cell carcinoma with variants of the anal canal have a better prognosis than adenocarcinoma at all points in time.

6.4.2 Survival by Sex

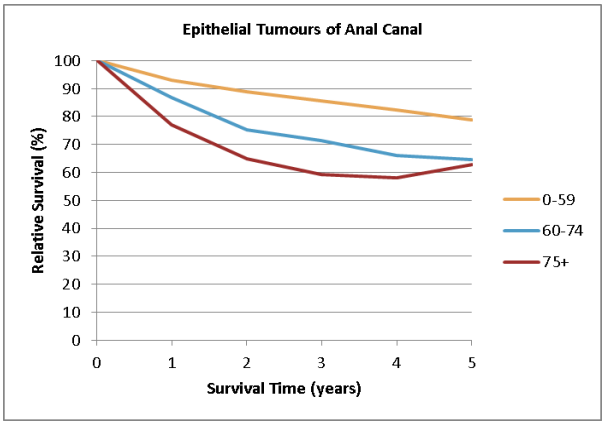
Table 39. Epithelial Tumours of Anal Canal – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF ANAL CANAL	230	79.6	63.1	54.3	[47.1 ; 60.9]	82.1	69.4	63.9	[55.4 ; 71.8]
Squamous cell carcinoma with variants	156	82.7	69.3	60.5	[51.7 ; 68.1]	85.0	75.2	69.6	[59.5 ; 78.4]
Adenocarcinoma with variants	68	75.0	49.5	39.8	[26.8 ; 52.5]	78.4	56.9	50.9	[34.1 ; 67.3]
Paget's disease	0	-	-	-	-	-	-	-	-
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF ANAL CANAL	309	86.1	69.8	63.1	[57.1 ; 68.6]	88.8	75.6	72.0	[65.1 ; 78.3]
Squamous cell carcinoma with variants	249	88.8	73.2	68.5	[61.9 ; 74.2]	91.3	78.5	76.6	[69.2 ; 82.9]
Adenocarcinoma with variants	55	76.4	59.2	42.5	[27.6 ; 56.6]	79.9	66.8	52.4	[34.1 ; 69.7]
Paget's disease	0	-	-	-	-	-	-	-	-

- Survival is better in females than males for both squamous cell carcinomas and adenocarcinomas although the difference is less pronounced in adenocarcinomas.

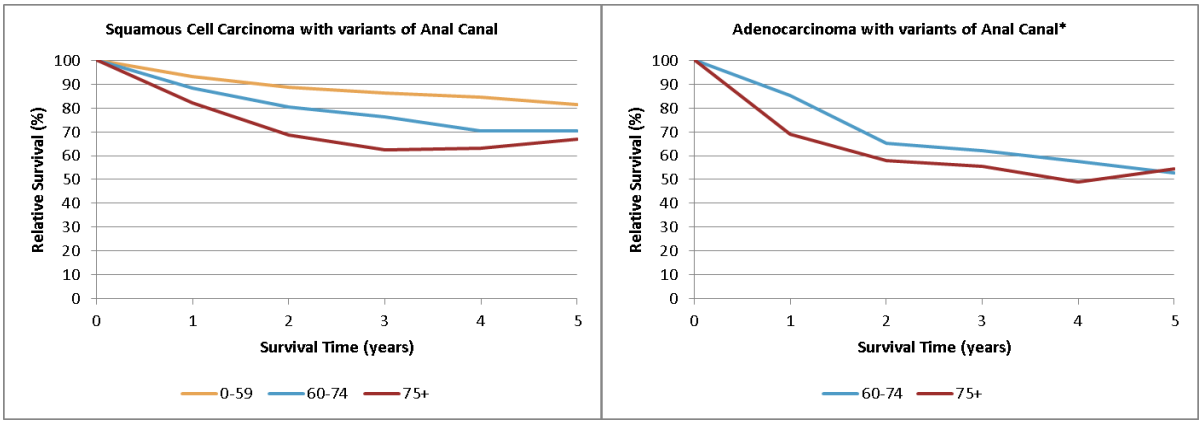
6.4.3 Survival by Age Group

Figure 66. Epithelial Tumours of Anal Canal – Relative Survival by Age Group



- Survival is better for the youngest age group (0-59 years) than for the older age groups.
- Relative survival for the oldest patients is only 59.2% after three years of follow-up and stays stable afterwards.

Figure 67. Squamous Cell Carcinoma and Adenocarcinoma of Anal Canal – Relative Survival by Age Group

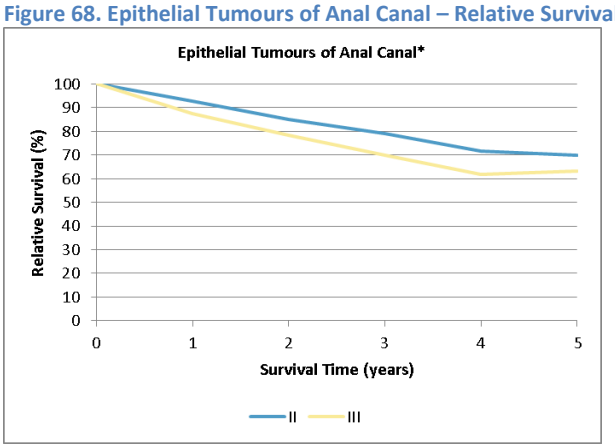


* Survival of the age group 0-59 years is not displayed because the number at risk is smaller than 35.

- Survival is worse for adenocarcinoma than for squamous cell carcinoma, especially in the age group 60-74 years.

6.4.4 Survival by Stage

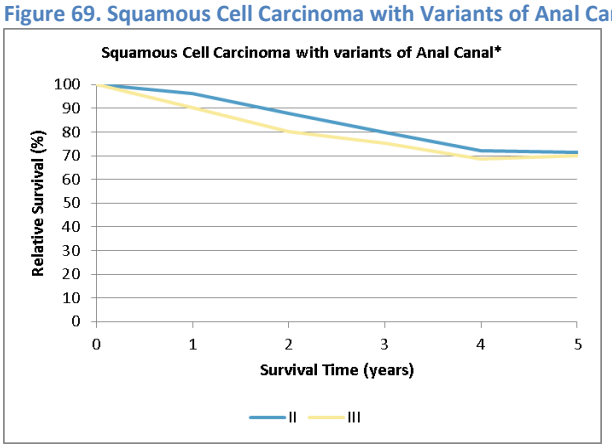
Figure 68. Epithelial Tumours of Anal Canal – Relative Survival by Stage



* Survival of the stage I and IV is not displayed because the number at risk is smaller than 35.

- Relative survival is rather good, with 70% at 5 years for stage II and more than 60% for stage III.

Figure 69. Squamous Cell Carcinoma with Variants of Anal Canal – Relative Survival by Stage



* Survival of the stage I and IV is not displayed because the number at risk is smaller than 35.

- For a large part of the epithelial tumours of anal canal, no stage is available because they originate from a location for which staging is not applicable according to TNM.
- For all epithelial tumours of the anal canal together, only a very small survival benefit can be observed for stage II tumours compared with stage III tumours. This difference is even more negligible for squamous cell carcinoma.

7. Epithelial Tumours of Pancreas

7.1 General Results

Table 40. Epithelial Tumours of Pancreas: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF PANCREAS	C	6,320	10.39	4.93	70	2.1	0.001	5,685	7.1
Adenocarcinoma with variants of pancreas	C	4,914	8.08	4.07	68	3.0	<0.001	4,414	6.1
Squamous cell carcinoma with variants of pancreas	R	3	0.00	0.00	68	*	*	3	*
Acinar cell carcinoma of pancreas	R	27	0.04	0.02	65	*	*	26	*
Mucinous cystadenocarcinoma of pancreas	R	10	0.02	0.01	64	*	*	9	*
Intraductal papillary mucinous carcinoma invasive of pancreas	R	23	0.04	0.02	64	*	*	18	*
Solid pseudopapillary carcinoma of pancreas	R	7	0.01	0.01	47	*	*	6	*
Serous cystadenocarcinoma of pancreas	R	1	0.00	0.00	74	*	*	1	*
Carcinoma with osteoclast-like giant cells of pancreas	R	2	0.00	0.00	72	*	*	2	*
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF PANCREAS	C	3,296	10.99	5.80	68	1.2	0.148	2,905	7.8
Adenocarcinoma with variants of pancreas	C	2,647	8.83	4.80	67	2.1	0.006	2,333	6.8
Squamous cell carcinoma with variants of pancreas	R	3	0.01	0.01	68	*	*	3	*
Acinar cell carcinoma of pancreas	R	17	0.06	0.03	66	*	*	16	*
Mucinous cystadenocarcinoma of pancreas	R	3	0.01	0.01	71	*	*	2	*
Intraductal papillary mucinous carcinoma invasive of pancreas	R	14	0.05	0.03	62	*	*	11	*
Solid pseudopapillary carcinoma of pancreas	R	3	0.01	0.01	70	*	*	2	*
Serous cystadenocarcinoma of pancreas	R	0	-	-	-	-	-	0	-
Carcinoma with osteoclast-like giant cells of pancreas	R	0	-	-	-	-	-	0	-
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF PANCREAS	C	3,024	9.81	4.14	71	2.6	0.002	2,780	6.3
Adenocarcinoma with variants of pancreas	C	2,267	7.36	3.39	69	4.1	<0.001	2,081	5.3
Squamous cell carcinoma with variants of pancreas	R	0	-	-	-	-	-	0	-
Acinar cell carcinoma of pancreas	R	10	0.03	0.02	64	*	*	10	*
Mucinous cystadenocarcinoma of pancreas	R	7	0.02	0.01	61	*	*	7	*
Intraductal papillary mucinous carcinoma invasive of pancreas	R	9	0.03	0.01	67	*	*	7	*
Solid pseudopapillary carcinoma of pancreas	R	4	0.01	0.01	30	*	*	4	*
Serous cystadenocarcinoma of pancreas	R	1	0.00	0.00	74	*	*	1	*
Carcinoma with osteoclast-like giant cells of pancreas	R	2	0.01	0.00	72	*	*	2	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

7.2 Incidence

- 6,320 new epithelial tumours of the pancreas are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 1.4.

- RARECARE differentiates between the common adenocarcinoma which represents almost all diagnoses and seven rare entities:
    - Acinar cell carcinoma is the most common rare entity with 27 cases between 2001 and 2010.
    - With 23 cases, intraductal papillary mucinous carcinoma invasive of pancreas is the 2nd most common rare pancreatic cancer entity.
    - The remaining types each represent 10 cases or less.

7.3 Survival

7.3.1 Overall Survival

Table 41. Epithelial Tumours of Pancreas – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF PANCREAS	5,685	29.4	9.1	6.2	4.6	[5.6 ; 6.9]	30.2	9.9	7.1	6.2	[6.4 ; 7.9]
Adenocarcinoma with variants	4,414	31.8	8.7	5.4	3.6	[4.7 ; 6.2]	32.5	9.3	6.1	4.9	[5.3 ; 7.0]
Squamous cell carcinoma with variants	3	*	*	*	*	*	*	*	*	*	*
Acinar cell carcinoma	26	*	*	*	*	*	*	*	*	*	*
Mucinous cystadenocarcinoma	9	*	*	*	*	*	*	*	*	*	*
Intraductal papillary mucinous carcinoma invasive	18	*	*	*	*	*	*	*	*	*	*
Solid pseudopapillary carcinoma	6	*	*	*	*	*	*	*	*	*	*
Serous cystadenocarcinoma	1	*	*	*	*	*	*	*	*	*	*
Carcinoma with osteoclast-like giant cells	2	*	*	*	*	*	*	*	*	*	*

- Survival steeply declines after diagnosis with less than one third of the patients surviving the first year.
- At three years after diagnosis, less than 10% of the patients is still alive.

7.3.2 Survival by Sex

Table 42. Epithelial Tumours of Pancreas – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF PANCREAS	2,905	29.6	9.9	6.8	[5.9 ; 7.9]	30.5	10.7	7.8	[6.7 ; 9.0]
Adenocarcinoma with variants	2,333	31.5	9.5	6.0	[5.0 ; 7.1]	32.4	10.2	6.8	[5.7 ; 8.0]
Squamous cell carcinoma with variants	3	*	*	*	*	*	*	*	*
Acinar cell carcinoma	16	*	*	*	*	*	*	*	*
Mucinous cystadenocarcinoma	2	*	*	*	*	*	*	*	*
Intraductal papillary mucinous carcinoma invasive	11	*	*	*	*	*	*	*	*
Solid pseudopapillary carcinoma	2	*	*	*	*	*	*	*	*
Serous cystadenocarcinoma	0	-	-	-	-	-	-	-	-
Carcinoma with osteoclast-like giant cells	0	-	-	-	-	-	-	-	-
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF PANCREAS	2,780	29.2	8.3	5.6	[4.7 ; 6.6]	30.0	8.9	6.3	[5.3 ; 7.5]
Adenocarcinoma with variants	2,081	32.1	7.9	4.8	[3.9 ; 5.9]	32.7	8.3	5.3	[4.3 ; 6.5]
Squamous cell carcinoma with variants	0	-	-	-	-	-	-	-	-
Acinar cell carcinoma	10	*	*	*	*	*	*	*	*
Mucinous cystadenocarcinoma	7	*	*	*	*	*	*	*	*
Intraductal papillary mucinous carcinoma invasive	7	*	*	*	*	*	*	*	*
Solid pseudopapillary carcinoma	4	*	*	*	*	*	*	*	*
Serous cystadenocarcinoma	1	*	*	*	*	*	*	*	*
Carcinoma with osteoclast-like giant cells	2	*	*	*	*	*	*	*	*

- Survival is comparable for females and males diagnosed with an epithelial tumour of the pancreas.

8. Epithelial Tumours of Liver and Intrahepatic Bile Tract (IBT)

8.1 General Results

Table 43. Epithelial Tumours of Liver and Intrahepatic Bile Tract: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF LIVER AND INTRAHEPATIC BILE TRACT (IBT)	R	2,490	4.10	2.12	67	7.0	<0.001	2,216	18.9
Hepatocellular carcinoma of Liver and IBT	R	1,690	2.78	1.49	66	8.9	<0.001	1,489	22.8
Cholangiocarcinoma of IBT	R	522	0.86	0.43	68	5.5	0.007	462	11.7
Adenocarcinoma with variants of liver and IBT	R	107	0.18	0.09	68	-4.6	0.585	101	6.6
Undifferentiated carcinoma of liver and IBT	R	0	-	-	-	-	-	0	-
Squamous cell carcinoma with variants of liver and IBT	R	0	-	-	-	-	-	0	-
Bile duct cystadenocarcinoma of IBT	R	1	0.00	0.00	67	*	*	1	*
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF LIVER AND INTRAHEPATIC BILE TRACT (IBT)	R	1,646	5.49	3.04	66	8.7	<0.001	1,438	19.7
Hepatocellular carcinoma of Liver and IBT	R	1,222	4.08	2.30	66	10.1	<0.001	1,065	22.6
Cholangiocarcinoma of IBT	R	268	0.89	0.48	67	7.7	0.016	224	11.6
Adenocarcinoma with variants of liver and IBT	R	65	0.22	0.12	66	-7.2	0.514	61	8.4
Undifferentiated carcinoma of liver and IBT	R	0	-	-	-	-	-	0	-
Squamous cell carcinoma with variants of liver and IBT	R	0	-	-	-	-	-	0	-
Bile duct cystadenocarcinoma of IBT	R	0	-	-	-	-	-	0	-
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF LIVER AND INTRAHEPATIC BILE TRACT (IBT)	R	844	2.74	1.29	69	3.2	0.026	778	17.5
Hepatocellular carcinoma of Liver and IBT	R	468	1.52	0.75	67	5.4	0.027	424	23.3
Cholangiocarcinoma of IBT	R	254	0.82	0.39	68	3.1	0.119	238	11.9
Adenocarcinoma with variants of liver and IBT	R	42	0.14	0.06	70	1.5	0.897	40	3.8
Undifferentiated carcinoma of liver and IBT	R	0	-	-	-	-	-	0	-
Squamous cell carcinoma with variants of liver and IBT	R	0	-	-	-	-	-	0	-
Bile duct cystadenocarcinoma of IBT	R	1	0.00	0.00	67	*	*	1	*

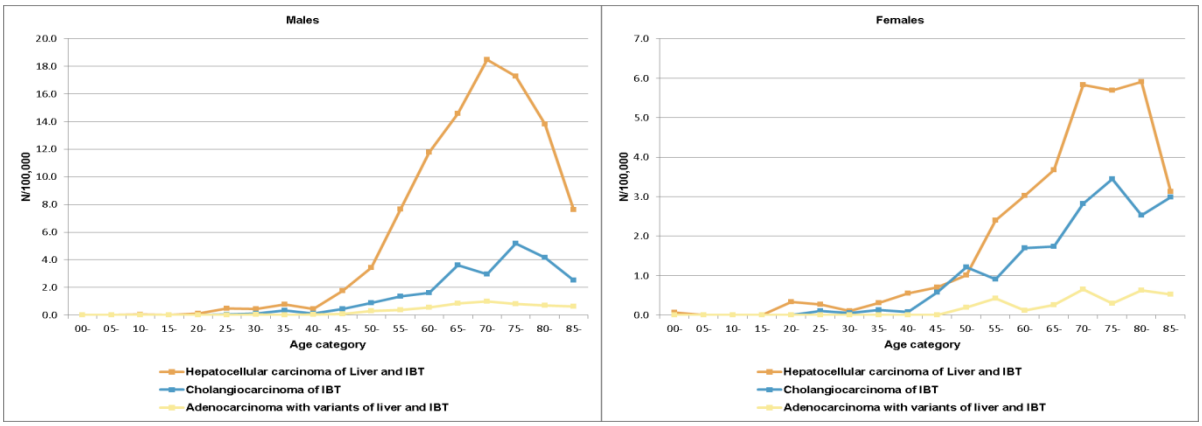
R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

8.2 Incidence

- 2,490 new epithelial tumours of the pancreas are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 2.4.
- RARECARE differentiates between six rare entities:
    - Hepatocellular carcinoma of liver and IBT is the most common subtype with 1,690 new diagnoses. Incidence rates in males are much higher than females (M/F ratio = 3.0).
    - 522 new cases of cholangiocarcinoma are diagnosed. The incidence rates for cholangiocarcinoma are more comparable between the sexes (M/F ratio = 1.2).
    - Adenocarcinoma represents 107 cases (M/F ratio = 2.0).

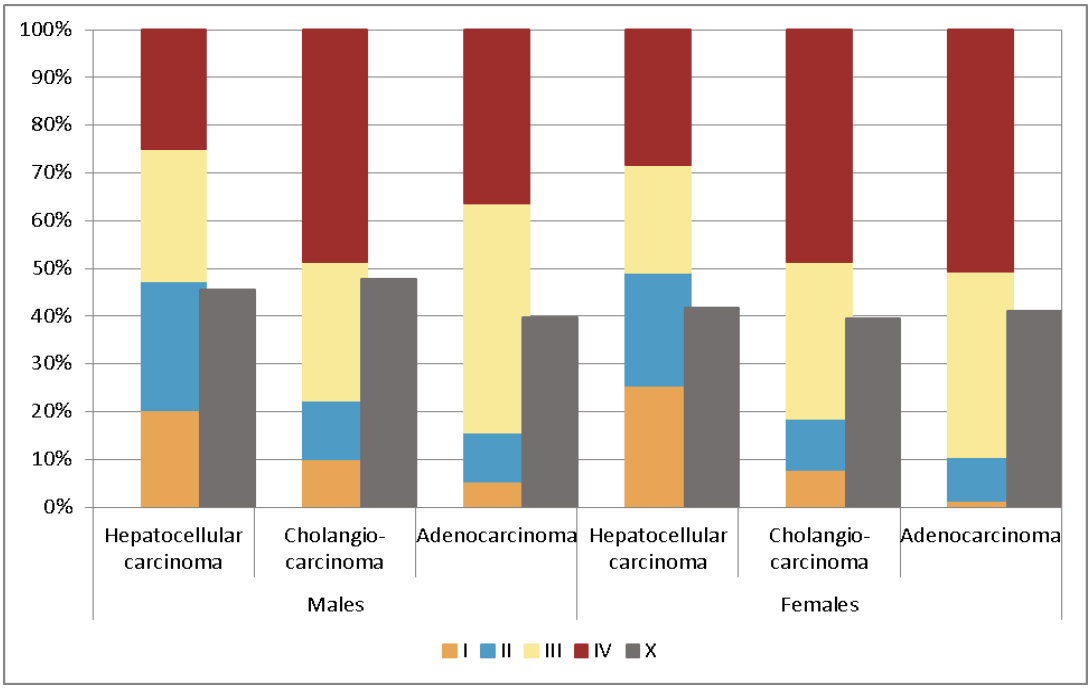
- The remaining subtypes do not occur in the Flemish Region, with the exception of 1 bile duct cystadenocarcinoma.

Figure 70. Epithelial Tumours of Liver and Intrahepatic Bile Tract (IBT): Age Specific Incidence in Males and Females



- Incidence rates for hepatocellular carcinoma increase from the age of 50 years.
- In females, the rates for cholangiocarcinoma are comparable with the rates of hepatocellular carcinoma until the age of 50 years.

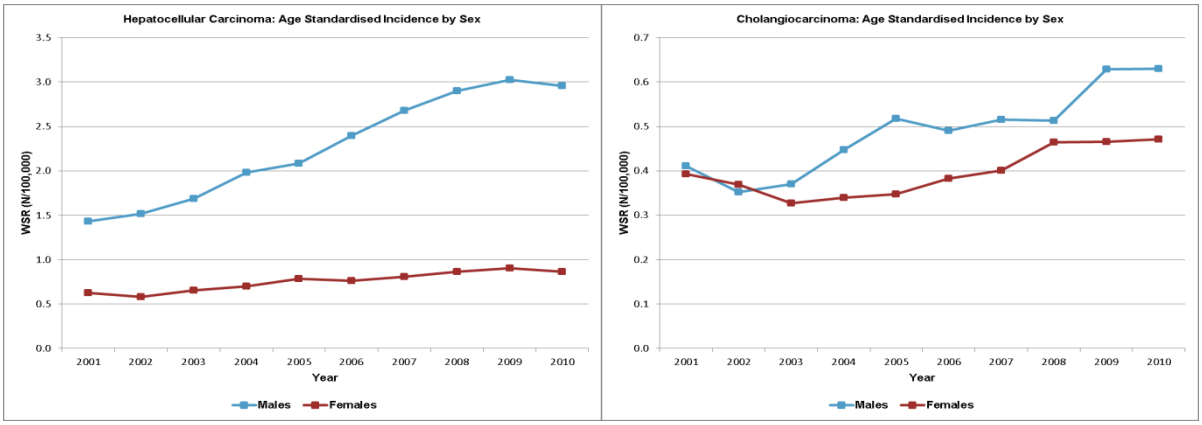
Figure 71. Epithelial Tumours of Liver and Intrahepatic Bile Tract: Stage Distribution by Morphology and Sex



- Information on the stage is available for 50-60% of all diagnoses.
- Hepatocellular carcinomas have a prognostic better stage distribution (~50% stage I and II) than the other 2 subtypes (~15-20% stage I and II).

8.3 Trends

Figure 72. Hepatocellular Carcinoma and Cholangiocarcinoma: Age Standardised Incidence by Sex (three year moving average)



- Significant incidence increases for hepatocellular carcinomas are observed in males and females.
- Cholangiocarcinomas increase significantly in males, the increase in females is not significant.
- For both subtypes, the rates increase two times faster in males than in females.

8.4 Survival

8.4.1 Overall Survival

Table 44. Epithelial Tumours of Liver and Intrahepatic Bile Tract – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF LIVER AND INTRAHEPATIC BILE TRACT (IBT)	2,216	44.4	24.6	16.9	11.4	[15.2 ; 18.6]	45.5	26.4	18.9	14.2	[17.0 ; 20.9]
Hepatocellular carcinoma of liver and IBT	1,489	48.4	29.3	20.5	14.1	[18.3 ; 22.8]	49.5	31.2	22.8	17.2	[20.3 ; 25.4]
Cholangiocarcinoma of IBT	462	38.5	16.9	10.4	6.4	[7.6 ; 13.7]	39.5	18.2	11.7	8.2	[8.6 ; 15.4]
Adenocarcinoma with variants of liver and IBT	101	38.6	14.4	6.0	4.0	[2.1 ; 12.8]	39.7	15.3	6.6	4.8	[2.3 ; 14.2]
Undifferentiated carcinoma of liver and IBT	0	-	-	-	-	-	-	-	-	-	-
Squamous cell carcinoma with variants of liver and IBT	0	-	-	-	-	-	-	-	-	-	-
Bile duct cystadenocarcinoma of IBT	1	*	*	*	*	*	*	*	*	*	*

- Survival for patients diagnosed with an epithelial tumour of the liver or intrahepatic bile tract is poor with less than half of the patients surviving the first year and less than 20% surviving five years.
- Prognosis is highly influenced by the histological subtype with a better prognosis for hepatocellular carcinomas and a worse prognosis for cholangiocarcinoma or adenocarcinoma.

8.4.2 Survival by Sex

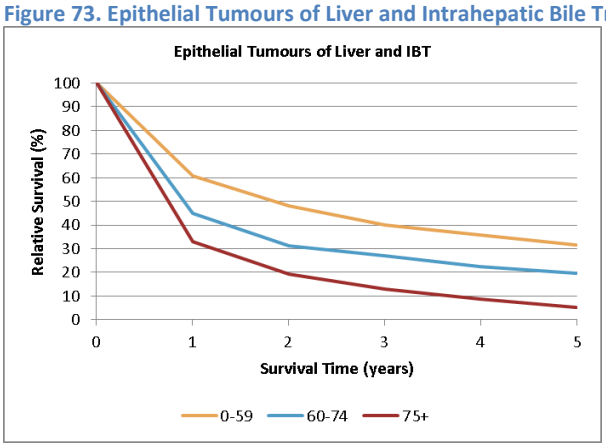
Table 45. Epithelial Tumours of Liver and Intrahepatic Bile Tract – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF LIVER AND INTRAHEPATIC BILE TRACT (IBT)	1,438	45.4	25.2	17.3	[15.2 ; 19.6]	46.6	27.2	19.7	[17.3 ; 22.2]
Hepatocellular carcinoma of liver and IBT	1,065	49.0	28.6	20.1	[17.5 ; 22.9]	50.2	30.7	22.6	[19.7 ; 25.7]
Cholangiocarcinoma of IBT	224	36.2	16.4	9.8	[6.1 ; 14.6]	37.2	18.2	11.6	[7.2 ; 17.2]
Adenocarcinoma with variants of liver and IBT	61	42.6	18.5	7.4	[2.2 ; 17.1]	43.9	20.0	8.4	[2.4 ; 19.4]
Undifferentiated carcinoma of liver and IBT	0	-	-	-	-	-	-	-	-
Squamous cell carcinoma with variants of liver and IBT	0	-	-	-	-	-	-	-	-
Bile duct cystadenocarcinoma of IBT	0	-	-	-	-	-	-	-	-
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF LIVER AND INTRAHEPATIC BILE TRACT (IBT)	778	42.4	23.5	16.0	[13.3 ; 18.9]	43.4	24.9	17.5	[14.6 ; 20.7]
Hepatocellular carcinoma of liver and IBT	424	46.7	30.9	21.5	[17.3 ; 25.9]	47.7	32.5	23.3	[18.8 ; 28.1]
Cholangiocarcinoma of IBT	238	40.8	17.3	11.0	[7.1 ; 15.7]	41.6	18.2	11.9	[7.7 ; 17.0]
Adenocarcinoma with variants of liver and IBT	40	32.5	7.1	3.6	[0.3 ; 14.9]	33.2	7.5	3.8	[0.3 ; 15.8]
Undifferentiated carcinoma of liver and IBT	0	-	-	-	-	-	-	-	-
Squamous cell carcinoma with variants of liver and IBT	0	-	-	-	-	-	-	-	-
Bile duct cystadenocarcinoma of liver and IBT	1	*	*	*	*	*	*	*	*

- Prognosis is almost the same for males and females for all studied types of epithelial liver and intrahepatic bile duct cancer.

8.4.3 Survival by Age Group[1]

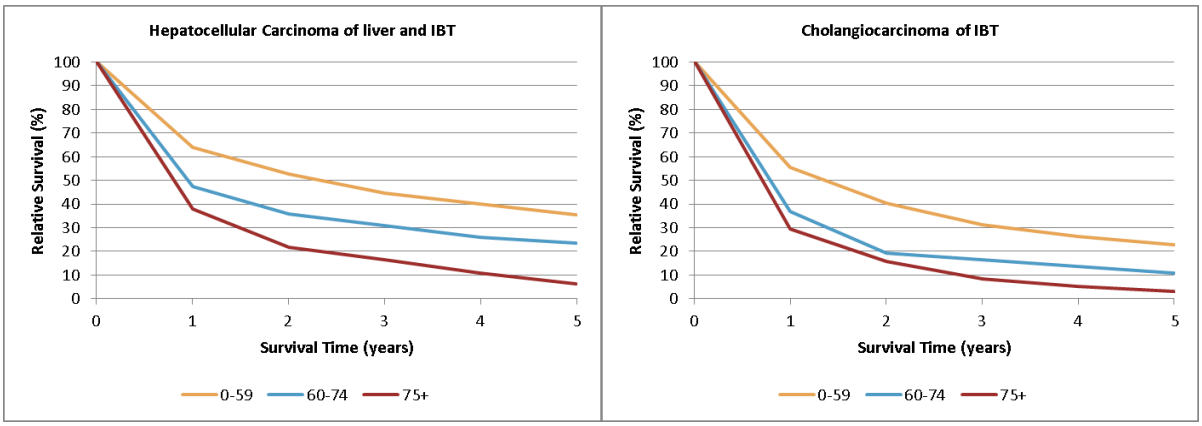
Figure 73. Epithelial Tumours of Liver and Intrahepatic Bile Tract – Relative Survival by Age Group



- Relative survival is inversely related with age. Five-year relative survival is 31.5% for patients in the youngest age group (0-59 years), 19.6% for the middle age group (60-74 years) and only 5.2% for patients of 75 years and older.

[1] Survival by age group is not displayed for the adenocarcinoma because only the age group 60-74 years old has a number at risk higher than 35.

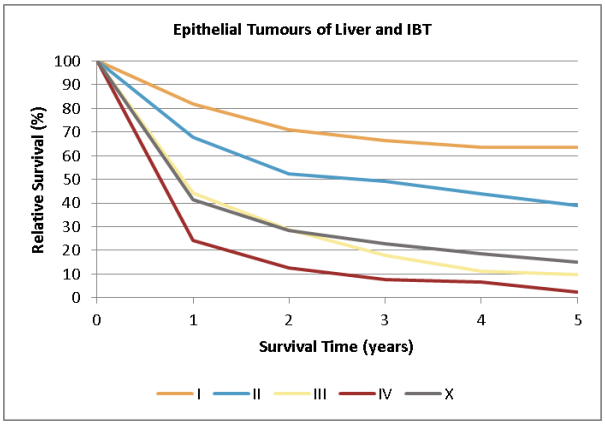
Figure 74. Hepatocellular Carcinoma of Liver and Intrahepatic Bile Tract and Cholangiocarcinoma of Intrahepatic Bile Tract - Relative Survival by Age Group



- For all age groups, survival is worse for cholangiocarcinoma than for hepatocellular carcinoma.

8.4.4 Survival by Stage[2]

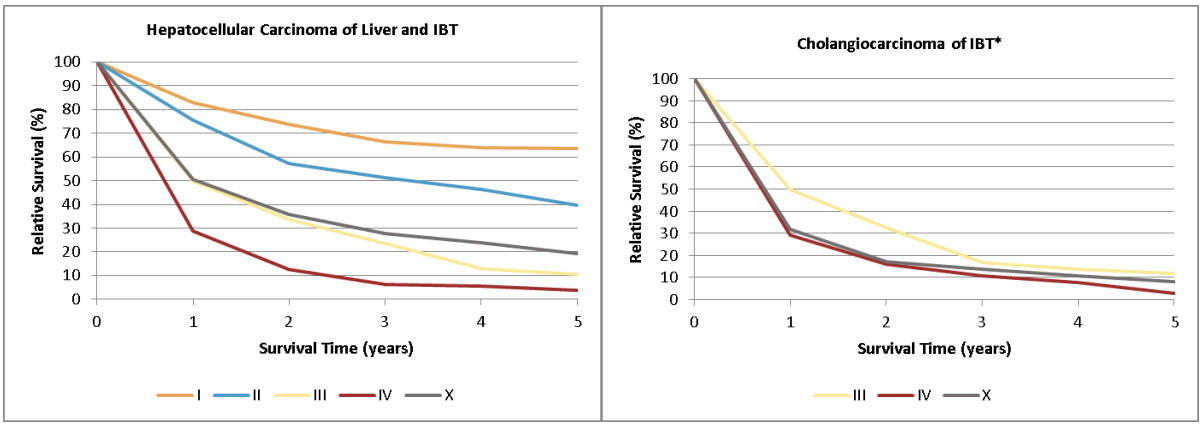
Figure 75. Epithelial Tumours of Liver and Intrahepatic Bile Tract – Survival by Stage



- Survival is relatively good for stage I but remarkably worse for more advanced stages. Long-term survivors with tumour-invaded regional lymph nodes or distant metastases are very rare.

[2] Survival by stage is not displayed for adenocarcinoma because of the low number at risk for all stages except for stage X.

Figure 76. Hepatocellular Carcinoma of Liver and Intrahepatic Bile Tract and Cholangiocarcinoma of Intrahepatic Bile Tract – Relative Survival by Stage



* Only survival for the higher stages is shown due to low numbers at risk for the lower stages.

- Because of the large proportion of patients diagnosed with an hepatocellular carcinoma, survival by stage for this subgroup is very similar to the survival rates for all epithelial tumours of liver and intrahepatic bile tract together.

9. Epithelial Tumours of Gallbladder and Extrahepatic Biliary Tract (EBT)

9.1 General Results

Table 46. Epithelial Tumours of Gallbladder and Extrahepatic Biliary Tract: Incidence, Trends, Survival

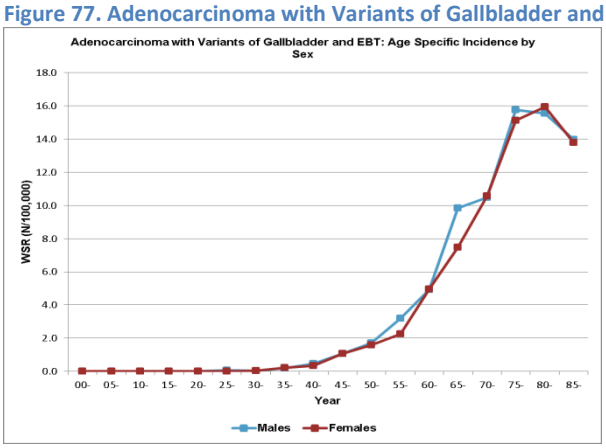
Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF GALLBLADDER AND EXTRAHEPATIC BILIARY TRACT (EBT)	R	1,964	3.23	1.41	72	3.1	0.044	1,762	21.7
Adenocarcinoma with variants of gallbladder and EBT	R	1,715	2.82	1.27	71	3.5	0.066	1,531	23.0
Squamous cell carcinoma of gallbladder and EBT	R	11	0.02	0.01	77	*	*	11	*
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF GALLBLADDER AND EXTRAHEPATIC BILIARY TRACT (EBT)	R	879	2.93	1.47	70	4.6	0.009	771	24.0
Adenocarcinoma with variants of gallbladder and EBT	R	784	2.61	1.33	70	4.9	0.018	685	25.1
Squamous cell carcinoma of gallbladder and EBT	R	2	0.01	0.00	69	*	*	2	*
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF GALLBLADDER AND EXTRAHEPATIC BILIARY TRACT (EBT)	R	1,085	3.52	1.35	74	1.8	0.227	991	19.9
Adenocarcinoma with variants of gallbladder and EBT	R	931	3.02	1.20	73	2.3	0.218	846	21.3
Squamous cell carcinoma of gallbladder and EBT	R	9	0.03	0.01	79	*	*	9	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

9.2 Incidence

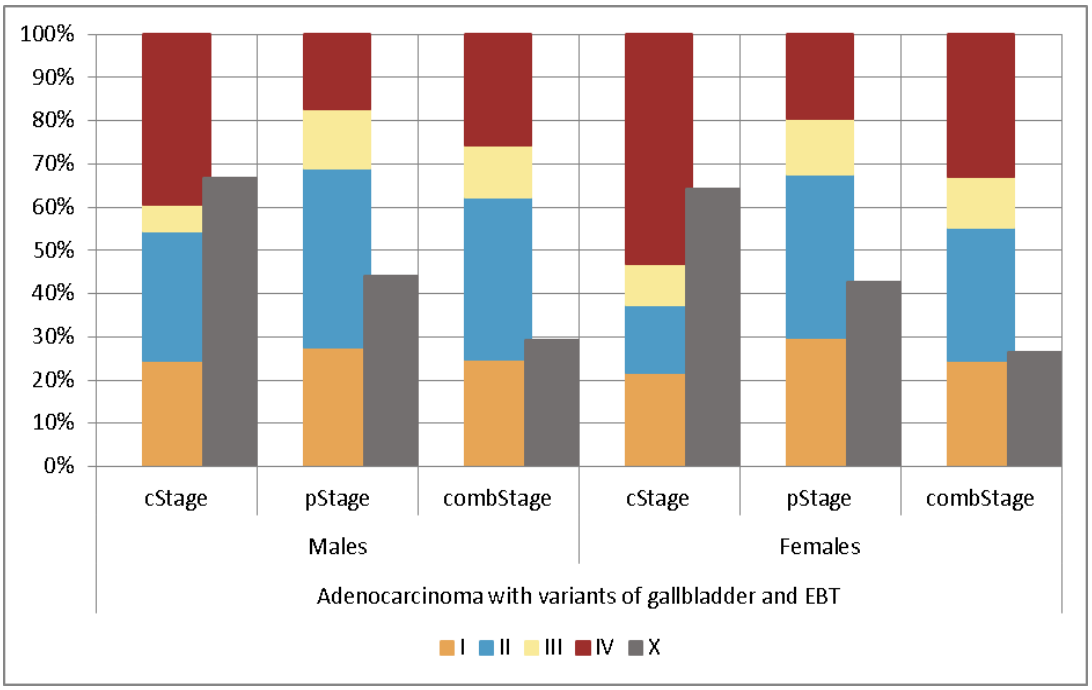
- 1,964 new epithelial tumours of gallbladder and extrahepatic biliary tract are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 1.1.
- RARECARE differentiates between two rare entities:
    - Adenocarcinoma (which includes the cholangiocarcinoma) of gallbladder is the most common subtype with 1,715 new diagnoses.
    - Only 11 cases of squamous cell carcinoma are diagnosed between 2001 and 2010 in the Flemish Region.

Figure 77. Adenocarcinoma with Variants of Gallbladder and Extrahepatic Biliary Tract: Age Specific Incidence by Sex



- Incidence rates increase from the age of 45 years in both sexes.
- The age specific incidence rates in males and females are comparable.

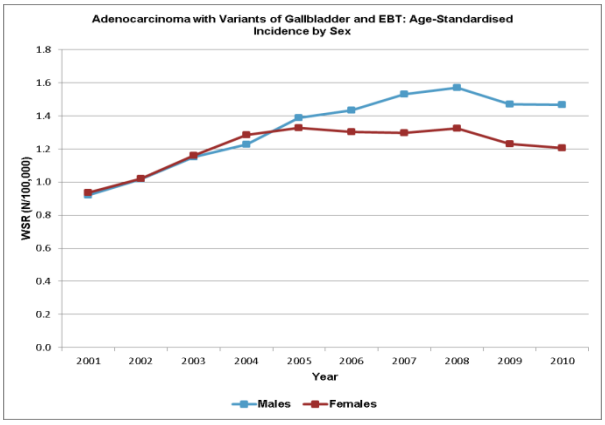
Figure 78. Adenocarcinoma with Variants of Gallbladder And Extrahepatic Biliary Tract: Stage Distribution by Sex



- Information on clinical stage is available for 30-40% of all diagnoses, pathological stage information is available in about 55%. Combining clinical and pathological information on stage results in more than 70% of cases with known information on stage.
- In females 15% more clinical stage IV tumours are diagnosed than in males.

9.3 Trends

Figure 79. Adenocarcinoma with Variants of Gallbladder and Extrahepatic Biliary Tract: Age-Standardised Incidence by Sex (three years moving average)



- Adenocarcinoma of the gallbladder increase significantly in males and non-significantly in females.
- The rates don't show a significant increase over the entire 10 year time period. In males the increase seems to end in 2008, in females the increase ends in 2005 after which the rates remain more stable.

9.4 Survival

9.4.1 Overall Survival

Table 47. Epithelial Tumours of Gallbladder and Extrahepatic Biliary Tract – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF GALLBLADDER AND EXTRAHEPATIC BILIARY TRACT (EBT)	1,762	45.9	23.2	18.3	13.7	[16.4 ; 20.2]	47.6	25.8	21.7	19.9	[19.5 ; 24.0]
Adenocarcinoma with variants	1,531	48.6	24.8	19.6	14.6	[17.5 ; 21.8]	50.4	27.4	23.0	20.8	[20.6 ; 25.5]
Squamous cell carcinoma	11	*	*	*	*	*	*	*	*	*	*

- One year after diagnosis, less than half of the patients is still alive.
- Survival decreases rapidly to a 5-year relative survival of only 21.7%.
- Because the majority of patients with an epithelial tumour of the gallbladder and extrahepatic biliary tract are diagnosed with an adenocarcinoma, prognosis of this subtype is very similar to the prognosis of all epithelial tumours together.

9.4.2 Survival by Sex

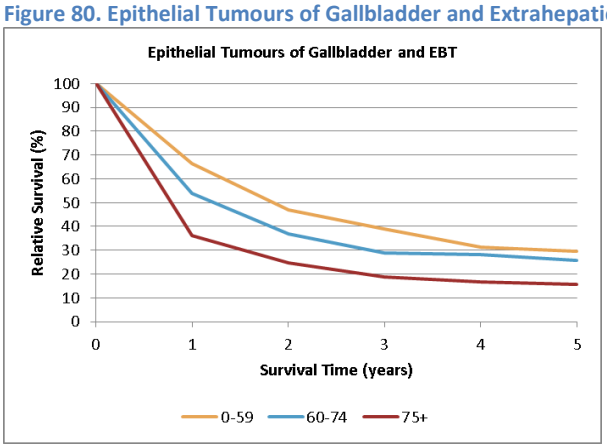
Table 48. Epithelial Tumours of Gallbladder and Extrahepatic Biliary Tract – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF GALLBLADDER AND EXTRAHEPATIC BILIARY TRACT (EBT)	771	50.8	25.6	20.3	[17.4 ; 23.4]	52.9	28.3	24.0	[20.6 ; 27.7]
Adenocarcinoma with variants	685	53.6	27.1	21.3	[18.1 ; 24.6]	55.6	30.0	25.1	[21.4 ; 29.0]
Squamous cell carcinoma	2	*	*	*	*	*	*	*	*
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF GALLBLADDER AND EXTRAHEPATIC BILIARY TRACT (EBT)	991	42.0	21.4	16.7	[14.4 ; 19.3]	43.6	23.8	19.9	[17.1 ; 22.9]
Adenocarcinoma with variants	846	44.5	22.9	18.2	[15.6 ; 21.1]	46.1	25.3	21.3	[18.2 ; 24.6]
Squamous cell carcinoma	9	*	*	*	*	*	*	*	*

- In contrast to most tumours, survival of epithelial tumours of the gallbladder and extrahepatic biliary tract is higher in males than females.
- The difference between males and females is largest at one year after diagnosis and becomes slightly smaller after a longer follow-up period.

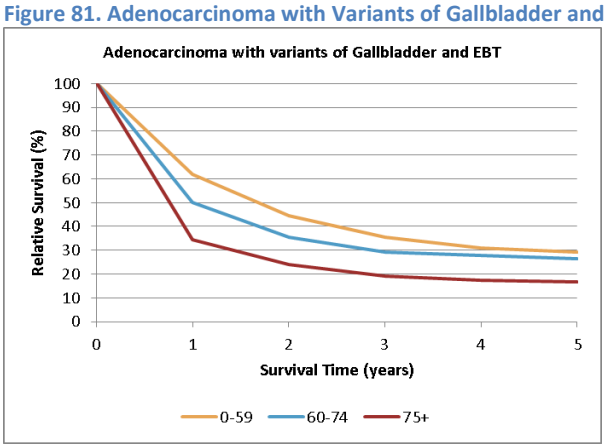
9.4.3 Survival by Age Group

Figure 80. Epithelial Tumours of Gallbladder and Extrahepatic Biliary Tract – Relative Survival by Age Group



- Survival is inversely related with age, although the difference in survival between patients aged under 59 years and between 60 and 74 years decreases after three years of follow-up.
- Prognosis is worse for patients of 75 years and above.

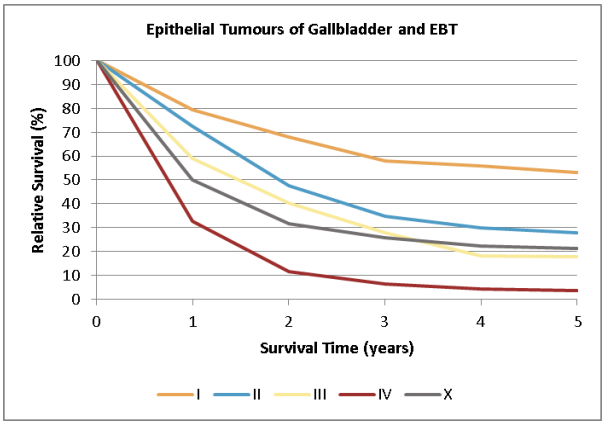
Figure 81. Adenocarcinoma with Variants of Gallbladder and Extrahepatic Biliary Tract – Relative Survival by Age Group



- Because almost all patients with an epithelial tumour of the gallbladder and extrahepatic biliary tract are diagnosed with an adenocarcinoma, survival hardly differs between these two.

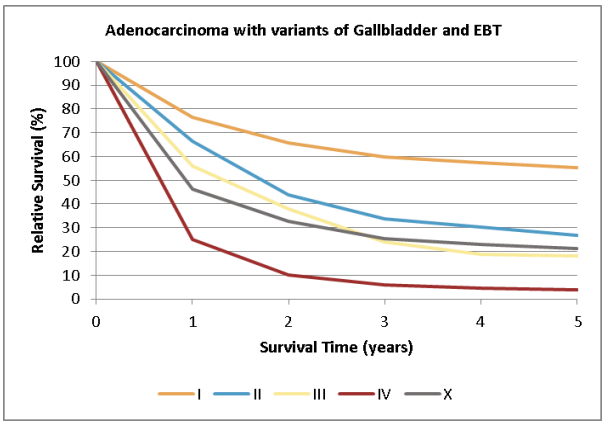
9.4.4 Survival by Stage

Figure 82. Epithelial Tumours of Gallbladder and Extrahepatic Biliary Tract – Relative Survival by Stage



- Survival is much better for patients with a stage I tumour (5-year relative survival: 53.0%) than for other stages.
- 5-year relative survival is almost negligible for stage IV tumours (3.9%).

Figure 83. Adenocarcinoma with Variants of Gallbladder and Extrahepatic Biliary Tract – Relative Survival by Stage



- Prognosis of patients diagnosed with an adenocarcinoma is almost the same as the above described results of all epithelial tumours of the gallbladder and extrahepatic biliary tract together.

10. References

1. Bohanes P, Yang D, Chibar RS et al. Influence of sex on the survival of patients with esophageal cancer. J Clin Oncol 2012; 30: 2265-2272.

CHAPTER 3. RARE THORACIC CANCERS

1 Epithelial Tumour of Trachea

1.1 General Results

Table 49. Epithelial Tumours of Trachea: Incidence, Trends, Survival

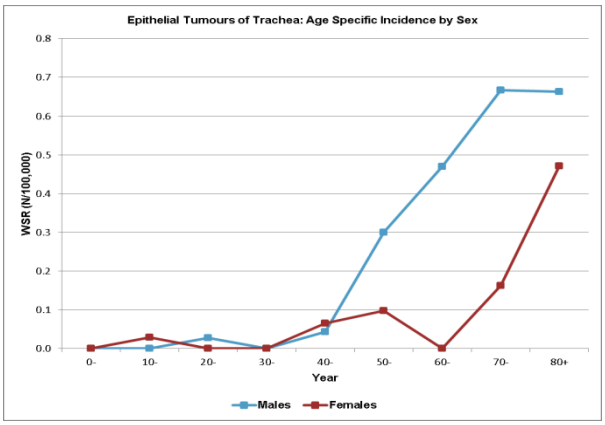
Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOUR OF TRACHEA	R	73	0.12	0.12	67	-5.9	0.299	54	23.7
Squamous cell carcinoma with variants of trachea	R	53	0.09	0.09	68	-3.1	0.661	34	*
Adenocarcinoma with variants of trachea	R	9	0.01	0.01	62	*	*	9	*
Salivary gland type tumours of trachea	R	5	0.01	0.01	51	*	*	5	*
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOUR OF TRACHEA	R	52	0.17	0.10	66	-3.9	0.647	37	17.2
Squamous cell carcinoma with variants of trachea	R	42	0.14	0.08	67	-6.4	0.405	27	*
Adenocarcinoma with variants of trachea	R	6	0.02	0.01	62	*	*	6	*
Salivary gland type tumours of trachea	R	1	0.00	0.00	70	*	*	1	*
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOUR OF TRACHEA	R	21	0.07	0.03	68	-5.5	0.653	17	*
Squamous cell carcinoma with variants of trachea	R	11	0.04	0.01	73	*	*	7	*
Adenocarcinoma with variants of trachea	R	3	0.01	0.01	62	*	*	3	*
Salivary gland type tumours of trachea	R	4	0.01	0.01	46	*	*	4	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

1.2 Incidence

- 73 new epithelial tumours of the trachea are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 3.0.
- RARECARE defines three rare entities:
  - Squamous cell carcinoma represents the majority of the tracheal tumours (73%).
  - Nine adenocarcinoma of trachea are observed in the Flemish Region between 2001 and 2010.
  - Only one male and 4 females are diagnosed with a salivary gland type tumour of trachea.

Figure 84. Epithelial Tumours of Trachea: Age Specific Incidence by Sex



- From the age of 50 years, incidence rates for epithelial tumours of trachea increase in males and females.

1.3 Survival[3]

1.3.1 Overall Survival

Table 50. Epithelial Tumours of Trachea – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOUR OF TRACHEA	54	44.4	27.7	21.6	-	[11.6 ; 33.4]	45.5	29.4	23.7	-	[12.9 ; 36.7]
Squamous cell carcinoma with variants	34	*	*	*	*	*	*	*	*	*	*
Adenocarcinoma with variants	9	*	*	*	*	*	*	*	*	*	*
Salivary gland type tumours	5	*	*	*	*	*	*	*	*	*	*

- Prognosis of patients diagnosed with an epithelial tumour of the trachea is bad with less than half of the patients surviving the first year, and a 5-year relative survival of only 23.7%.

1.3.2 Survival by Sex

Table 51. Epithelial Tumours of Trachea – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOUR OF TRACHEA	37	40.5	18.5	15.4	[5.9 ; 29.1]	41.6	19.8	17.2	[6.6 ; 32.3]
Squamous cell carcinoma with variants	27	*	*	*	*	*	*	*	*
Adenocarcinoma with variants	6	*	*	*	*	*	*	*	*
Salivary gland type tumours	1	*	*	*	*	*	*	*	*
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOUR OF TRACHEA	17	*	*	*	*	*	*	*	*
Squamous cell carcinoma with variants	7	*	*	*	*	*	*	*	*
Adenocarcinoma with variants	3	*	*	*	*	*	*	*	*
Salivary gland type tumours	4	*	*	*	*	*	*	*	*

[3] Because of the low number at risk for patients with an epithelial tumour of the trachea, only the overall survival is reported.

2 Epithelial Tumours of Lung

2.1 General Results

Table 52. Epithelial Tumours of Lung: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOUR OF LUNG	C	40,631	66.83	48.91	68	0.7	0.032	35,619	15.3
Squamous cell carcinoma with variants of lung	C	10,484	17.24	12.22	70	0.7	0.256	8,953	19.1
Adenocarcinoma with variants of lung	C	12,775	21.01	16.19	66	4.9	<0.001	11,228	15.3
Large cell carcinoma of lung	R	2,394	3.94	2.88	68	-3.4	0.006	3,240	14.5
Well differentiaded endocrine carcinoma of lung	R	550	0.90	0.72	62	4.2	0.049	481	61.4
Poorly differentiated endocrine carcinoma of lung	C	7,991	13.14	9.80	68	3.1	0.008	7,100	6.7
Bronchiolo-alveolar carcinoma of lung	R	587	0.97	0.72	67	0.6	0.784	483	38.4
Salivary gland type tumours of lung	R	62	0.10	0.08	62	-1.6	0.609	57	35.5
Sarcomatoid carcinoma of lung	R	129	0.21	0.16	65	-2.1	0.551	116	24.1
Undifferentiated carcinoma of lung	R	659	1.08	0.80	68	-22.4	<0.001	591	9.4
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOUR OF LUNG	C	31,868	106.27	55.03	69	-0.9	0.015	27,799	14.1
Squamous cell carcinoma with variants of lung	C	9,266	30.90	15.54	70	-0.3	0.660	7,928	18.8
Adenocarcinoma with variants of lung	C	9,072	30.25	16.59	67	3.5	0.002	7,903	14.0
Large cell carcinoma of lung	C	3,066	10.22	5.25	69	-9.8	<0.001	2,715	14.6
Well differentiaded endocrine carcinoma of lung	R	281	0.94	0.55	63	4.8	0.239	251	48.3
Poorly differentiated endocrine carcinoma of lung	C	6,191	20.65	10.87	68	1.4	0.157	5,455	5.8
Bronchiolo-alveolar carcinoma of lung	R	350	1.17	0.64	67	-2.0	0.343	287	33.0
Salivary gland type tumours of lung	R	43	0.14	0.09	64	-5.9	0.311	39	32.7
Sarcomatoid carcinoma of lung	R	96	0.32	0.18	66	-4.7	0.234	86	24.5
Undifferentiated carcinoma of lung	R	525	1.75	0.91	69	-24.5	<0.001	466	8.9
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOUR OF LUNG	C	8,763	28.44	15.17	65	5.3	<0.001	7,820	19.3
Squamous cell carcinoma with variants of lung	R	1,218	3.95	2.01	67	5.7	<0.001	1,025	20.8
Adenocarcinoma with variants of lung	C	3,703	12.02	6.74	64	7.8	<0.001	3,325	18.4
Large cell carcinoma of lung	R	580	1.88	1.01	65	-4.3	0.105	525	14.3
Well differentiaded endocrine carcinoma of lung	R	269	0.87	0.54	60	4.4	0.110	230	75.7
Poorly differentiated endocrine carcinoma of lung	R	1,800	5.84	3.20	65	8.1	0.001	1,645	9.7
Bronchiolo-alveolar carcinoma of lung	R	237	0.77	0.39	66	4.9	0.085	196	46.6
Salivary gland type tumours of lung	R	19	0.06	0.04	57	2.8	0.571	18	*
Sarcomatoid carcinoma of lung	R	33	0.11	0.06	64	7.9	0.370	30	*
Undifferentiated carcinoma of lung	R	134	0.43	0.24	65	-20.4	<0.001	125	11.0

R/C: Rare or common
CR: Crude rate (N/100.000 person years)
WSR: age-standardised rate. using the world population (N/100.000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

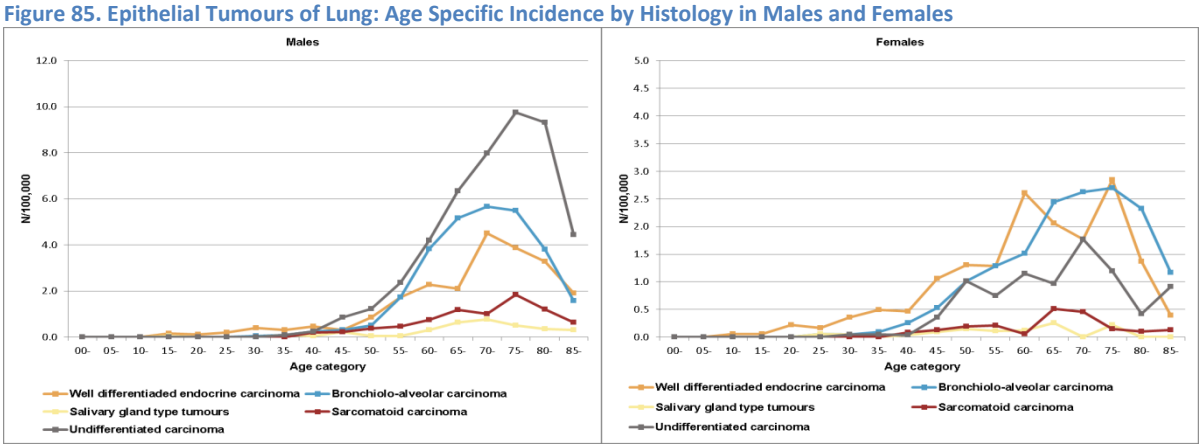
2.2 Incidence

- 40,631 new epithelial tumours of the lung are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 3.6.
- RARECARE defines nine different entities of which three are common and six rare:
    - The common subtypes represent about 75% of all lung cancers and are: squamous cell carcinoma, adenocarcinoma and poorly differentiated.
    - Large cell carcinoma, although considered rare by RARECARE, is a common malignancy for males in the Flemish Region. Care must be taken in the interpretation, since the RARECARE entity includes some codes (8071;8072) that we

would classify as squamous cell carcinoma. On the other hand, the code for non-small cell carcinoma (8046) is not included by RARECARE in this entity but is grouped with the endocrine tumours.

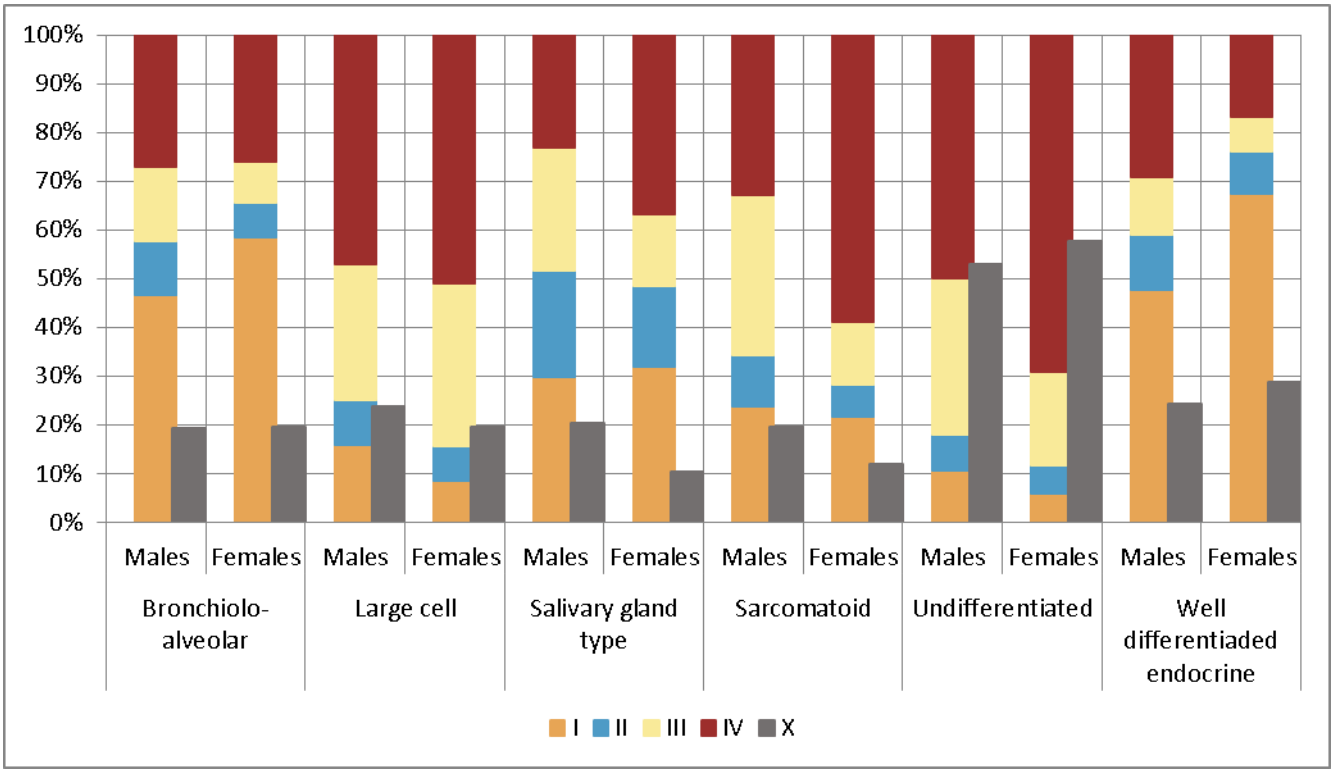
- Well differentiated endocrine lung carcinoma represent 550 new cases between 2001 and 2010.
- Bronchiolo-alveolar carcinoma represent 587 new diagnoses.
- Salivary gland type tumours are the rarest entity with only 62 new diagnoses in the Flemish Region between 2001 and 2010.
- 129 new cases of sarcomatoid carcinoma are observed.
- Undifferentiated carcinoma accounts for 659 new lung cancer cases.

Figure 85. Epithelial Tumours of Lung: Age Specific Incidence by Histology in Males and Females



- Due to its high rates, large cell carcinoma is not represented.
- Undifferentiated carcinoma is the most 'common' rare lung cancer entity in males. From the age of 50 years, incidence rates increase. The highest incidence rates are observed around the age of 75 years.
- For females, well differentiated endocrine carcinoma is the most common rare lung cancer entity. This tumour type already occurs at an early age.
- The age specific incidence rates for bronchiolo-alveolar carcinoma start to increase around the age of 50 years.
- Salivary gland type tumours and sarcomatoid carcinoma are very rare, the highest incidence rates are observed around the age of 70-75 years.

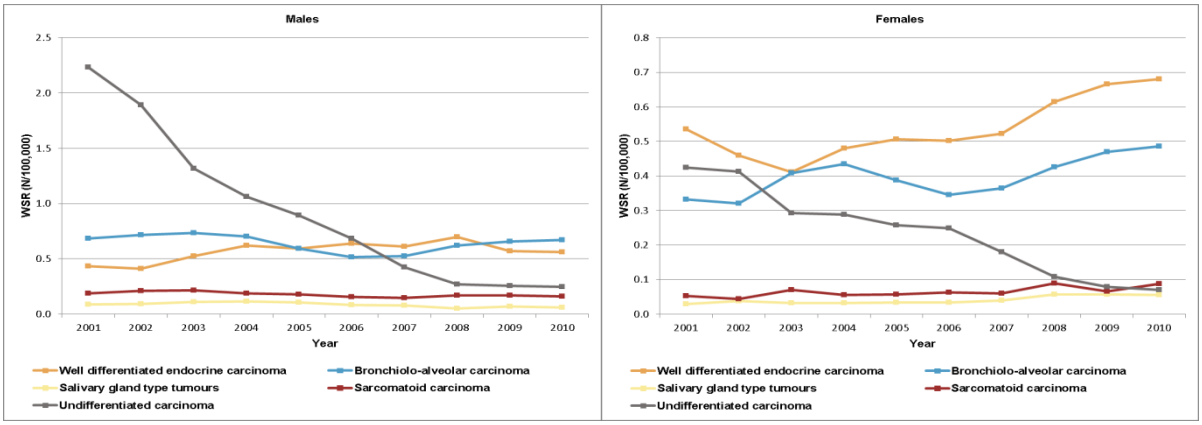
Figure 86. Epithelial Tumours of Lung: Stage Distribution by Histology and Sex



- Stage-information is available in 80% or more of all lung cancer cases. The only exception is the undifferentiated carcinoma, where stage information is missing in more than 50% of all diagnoses.
- Bronchiolo-alveolar and well differentiated endocrine carcinoma have the best prognostic stage distribution. About 50% of all new diagnoses is stage I in males; in females this increases to 60% for bronchiolo-alveolar and almost 70% for well differentiated endocrine carcinoma.
- Large cell and undifferentiated carcinoma in males and females and sarcomatoid carcinomas in females have the worst prognostic stage distribution, with more than 50% stage IV tumours.

2.3 Trends

Figure 87. Rare Lung Cancer Entities: Age Standardised Incidence by Histology in Males and Females (three year moving average)



- Large cell carcinoma (not represented due to the high incidence rates) and undifferentiated carcinoma show very large decreasing trends in both sexes. This decrease is largely due to more specifications in registration practices.
- Well differentiated carcinoma seems to increase in both sexes.
- Salivary gland type tumours, bronchiolo-alveolar carcinoma and sarcomatoid carcinoma tend to decrease in males and increase in females, however none of these trends are significant.

2.4 Survival

2.4.1 Overall Survival

Table 53. Epithelial Tumours of Lung – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF LUNG	35,619	42.2	18.6	13.3	7.6	[12.9 ; 13.7]	43.5	20.2	15.3	10.3	[14.8 ; 15.7]
Squamous cell carcinoma with variants	8,953	47.3	22.4	16.2	8.6	[15.4 ; 17.1]	48.9	24.6	19.1	12.2	[18.1 ; 20.0]
Adenocarcinoma with variants	11,228	45.3	20.2	13.8	7.8	[13.1 ; 14.5]	46.3	21.5	15.3	9.9	[14.6 ; 16.1]
Large cell carcinoma	3,240	39.0	16.9	12.4	7.0	[11.2 ; 13.6]	40.3	18.5	14.5	10.1	[13.2 ; 15.9]
Well differentiaded endocrine carcinoma	481	73.8	61.3	56.7	50.7	[51.9 ; 61.2]	75.1	64.3	61.4	61.9	[56.2 ; 66.3]
Poorly differentiated endocrine carcinoma	7,100	33.3	8.8	6.0	2.8	[5.4 ; 6.6]	34.1	9.4	6.7	3.6	[6.0 ; 7.4]
Bronchiolo-alveolar carcinoma	483	69.8	44.3	34.2	22.0	[29.6 ; 38.8]	71.4	47.4	38.4	28.8	[33.3 ; 43.6]
Salivary gland type tumours	57	61.4	49.0	32.7	23.5	[19.4 ; 46.6]	62.5	51.2	35.5	26.7	[21.1 ; 50.6]
Sarcomatoid carcinoma	116	41.4	30.1	21.6	9.2	[14.4 ; 29.9]	42.3	32.0	24.1	14.5	[16.0 ; 33.3]
Undifferentiated carcinoma	591	30.3	11.4	8.0	5.5	[6.0 ; 10.4]	31.4	12.6	9.4	7.8	[7.0 ; 12.21]

- Epithelial tumours of the lung can in general be considered as tumours with a very low survival that steeply declines from diagnosis, with a 1-year relative survival of only 43.5% and a 3-year relative survival of 20.2%. Thereafter, survival decreases less steeply to reach a 10-year relative survival of 10.3%.
- Although almost all subtypes have a bad prognosis, differences can be observed. The best survival is observed for well differentiated endocrine carcinoma with a 5-year relative survival of 61.4%. Poorly differentiated endocrine carcinoma and undifferentiated carcinoma on the other hand, have the worst survival. In the group of the poorly differentiated endocrine carcinoma, only one third of the patients survive the first year and less than 10% are still alive at three years after diagnosis.

2.4.2 Survival by Sex

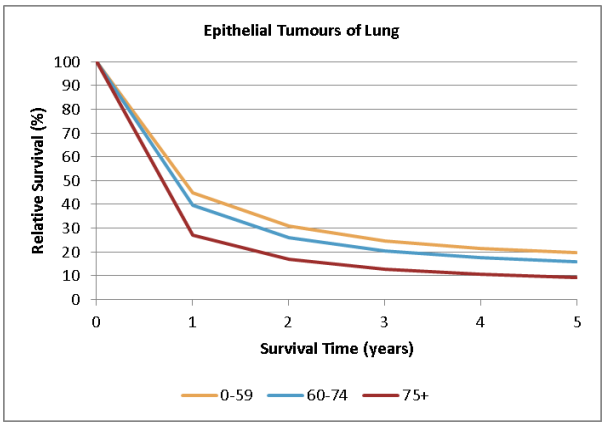
Table 54. Epithelial Tumours of Lung – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF LUNG	27,799	40.5	17.1	12.0	[11.6 ; 12.4]	41.9	18.9	14.1	[13.6 ; 14.6]
Squamous cell carcinoma with variants	7,928	47.4	22.0	15.9	[15.0 ; 16.8]	49.1	24.3	18.8	[17.8 ; 19.9]
Adenocarcinoma with variants	7,903	42.4	18.1	12.3	[11.6 ; 13.1]	43.5	19.6	14.0	[13.2 ; 14.9]
Large cell carcinoma	2,715	39.3	16.9	12.2	[11.0 ; 13.5]	40.6	18.7	14.6	[13.1 ; 16.1]
Well differentiaded endocrine carcinoma	251	64.1	49.6	43.9	[37.4 ; 50.3]	65.6	52.6	48.3	[41.1 ; 55.3]
Poorly differentiated endocrine carcinoma	5,455	30.8	7.6	5.0	[4.4 ; 5.7]	31.8	8.3	5.8	[5.1 ; 6.5]
Bronchiolo-alveolar carcinoma	287	64.5	39.5	29.0	[23.5 ; 34.7]	66.2	42.6	33.0	[26.7 ; 39.5]
Salivary gland type tumours	39	53.9	40.9	29.3	[14.9 ; 45.4]	55.2	43.4	32.7	[16.5 ; 50.7]
Sarcomatoid carcinoma	86	41.9	31.4	21.7	[13.4 ; 31.3]	42.9	33.6	24.5	[15.1 ; 35.3]
Undifferentiated carcinoma	466	30.7	11.2	7.4	[5.2 ; 10.0]	31.9	12.6	8.9	[6.3 ; 12.1]
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF LUNG	7,820	48.4	23.7	17.8	[16.9 ; 18.7]	49.2	24.8	19.3	[18.3 ; 20.3]
Squamous cell carcinoma with variants	1,025	46.2	25.2	19.1	[16.6 ; 21.8]	47.0	26.4	20.8	[18.0 ; 23.7]
Adenocarcinoma with variants	3,325	52.1	25.1	17.2	[15.8 ; 18.6]	52.8	26.1	18.4	[16.9 ; 19.9]
Large cell carcinoma	525	37.7	16.9	13.0	[10.2 ; 16.2]	38.3	17.8	14.3	[11.2 ; 17.8]
Well differentiaded endocrine carcinoma	230	84.4	74.3	70.7	[64.1 ; 76.4]	85.4	77.0	75.7	[68.6 ; 81.7]
Poorly differentiated endocrine carcinoma	1,645	41.4	12.6	9.1	[7.6 ; 10.7]	41.9	13.1	9.7	[8.1 ; 11.4]
Bronchiolo-alveolar carcinoma	196	77.6	51.3	42.1	[34.4 ; 49.6]	79.1	54.4	46.6	[38.1 ; 54.9]
Salivary gland type tumours	18	*	*	*	*	*	*	*	*
Sarcomatoid carcinoma	30	*	*	*	*	*	*	*	*
Undifferentiated carcinoma	125	28.8	11.9	10.2	[5.7 ; 16.3]	29.3	12.4	11.0	[6.1 ; 17.5]

- For almost all subtypes at all observed time points, survival is better for females than for males.
- The sex difference is most pronounced for the well differentiated endocrine carcinoma (5-year relative survival in males: 48.3% versus 75.7% in females) and bronchiolo-alveolar carcinoma (5-year relative survival in males: 33.0% versus 46.6% in females).

2.4.3 Survival by Age Group[4]

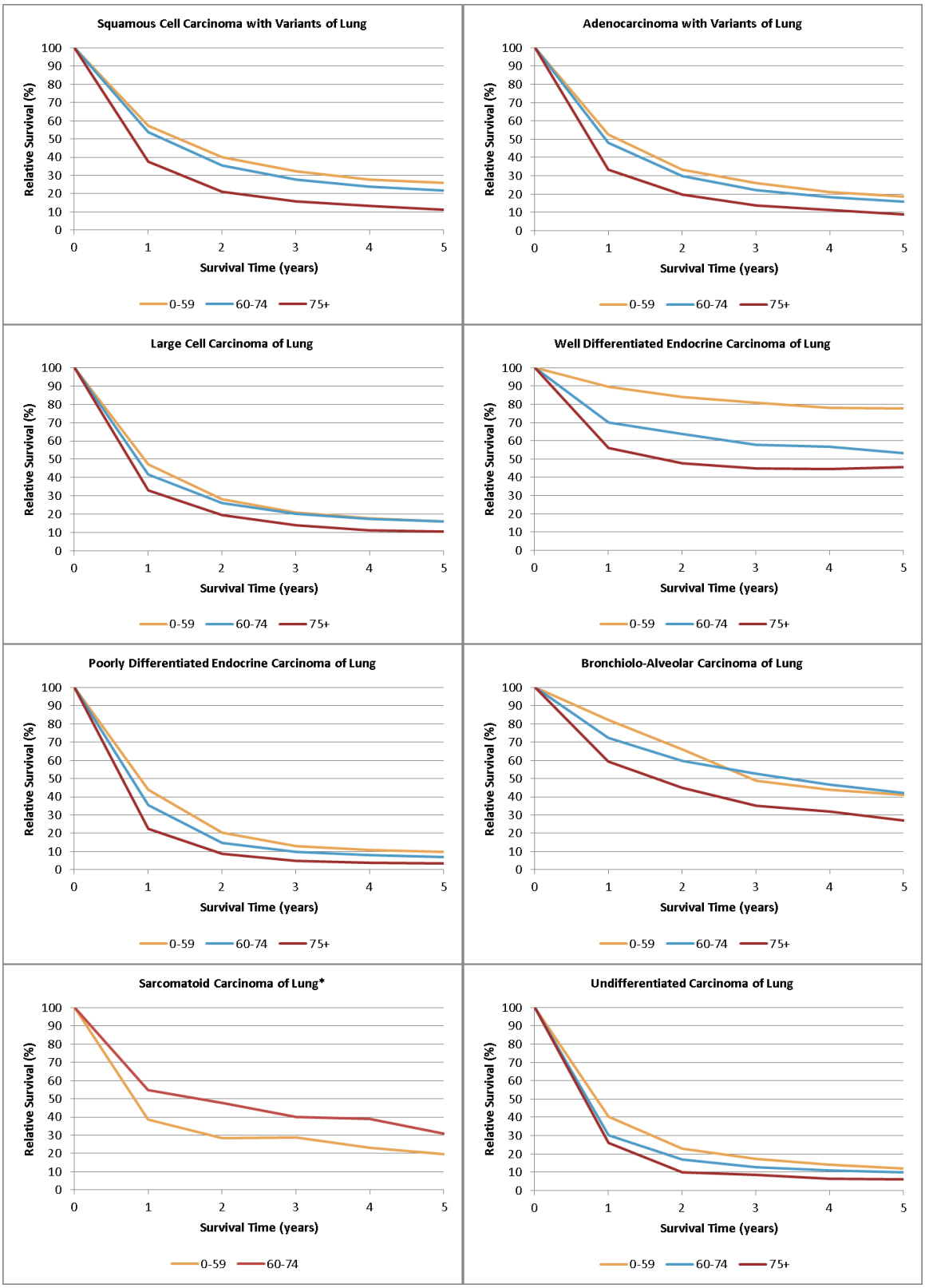
Figure 88. Epithelial Tumours of Lung – Relative Survival by Age Group



- Although prognosis is poor for all age groups, survival is inversely related with the age of the patient at diagnosis, with the highest survival for patients in the age group 0-59 years old (5-year relative survival: 19.8%) and the lowest in the age group 75+ years old (5-year relative survival: 9.1%).

[4] Survival by age group is not displayed for salivary-gland type tumours of lung because none of the age groups have a number at risk higher than 35.

Figure 89. Squamous Cell Carcinoma, Adenocarcinoma, Large Cell Carcinoma, Well Differentiated Endocrine Carcinoma, Poorly Differentiated Endocrine Carcinoma, Bronchiolo-Alveolar Carcinoma, Sarcomatoid Carcinoma and Undifferentiated Carcinoma of Lung– Relative Survival by Age Group

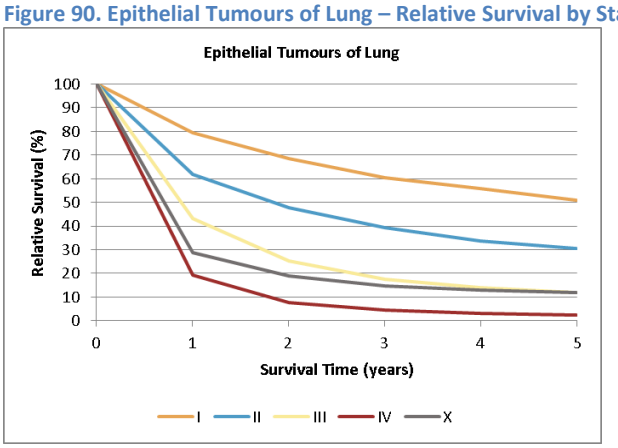


* Survival for the oldest age group (75+) is not shown because the number at risk is lower than 35.

- for the subtypes squamous cell carcinoma, adenocarcinoma, poorly differentiated endocrine carcinoma and undifferentiated carcinoma, the difference in survival between the different age groups is similar to the results described for all epithelial tumours of the lung together.
- For the large cell carcinoma, no age difference can be observed between the age groups 0-59 years and 60-74 years, although patients aged 75 and above at diagnosis have a worse prognosis.
- Differences in survival by age groups are larger for well differentiated endocrine carcinoma. Especially the youngest age group (0-59 years) has a much better survival rate (5-year relative survival: 77.6%) than the older age groups (5-year relative survival rate: 53.3% for age group 60-74 years and 45.5% for age groups 75+ years).
- For bronchiolo-alveolar carcinoma, survival is similar for the youngest and middle age group from 3 years after diagnosis onwards (5-year relative survival: 42.5% for the age group 0-59 years and 42.7% for the age group 60-74 years), but is much worse for the oldest age group (5-year relative survival: 29.1%).
- Contrary to most cancer types, survival is better for the middle age group than for the youngest age group for sarcomatoid carcinoma at all observation periods.

2.4.4 Survival by Stage[5]

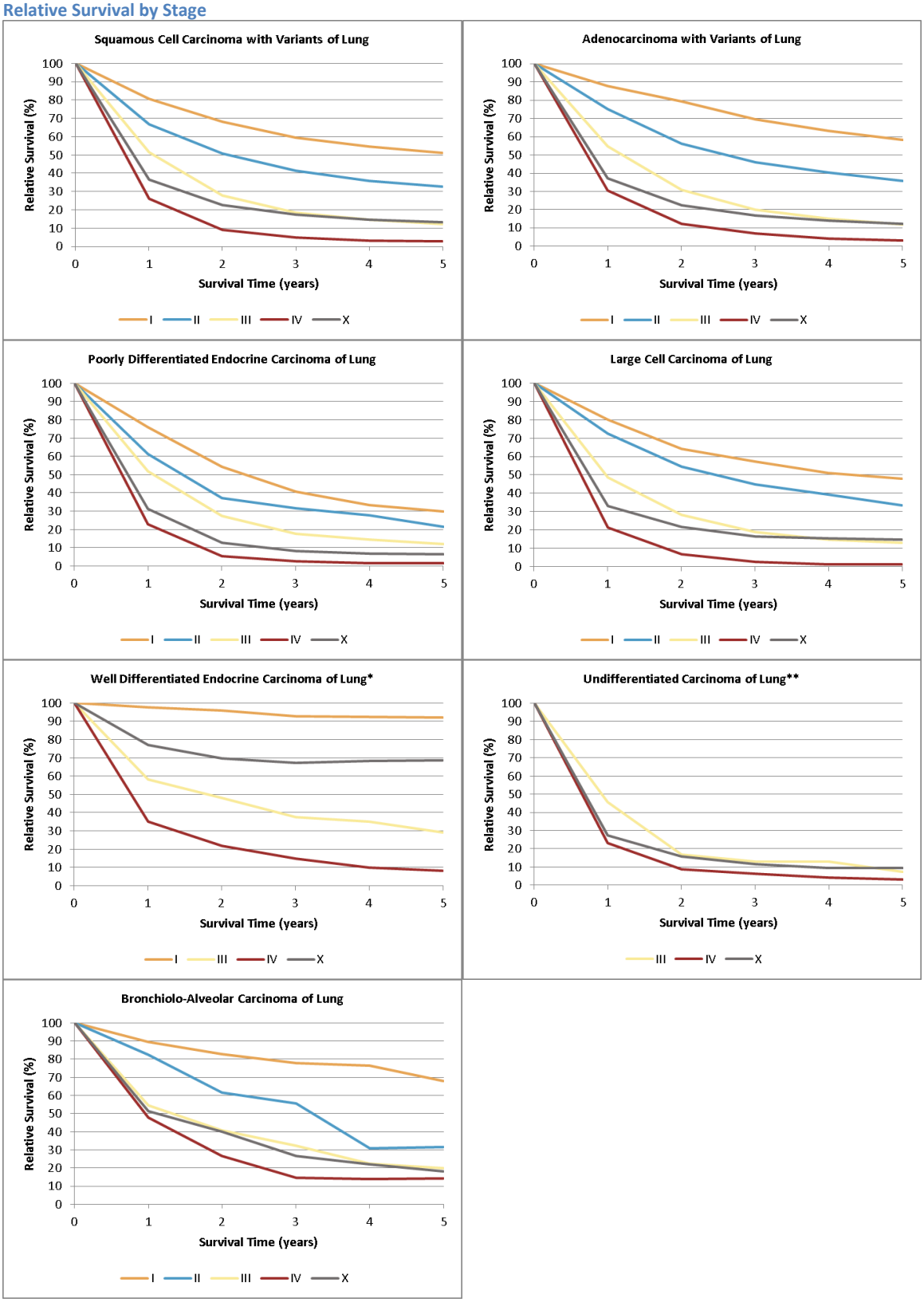
Figure 90. Epithelial Tumours of Lung – Relative Survival by Stage



- Patients with a stage I epithelial tumour of the lung have a clearly better prognosis (5-year relative survival of 51.1%) than patients diagnosed with a more advanced disease stage.
- Prognosis is very poor for patients diagnosed with a stage III or IV tumour. Already one year after diagnosis, relative survival has dropped to 43.3% for stage III and 19.3% for stage IV. Thereafter, survival continues to decrease to reach a 5-year relative survival of 11.8% for stage III and 2.5% for stage IV.

[5] Survival by stage is not displayed for the salivary-gland type tumours (all stages number at risk lower than 35) and the sarcomatoid carcinoma (only stage IV with a number at risk higher than 35).

Figure 91. Squamous Cell Carcinoma, Adenocarcinoma, Poorly Differentiated Endocrine Carcinoma, Large Cell Carcinoma, Well Differentiated Endocrine Carcinoma, Undifferentiated Carcinoma and Bronchiolo-Alveolar Carcinoma of Lung – Relative Survival by Stage



* Stage II is not shown because the number at risk is lower than 35.

** Stage I and II are not shown because the numbers at risk are lower than 35.

- For adenocarcinoma with variants of the lung, survival is better for the lower stages (5-year relative survival for stage I: 58.3% and stage II: 35.8%) than the earlier described survival of all epithelial tumours of the lung together.
- Well differentiated endocrine carcinoma, especially the stage I (5-year relative survival: 91.7%) and stage III tumours (5-year relative survival: 28.9%) have a better prognosis than all other lung cancers of the same stage.
- On the contrary, poorly differentiated endocrine carcinoma has a poor survival for all stages, with a 5-year relative survival for stage I tumours of only 29.8% and for stage IV tumours under 10% after two years of follow-up.
- The brochiolo-alveolar carcinoma has a better survival for stage I than is usually seen for lung tumours, with a 5-year relative survival of 67.8%.

3 Epithelial Tumours of Thymus[6]

3.1 General Results

Table 55. Epithelial Tumours of Thymus: Incidence, Trends, Survival

Flemish Region 2001-2010	Incidence					Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF THYMUS	R	144	0.24	0.14	62	-3.8	0.279	126	72.6
Malignant thymoma	R	117	0.19	0.12	62	-3.3	0.425	104	77.8
Squamous cell carcinoma of thymus	R	10	0.02	0.01	63	*	*	9	*
Undifferentiated carcinoma of thymus	R	2	0.00	0.00	74	*	*	2	*
Lymphoepithelial carcinoma of thymus	R	0	-	-	-	-	-	0	-
Adenocarcinoma with variants of thymus	R	5	0.01	0.00	66	*	*	2	*
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF THYMUS	R	83	0.28	0.16	62	-0.4	0.948	71	73.3
Malignant thymoma	R	67	0.22	0.13	62	5.5	0.424	58	76.5
Squamous cell carcinoma of thymus	R	5	0.02	0.01	61	*	*	5	*
Undifferentiated carcinoma of thymus	R	1	0.00	0.00	88	*	*	1	*
Lymphoepithelial carcinoma of thymus	R	0	-	-	-	-	-	0	-
Adenocarcinoma with variants of thymus	R	3	0.01	0.01	67	*	*	1	*
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF THYMUS	R	61	0.20	0.12	62	-7.3	0.031	55	71.6
Malignant thymoma	R	50	0.16	0.10	62	-9.5	0.059	46	79.1
Squamous cell carcinoma of thymus	R	5	0.02	0.01	65	*	*	4	*
Undifferentiated carcinoma of thymus	R	1	0.00	0.00	60	*	*	1	*
Lymphoepithelial carcinoma of thymus	R	0	-	-	-	-	-	0	-
Adenocarcinoma with variants of thymus	R	2	0.01	0.00	64	*	*	1	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

3.2 Incidence

- 144 new epithelial tumours of the thymus are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 1.4.

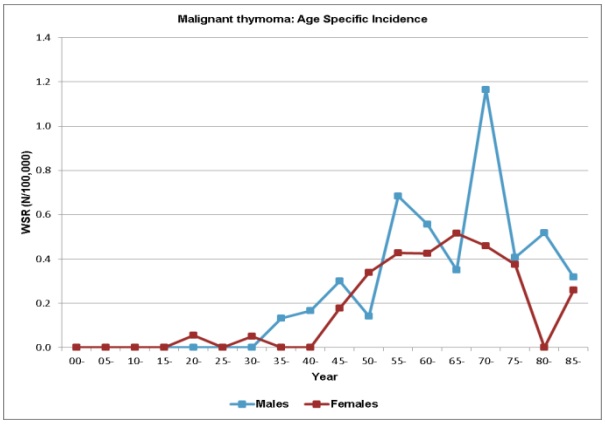
[6] Survival by stage is not reported for the epithelial tumours of the thymus because staging is not possible according to the TNM rules.

- RARECARE defines five rare entities:
  - The majority of thymic tumours are thymoma (81%). Type B thymoma is most commonly observed.
  - Squamous cell carcinoma represents only 10 cases.
  - One undifferentiated carcinoma in males and one in females is observed in the Flemish Region between 2001 and 2010.
  - Lymphoepithelial carcinoma is not observed.
  - Only 5 adenocarcinoma of thymus are registered.

Table 56. Epithelial Tumours of Thymus: Histological Distribution

Flemish Region 2001-2010	Males	Females
EPITHELIAL TUMOURS OF THYMUS	83	61
Malignant thymoma	67	50
Thymoma, malignant, NOS	27	19
Malignant thymoma, type AB	7	4
Malignant thymoma, type A	5	3
Malignant thymoma, type B	17	17
Malignant thymoma, type C	11	7
Squamous cell carcinoma of thymus	5	5
Undifferentiated carcinoma of thymus	1	1
Lymphoepithelial carcinoma of thymus	-	-
Adenocarcinoma with variants of thymus	3	2
Adenocarcinoma NOS	2	1
Papillary adenocarcinoma, NOS	-	1

Figure 92. Malignant Thymoma: Age Specific Incidence



- Incidence rates for malignant thymoma are comparable between males and females.

3.3 Survival

3.3.1 Overall Survival

Table 57. Epithelial Tumours of Thymus – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF THYMUS	126	88.9	68.8	65.7	52.0	[56.3 ; 73.5]	90.6	72.9	72.6	66.9	[62.2 ; 81.3]
Malignant thymoma	104	92.3	74.8	71.1	58.6	[60.8 ; 79.1]	93.9	79.0	77.8	73.4	[66.5 ; 86.6]
Squamous cell carcinoma	9	*	*	*	*	*	*	*	*	*	*
Undifferentiated carcinoma	2	*	*	*	*	*	*	*	*	*	*
Lymphoepithelial carcinoma	0	-	-	-	-	-	-	-	-	-	-
Adenocarcinoma with variants	2	*	*	*	*	*	*	*	*	*	*

- Survival is rather good for patients diagnosed with an epithelial tumour of thymus, with a 1-year relative survival of 90.6% and a 5-year relative survival of 72.6%.
- Although the majority of patients with an epithelial tumour of the thymus are diagnosed with a malignant thymoma, survival of this subtype is somewhat higher than survival of all epithelial tumours of the thymus together.

3.3.2 Survival by Sex

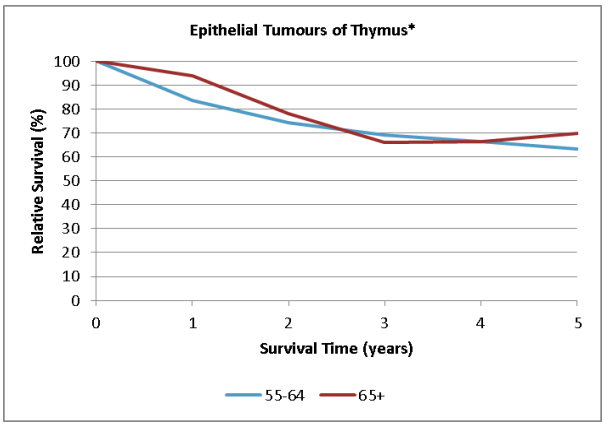
Table 58. Epithelial Tumours of Thymus – Survival by Sex

	N	Observed Survival				Relative Survival			
Males	at risk	1 year	3 year	5 year	5 year CI	1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF THYMUS	71	87.3	70.0	64.4	[51.5 ; 74.7]	89.5	75.4	73.3	[58.7 ; 85.0]
Malignant thymoma	58	89.7	75.4	68.4	[53.9 ; 79.2]	91.5	80.4	76.5	[60.2 ; 88.5]
Squamous cell carcinoma	5	*	*	*	*	*	*	*	*
Undifferentiated carcinoma	1	*	*	*	*	*	*	*	*
Lymphoepithelial carcinoma	0	-	-	-	-	-	-	-	-
Adenocarcinoma with variants	1	*	*	*	*	*	*	*	*
	N	Observed Survival				Relative Survival			
Females	at risk	1 year	3 year	5 year	5 year CI	1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF THYMUS	55	90.9	67.2	67.2	[52.5 ; 78.2]	92.2	69.9	71.6	[55.9 ; 83.5]
Malignant thymoma	46	95.7	74.1	74.1	[58.0 ; 84.8]	97.0	77.2	79.1	[61.8 ; 90.6]
Squamous cell carcinoma	4	*	*	*	*	*	*	*	*
Undifferentiated carcinoma	1	*	*	*	*	*	*	*	*
Lymphoepithelial carcinoma	0	-	-	-	-	-	-	-	-
Adenocarcinoma with variants	1	*	*	*	*	*	*	*	*

- Survival rates for epithelial tumours of thymus are very comparable between both sexes.

3.3.3 Survival by Age Group

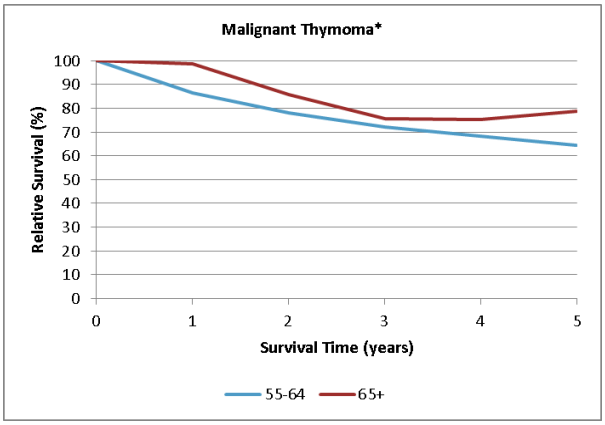
Figure 93. Epithelial Tumours of Thymus – Relative Survival by Age Group



* Survival is not shown for patients in the age group 0-54 years old because the number at risk is lower than 35.

- Survival is similar for the age groups 55-64 years and the age group 65 years and older.

Figure 94. Malignant Thymoma – Relative Survival by Age Group



* Survival is not shown for patients in the age group 0-54 years old because the number at risk is lower than 35.

- Because almost all patients with an epithelial tumour of the thymus are diagnosed with a malignant thymoma, survival by age group is similar to the earlier described survival of all epithelial tumours of the thymus together. However, the 5-year relative survival is almost 15% higher in the oldest group than in the age group 55-64 years.

4 Malignant Mesothelioma

4.1 General Results

Table 59. Epithelial Tumours of Mesothelioma: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
MALIGNANT MESOTHELIOMA	R	1,608	2.64	1.3	69	1.1	0.433	1,427	5.1
Mesothelioma of pleura and pericardium	R	1,476	2.43	1.2	69	1.3	0.334	1,310	4.5
Mesothelioma of peritoneum and tunica vaginalis	R	116	0.19	0.1	64	1.5	0.453	104	14.0
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
MALIGNANT MESOTHELIOMA	R	1,343	4.48	2.35	69	0.3	0.791	1,184	4.5
Mesothelioma of pleura and pericardium	R	1,245	4.15	2.16	69	0.8	0.512	1,098	4.2
Mesothelioma of peritoneum and tunica vaginalis	R	84	0.28	0.17	64	-0.9	0.756	75	9.8
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
MALIGNANT MESOTHELIOMA	R	265	0.86	0.40	69	4.4	0.162	243	7.9
Mesothelioma of pleura and pericardium	R	231	0.75	0.34	69	3.4	0.322	212	5.8
Mesothelioma of peritoneum and tunica vaginalis	R	32	0.10	0.06	65	10.1	0.077	29	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

4.2 Incidence

- 1.608 new malignant mesothelioma are diagnosed in the Flemish Region between 2001 and 2010.

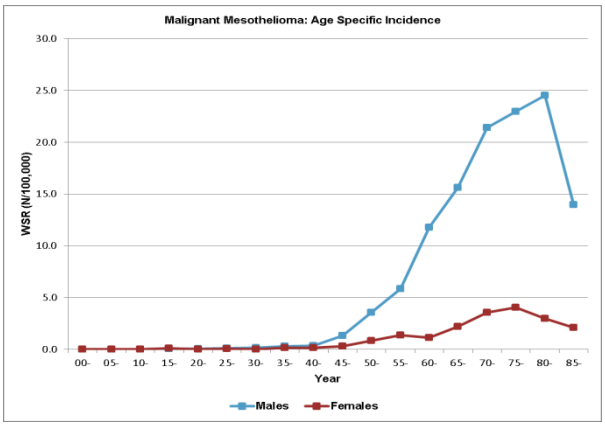
- The male/female ratio is 5.9.
- RARECARE defines two rare entities based on the primary localisation:
    - The majority of malignant mesothelioma are of pleural and pericardial origin (92%). The male/female ratio is 6.4.
    - Only 116 mesothelioma originate from the peritoneum or tunica vaginalis. The male/female ratio is 3.0.

Table 60. Epithelial Tumours of Mesothelioma: Morphological Distribution by Sex

Flemish Region 2001-2010	Males	Females	Total
MALIGNANT MESOTHELIOMA	1343	265	1608
Mesothelioma of pleura and pericardium	1245	231	1476
Epithelioid malignant mesothelioma	493	92	585
Sarcomatoid malignant mesothelioma	119	15	134
Mesothelioma of peritoneum and tunica vaginalis	84	32	116
Epithelioid malignant mesothelioma	47	14	61
Sarcomatoid malignant mesothelioma	2	1	3

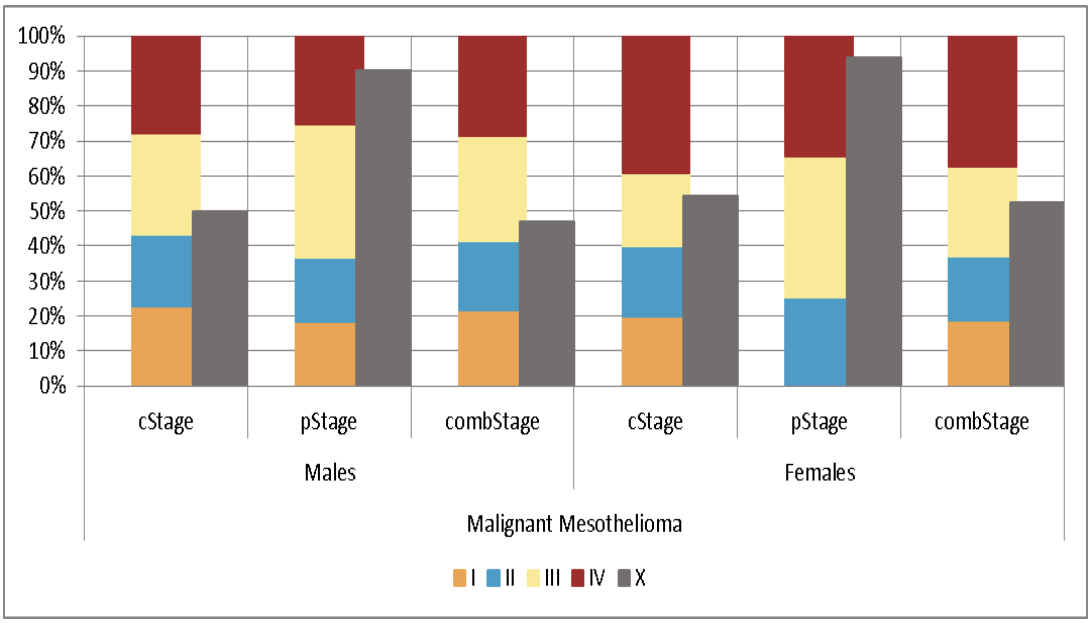
- Less than one out of ten diagnoses of pleural (or pericardial) mesothelioma is of sarcomatoid histology.
- Epithelioid histology is most frequently observed, independent of the site of origin.

Figure 95. Malignant Mesothelioma: Age Specific Incidence



- Age specific incidence rates start to increase around the age of 50 years.
- The increase in males is more pronounced than the increase in females.

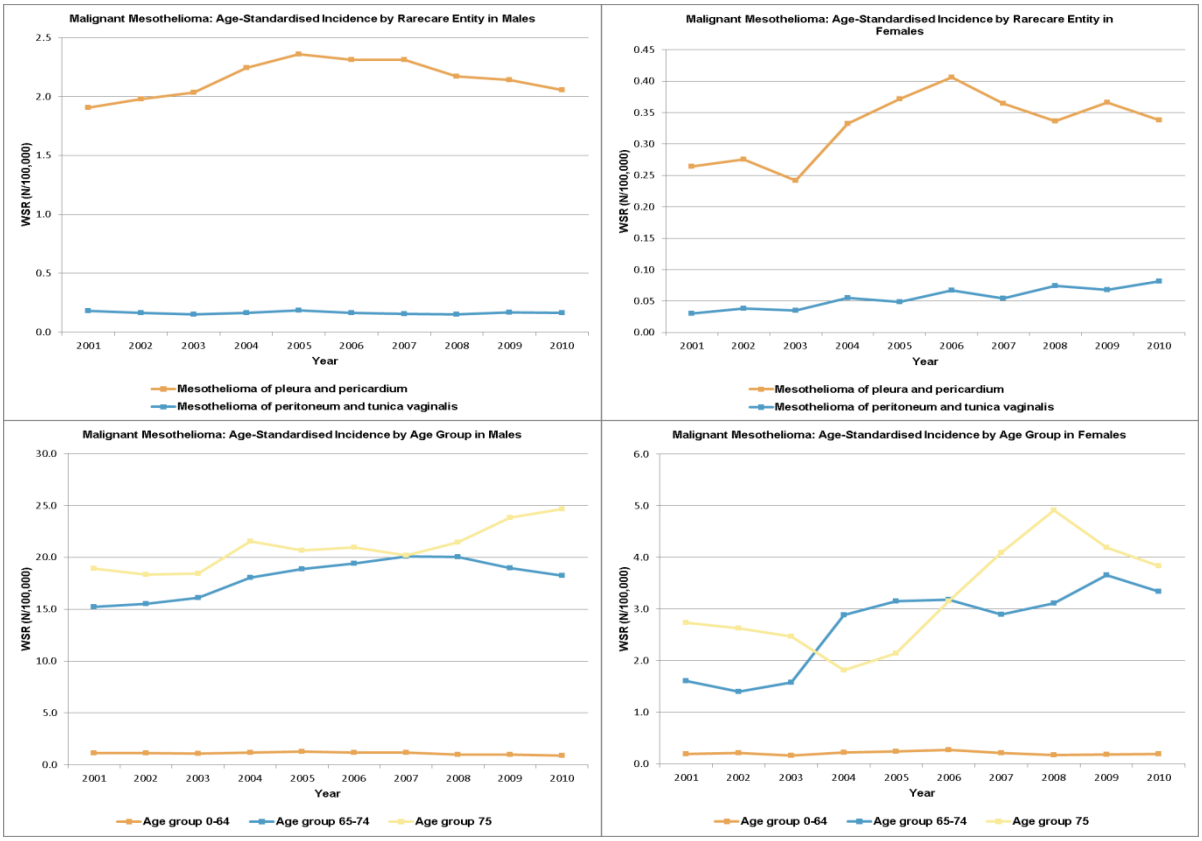
Figure 96. Malignant Mesothelioma: Stage Distribution by Sex



- Information on clinical stage is available in about half of the mesothelioma cases. Pathological staging (~90% missing) is rarely available.

4.3 Trends

Figure 97. Malignant Mesothelioma: Age-Standardised Incidence by RARECARE Entity and by Age Group in Males and Females (three year moving average)



- The incidence rates for mesothelioma (both subtypes) in females are increasing, however no significant trend is observed.
- In males, the rates for pleural mesothelioma increase until 2005 (EAPC 2001-2005 = 4.0% [p = 0.400]), between 2005 and 2010 they decrease (EAPC 2005-2010 = -2.7% [p = 0.079]).
- Incidence rates for mesothelioma decrease in patients younger than 65 years of age, while in the older age groups the rates are increasing, but the trends are not significant.
    - Age group 0-64 years: males: EAPC = -3.1% [p = 0.149]; females: EAPC = -0.5% [p = 0.914]
    - Age group 65-74 years: males: EAPC = 2.8% [p = 0.116]; females: EAPC = 11.6% [p = 0.077]
    - Age group 75+ years: males: EAPC = 3.4% [p = 0.064]; females: EAPC = 7.5% [p = 0.185]

4.4 Survival

4.4.1 Overall Survival

Table 61. Malignant Mesothelioma – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
MALIGNANT MESOTHELIOMA	1,427	44.4	10.5	4.4	2.3	[3.3 ; 5.7]	45.7	11.4	5.1	3.1	[3.8 ; 6.6]
Mesothelioma of pleura and pericardium	1,310	44.4	9.6	3.8	1.5	[2.8 ;5.1]	45.7	10.4	4.5	2.2	[3.3 ; 6.0]
Mesothelioma of peritoneum and tunica vaginalis	104	46.6	22.5	13.3	11.4	[6.9 ; 21.8]	47.8	23.7	14.0	12.2	[7.2 ; 23.1]

- Survival is very bad for patients diagnosed with a malignant melanoma. Less than half of the patients survives the first year after diagnosis. Four years later, 5.1% of patients are still alive.
- Although survival is poor for all localisations the malignant mesothelioma, survival is somewhat better for the peritoneum and tunica vaginalis than for the pleural and pericardial localisations.

4.4.2 Survival by Sex

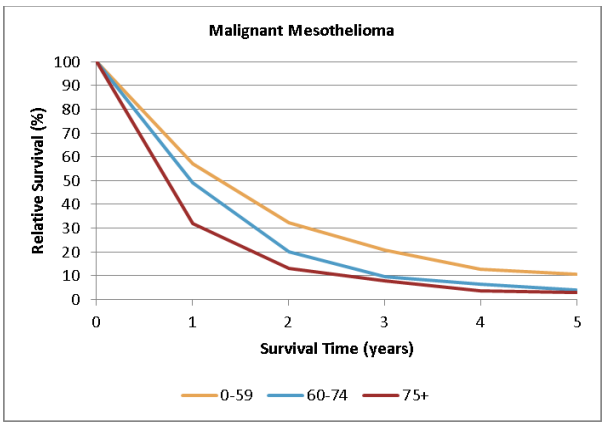
Table 62. Malignant Mesothelioma – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
MALIGNANT MESOTHELIOMA	1,184	44.1	9.7	3.8	[2.7 ; 5.2]	45.5	10.6	4.5	[3.2 ; 6.1]
Mesothelioma of pleura and pericardium	1,098	44.3	9.1	3.6	[2.5 ; 5.0]	45.7	9.9	4.2	[2.9 ; 5.8]
Mesothelioma of peritoneum and tunica vaginalis	75	43.2	19.5	9.1	[3.3 ; 18.5]	44.5	20.6	9.8	[3.6 ; 19.9]
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
MALIGNANT MESOTHELIOMA	243	45.7	14.3	7.1	[4.1 ; 11.3]	46.6	15.2	7.9	[4.5 ; 12.5]
Mesothelioma of pleura and pericardium	212	44.8	12.3	5.1	[2.5 ; 9.1]	45.7	13.1	5.8	[2.9 ; 10.4]
Mesothelioma of peritoneum and tunica vaginalis	29	*	*	*	*	*	*	*	*

- Survival steeply declines after diagnosis for both males and females, although more long term survivors are observed in the female population.

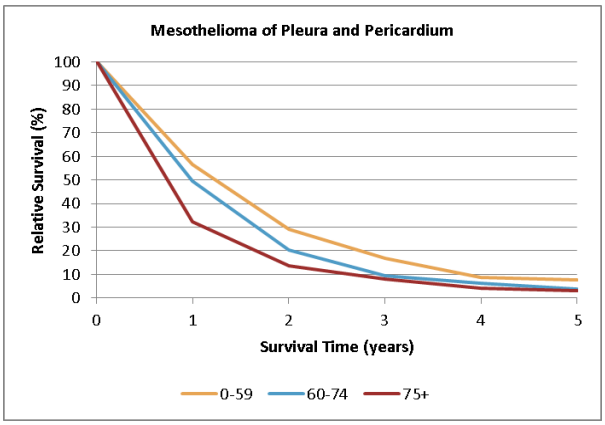
4.4.3 Survival by Age Group

Figure 98. Malignant Mesothelioma – Relative Survival by Age Group



- Although very small differences between the age groups can be observed, survival at five years of follow-up is 10% or lower for all age groups.

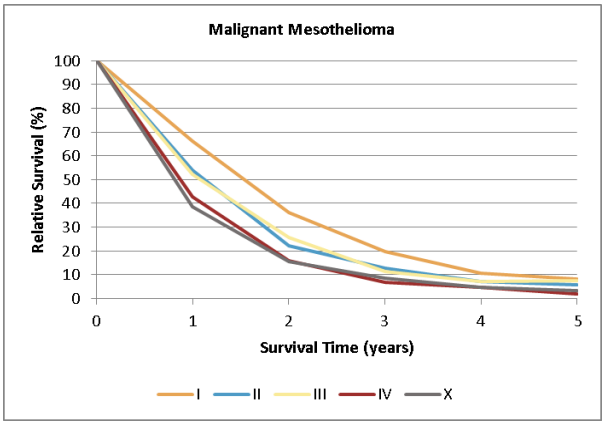
Figure 99. Mesothelioma of Pleura and Pericardium - Relative Survival by Age Group



- Because almost all patients with a malignant mesothelioma are diagnosed with a mesothelioma of the pleura or pericardium, survival by age group is very similar to the results for all malignant mesothelioma together.

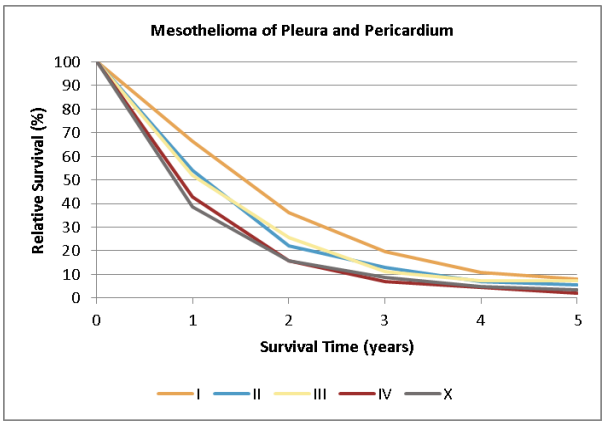
4.4.4 Survival by Stage

Figure 100. Malignant Mesothelioma - Relative Survival by Stage



- At one year after diagnosis, survival differences exist between the stages, ranging between a relative survival of 66.3% for stage I tumours and 42.7% for stage IV tumours. However, at five years after diagnosis, tumours of all stages have a survival rate of less than 10%.

Figure 101. Mesothelioma of Pleura and Pericardium - Relative Survival by Stage



- Because almost all patients with a malignant mesothelioma are diagnosed with a mesothelioma of the pleura or pericardium, survival by stage is very similar to the results for all malignant mesothelioma together.

CHAPTER 4. RARE BREAST TUMOURS

1 Breast Tumours

1.1 General Results

Table 63. Epithelial Tumours of Breast: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF BREAST (FEMALES)	C	54,477	176.81	105.36	61	-0.7	0.010	52,976	87.5
Invasive ductal carcinoma of breast	C	41,893	135.97	82.11	61	0.5	0.057	40,490	88.1
Invasive lobular carcinoma of breast	C	6,945	22.54	12.94	63	-1.3	0.076	6,672	88.7
Mammary Paget's disease of breast	R	209	0.68	0.38	63	-10.5	0.002	205	83.4
Special types of adenocarcinoma of breast	R	1,145	3.72	2.05	63	-6.0	0.007	1,112	96.8
Metaplastic carcinoma of breast	R	166	0.54	0.29	64	10.8	0.059	157	69.7
Salivary gland type tumours of breast	R	66	0.21	0.12	63	2.6	0.749	61	92.5
Epithelial tumour of male breast	R	503	1.68	0.91	67	-1.4	0.415	430	76.0

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

1.2 Incidence

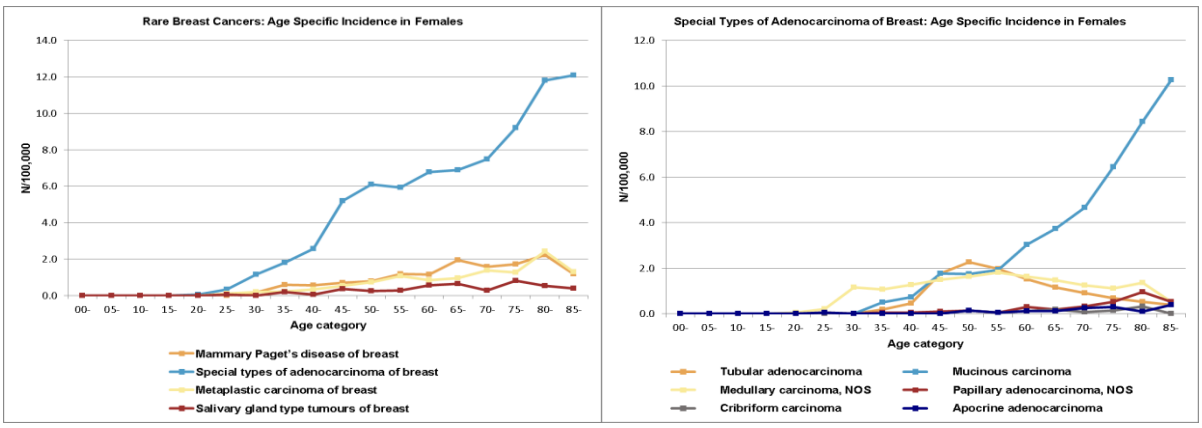
- 54,980 new epithelial tumours of the breast are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 0.01.
- Five rare histological entities are considered in the RARECARE list. With 2,089 new diagnoses between 2001 and 2010, they represent less than 4% off all breast cancer cases.
    - Male breast cancer is grouped as one rare entity, regardless of histology, thus including ductal carcinoma. Between 2001 and 2010 there are 503 Flemish males diagnosed with breast cancer.
    - Paget's disease of the breast accounts for 209 new diagnoses in females. Comparing the incidence for Paget's disease is difficult since registration practices for mammary Paget's disease may vary between registries. Some registries, such as the Belgian Cancer Registry, consider Paget's disease without additional information on the invasive behaviour as an in situ malignancy, while other registries may code by default this tumour as a malignant disease.
    - A wide variety of rare adenocarcinoma are grouped together as 'special types of adenocarcinoma'. The most common types are mucinous adenocarcinoma (49%), tubular adenocarcinoma (25%) and medullary carcinoma (19%).
    - Metaplastic carcinomas represent about 10% of all rare female breast cancers.
    - Salivary gland type tumours are the least common rare care entity with only 66 new diagnoses between 2001 and 2010.

Table 64. Rare Breast Cancers: Histological Subtypes by Age Groups

Label	Total		0-49		50-69		70+	
Mammary Paget's disease of breast	209	13.2%	45	13.4%	87	13.7%	77	12.6%
Special types of adenocarcinoma of breast	1,145	72.2%	247	73.3%	456	71.7%	442	72.1%
Tubular adenocarcinoma	214	13.5%	56	16.6%	127	20.0%	31	5.1%
Mucinous carcinoma	564	35.6%	68	20.2%	180	28.3%	316	51.5%
Medullary carcinoma, NOS	285	18.0%	116	34.4%	118	18.6%	51	8.3%
Papillary adenocarcinoma, NOS	41	2.6%	4	1.2%	12	1.9%	25	4.1%
Cribriform carcinoma	15	0.9%	-	-	9	1.4%	6	1.0%
Apocrine adenocarcinoma	21	1.3%	1	0.3%	8	1.3%	12	2.0%
Secretory carcinoma	4	0.3%	2	0.6%	1	0.2%	1	0.2%
Glycogen-rich clear cell carcinoma	-	-	-	-	-	-	-	-
Lipid-rich carcinoma	1	0.1%	-	-	1	0.2%	-	-
Oncocytic carcinoma	-	-	-	-	-	-	-	-
Metaplastic carcinoma of breast	166	10.5%	31	9.2%	64	10.1%	71	11.6%
Squamous carcinoma	14	0.9%	2	0.6%	5	0.8%	7	1.1%
Adenosquamous carcinoma	25	1.6%	4	1.2%	16	2.5%	5	0.8%
Adenocarcinoma with cartilaginous and osseous metaplasia	-	-	-	-	-	-	-	-
Adenocarcinoma with spindle cell metaplasia	3	0.2%	-	-	1	0.2%	2	0.3%
Metaplastic carcinoma of breast, NOS	124	7.8%	25	7.4%	42	6.6%	57	9.3%
Salivary gland type tumours of breast	66	4.2%	14	4.2%	29	4.6%	23	3.8%
Mucoepidermoid carcinoma	3	0.2%	-	-	-	-	3	0.5%
Adenoid cystic carcinoma	34	2.1%	7	2.1%	17	2.7%	10	1.6%
Myoepithelial carcinoma	4	0.3%	1	0.3%	1	0.2%	2	0.3%
Acinic cell adenocarcinoma	25	1.6%	6	1.8%	11	1.7%	8	1.3%
Rare epithelial tumours of female breast	**1,586**		**337**		**636**		**613**	

- The distribution of rare breast cancer entities varies only slightly with age. The greatest change is observed for the main special types of adenocarcinoma.
    - Medullary carcinomas represent 1 out of 3 rare cancer entities in patients younger than 50 years of age. Their contribution decreases to 19% in patients between the age of 50 and 69 years. In the oldest age group, less than 1 out of every 10 new diagnoses are medullary carcinomas.
    - More than half of all rare breast cancers diagnosed in patients of 70 years and older are mucinous carcinoma. Under the age of 50 years, they represent only 1 out of 5 rare cancers.
    - Tubular carcinomas are more often diagnosed in patients under the age of 70 years, thereafter, only 5% of rare cancers are tubular carcinoma.

Figure 102. (left) Rare Breast Cancers: Age Specific Incidence in Females, Flemish Region 2001-2010; (right) Special Types of Adenocarcinoma of Breast: Age Specific Incidence in Females, Flemish Region 2001-2010

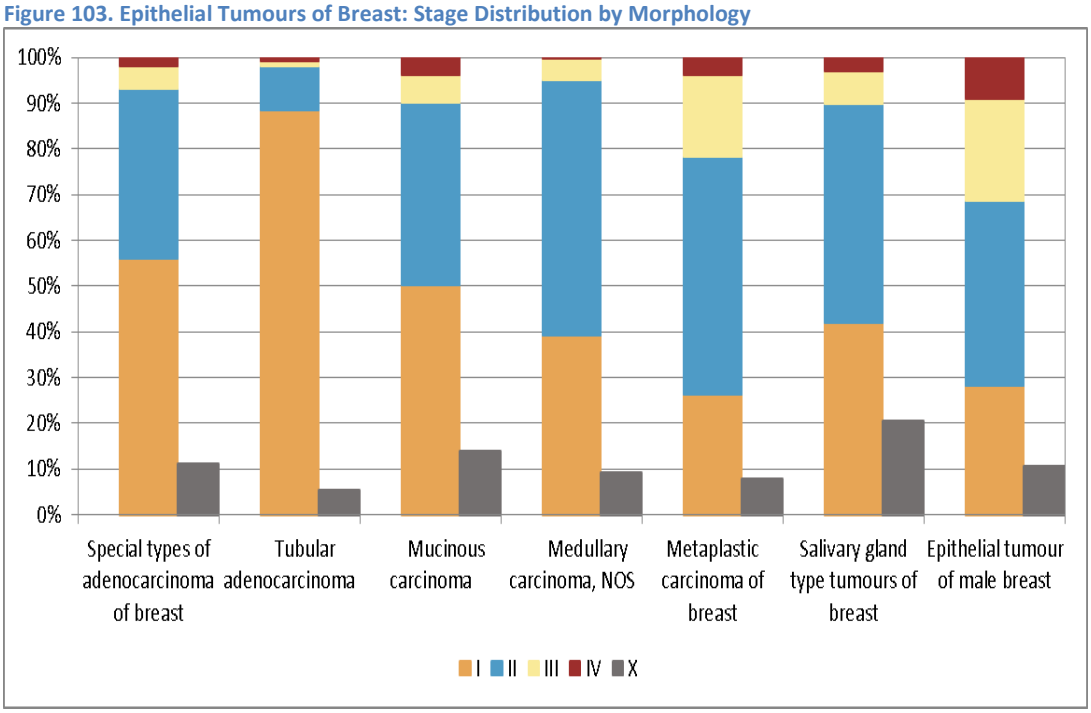


- Incidence rates for 'special types' adenocarcinoma increase from the age of 30 years.
    - The increase in very young patients is mainly driven by an increase in medullar carcinoma. The rates for medullar carcinoma increase only slightly until the age of 50 years. After the age of 55, the rates decrease slightly.

- From the age of 40 years, tubular carcinoma incidence rates start to increase to reach a peak at 50 years. Then the incidence rates decrease.
- Mucinous carcinoma incidence rates increase from the age of 40 years and they keep increasing rapidly. With increasing age, mucinous carcinoma becomes more and more the predominant rare breast cancer type.

- The incidence rates for Paget's disease, metaplastic carcinoma and salivary gland type tumours increase slowly with age.

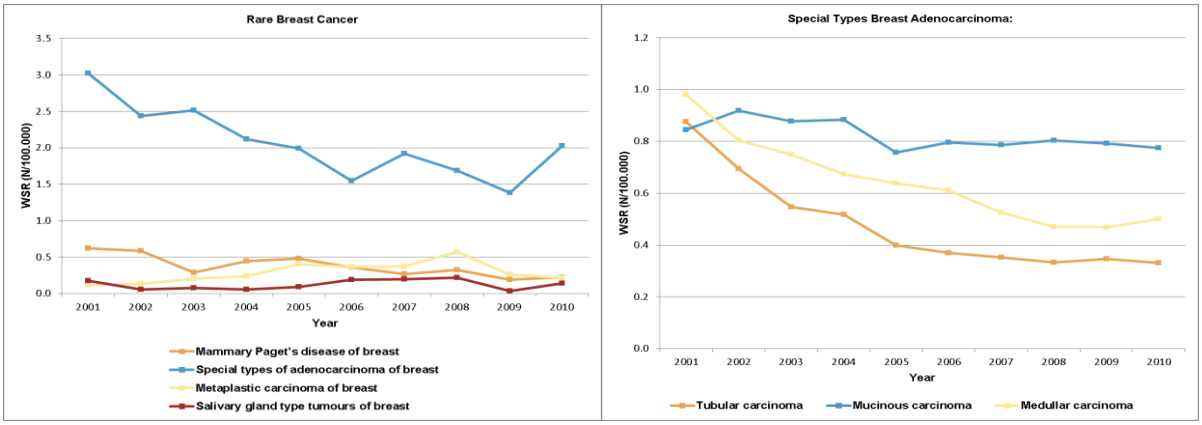
Figure 103. Epithelial Tumours of Breast: Stage Distribution by Morphology



- 'Special types' adenocarcinomas of breast have a good prognostic stage distribution.
  - About 90% of tubular carcinomas are diagnosed in stage I.
  - Half of the mucinous carcinomas are diagnosed in stage I and an additional 40% in stage II.
  - Medulary carcinoma is diagnosed for 40% in stage I and 50% in stage II.
- Metaplastic carcinoma has the most unfavorable stage distribution of the rare female breast cancer entities with more than 20% of cases diagnosed in stage III or IV.
- Salivary gland breast cancer present for 40% in stage I and 50% in stage II.
- Male breast cancer has a fairly poor prognostic stage distribution with 10% stage IV and a little more than 20% stage III.

1.3 Trends

Figure 104. Rare Breast Cancer and Special Types Breast Adenocarcinoma: Age Standardised Incidence in Females (Three year moving average)



- A significant decrease is observed in Paget's disease. An influence of improving and more comparable registration practices (no invasive Paget by default) in the hospitals cannot be excluded.
- Special types adenocarcinomas decrease significantly.
    - Tubular carcinomas decrease annually with 9.3% (p = 0.010).
    - Medullar carcinomas decrease significantly with 7.1% each year (p = 0.009).
    - Mucinous carcinomas show a slight decrease but the trend is not significant (EAPC = 1.6% [p = 0.258]).
- Metaplastic and salivary gland type carcinoma incidence increase, but the trends are not yet significant.

1.4 Survival

1.4.1 Overall Survival

Table 65. Epithelial Tumours of Breast - Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF BREAST	52,976	95.5	87.4	80.2	66.8	[79.8 ; 80.6]	97.1	92.0	87.5	80.1	[87.1 ; 87.9]
Invasive ductal carcinoma	40,490	96.1	88.2	81.2	68.2	[80.8 ; 81.6]	97.7	92.6	88.1	81.1	[87.7 ; 88.6]
Invasive lobular carcinoma	6,672	95.7	88.2	80.6	64.6	[79.6 ; 81.6]	97.5	93.3	88.7	78.6	[87.5 ; 89.8]
Mammary Paget's disease	205	94.2	81.9	76.2	60.8	[69.2 ; 81.4]	95.9	86.3	83.4	74.9	[75.7 ; 88.9]
Special types of adenocarcinoma	1,112	96.0	89.4	84.9	73.2	[82.5 ; 87.0]	98.5	96.8	96.8	95.1	[94.1 ; 99.2]
Metaplastic carcinoma	157	90.5	72.1	62.6	42.8	[54.3 ; 70.5]	92.5	76.8	69.7	54.8	[60.4 ; 78.5]
Salivary gland type tumours	61	91.8	86.4	84.5	77.9	[72.3 ; 91.7]	93.4	91.0	92.5	98.1	[79.2 ; 100.3]
Epithelial tumour of male breast	430	90.2	76.8	63.0	44.8	[57.7 ; 67.8]	93.7	86.0	76.0	65.8	[69.7 ; 81.8]

- Epithelial tumors of the male and metaplastic carcinoma in females have the worst prognosis, with a 5-year relative survival of 76.0% and 69.7% respectively.
- The best prognosis is seen in the salivary gland type tumours and the special types of adenocarcinoma with a 5-year relative survival of more than 90%.

1.4.2 Survival by Sex

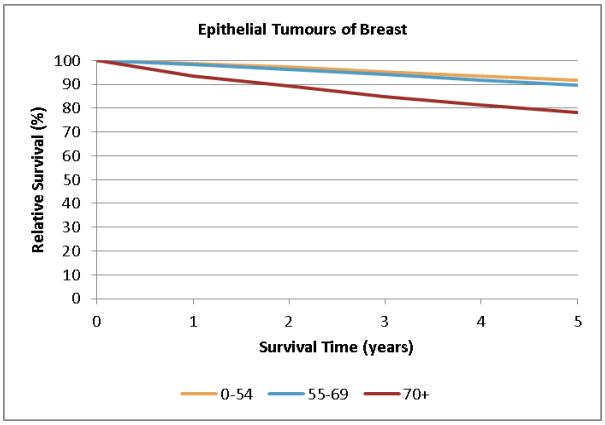
Table 66. Epithelial Tumours of Breast - Survival by Sex

	N	Observed Survival				Relative Survival			
Males	at risk	1 year	3 year	5 year	5 year CI	1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF BREAST	430	90.2	76.8	63.0	[57.7 ; 67.8]	93.7	86.0	76.0	[69.7 ; 81.8]
Invasive ductal carcinoma	-	-	-	-	-	-	-	-	-
Invasive lobular carcinoma	-	-	-	-	-	-	-	-	-
Mammary Paget's disease	-	-	-	-	-	-	-	-	-
Special types of adenocarcinoma	-	-	-	-	-	-	-	-	-
Metaplastic carcinoma	-	-	-	-	-	-	-	-	-
Salivary gland type tumours	-	-	-	-	-	-	-	-	-
Epithelial tumour of male breast	430	90.2	76.8	63.0	[57.7 ; 67.8]	93.7	86.0	76.0	[69.7 ; 81.8]
	N	Observed Survival				Relative Survival			
Females	at risk	1 year	3 year	5 year	5 year CI	1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF BREAST	52,546	95.5	87.5	80.4	[80.0 ; 80.7]	97.2	92.0	87.6	[87.2 ; 88.0]
Invasive ductal carcinoma	40,490	96.1	88.2	81.2	[80.8 ; 81.6]	97.7	92.6	88.1	[87.7 ; 88.6]
Invasive lobular carcinoma	6,672	95.7	88.2	80.6	[79.6 ; 81.6]	97.5	93.3	88.7	[87.5 ; 89.8]
Mammary Paget's disease	205	94.2	81.7	75.9	[69.2 ; 81.4]	95.8	86.1	83.0	[75.7 ; 88.9]
Special types of adenocarcinoma	1,112	96.0	89.4	84.9	[82.5 ; 87.0]	98.5	96.8	96.8	[94.1 ; 99.2]
Metaplastic carcinoma	157	90.5	72.6	63.0	[54.3 ; 70.5]	92.4	77.3	70.1	[60.4 ; 78.5]
Salivary gland type tumours	61	91.8	86.4	84.5	[72.3 ; 91.7]	93.4	91.0	92.5	[79.2 ; 100.3]
Epithelial tumour of male breast	-	-	-	-	-	-	-	-	-

- Epithelial tumours of the breast have a much worse prognosis in males than in females.

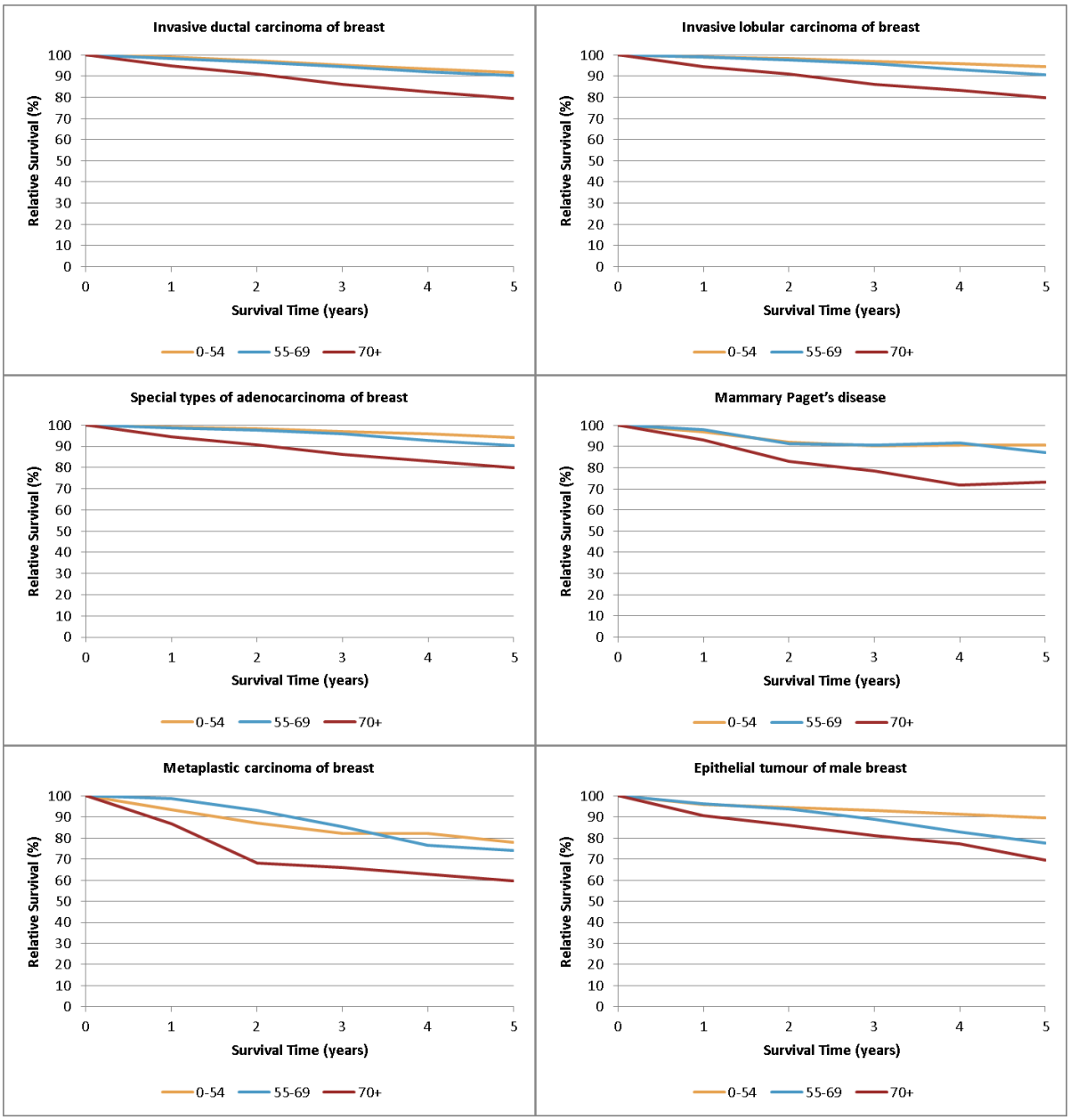
1.4.4 Survival by Age Group

Figure 105. Epithelial Tumours of Breast - Relative Survival by Age Group



- Prognoses of the 0-54 years and 55-69 years age groups are comparable.
- The oldest patients (70 years and older) have a worse prognosis, with a difference in relative survival at 5 years of about 10% compared with younger patients.

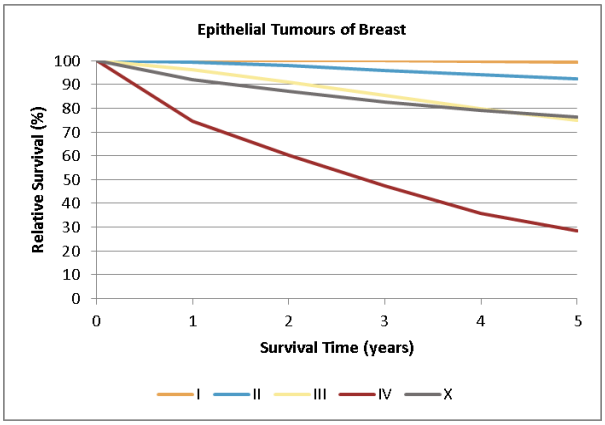
Figure 106. Invasive Ductal Carcinoma, Invasive Lobular Carcinoma, Special Types of Adenocarcinoma, Mammary Paget's Disease, Metaplastic Carcinoma, Epithelial Tumours of Male Breast - Relative Survival by Age Group



- Except for the epithelial tumors of the male breast, the 5-year relative survival for the 0-54 years age group and 55-69 years age group is comparable in the different histological groups.
- The oldest patients (70 years and older) have the worst prognosis in the different histological groups.

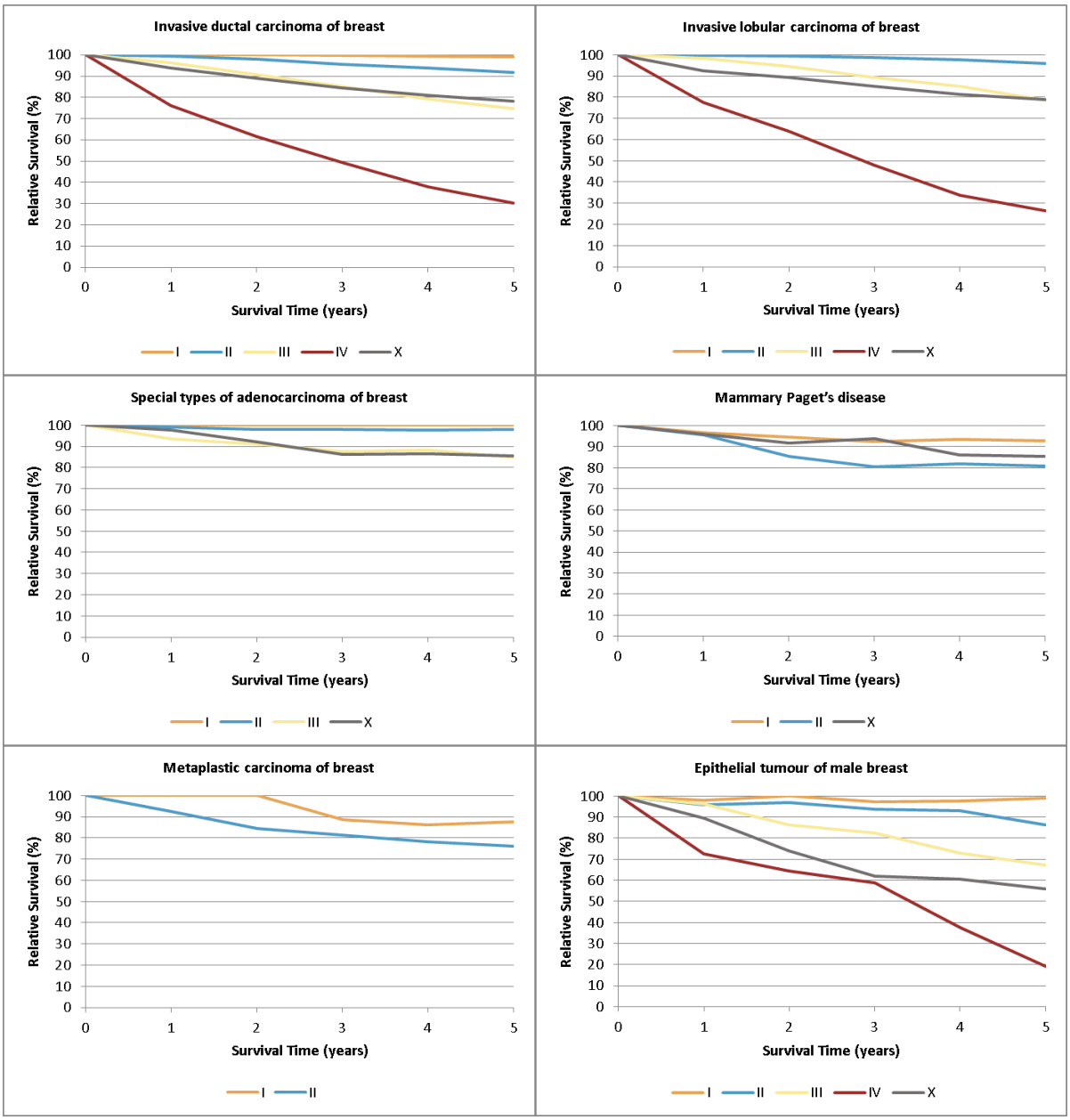
1.4.5 Survival by Stage

Figure 107. Epithelial Tumours of Breast - Relative Survival by Stage



- Survival depends on stage, with the best prognosis in stage I and the worst in stage IV.

Figure 108. Invasive Ductal Carcinoma, Invasive Lobular Carcinoma, Special Types of Adenocarcinoma, Mammary Paget's Disease, Metaplastic Carcinoma, Epithelial Tumours of Male Breast - Relative Survival by Stage



- Survival depends on stage, with the best prognosis in stage I and the worst in stage IV.
- The relative 5 year survival of stage IV tumor varies between 20 and 30%, with the worst prognosis seen in epithelial tumors of the male breast.

CHAPTER 5. RARE TUMOURS OF FEMALE GENITAL ORGANS

1 Epithelial Tumours of Corpus Uteri

1.1 General results

Table 67. Epithelial Tumours of Corpus Uteri: Incidence, Trends, Survival

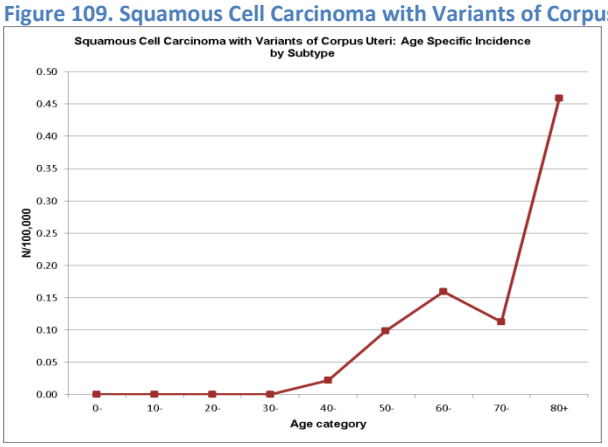
Flemish Region 2001-2010		Incidence				Trend		Survival	
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF CORPUS UTERI	C	7,629	24.76	12.45	68	-0.8	0.102	6,996	83.9
Adenocarcinoma with variants of corpus uteri	C	7,515	24.39	12.29	68	-0.5	0.277	6,893	84.3
Squamous cell carcinoma with variants of corpus uteri	R	21	0.07	0.03	70	*	*	15	*
Adenoid cystic carcinoma of corpus uteri	R	0	-	-	-	-	-	-	-
Transitional cell carcinoma of corpus uteri	R	0	-	-	-	-	-	-	-

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

1.2 Incidence

- 7,629 new epithelial tumours of corpus uteri are diagnosed in the Flemish Region between 2001 and 2010.
- Of the three RARECARE entities, only squamous cell carcinoma is diagnosed. Neither adenoid cystic carcinoma nor transitional cell carcinoma are observed in the Flemish Region between 2001 and 2010.

Figure 109. Squamous Cell Carcinoma with Variants of Corpus Uteri: Age Specific Incidence by Subtype



- From the age of 40 years old, incidence rates for squamous cell carcinoma of corpus uteri start to increase.

1.3 Overall Survival

Table 68. Epithelial Tumours of Corpus Uteri – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF CORPUS UTERI	6,996	92.2	81.5	74.8	62.3	[73.7 ; 75.9]	94.2	87.1	83.9	80.4	[82.7 ; 85.1]
Adenocarcinoma with variants	6,893	92.6	81.9	75.3	62.7	[74.2 ; 76.3]	94.6	87.5	84.3	80.9	[78.8 ; 82.9]
Squamous cell carcinoma with variants	15	*	*	*	*	*	*	*	*	*	*
Adenoid cystic carcinoma	-	-	-	-	-	-	-	-	-	-	-
Transitional cell carcinoma	-	-	-	-	-	-	-	-	-	-	-

- Prognosis of patients with an epithelial tumour of corpus uteri is good, with a 10-year relative survival of more than 80%.

2 Epithelial Tumours of Cervix Uteri

2.1 General results

Table 69. Epithelial Tumours of Cervix Uteri: Incidence, Trends, Survival

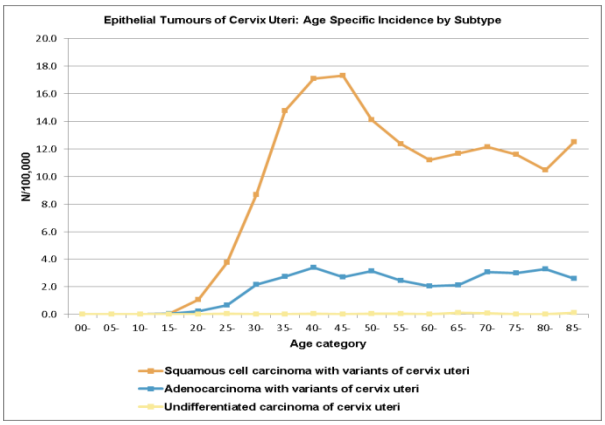
Flemish Region 2001-2010		Incidence				Trend		Survival	
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF CERVIX UTERI	C	3,635	11.80	8.18	53	-1.6	0.084	3,456	69.6
Squamous cell carcinoma with variants of cervix uteri	C	2,806	9.11	6.33	53	-0.5	0.668	2,674	70.8
Adenocarcinoma with variants of cervix uteri	R	578	1.88	1.26	54	0.4	0.750	543	67.1
Undifferentiated carcinoma of cervix uteri	R	8	0.03	0.02	60	*	*	7	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

2.2 Incidence

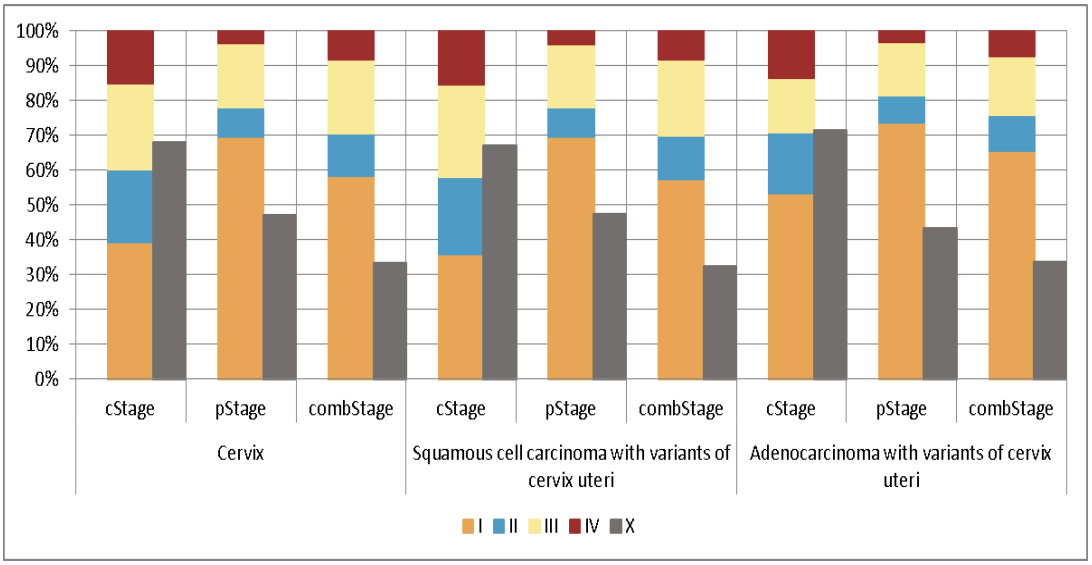
- 3,635 new epithelial tumours of cervix uteri are diagnosed in the Flemish Region between 2001 and 2010.
- RARECARE defines three rare entities:
  - Squamous cell carcinoma should be classified as common in the Flemish Region when following the RARECARE definition for rare tumours (incidence < 6 / 100.000).
  - Adenocarcinoma represents about 16% of the epithelial tumours of cervix uteri. Almost all adenocarcinoma occur in the endocervix.
  - Only 8 cases of undifferentiated carcinoma are registered in the Flemish Region between 2001 and 2010.

Figure 110. Epithelial Tumours of Cervix Uteri: Age Specific Incidence by Subtype



- Incidence rates for squamous cell carcinoma start to increase from an early age. A peak incidence is observed around the age of 40-50 years.
- Adenocarcinoma incidence rates start to increase around the age of 30 years. The rates remain fairly stable with age.
- Overall, the age specific adenocarcinoma incidence rates are three to four times lower than the rates for squamous cell carcinoma.

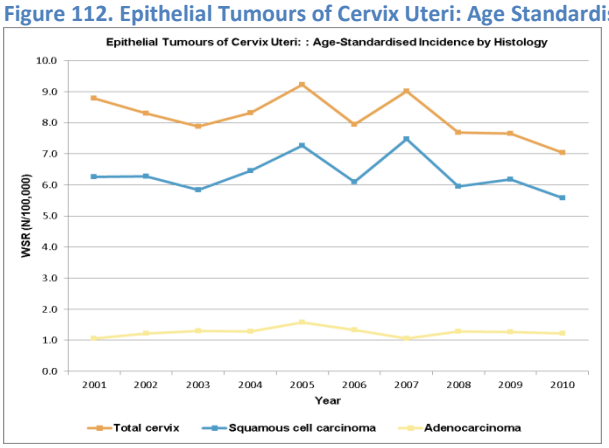
Figure 111. Epithelial Tumours of Cervix Uteri: Stage Distribution by Histology



- Information on stage (combined) is missing in about 30% of all cervical cancers, with a higher percentage of missing information on clinical stage at diagnosis (70%) than on pathological stage (50%).
- Pathological stage is more often stage I than clinically (respectively 70% and 40%).
- Although overall distribution of combined staging for squamous cell carcinoma and adenocarcinoma are similar, the latter histology type has a higher proportion of clinical stage I tumours (>50% and 35% respectively).

2.3 Trends

Figure 112. Epithelial Tumours of Cervix Uteri: Age Standardised Incidence by Histology



- No significant trends are observed in the Flemish Region between 2001 and 2010.

2.4 Survival

2.4.1 Overall Survival

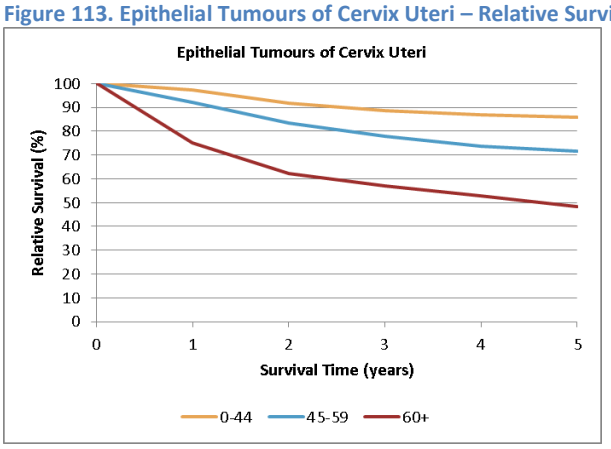
Table 70. Epithelial Tumours of Cervix Uteri – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF CERVIX UTERI	3,456	87.8	73.3	66.8	59.4	[65.2 ; 68.4]	88.6	75.2	69.6	64.8	[67.9 ; 71.3]
Squamous cell carcinoma with variants	2,674	88.4	74.3	67.9	60.9	[66.0 ; 69.8]	89.3	76.2	70.8	66.5	[68.8 ; 72.7]
Adenocarcinoma with variants	543	86.5	71.6	64.2	53.9	[59.7 ; 68.3]	87.5	73.7	67.1	59.7	[62.5 ; 71.4]
Undifferentiated carcinoma	7	*	*	*	*	*	*	*	*	*	*

- Survival of patients with an epithelial tumour of cervix uteri is rather good with a 1-year relative survival of 88.6% and 5-year relative survival of almost 70%.
- Survival is better for squamous cell carcinoma than for adenocarcinoma and this difference becomes larger with a longer follow-up.

2.4.2 Survival by Age Group

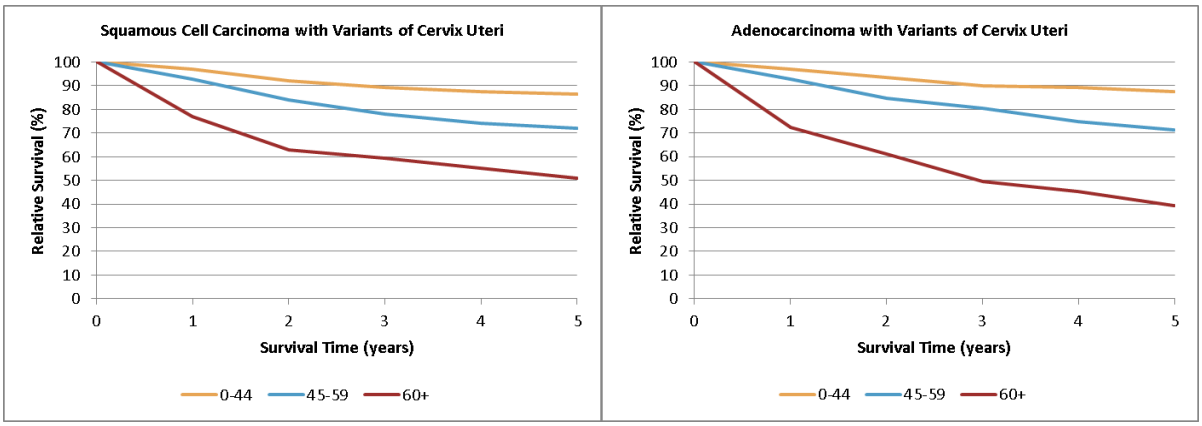
Figure 113. Epithelial Tumours of Cervix Uteri – Relative Survival by Age Group



- Survival is dependent on the age of the patient at diagnosis. Patients younger than 45 have a 5-year relative survival of 85.7%, while this survival rate is lower for patients aged between

45 and 59 years old (71.6%). For patients aged 60 years and above, 5-year relative survival is only 48.3%.

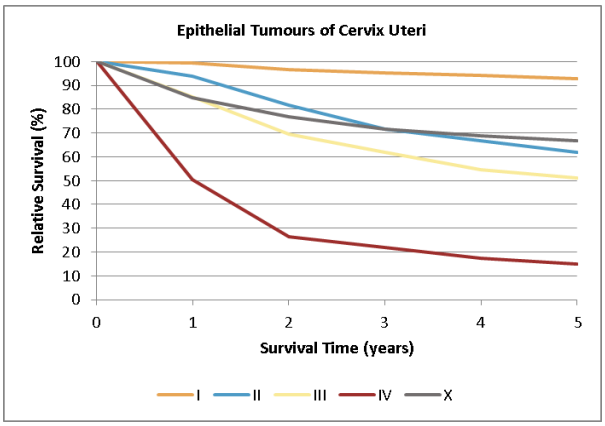
Figure 114. Squamous Cell Carcinoma and Adenocarcinoma with Variants of Cervix Uteri – Relative Survival by Age Group



- Survival is similar between squamous cell carcinoma and adenocarcinoma for the age groups 0-44 years old and 45-59 years old. For patients in the age group 60 years and older, survival is much worse for the adenocarcinoma (5-year relative survival: 39.5% versus 50.9% for squamous cell carcinoma).

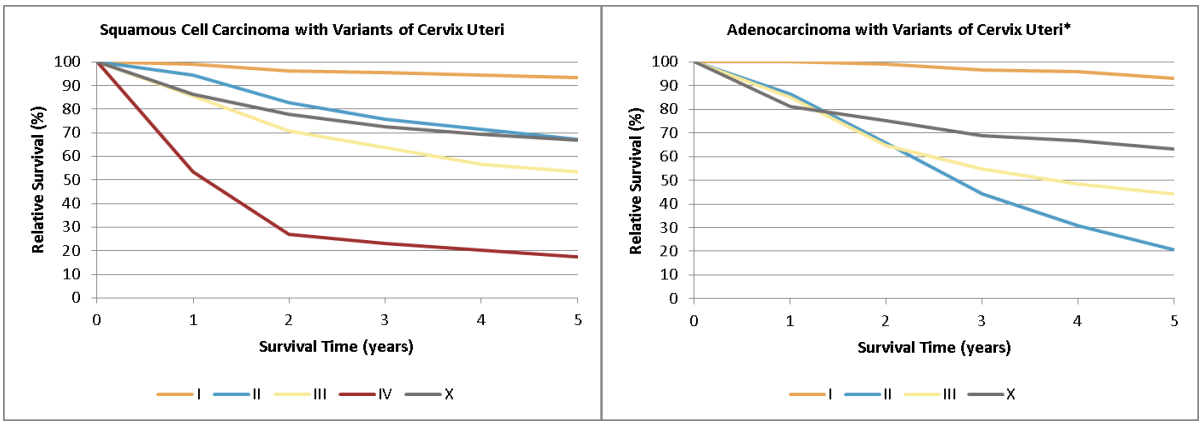
2.4.3 Survival by Stage

Figure 115. Epithelial Tumours of Cervix Uteri – Relative Survival by Stage



- Survival is highly dependent on the stage of the tumour, with a five-year relative survival equal to 92.7% for stage I tumours and of only 15.0% for stage IV tumours.

Figure 116. Squamous Cell Carcinoma and Adenocarcinoma with Variants of Cervix Uteri – Relative Survival by Stage



* Survival of stage IV is not shown because the number at risk is lower than 35.

- Survival is only similar between squamous cell carcinoma and adenocarcinoma for the low stage I tumours.
- The difference between squamous cell carcinoma and adenocarcinoma is enormous for stage II tumours. Survival is much lower than expected for a stage II adenocarcinoma. This is even lower than the survival for stage III adenocarcinoma.
- For stage III tumours, squamous cell carcinomas have a more than 10% better survival than adenocarcinoma (55.6% versus 44.1%).

3 Mixed Epithelial and Mesenchymal Tumours of Uterus

3.1 General Results

Table 71. Mixed Epithelial and Mesenchymal Tumours of Uterus: Incidence, Trends, Survival

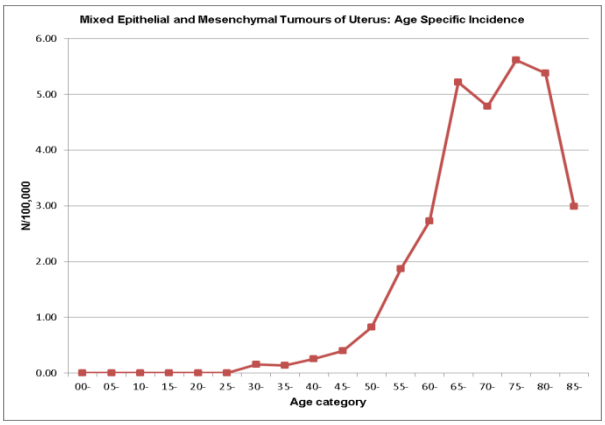
Flemish Region 2001-2010	Incidence					Trend		Survival	
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
MIXED EPITHELIAL AND MESENCHYMAL TUMOURS OF UTERUS	R	421	1.37	0.63	69	-0.1	0.965	270	38.5

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

3.2 Incidence

- 421 new epithelial tumours of mixed epithelial and mesenchymal tumours of uterus are diagnosed in the Flemish Region between 2001 and 2010.
- This layer 1 group is classified as rare by RARECARE, no additional level 2 entities are defined.

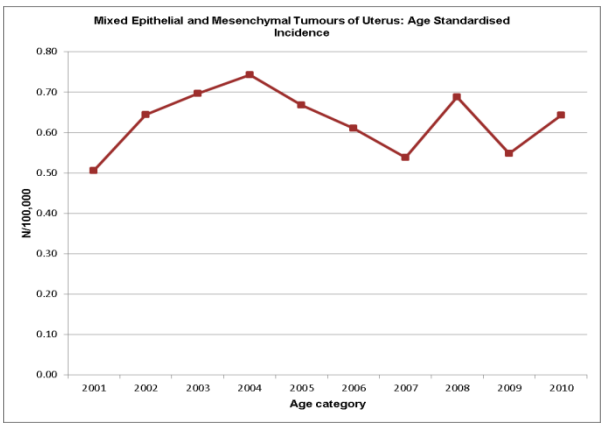
Figure 117. Mixed Epithelial and Mesenchymal Tumours of Uterus: Age Specific Incidence



- Age specific incidence rates increase from the age of 40 years old.

3.3 Trends

Figure 118. Mixed Epithelial and Mesenchymal Tumours of Uterus: Age Standardised Incidence



- No significant changes are observed over time.

3.4 Survival[7]

3.4.1 Overall Survival

Table 72. Mixed Epithelial and Mesenchymal Tumours of Uterus – Overall Survival

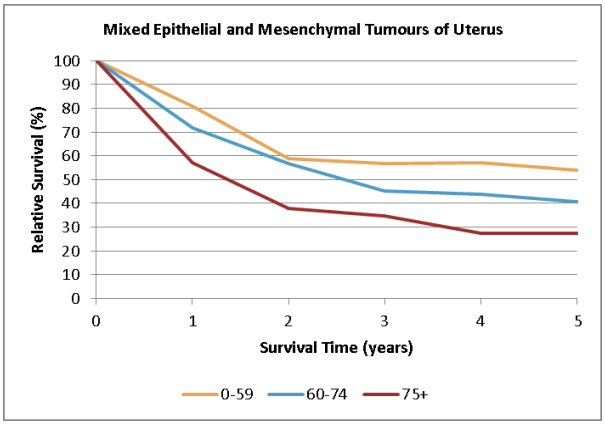
	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
MIXED EPITHELIAL AND MESENCHYMAL TUMOURS OF UTERUS	270	66.7	40.7	34.2	27.7	[28.3 ; 40.2]	68.2	43.5	38.5	34.4	[31.9 ; 45.2]

- Prognosis is poor for patients diagnosed with a mixed epithelial and mesenchymal tumour of the uterus, with only about two-third of patients surviving the first year and a relative survival at 5 years of only 38.5%.

[7] Survival by stage is not shown because this type of tumours cannot be staged according to the TNM guidelines.

3.4.2 Survival by Age Group

Figure 119. Mixed Epithelial and Mesenchymal Tumours of Uterus – Relative Survival by Age Group



- Survival is inversely related with age; survival is highest for the youngest age group and lowest for the oldest age group.

4 Epithelial Tumours of Ovary and Fallopian Tube

4.1 General Results

Table 73. Epithelial Tumours of Ovary and Fallopian Tube: Incidence, Trends, Survival

Flemish Region 2001-2010	Incidence					Trend		Survival	
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF OVARY AND FALLOPIAN TUBE	C	5,280	17.14	9.05	65	-3.6	<0.001	4,588	43.0
Adenocarcinoma with variants of ovary	C	4,055	13.16	6.91	66	-2.9	0.002	3,669	40.7
Mucinous adenocarcinoma of ovary	R	551	1.79	1.10	60	-6.0	0.003	504	63.3
Clear cell adenocarcinoma of ovary	R	218	0.71	0.42	62	0.7	0.794	206	64.9
Adenocarcinoma with variants of fallopian tube	R	112	0.36	0.22	62	13.8	0.007	95	64.3

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

4.2 Incidence

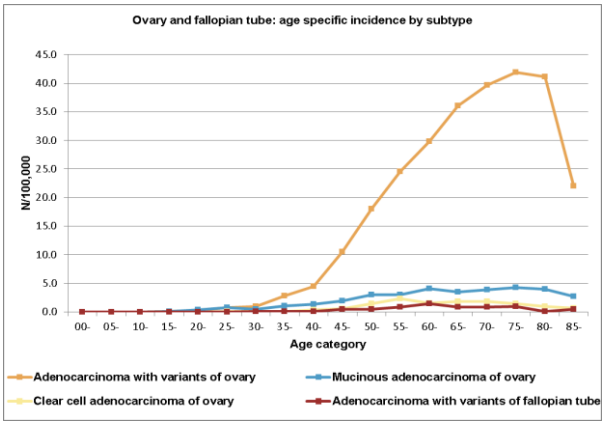
- 5,280 new epithelial tumours of ovary and fallopian tube are diagnosed in the Flemish Region between 2001 and 2010.
- RARECARE defines four rare entities:
  - Adenocarcinoma with variants of ovary in the Flemish Region should be classified as common when following the RARECARE definition for rare tumours (< 6 / 100.000). This group entails a broad histological variety of adenocarcinoma types.
  - Mucinous adenocarcinoma represents 551 new diagnoses.
  - Clear cell adenocarcinoma is diagnosed in 218 patients.
  - A total of 112 patients are registered with an adenocarcinoma with variants of fallopian tube.

Table 74. Morphology Distribution of Epithelial Tumours of Ovary and Fallopian Tube

Flemish Region 2001-2010	Ovary		Fallopian tube	
Papillary serous cystadenocarcinoma	1,553	32.2%	40	35.1%
Serous cystadenocarcinoma, NOS	849	17.6%	38	33.3%
Adenocarcinoma NOS	687	14.2%	19	16.7%
Mucinous adenocarcinoma	551	11.4%	1	0.9%
Endometrioid adenocarcinoma, NOS	403	8.4%	10	8.8%
Serous surface papillary carcinoma	239	5.0%	0	0.0%
Clear cell adenocarcinoma	218	4.5%	1	0.9%
Papillary adenocarcinoma, NOS	114	2.4%	1	0.9%
Papillary cystadenocarcinoma	82	1.7%	2	1.8%
Adenocarcinoma other specified	61	1.3%	2	1.8%
Cystadenocarcinoma, NOS	46	1.0%	0	0.0%
Clear cell adenocarcinofibroma	9	0.2%	0	0.0%
Serous adenocarcinofibroma	9	0.2%	0	0.0%
Mucinous adenocarcinofibroma	2	0.0%	0	0.0%
Endometrioid adenofibroma malignant	1	0.0%	0	0.0%
Total	**4,824**	**100.0%**	**114**	**100.0%**

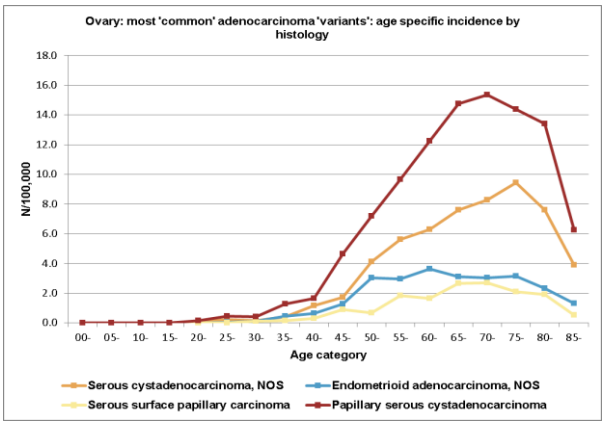
- A wide variety of adenocarcinoma subtypes are observed in the ovary and fallopian tube.
- Papillary serous and serous cystadenocarcinoma are the most frequent histological subtypes.

Figure 120. Epithelial Tumours of Ovary and Fallopian Tube: Age Specific Incidence by Subtype



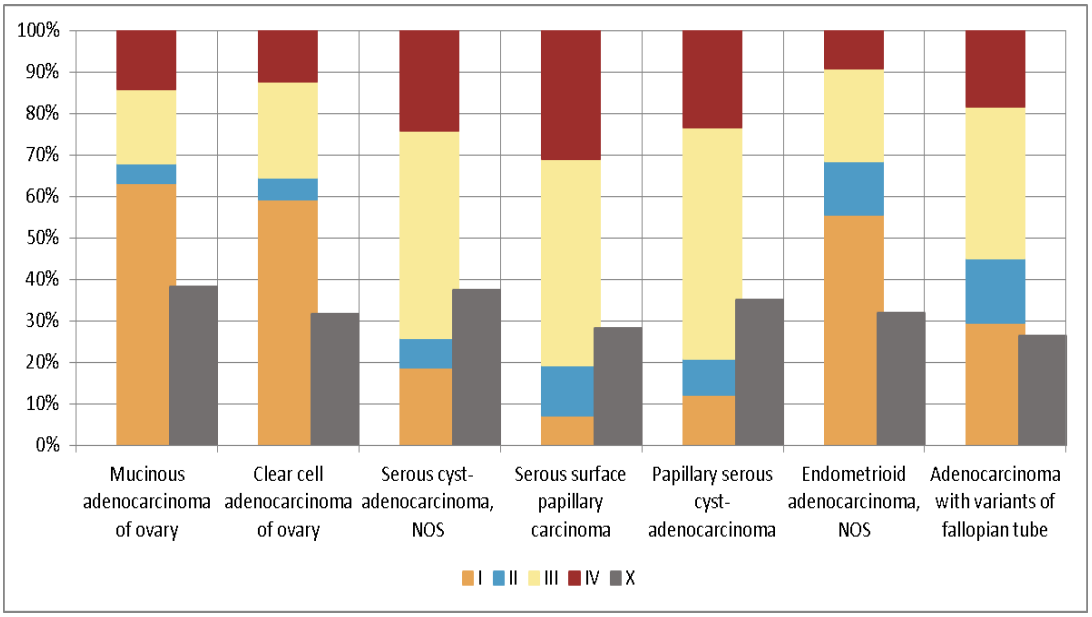
- Age-specific incidences start to increase from 35 years onwards and show a steep rise for adenocarcinoma with variant of ovary, while the incidences for the other subtypes stay low.

Figure 121. Adenocarcinoma with Variants of Ovary: Age Specific Incidence by Subtype



- The different types of adenocarcinoma have a similar pattern in age specific incidence rates. Around the age of 40-50 years age specific incidence rates increase until the age of 65-75 years.

Figure 122. Epithelial Tumours of Ovary and Fallopian Tube: Stage Distribution by Histology



- Information on stage was available in more than 60% of all new diagnoses.
- Mucinous, clear cell and endometrioid carcinoma have a prognostic better stage distribution (30-35% stage III-IV) than the three serous type adenocarcinoma (75-80% stage III-IV).

4.3 Trends

Figure 123. Age Standardised Incidence by Age Group for (a) All Epithelial Tumours of Ovary and Fallopian Tube (b) Mucinous Adenocarcinoma of Ovary (c) Adenocarcinoma with Variants of Ovary (d) Clear Cell Adenocarcinoma of Overay (e) Serous Surface Papillary Carcinoma (f) Serous Cystadenocarcinoma (g) Endometrioid Adenocarcinoma (h) Papillary Serous Cystadenocarcinoma

- The incidence rates for tumours of ovary and fallopian tube decrease annually with 4.1% (p = 0.093) in females between 15 and 49 years old. A significant decrease is observed for mucinous adenocarcinoma and endometrioid carcinoma. Clear cell and papillary serous cystadenocarcinoma on the other hand show a significant increase.
- For females between 50 and 69 years of age, a significant decrease is observed for tumours of ovary and fallopian tube (EAPC = -4.0% [p = 0.002]). This decrease is observed in all subtypes except for papillary serous cystadenocarcinoma where no changes in incidence rates are observed.
- The incidence rates for females of 70 years and older decrease with 1.9% annually (p = 0.014). This decrease is mainly observed for mucinous adenocarcinoma, endometrioid carcinoma and serous surface papillary carcinoma. A significant increase is observed for papillary serous cystadenocarcinoma.

4.4 Survival

4.4.1 Overall Survival

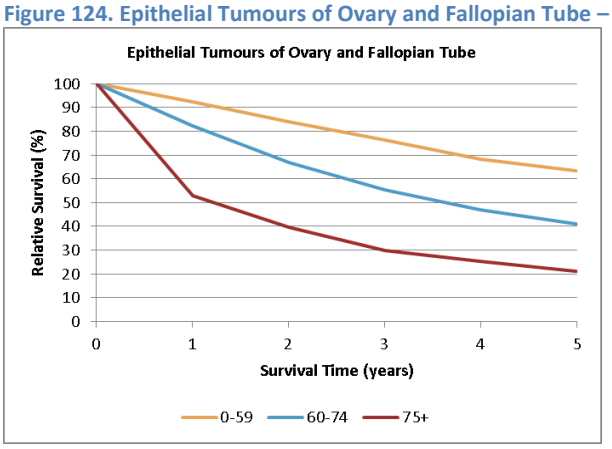
Table 75. Epithelial Tumours of Ovary and Fallopian Tube – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF OVARY AND FALLOPIAN TUBE	4,588	75.8	52.3	39.6	26.6	[38.1 ; 41.1]	77.2	55.1	43.0	31.6	[41.4 ; 44.6]
Adenocarcinoma with variants of ovary	3,669	77.9	52.1	37.6	23.0	[36.0 ; 39.3]	79.3	54.6	40.7	27.1	[38.9 ; 42.5]
Mucinous adenocarcinoma of ovary	504	77.7	64.7	59.0	50.9	[54.4 ; 63.3]	78.9	67.6	63.3	59.3	[58.4 ; 67.9]
Clear cell adenocarcinoma of ovary	206	88.4	67.1	60.5	49.2	[53.0 ; 67.2]	89.5	69.8	64.9	57.5	[56.8 ; 72.0]
Adenocarcinoma with variants of fallopian tube	95	94.7	70.5	60.7	53.8	[48.8 ; 70.6]	96.0	73.1	64.3	60.5	[60.5 ; 44.5]

- Survival is rather poor for patients diagnosed with an epithelial tumour of the ovary or fallopian tube, with a 5-year observed survival of only 39.6% and a 5-year relative survival of only 43.0%.
- Survival patterns differ for the different subtypes: at 1 year after diagnosis, relative survival is similar for the adenocarcinoma with variants and the mucinous adenocarcinoma of ovary (about 79%), but better for clear cell adenocarcinoma of ovary and adenocarcinoma with variants of fallopian tube (89.5% and 96.0%, respectively). This is different for longer follow-up periods (5-year follow-up) where survival is worse for adenocarcinoma with variants of ovary (40.7%) than the other subtypes (all about 64%).

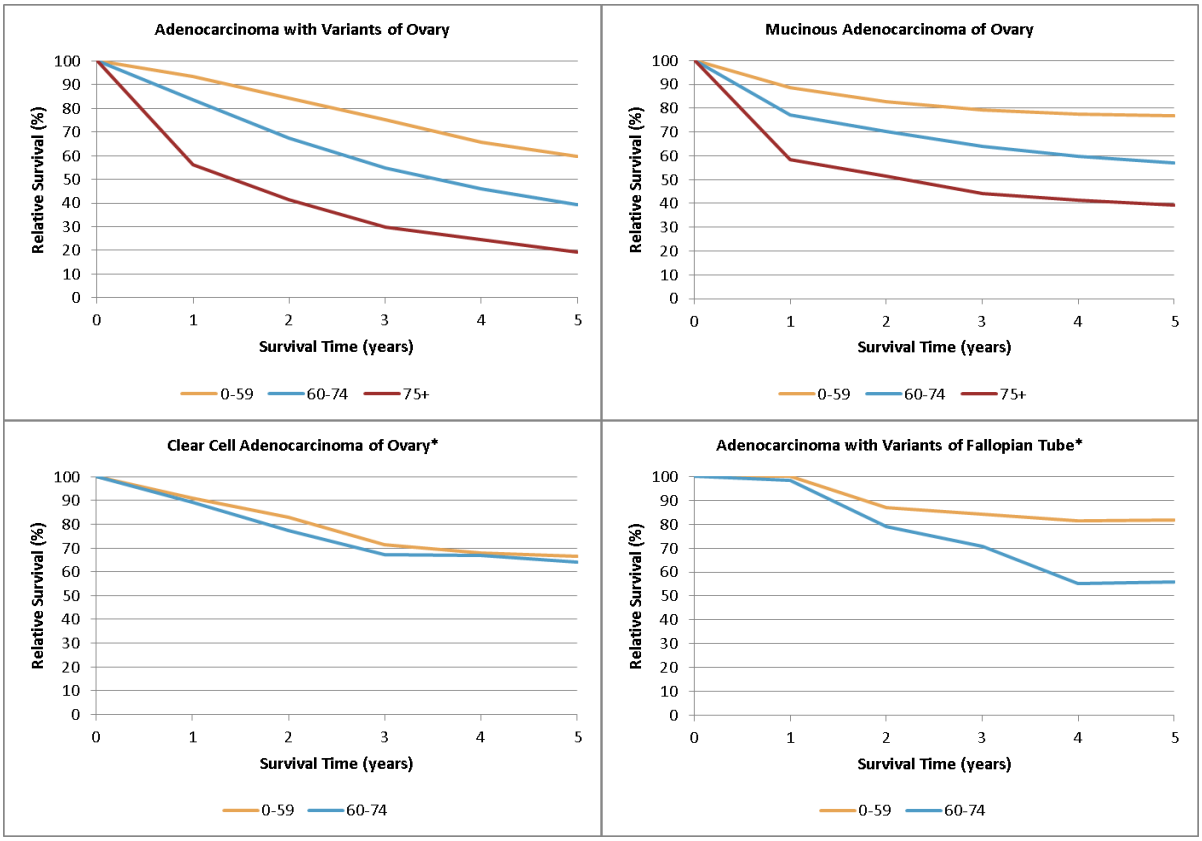
4.4.2 Survival by Age Group

Figure 124. Epithelial Tumours of Ovary and Fallopian Tube – Relative Survival by Age Group



- A large difference in prognosis can be observed between the different age groups. While patients in the youngest age group (0-59 years old) have a 5-year relative survival of 63.6%, this survival rate is more than 20% lower for the middle age group (60-74 years; 5-year relative survival: 41.0%), and only 21.2% for the oldest age group (75+ years).

Figure 125. Adenocarcinoma with Variants of Ovary, Mucinous Adenocarcinoma of Ovary, Clear Cell Adenocarcinoma of Ovary and Adenocarcinoma of Fallopian Tube – Relative Survival by Age Group

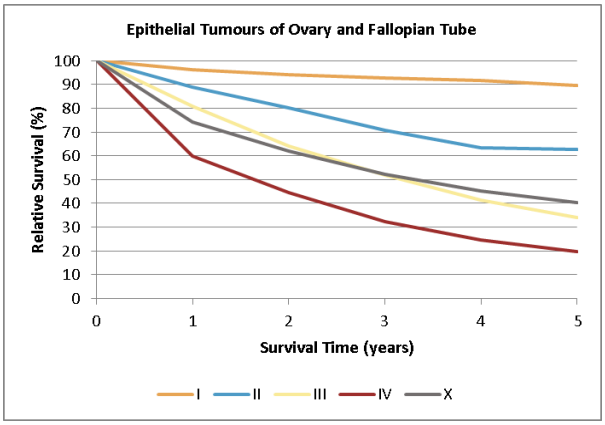


* Survival of patients aged 75 and above is not shown because the number at risk is lower than 35.

- For all age groups, survival is much worse for patients diagnosed with an adenocarcinoma of the ovary compared with the other subtypes.
- Survival of the clear cell adenocarcinoma of the ovary is similar for patients in the different age groups.
- A large difference in survival for longer follow-up periods (after three years) is noted for the adenocarcinoma of the fallopian tube, between the age groups 0-59 years and 60-74 year.

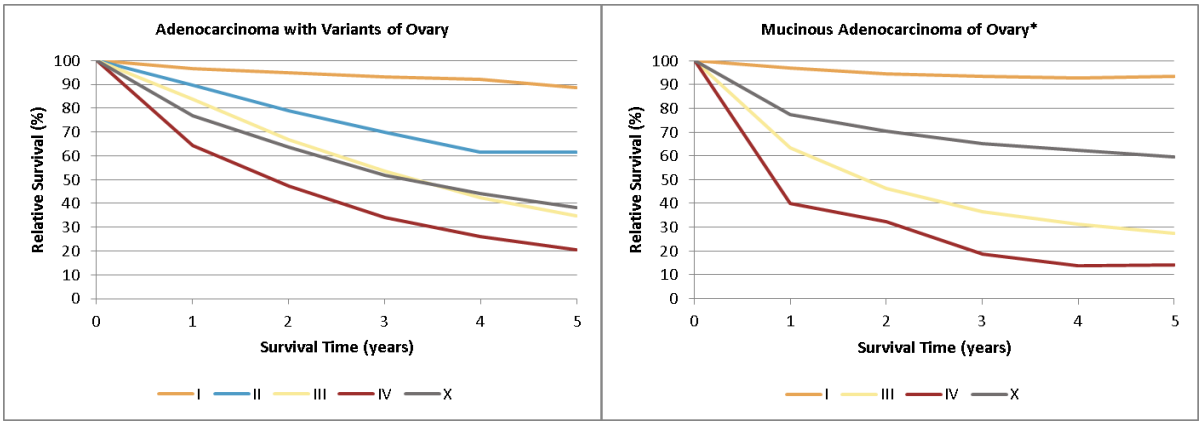
4.4.3 Survival by Stage[8]

Figure 126. Epithelial Tumours of Ovary and Fallopian Tube – Relative Survival by Stage



- The extent of the disease is a strong prognostic factor for survival of epithelial tumours of the ovary and fallopian tube. The 5-year relative survival ranges from 89.5% for stage I tumours to 19.6% for stage IV.

Figure 127. Adenocarcinoma of Ovary and Mucinous Adenocarcinoma of Ovary – Relative Survival by Stage



* Survival results are not displayed for stage II tumours because the number at risk is lower than 35.

- Survival of adenocarcinoma of the ovary is very similar to the survival of all epithelial tumours of the ovary and fallopian tube together.
- Survival of stage IV mucinous adenocarcinoma of the ovary (14.2%) is worse than survival of stage IV of all epithelial tumours of the ovary and fallopian tube together.

[8] Survival by stage is not displayed for clear cell adenocarcinoma of ovary because only stage I and X have a number at risk higher than 35 and for adenocarcinoma of fallopian tube because all stages have a number at risk lower than 35.

5 Non-Epithelial Tumours of Ovary[9]

5.1 General Results

Table 76. Non-Epithelial Tumours of Ovary: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
NON EPITHELIAL TUMOURS OF OVARY	R	230	0.70	0.60	53	-0.8	0.767	183	66.8
Mixed epithelial/mesenchymal tumours of	R	104	0.30	0.20	68	2.7	0.611	96	19.2
Sex cord tumours of ovary	R	48	0.20	0.10	55	-14.4	0.024	45	86.3
Malignant/Immature teratomas of ovary	R	36	0.10	0.10	35	-4.1	0.462	35	89.4
Germ cell tumour of ovary	R	42	0.10	0.20	30	9.9	0.121	41	95.6

R/C: Rare or common

CR: Crude rate (N/100,000 person years)

WSR: age-standardised rate, using the world population (N/100,000 person years)

EAPC: estimated annual percentage change

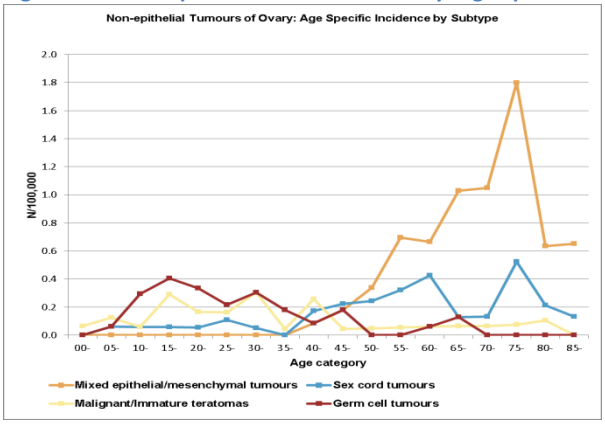
RS: relative survival

AvgAge: average age at diagnosis

5.2 Incidence

- 230 new non-epithelial tumours of ovary are diagnosed in the Flemish Region between 2001 and 2010.
- RARECARE defines four rare entities:
  - About half of all diagnoses are mixed epithelial/mesenchymal tumours of ovary
  - Sex cord ovarian tumours account for 48 new diagnoses.
  - With 36 new cases, malignant/immature teratomes are the least frequently diagnosed entity.
  - 42 new germ cell tumours are observed in the Flemish Region between 2001 and 2010.

Figure 128. Non-Epithelial Tumours of Ovary: Age Specific Incidence by Subtype



- Mixed epithelial/mesenchymal tumours do not occur in females younger than 40 years of age. From the age of 40 year, incidence rates increase rapidly with age until the age of 75 years.

[9] Analyses by stage are not reported for the non-epithelial tumours of the ovary because only stage X had a number at risk higher than 35.

- Sex cord ovarian tumours are occasionally diagnosed under the age of 40 years.
- Malignant/immature teratomas and germ cell tumours of ovary are predominantly diagnosed under the age of 40 years.

5.3 Survival

5.3.1 Overall Survival

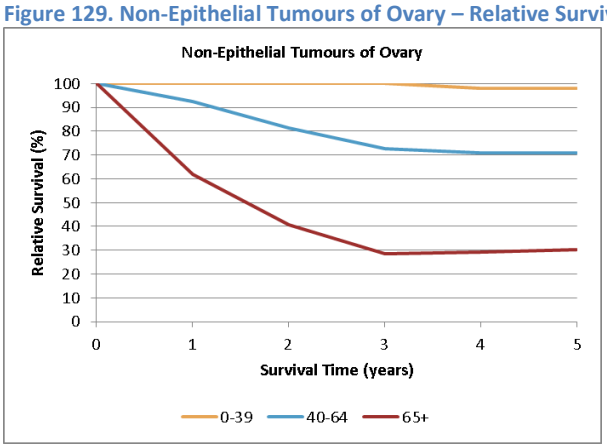
Table 77. Non-Epithelial Tumours of Ovary – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
NON-EPITHELIAL TUMOURS OF OVARY	183	84.2	65.9	64.5	58.9	[56.9 ; 71.1]	85.0	67.4	66.8	63.6	[58.9 ; 73.6]
Mixed epithelial/mesenchymal tumours	96	62.5	23.1	18.2	10.8	[10.5 ; 27.5]	63.7	24.0	19.2	12.0	[11.1 ; 29.1]
Sex cord tumours	45	95.6	81.7	81.7	75.1	[66.6 ; 90.4]	96.8	84.6	86.3	85.8	[70.4 ; 95.5]
Malignant/Immature teratomas	35	94.3	91.3	87.5	87.5	[69.8 ; 95.2]	94.6	92.3	89.4	90.7	[71.3 ; 97.2]
Germ cell tumour	41	95.1	95.1	95.1	95.1	[81.9 ; 98.8]	95.2	95.4	95.6	96.0	[82.3 ; 99.3]

- Survival of the non-epithelial tumours of the ovary decreases after diagnosis to a 5-year observed survival of 64.5% and a 5-year relative survival of 66.8%.
- Survival is very low for the mixed epithelial/mesenchymal tumours with a 5-year observed survival of only 18.2% and a 5-year relative survival of 19.2%.
- Survival of the other subtypes is better than the survival of all non-epithelial tumours of ovary together. Especially germ cell tumours have a high survival rate (5-year relative survival of 95.6%).

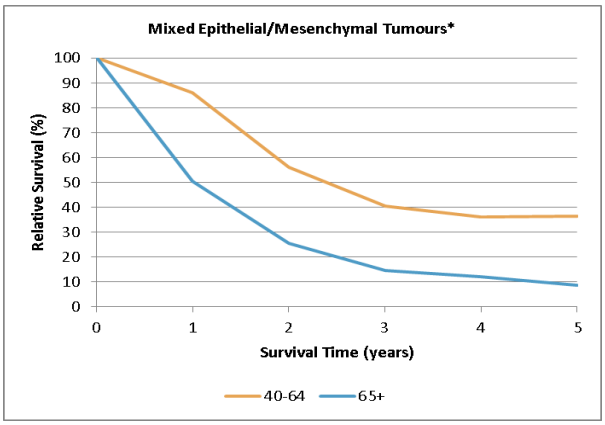
5.3.2 Survival by Age Group

Figure 129. Non-Epithelial Tumours of Ovary – Relative Survival by Age Group



- Survival of all non-epithelial tumours of the ovary together is almost 100% for the youngest age group (0-39 years), but is lower for the older age groups with a 5-year relative survival of 71.1% and 30.3% for the age groups 40-64 years and 65+ years, respectively.

Figure 130. Mixed Epithelial/Mesenchymal Tumours - Relative Survival by Age Group



* Survival results of patients aged between 0 and 39 are not shown because no patients of this age group are diagnosed with an mixed epithelial/mesenchymal tumour.

- Survival for mixed epithelial/mesenchymal tumours is much worse for patients in the age group 65+ (5-year relative survival: 8.8%) than for patients in the age group 40-64 years (5-year relative survival: 36.4%).

6 Epithelial Tumours of Vulva and Vagina

6.1 General Results

Table 78. Epithelial Tumours of Vulva and Vagina: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF VULVA AND VAGINA	R	1,124	3.65	1.63	70	2.6	0.044	1,019	61.2
Squamous cell carcinoma with variants of vulva and vagina	R	1,008	3.27	1.46	70	4.1	0.005	921	62.4
Adenocarcinoma with variants of vulva and vagina	R	74	0.24	0.13	65	-5.3	0.147	63	54.8
Paget's disease of vulva and vagina	R	19	0.06	0.03	71	*	*	14	*
Undifferentiated carcinoma of vulva and vagina	R	3	0.01	0.00	78	*	*	1	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

6.2 Incidence

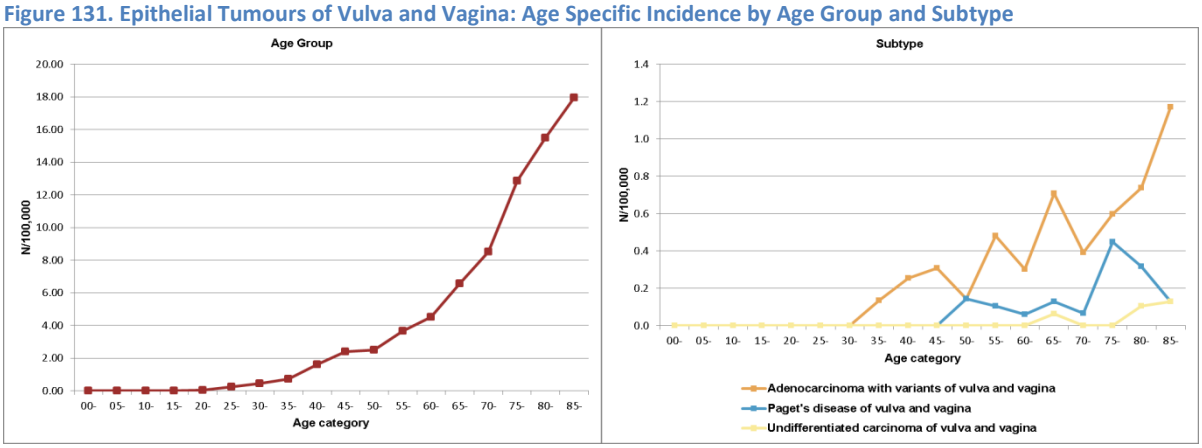
- 1.124 new epithelial tumours of vulva and vagina are diagnosed in the Flemish Region between 2001 and 2010.

Table 79. Morphological Distribution of Epithelial Tumours of Vulva and Vagina

Flemish Region 2001-2010	Total		Vulva		Vagina	
Squamous cell carcinoma with variants of vulva and vagina	1008	91%	837	95%	171	77%
Adenocarcinoma with variants of vulva and vagina	74	7%	24	3%	50	22%
Paget's disease of vulva and vagina	19	2%	19	2%	0	0%
Undifferentiated carcinoma of vulva and vagina	3	0%	1	0%	2	1%
Total	**1104**	**100%**	**881**	**100%**	**223**	**%**

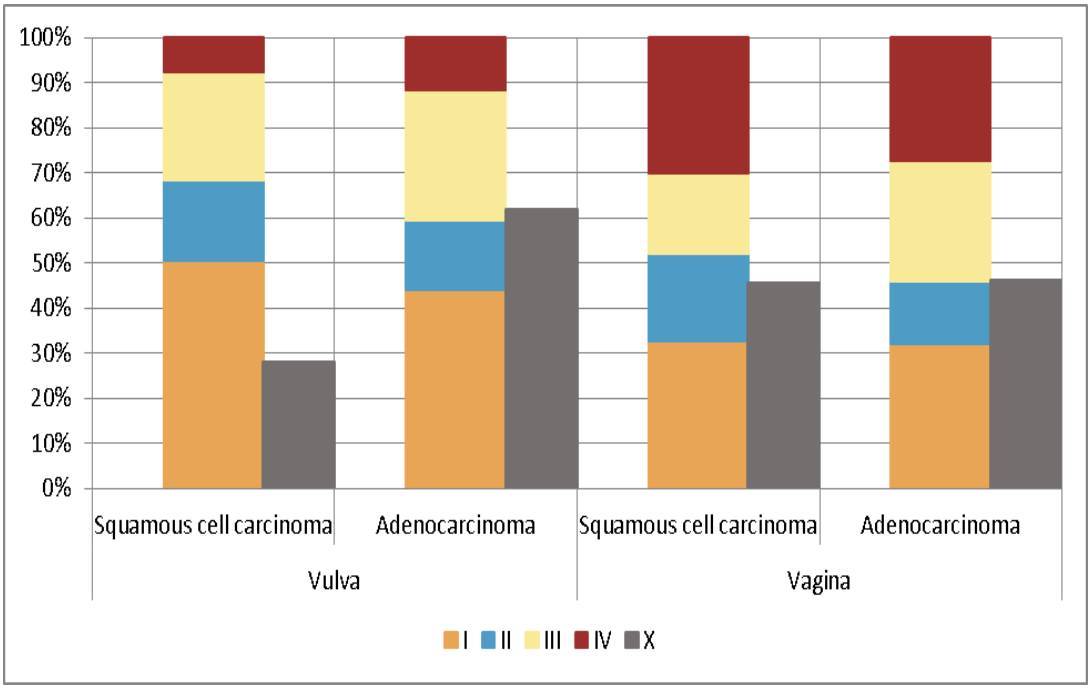
- RARECARE defines four rare entities:
  - Squamous cell carcinoma represents 95% of all tumours of vulva and 77% of the vaginal tumours.
  - 50 vaginal and 24 vulvar adenocarcinoma are registered.
  - 19 cases of vulva Paget's disease are observed.
  - Only 3 new diagnoses of undifferentiated carcinoma of vulva and vagina are observed in the Flemish Region between 2001 and 2010.

Figure 131. Epithelial Tumours of Vulva and Vagina: Age Specific Incidence by Age Group and Subtype



- Age specific incidence rates for squamous cell carcinoma and adenocarcinoma of vulva and vagina start to increase around the age of 35-40 years.
- Paget's disease is not observed in females younger than 50 years of age.

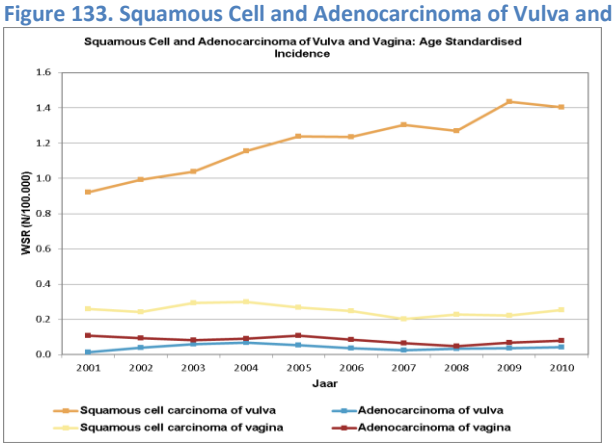
Figure 132. Epithelial Tumours of Vulva and Vagina: Stage Distribution by Histology



- Epithelial cancers of the vagina are more advanced at diagnosis than epithelial cancers of the vulva.
- For both vaginal and vulvar epithelial cancer, no clear difference in stage distribution between squamous cell carcinoma and adenocarcinoma subtypes is noted.

6.3 Trends

Figure 133. Squamous Cell and Adenocarcinoma of Vulva and Vagina: Age Standardised Incidence



- There is an increase in the age-standardised incidence of squamous cell carcinoma of the vulva between 2001 and 2010.
- Incidences of squamous cell carcinoma of the vulva and adenocarcinoma of vulva and vagina remain stable in time.

6.4 Survival

6.4.1 Overall Survival

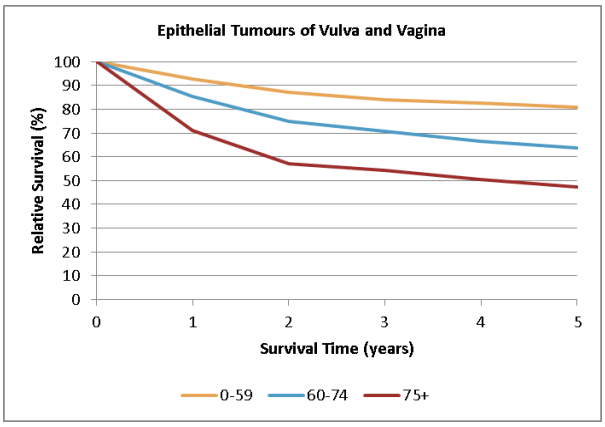
Table 80. Epithelial Tumours of Vulva and Vagina – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF VULVA AND VAGINA	1,019	77.9	60.3	51.8	38.1	[48.4 ; 55.0]	80.9	66.9	61.2	54.4	[57.2 ; 65.0]
Squamous cell carcinoma with variants	921	79.0	61.6	52.7	38.8	[49.1 ; 56.1]	82.0	68.3	62.4	56.3	[58.2 ; 66.5]
Adenocarcinoma with variants	63	69.8	53.3	51.1	37.3	[37.8 ; 62.9]	71.5	56.0	54.8	42.7	[40.6 ; 67.5]
Paget's disease	14	*	*	*	*	*	*	*	*	*	*
Undifferentiated carcinoma	1	*	*	*	*	*	*	*	*	*	*

- Almost half of the patients diagnosed with an epithelial tumour of the vulva or vagina dies within the first five years after diagnosis.
- Survival seems higher for squamous cell carcinoma as for adenocarcinoma although this difference is more pronounced for relative than for observed survival.

6.4.2 Survival by Age Group[10]

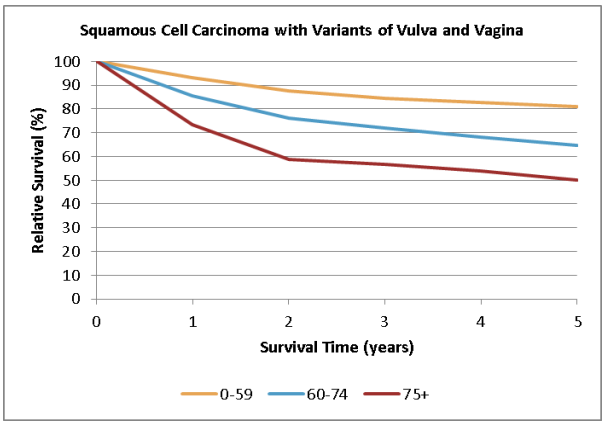
Figure 134. Epithelial Tumours of Vulva and Vagina - Relative Survival by Age Group



- Survival is dependent on age, with a 5-year relative survival of 81.0%, 63.8% and 47.2% for the age groups 0-59 years, 60-74 years and 75+ years respectively.

[10] Survival by age group is not displayed for the adenocarcinoma because all age groups have less than 35 patients at risk.

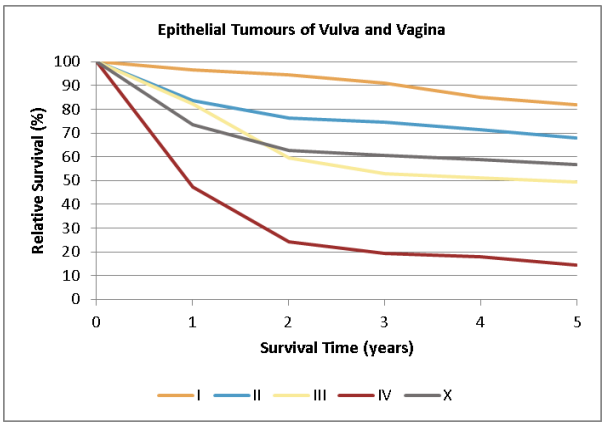
Figure 135. Squamous Cell Carcinoma with Variants of Vulva and Vagina: Relative Survival by Age Group



- Because most epithelial tumours of vulva and vagina are squamous cell carcinoma, survival by age group of these squamous cell carcinoma is highly similar to the earlier described survival by age group for all epithelial tumours of vulva and vagina together.

6.4.3 Survival by Stage[11]

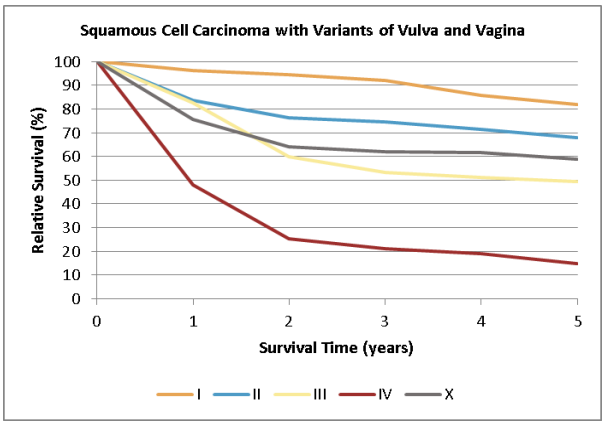
Figure 136. Epithelial Tumours of Vulva and Vagina - Relative Survival by Stage



- Survival is dependent on stage, with a much worse survival for stage IV tumours than for the other stages.

[11] Survival by stage is not displayed for the adenocarcinoma because all stages have less than 35 patients at risk.

Figure 137. Squamous Cell Carcinoma with Variants of Vulva and Vagina - Relative Survival by Stage



- Because most epithelial tumours of vulva and vagina are squamous cell carcinoma, survival by stage of these squamous cell carcinoma is highly similar to the earlier described survival by stage for all epithelial tumours of vulva and vagina together.

7 Trophoblastic Tumour of Placenta[12]

7.1 General Results

Table 81. Trophoblastic Tumour of Placenta: Incidence, Trends, Survival

Flemish Region 2001-2010	Incidence					Trend		Survival	
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
TROPHOBLASTIC TUMOUR OF PLACENTA	R	25	0.08	0.09	32	*	*	-	-
Choriocarcinoma of placenta	R	25	0.08	0.09	32	*	*	-	-

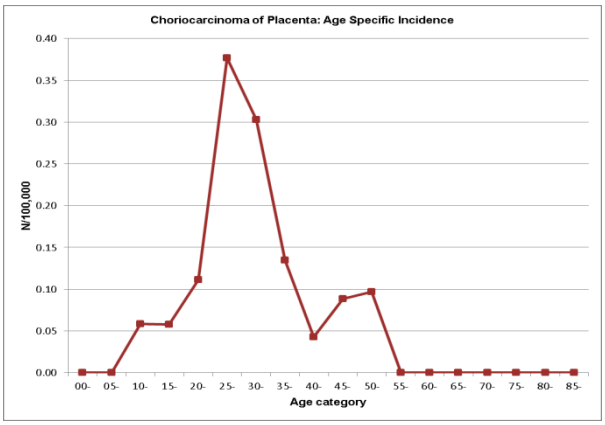
R/C: Rare or common
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

7.2 Incidence

- 25 new diagnoses of trophoblastic placental tumours are registered for the Flemish Region between 2001 and 2010.
- All trophoblastic placental tumours are choriocarcinoma.

[12] No survival results are shown for the trophoblastic tumours of the placenta because the number at risk is lower than 35.

Figure 31. Choriocarcinoma of Placenta: Age Specific Incidence



- Choriocarcinoma of placeta occur in young women with a peak incidence at the age of 25-30 years.

CHAPTER 6. RARE TUMOURS OF MALE GENITAL ORGANS

1 Epithelial Tumours of Prostate

1.1 General Tesults

Table 82. Epithelial Tumours of Prostate: Incidence, Trends, Survival

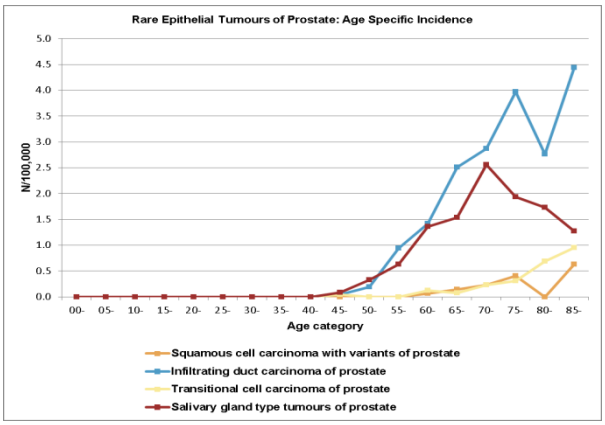
Flemish Region 2001-2010		Incidence				Trend		Survival	
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF PROSTATE	C	56,753	189.26	98.42	70	-0.4	0.564	52,728	95.0
Adenocarcinoma with variants of prostate	C	56,020	186.81	97.30	69	-0.3	0.681	52,058	95.3
Squamous cell carcinoma with variants of prostate	R	12	0.04	0.02	75	*	*	10	*
Infiltrating duct carcinoma of prostate	R	188	0.63	0.32	71	-8.8	0.191	171	81.5
Transitional cell carcinoma of prostate	R	17	0.06	0.03	75	*	*	14	*
Salivary gland type tumours of prostate	R	131	0.44	0.23	68	25.9	0.030	124	101.8

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

1.2 Incidence

- 56,753 new epithelial tumours of the prostate are diagnosed in the Flemish Region between 2001 and 2010.
- RARECARE defines one common and four rare entities:
  - 99% of prostate carcinoma are common adenocarcinoma.
  - Squamous cell carcinoma in the Flemish Region represent only 12 cases.
  - Infiltrating duct carcinoma is the most frequently occurring rare entity with 188 new diagnoses.
  - Only 17 cases of transitional prostate carcinoma are observed.
  - Salivary gland type tumours account for 131 new diagnoses.

Figure 138. Rare Epithelial Tumours of Prostate: Age Specific Incidence



- Prostate tumours only rarely occur in patients younger than 50 years of age.
- From the age of 50 years, age specific incidence rates increase.

1.3 Survival

1.3.1 Overall Survival

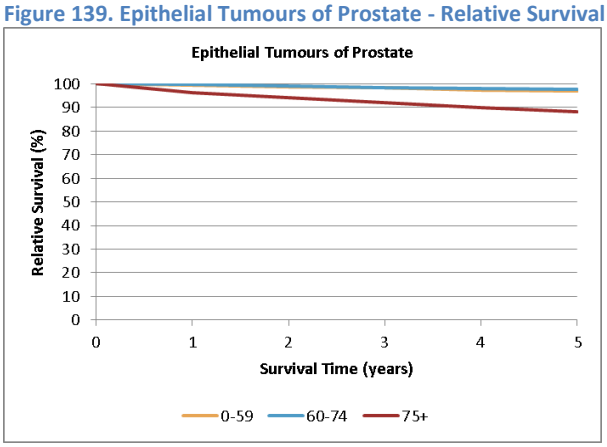
Table 83. Epithelial Tumours of Prostate - Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITELIAL TUMOURS OF PROSTATE	52,728	95.1	86.0	77.7	58.3	[77.3 ; 78.1]	98.7	96.6	95.0	91.9	[94.5 ; 95.4]
Adenocarcinoma with variants	52,058	95.3	86.3	78.1	58.7	[77.7 ; 78.5]	98.9	96.9	95.3	92.3	[91.2 ; 93.4]
Squamous cell carcinoma with variants	10	*	*	*	*	*	*	*	*	*	*
Infiltrating duct carcinoma	171	93.6	77.3	66.0	43.6	[57.8 ; 73.0]	98.0	88.1	81.5	65.3	[71.3 ; 90.1]
Transitional cell carcinoma	14	*	*	*	*	*	*	*	*	*	*
Salivary gland type tumours	124	98.4	93.2	86.4	57.4	[78.0 ; 91.8]	101.6	102.8	101.8	93.4	[91.9 ; 108.1]

- Overall survival of prostate tumours is good, with a relative 10 year survival of 91.9%. This is remarkably worse in infiltrating duct carcinoma.

1.3.2 Survival by Age Group[13]

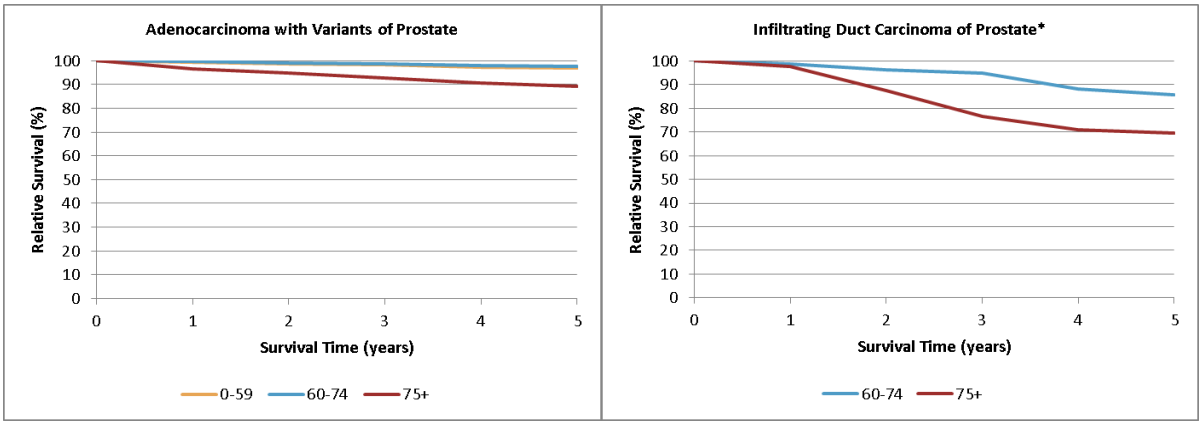
Figure 139. Epithelial Tumours of Prostate - Relative Survival by Age Group



[13] Survival by age group is not displayed for salivary glands type tumours of prostate because only stage II has a number at risk higher than 35.

- Epithelial tumours of the prostate have a very good prognosis. The 5-year relative survival is somewhat worse for the 75+ age group although it reaches almost 90%.

Figure 140. Adenocarcinoma with Variants, Infiltrating Duct Carcinoma of Prostate - Relative Survival by Age Group

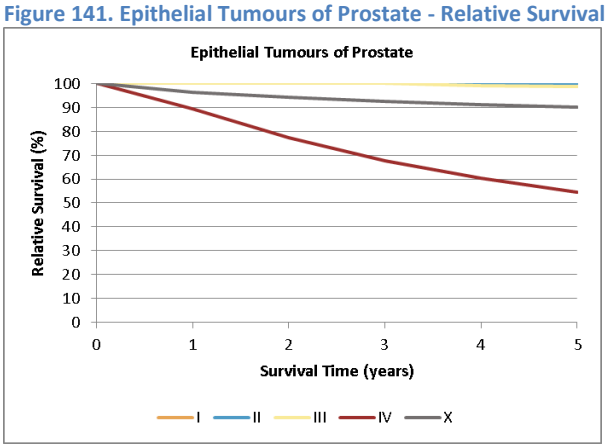


* Survival of patients aged in the age group 0-59 is not shown because the number at risk is lower than 35

- The poorer survival for infiltrating duct carcinoma of the prostate compared with the other histology groups is observed in all different age groups.

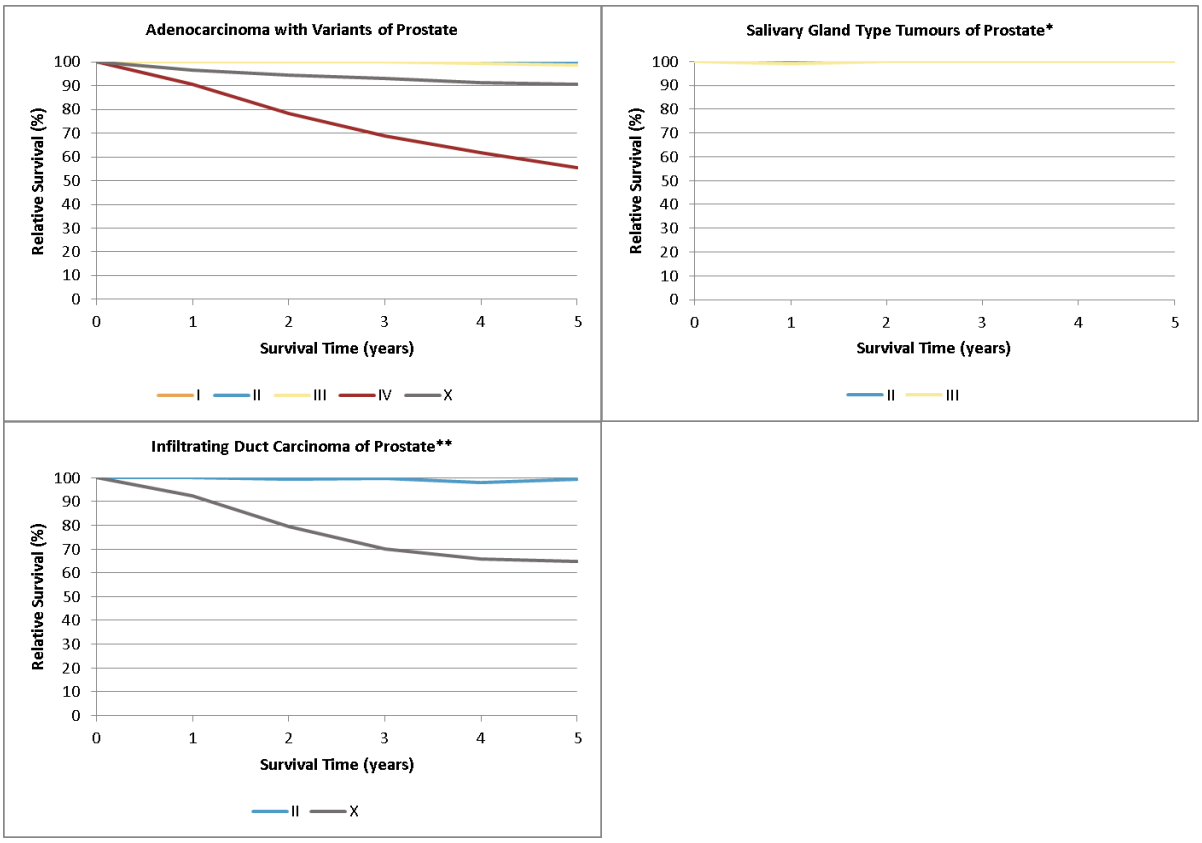
1.3.3 Survival by Stage

Figure 141. Epithelial Tumours of Prostate - Relative Survival by Stage



- All stages, except stage IV, have a good prognosis.

Figure 142. Adenocarcinoma with Variants, Infiltrating Duct Carcinoma and Salivary Gland Type Tumours of Prostate - Relative Survival by Stage



* Survival of stage I, IV is not shown because the number at risk is lower than 35.
** Survival of stage I, III and IV is not shown because the number at risk is lower than 35.

2 Tumours of Testis and Paratestis

2.1 General Results

Table 84. Tumours of Testis and Paratestis: Incidence, Trends, Survival

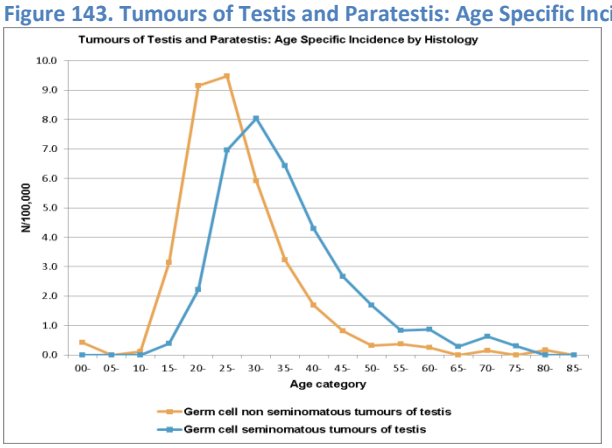
Flemish Region 2001-2010		Incidence				Trend		Survival	
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
TUMOURS OF TESTIS AND PARATESTIS	R	1,503	5.01	5.01	34	4.7	0.002	1,421	96.4
Adenocarcinoma with variants of paratestis	R	3	0.01	0.01	61	*	*	3	*
Germ cell non seminomatous tumours of testis	R	690	2.30	2.58	29	7.4	<0.001	669	95.9
Germ cell seminomatous tumours of testis	R	737	2.46	2.23	37	2.8	0.157	686	97.4
Spermatocytic seminoma	R	16	0.05	0.03	60	*	*	16	*
Teratoma with malignant transformation	R	0	-	-	-	-	-	0	-
Sex cord tumours of testis	R	26	0.09	0.07	43	*	*	21	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

2.2 Incidence

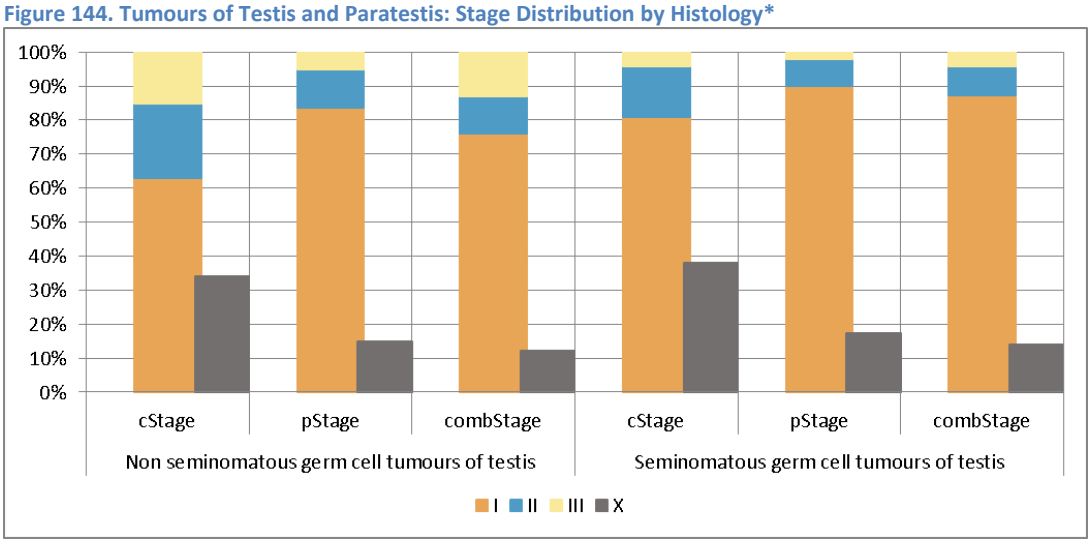
- 1,503 new epithelial tumours of the testis and paratestis are diagnosed in the Flemish Region between 2001 and 2010.
- RARECARE defines six rare entities:
  - Only three adenocarcinoma with variants of paratestis are registered.
  - Germ cell tumours represent 95% of testicular tumours; slightly more seminomatous than non seminomatous germ cell tumours are registered.
  - Spermatocytic seminoma accounts for 16 new diagnoses.
  - No teratoma with malignant transformation is observed in the Flemish Region between 2001 and 2010.
  - 26 cases are sex cord testicular tumours.

Figure 143. Tumours of Testis and Paratestis: Age Specific Incidence by Histology



- Non-seminomatous tumours show an incidence peak between 20 and 25 years, seminomatous germ cell tumours show a similar age specific curve, with a ten year delay.

Figure 144. Tumours of Testis and Paratestis: Stage Distribution by Histology*

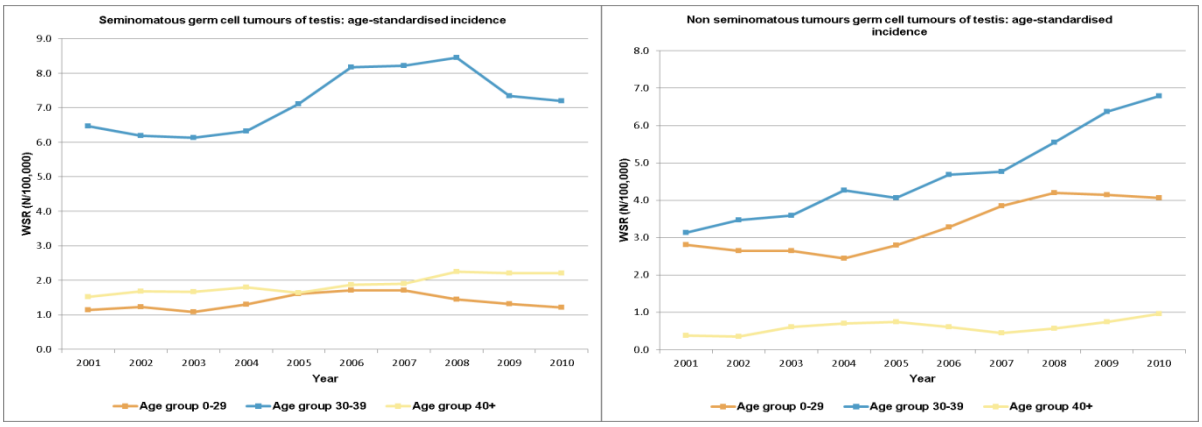


* Stage IV does not exists in the staging of testicular cancer.

- Information on stage is missing in about 10-15% of the cases. Pathological staging is more frequently available than clinical staging.
- Clinical staging reveals more stage II and III tumours than pathological staging.
- Non-seminomatous germ cell tumours have a slightly less favourable prognostic stage distribution than seminomatous germ cell tumours.

2.3 Trends

Figure 145. Seminomatous and Non- Seminomatous Germ Cell Tumours of Testis: Age Standardised Incidence



- There is an increase of the incidence in the age group 30-39 years for both subtypes although more pronounced for non-seminomatous tumors.
- For non-seminomatour tumours, the youngest age group also shows an increasing incidence but less obvious than the age group 30-39 years.

2.4 Survival

2.4.1 Overall Survival

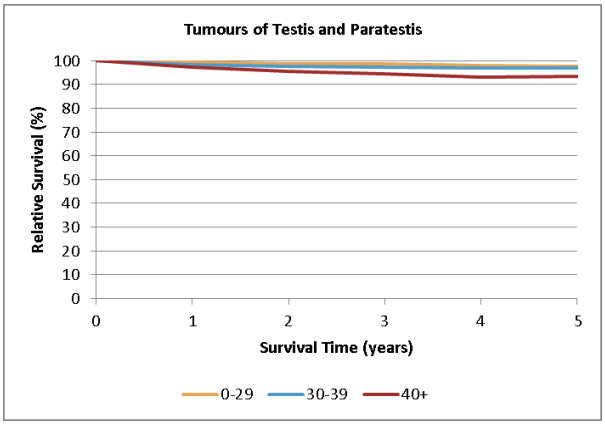
Table 85. Tumours of Testis and Paratestis - Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
TUMOURS OF TESTIS AND PARATESTIS	1,421	98.2	96.5	95.2	93.6	[93.9 ; 96.3]	98.5	97.2	96.4	96.4	[95.0 ; 97.4]
Adenocarcinoma with variants of paratestis	3	*	*	*	*	*	*	*	*	*	*
Germ cell non seminomatous tumours of testis	669	98.8	96.6	95.3	93.7	[95.3 ; 93.3]	98.9	97.0	95.9	95.0	[93.8 ; 97.4]
Germ cell seminomatous tumours of testis	686	98.1	97.3	96.2	94.4	[94.3 ; 97.4]	98.3	98.0	97.4	97.2	[95.5 ; 98.6]
Spermatocytic seminoma	16	*	*	*	*	*	*	*	*	*	*
Teratoma with malignant transformation	0	-	-	-	-	-	-	-	-	-	-
Sex cord tumours of testis	21	*	*	*	*	*	*	*	*	*	*

- Testicular cancers have a very good prognosis, with a 5-year relative survival of 95.9% for germ cell non-seminomatous tumours and 97.4% for germ cell seminomatous tumours.

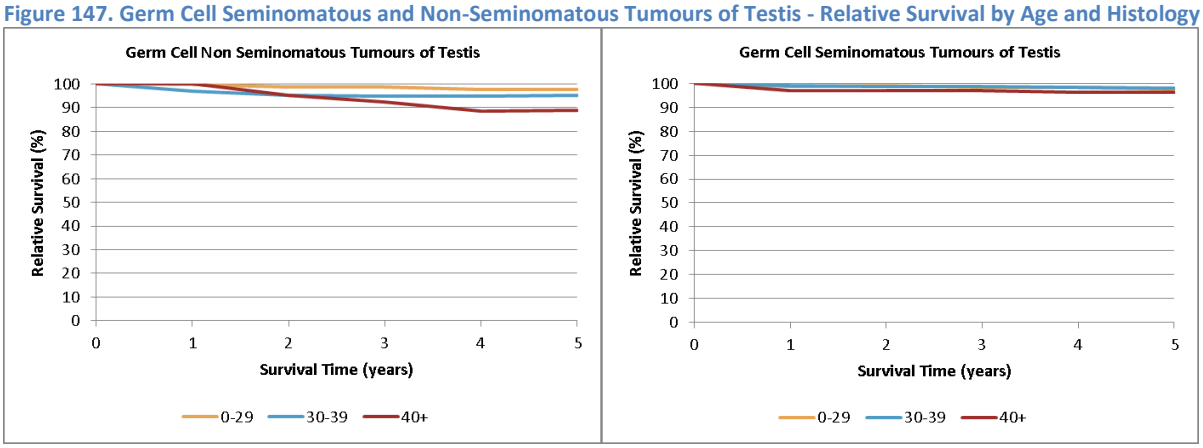
2.4.2 Survival by Age Group

Figure 146. Tumours of Testis and Paratestis - Relative Survival by Age Group



- The prognosis of testicular and paratesticular cancer is very good, with an almost 100% relative 5-year survival in the age group of 0-29 years.
- In patients of 40 years and older, the prognosis is still very good although not as good as in the youngest population groups.

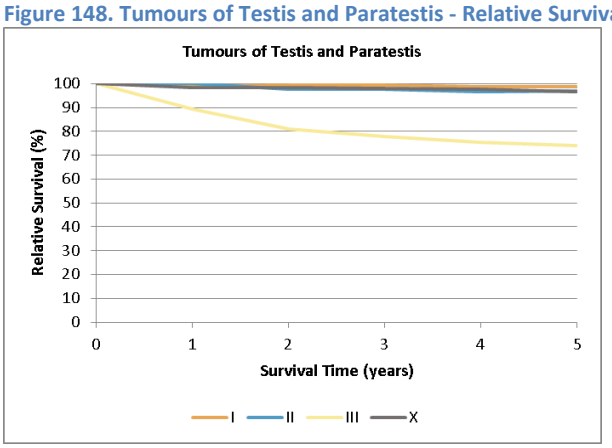
Figure 147. Germ Cell Seminomatous and Non-Seminomatous Tumours of Testis - Relative Survival by Age and Histology



- Seminomatous tumours have the best prognosis with a relative 5-year survival of almost 100%.
- For non-seminomatous germ cell cancers, especially the patients of 40 years and older have a less optimal outcome.

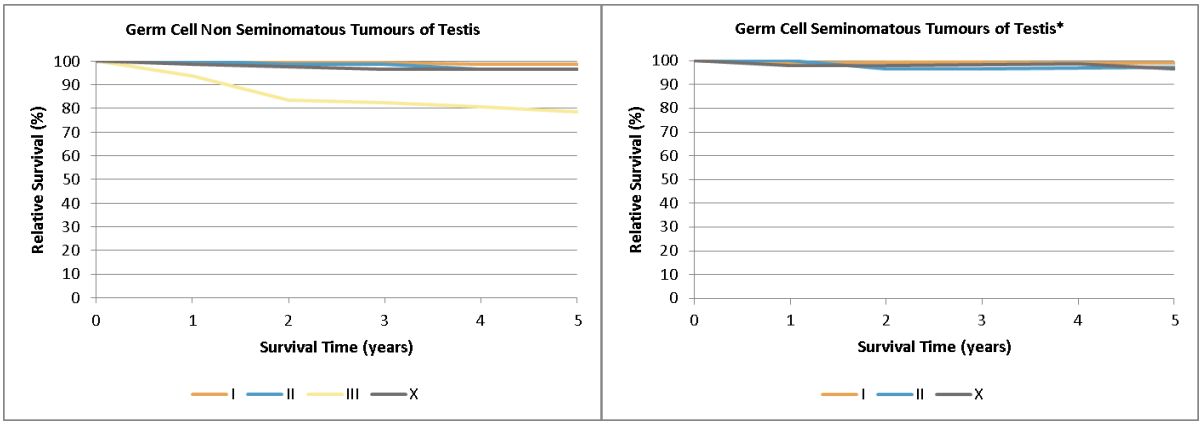
2.4.3 Survival by Stage

Figure 148. Tumours of Testis and Paratestis - Relative Survival by Stage



- Prognosis is very good for stage I, II and X disease but worse for stage III disease, with a less than 75% 5-year relative survival rate.

Figure 149. Germ Cell Seminomatous and Non-Seminomatous Tumours of Testis - Relative Survival by Stage



* Survival of stage III is not shown because the number at risk is lower than 35.

- Prognosis is very good in seminomatous tumours for which almost no stage III diseases are registered (n=26).
- There is a larger proportion of stage III diseases in the non-seminomatous group (n=80), with a worse prognosis. Prognosis of stage I and II is comparable between the two different histological groups.

3 Epithelial Tumours of Penis

3.1 General Results

Table 86. Epithelial Tumours of Penis: Incidence, Trends, Survival

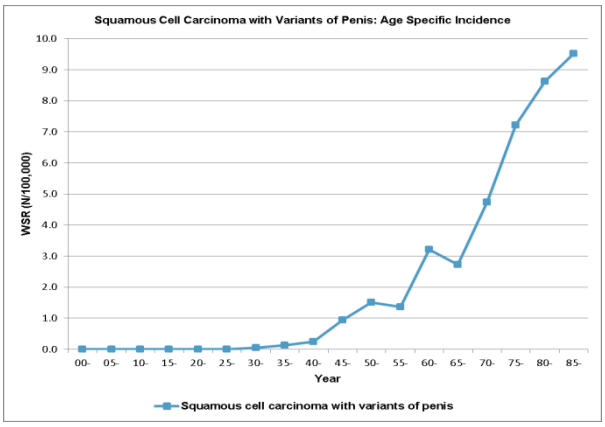
Flemish Region 2001-2010		Incidence				Trend		Survival	
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF PENIS	R	406	1.35	1.05	69	4.5	0.009	351	69.8
Squamous cell carcinoma with variants of penis	R	393	1.31	1.02	69	4.8	0.012	346	70.7
Adenocarcinoma with variants of penis	R	5	0.02	0.01	76	*	*	3	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

3.2 Incidence

- 406 new epithelial penile tumours are diagnosed in the Flemish Region between 2001 and 2010.
- RARECARE defines two rare entities:
  - The majority are squamous cell carcinoma.
  - Only 5 adenocarcinoma are observed.

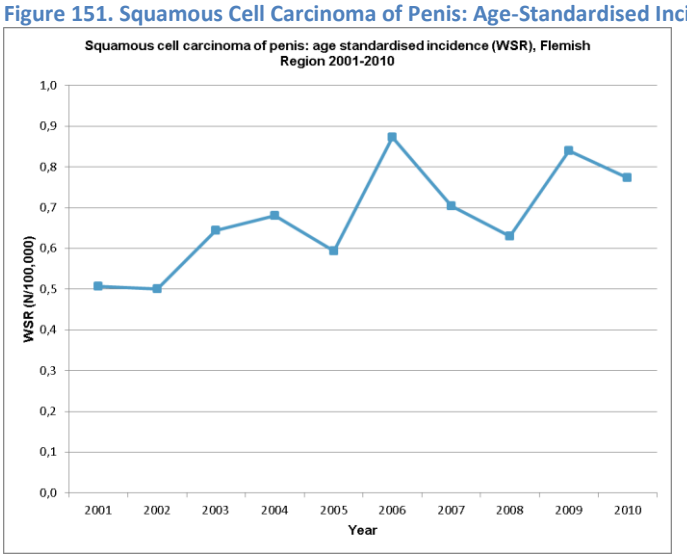
Figure 150. Squamous Cell Carcinoma with Variants of Penis: Age Specific Incidence



- From the age of 45 years, age specific incidence rates increase rapidly.

3.3 Trends

Figure 151. Squamous Cell Carcinoma of Penis: Age-Standardised Incidence



- As it is impossible to define the skin of penis separately, penal 'skin-tumours' are included. The observed increase in squamous cell carcinoma of the penis is therefore possibly linked to the known increase in non-melanoma skin cancer.

3.4 Survival

3.4.1 Overall Survival

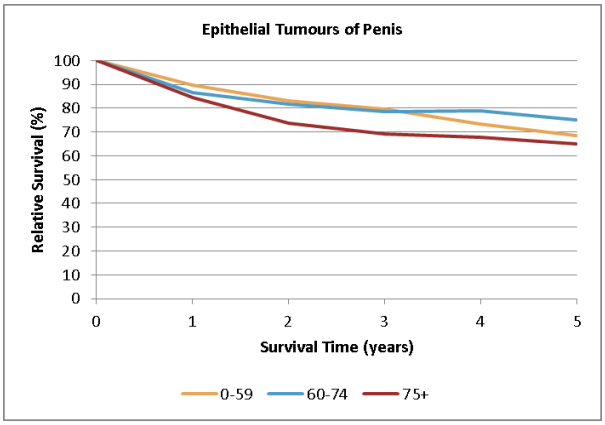
Table 87. Epithelial Tumours of Penis - Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF PENIS	351	83.2	66.9	56.4	39.4	[50.6 ; 61.9]	86.7	75.7	69.8	64.0	[62.6 ; 76.5]
Squamous cell carcinoma with variants	346	83.5	67.4	57.1	40.5	[51.2 ; 62.5]	87.0	76.1	70.7	65.8	[63.4 ; 77.4]
Adenocarcinoma with variants	3	*	*	*	*	*	*	*	*	*	*

- Penile cancers have a moderate prognosis with a relative 5-year survival of almost 70%.

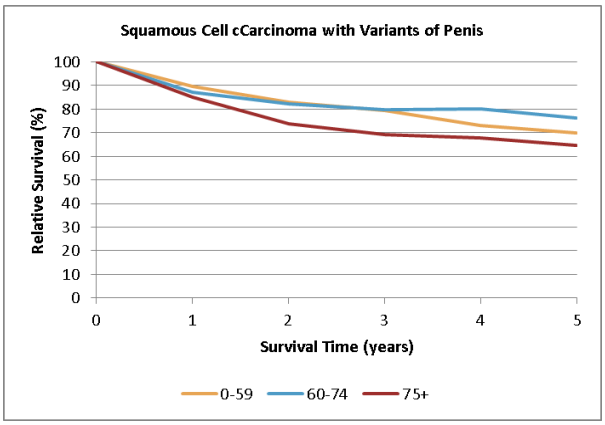
3.4.2 Survival by Age Group

Figure 152. Epithelial Tumours of Penis - Relative Survival by Age Group



- Prognosis is poorer for older patients (75 years and older) than for younger patients.

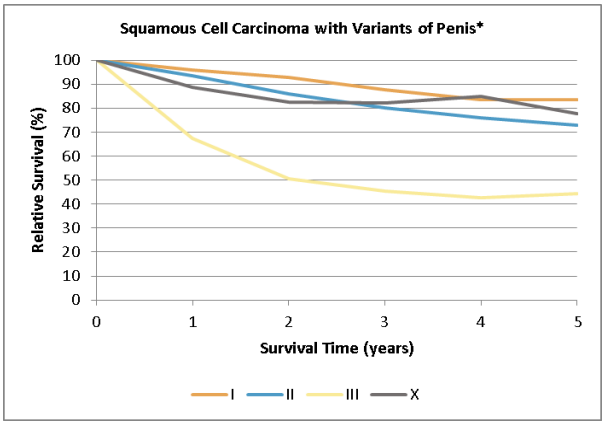
Figure 153. Squamous Cell Carcinoma with Variants of Penis - Relative Survival by Age Group



- Because almost all patients with an epithelial tumour of the penis are diagnosed with a squamous cell carcinoma, survival by age group is very similar for the squamous cell carcinoma as for all epithelial tumours of the penis together.

3.4.3 Survival by Stage

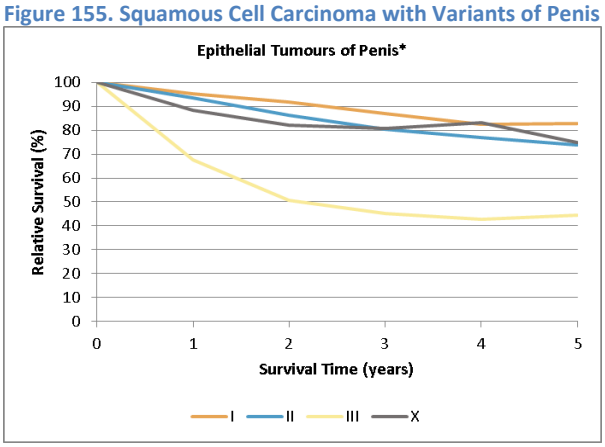
Figure 154. Epithelial Tumours of Penis - Relative Survival by Stage



* Survival of stage IV is not shown because the number at risk is lower than 35.

- Prognosis is worse in more advanced stage, with a 5-year relative survival in stage III disease of less than 50%.
- There is a comparable prognosis between stage I and II disease.

Figure 155. Squamous Cell Carcinoma with Variants of Penis - Relative Survival by Stage



* Survival of stage IV is not shown because the number at risk is lower than 35.

- Because almost all patients with an epithelial tumour of the penis are diagnosed with a squamous cell carcinoma, survival by stage is very similar for squamous cell carcinoma as for all epithelial tumours of the penis together.

CHAPTER 7. RARE TUMOURS OF THE URINARY TRACT

1 Epithelial Tumours of Kidney

1.1 General Results

Table 88. Epithelial Tumours of Kidney: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF KIDNEY	C	8,575	14.10	7.44	66	1.7	<0.001	7,198	69.7
Renal cell carcinoma with variants	C	7,920	13.03	7.04	66	1.9	<0.001	6,658	72.7
Squamous cell carcinoma spindle cell type of kidney	R	4	0.01	0.00	75	*	*	3	*
Squamous cell carcinoma with variants of kidney	R	27	0.04	0.02	69	-5.6	0.533	21	*
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF KIDNEY	C	5,332	17.78	9.98	66	2.0	<0.001	4,391	69.2
Renal cell carcinoma with variants	C	4,957	16.53	9.40	65	2.4	<0.001	4,098	72.0
Squamous cell carcinoma spindle cell type of kidney	R	2	0.01	0.00	72	*	*	2	*
Squamous cell carcinoma with variants of kidney	R	15	0.05	0.03	65	*	*	11	*
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF KIDNEY	C	3,243	10.53	5.12	68	0.8	0.268	2,807	70.5
Renal cell carcinoma with variants	C	2,963	9.62	4.86	67	0.8	0.253	2,560	73.9
Squamous cell carcinoma spindle cell type of kidney	R	2	0.01	0.00	77	*	*	1	*
Squamous cell carcinoma with variants of kidney	R	12	0.04	0.02	73	*	*	10	*

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

1.2 Incidence

- 8,575 new epithelial tumours of the kidney are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 1.9.
- RARECARE defines one common and two rare tumour entities:
  - The very common renal cell carcinoma represents 92% of the epithelial kidney tumours.
  - Only four new diagnoses of squamous cell carcinoma spindle cell type are registered.
  - 27 diagnoses of squamous cell carcinoma are made between 2001 and 2010.

1.3 Survival

1.3.1 Overall Survival

Table 89. Epithelial Tumours of Kidney – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF KIDNEY	7,198	80.9	68.4	60.8	44.9	[59.6 ; 62.0]	83.1	74.0	69.7	60.7	[68.3 ; 71.0]
Renal cell carcinoma with variants	6,658	83.8	71.7	63.9	47.1	[62.7 ; 65.1]	85.8	77.2	72.7	63.3	[71.3 ; 74.1]
Squamous cell carcinoma spindle cell type	3	*	*	*	*	*	*	*	*	*	*
Squamous cell carcinoma with variants	21	*	*	*	*	*	*	*	*	*	*

- Epithelial tumours of the kidney reach a 5-year observed survival of 60.8% and a 5-year relative survival of 69.7%.
- Because most patients with an epithelial tumour of the kidney are diagnosed with a variant of a renal cell carcinoma, survival of this subtype is similar (but always about 3 per cent higher) to the survival of all epithelial tumours of the kidney together.

1.3.2 Survival by Sex

Table 90. Epithelial Tumours of Kidney – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF KIDNEY	4,391	80.4	67.3	59.9	[58.3 ; 61.4]	82.6	73.2	69.2	[67.4 ; 70.9]
Renal cell carcinoma with variants	4,098	83.1	70.3	62.7	[61.1 ; 64.3]	85.3	76.1	72.0	[70.2 ; 73.8]
Squamous cell carcinoma spindle cell type	2	*	*	*	*	*	*	*	*
Squamous cell carcinoma with variants	11	*	*	*	*	*	*	*	*
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF KIDNEY	2,807	81.8	70.2	62.2	[60.3 ; 64.1]	83.7	75.4	70.5	[68.3 ; 72.6]
Renal cell carcinoma with variants	2,560	85.0	73.9	65.8	[63.8 ; 67.8]	86.7	78.7	73.9	[71.6 ; 76.0]
Squamous cell carcinoma spindle cell type	1	*	*	*	*	*	*	*	*
Squamous cell carcinoma with variants	10	*	*	*	*	*	*	*	*

- The differences in survival between males and females are very small although survival is always slightly better for females.

2 Epithelial Tumours of Bladder

2.1 General Results

Table 91. Epithelial Tumours of Bladder: Incidence, Trends, Survival

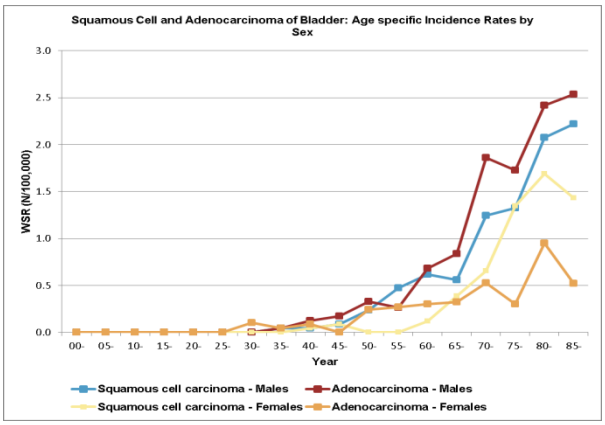
Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF BLADDER	C	12,419	20.43	8.70	73	-0.2	0.650	10,701	57.4
Transitional cell carcinoma of bladder	C	11,897	19.57	8.34	73	0.4	0.368	10,253	58.0
Squamous cell carcinoma with variants of bladder	R	150	0.25	0.10	73	0.8	0.882	133	31.4
Adenocarcinoma with variants of bladder	R	156	0.26	0.12	69	-4.9	0.111	127	51.2
Salivary gland type tumours of bladder	R	1	0.00	0.00	74	*	*	0	-
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF BLADDER	C	9,891	32.98	15.69	72	-0.8	0.097	8,460	58.9
Transitional cell carcinoma of bladder	C	9,547	31.84	15.14	72	-0.3	0.487	8,171	59.1
Squamous cell carcinoma with variants of bladder	R	84	0.28	0.14	70	1.2	0.828	71	41.1
Adenocarcinoma with variants of bladder	R	106	0.35	0.18	70	-7.5	0.039	86	56.7
Salivary gland type tumours of bladder	R	1	0.00	0.00	74	*	*	0	-
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF BLADDER	C	2,528	8.20	3.03	74	1.7	0.034	2,241	52.0
Transitional cell carcinoma of bladder	C	2,350	7.63	2.83	74	2.6	0.013	2,082	53.7
Squamous cell carcinoma with variants of bladder	R	66	0.21	0.07	77	0.6	0.947	62	20.5
Adenocarcinoma with variants of bladder	R	50	0.16	0.08	67	1.1	0.867	41	40.2
Salivary gland type tumours of bladder	R	0	-	-	-	-	-	0	-

C/R: common or rare
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

2.2 Incidence

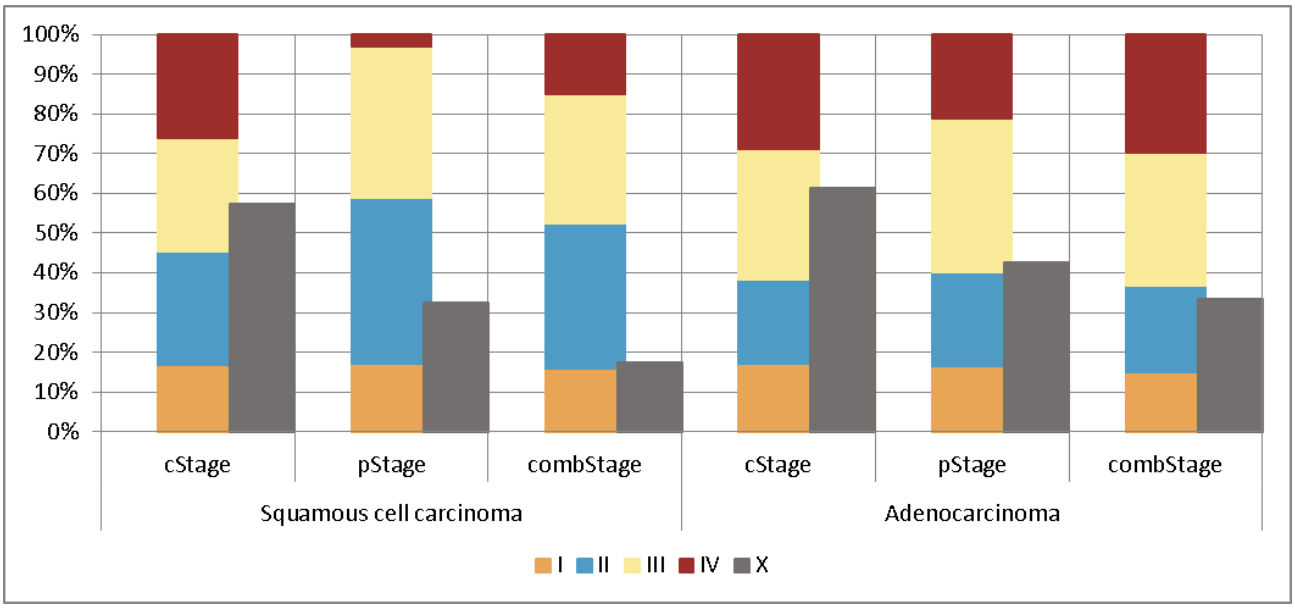
- 12,419 new epithelial tumours of the bladder are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 5.2.
- RARECARE defines one common and three rare tumour entities:
  - The common transitional cell carcinoma represents 95% of all bladder carcinoma.
  - Squamous cell carcinoma accounts for 150 new cases.
  - 156 new adenocarcinoma are registered in the Flemish Region between 2001 and 2010.
  - Only 1 salivary gland type tumour of bladder is observed.

Figure 156. Squamous Cell and Adenocarcinoma of Bladder: Age Specific Incidence Rates by Sex



- The incidence rates for squamous cell and adenocarcinoma start to increase from the age of 50 years.

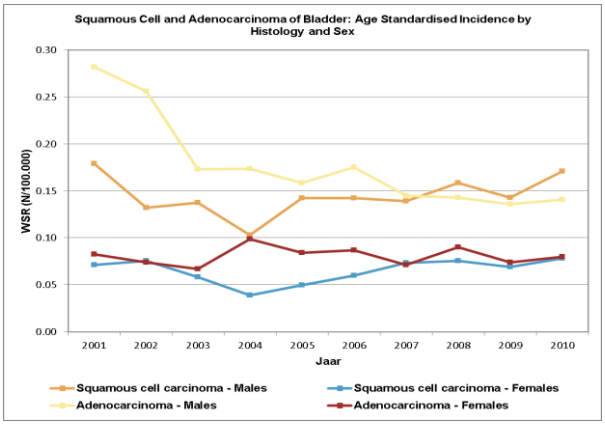
Figure 157. Squamous Cell and Adenocarcinoma of Bladder: Stage Distribution by Histology



- Adenocarcinoma has a slightly less favourable stage distribution than squamous cell carcinoma. This difference is mainly observed in pathological staging (>20% and <5% stage IV respectively).

2.3 Trends

Figure 158. Squamous Cell and Adenocarcinoma of Bladder: Age Standardised Incidence by Histology and Sex (three year moving average)



- In the latter years, squamous cell carcinoma becomes more frequent than adenocarcinoma of bladder, due to the significant decreasing trend for adenocarcinoma of bladder in males.
- In females, the trend for both entities remains properly stable.

2.4 Survival

2.4.1 Overall Survival

Table 92. Epithelial Tumours of Bladder – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF BLADDER	10,701	76.1	55.3	45.1	28.8	[44.0 ; 46.1]	80.0	63.9	57.4	48.5	[56.2 ; 58.7]
Transitional cell carcinoma	10,253	77.1	56.0	45.5	29.0	[44.5 ; 46.6]	81.0	64.7	58.0	48.7	[56.7 ; 59.4]
Squamous cell carcinoma with variants	133	43.6	28.3	25.4	18.8	[18.1 ; 33.2]	45.7	32.4	31.4	30.0	[22.5 ; 41.1]
Adenocarcinoma with variants	127	73.2	53.7	42.3	31.4	[33.0 ; 51.2]	76.1	59.9	51.2	47.0	[40.0 ; 62.0]
Salivary gland type tumours	0	-	-	-	-	-	-	-	-	-	-

- Because most epithelial tumours of the bladder are (common) transitional cell carcinoma, survival of this subtype is very similar to the survival of the all epithelial tumours of the bladder together.
- Survival differs between the subtypes of epithelial tumours of the bladder. It is remarkably worse for the squamous cell carcinoma (5-year relative survival: 31.4%) than for the transitional cell carcinoma (5-year relative survival: 58.0%) and the adenocarcinoma (51.2%).

2.4.2 Survival by Sex

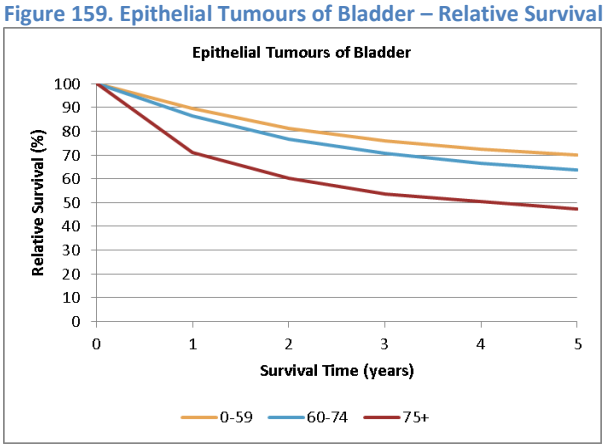
Table 93. Epithelial Tumours of Bladder – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF BLADDER	8,460	78.1	56.7	46.0	[44.8 ; 47.1]	82.1	65.7	58.9	[57.4 ; 60.3]
Transitional cell carcinoma	8,171	78.7	57.2	46.2	[45.1 ; 47.4]	82.7	66.2	59.1	[57.7 ; 60.6]
Squamous cell carcinoma with variants	71	52.1	39.3	33.6	[22.5 ; 45.0]	54.7	44.7	41.1	[27.5 ; 55.1]
Adenocarcinoma with variants	86	74.4	52.6	44.9	[33.6 ; 55.5]	77.9	60.0	56.7	[42.4 ; 70.2]
Salivary gland type tumours	0	-	-	-	-	-	-	-	-
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF BLADDER	2,241	68.8	49.8	41.6	[39.4 ; 43.7]	72.0	56.8	52.0	[49.3 ; 54.7]
Transitional cell carcinoma	2,082	70.8	51.4	42.9	[40.6 ; 45.2]	74.2	58.7	53.7	[50.9 ; 56.5]
Squamous cell carcinoma with variants	62	33.9	16.1	16.1	[8.3 ; 26.3]	35.5	18.8	20.5	[10.6 ; 33.4]
Adenocarcinoma with variants	41	70.7	56.1	36.5	[21.0 ; 52.3]	72.3	59.3	40.2	[23.1 ; 57.3]
Salivary gland type tumours	0	-	-	-	-	-	-	-	-

- Contrary to most tumours, survival of epithelial tumours of bladder is worse for females than for males (5-year relative survival: 52.0% versus 58.9%).
- Sex differences in prognosis are larger for the rare subtypes squamous cell carcinoma (5-year relative survival for males: 41.1% versus females: 20.5%) and adenocarcinoma (5-year relative survival for males 56.7% versus females: 40.2%).

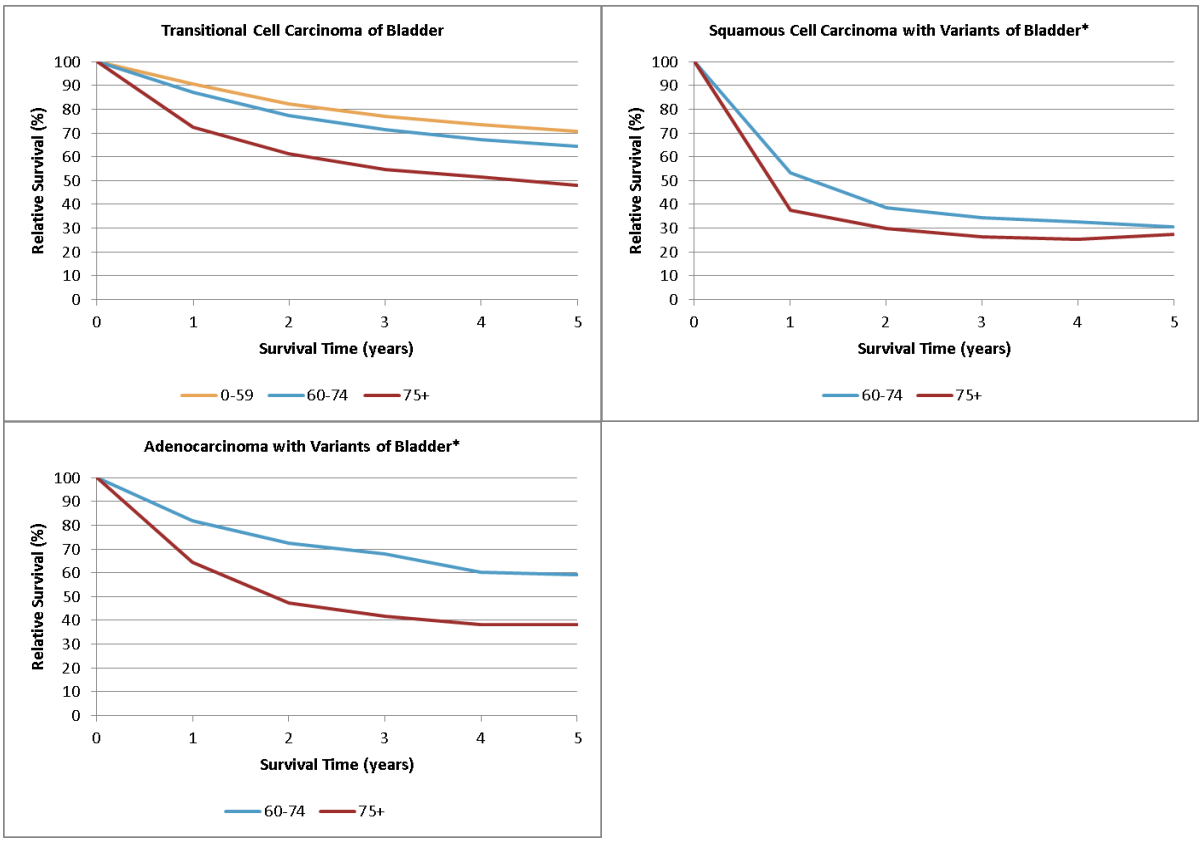
2.4.3 Survival by Age Group

Figure 159. Epithelial Tumours of Bladder – Relative Survival by Age Group



- Relative survival differs with age, prognosis is best for the age group 0-59 years and worst for the age group 75+ years. The difference between 0-59 years and 60-74 years is smaller than between the group of 60-74 years and the oldest group.

Figure 160. Transitional Cell Carcinoma, Squamous Cell Carcinoma and Adenocarcinoma with Variants of Bladder – Relative Survival by Age Group

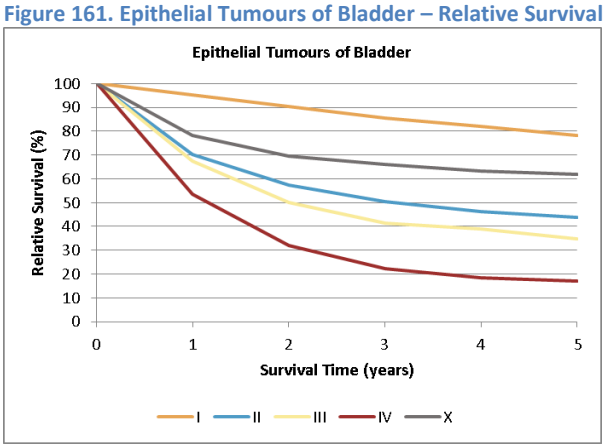


* Survival is not displayed for the youngest age group (0-59 years old) because the number at risk is lower than 35.

- Because most epithelial tumours of the bladder are transitional cell carcinoma, survival by age groups for this subtype is almost the same as the earlier described survival by age groups for all epithelial tumours of the bladder together.
- For squamous cell carcinoma, survival is better for the age group 60-74 years than for the age group 75+ years at one year after diagnosis, but the difference between these age groups becomes negligible with longer follow-up.
- For adenocarcinoma, the difference between the age groups 60-74 years and 75+ years is large for all follow-up periods.

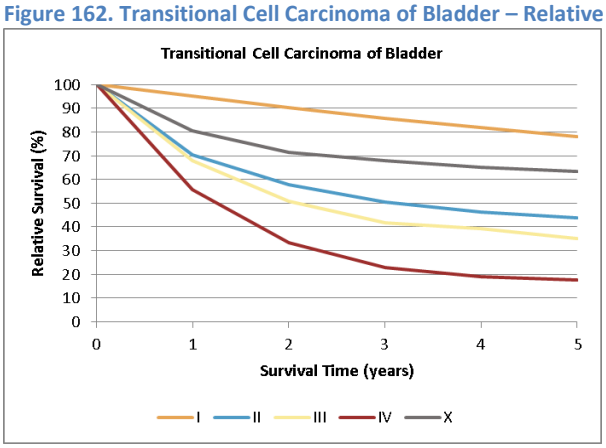
2.4.4 Survival by Stage[14]

Figure 161. Epithelial Tumours of Bladder – Relative Survival by Stage



- Survival is dependent on stage, with a 5-year relative survival ranging from 78.1% for stage I to 17.2% for stage IV.

Figure 162. Transitional Cell Carcinoma of Bladder – Relative Survival by Stage



- Because most epithelial tumours of the bladder are transitional cell carcinoma, survival by stage of this subtype is almost the same as the earlier described survival by stage of all epithelial tumours of the bladder together.

[14] Survival by stage is not shown for the squamous cell carcinoma with variants and adenocarcinoma with variants because only a single layer has a number at risk higher than 35 (5-year relative survival stage II squamous cell carcinoma: 31.5%; 5-year relative survival stage X adenocarcinoma: 55.3%).

3 Epithelial Tumours of Pelvis, Ureter and Urethra

3.1 General Results

Table 94. Epithelial Tumours of Pelvis, Ureter and Urethra: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF PELVIS, URETER AND URETHRA	R	2,033	3.34	1.44	72	2.7	0.015	1,491	45.6
Transitional cell carcinoma of pelvis, ureter and urethra	R	1,899	3.12	1.36	72	2.6	0.011	1,387	46.5
Squamous cell carcinoma with variants of pelvis, ureter and urethra	R	44	0.07	0.03	72	10.4	0.136	39	30.3
Adenocarcinoma with variants of pelvis, ureter and urethra	R	24	0.04	0.02	70	-2.4	0.760	18	*
Salivary gland-type tumours of pelvis, ureter and urethra	R	0	-	-	-	-	-	-	-
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF PELVIS, URETER AND URETHRA	R	1,357	4.53	2.20	71	3.0	0.016	929	46.7
Transitional cell carcinoma of pelvis, ureter and urethra	R	1,284	4.28	2.09	71	2.9	0.008	878	48.0
Squamous cell carcinoma with variants of pelvis, ureter and urethra	R	21	0.07	0.03	71	1.6	0.844	17	*
Adenocarcinoma with variants of pelvis, ureter and urethra	R	13	0.04	0.02	70	-	-	8	*
Salivary gland-type tumours of pelvis, ureter and urethra	R	0	-	-	-	-	-	-	-
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
EPITHELIAL TUMOURS OF PELVIS, URETER AND URETHRA	R	676	2.19	0.81	74	1.5	0.131	562	43.7
Transitional cell carcinoma of pelvis, ureter and urethra	R	615	2.00	0.73	74	1.3	0.192	509	43.8
Squamous cell carcinoma with variants of pelvis, ureter and urethra	R	23	0.07	0.03	73	-	-	22	*
Adenocarcinoma with variants of pelvis, ureter and urethra	R	11	0.04	0.02	70	-	-	10	*
Salivary gland-type tumours of pelvis, ureter and urethra	R	0	-	-	-	-	-	-	-

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

3.2 Incidence

- 2,033 new epithelial tumours of the pelvis, ureter and urethra are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 1.9.
- RARECARE defines four rare tumour entities:
    - Transitional cell carcinoma is the most frequently diagnosed subtype (93%). The risk in males is higher than in females (M/F ratio = 2.7).
    - The incidence rate for squamous cell carcinoma is more similar between males and females (M/F ratio = 0.9).
    - Only 24 new cases of adenocarcinoma are observed. The male/female ratio is 1.3.

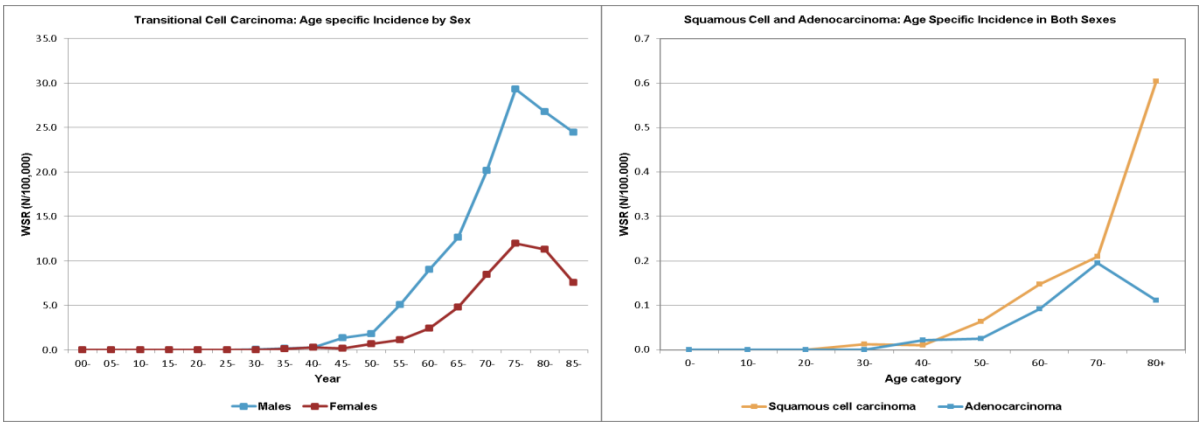
- No salivary gland type tumours are diagnosed in the Flemish Region between 2001 and 2010.

Table 95. Epithelial Tumours of Pelvis, Ureter and Urethra: Morphological Distribution by Localisation

	Renal pelvis		Ureter		Urethra	
Transitional cell carcinoma	1077	97.7%	698	97.9%	124	81.6%
Squamous cell carcinoma	15	1.4%	11	1.5%	18	11.8%
Adenocarcinoma	10	0.9%	4	0.6%	10	6.6%

- 98% of the tumours of renal pelvis and ureter are transitional cell carcinoma.
- In the urethra, squamous cell carcinoma and adenocarcinoma are proportionally more common although urethral transitional cell carcinoma still represents 82%.
- The majority of the urethral transitional carcinoma are diagnosed in males.

Figure 163. Transitional Cell Carcinoma of Pelvis, Ureter and Urethra: Age Specific Incidence by Sex and Squamous Cell and Adenocarcinoma: Age Specific Incidence in Both Sexes



- From the age of 50 years, age specific incidence rates increase for all the different histological subtypes.

Figure 164. Transitional Cell Carcinoma of Pelvis, Ureter and Urethra: Stage Distribution by Sex

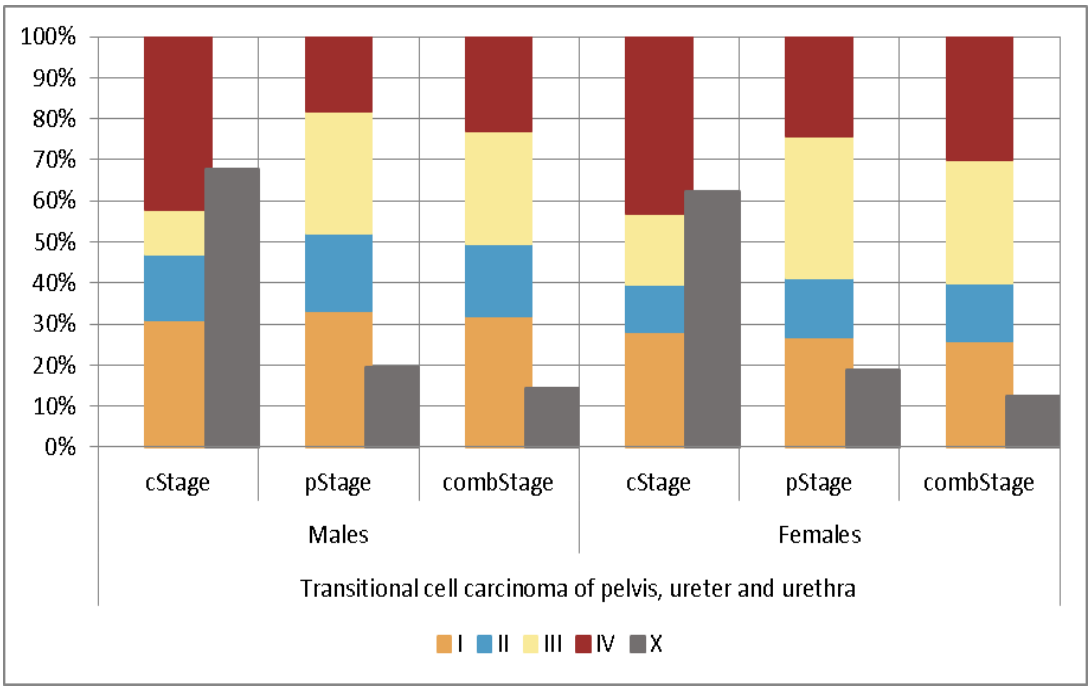
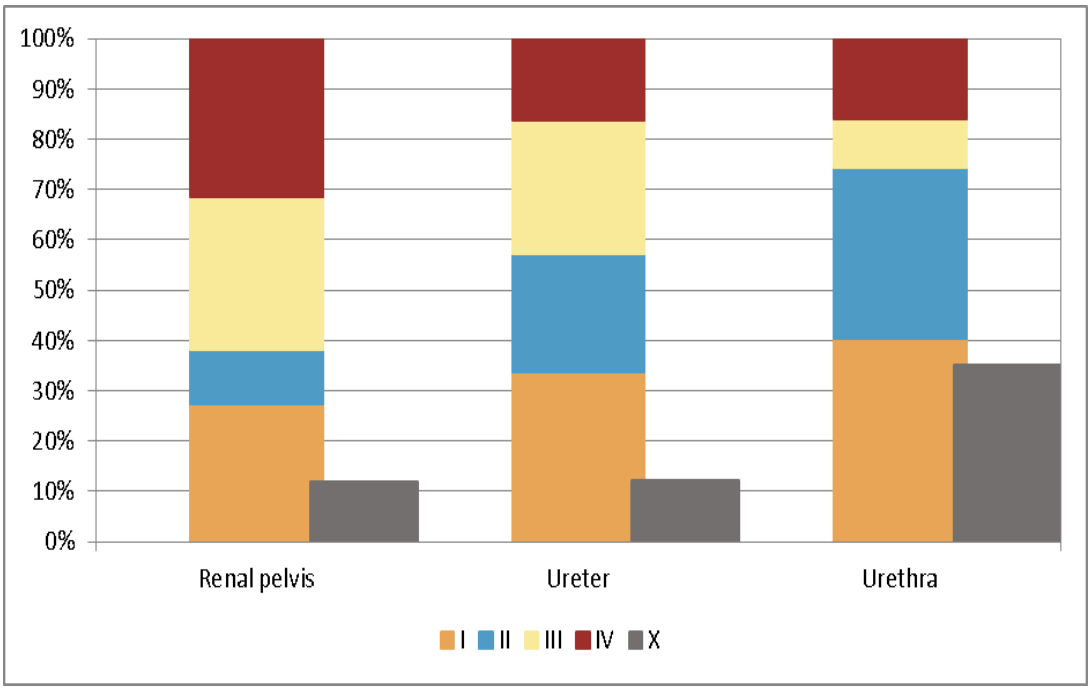


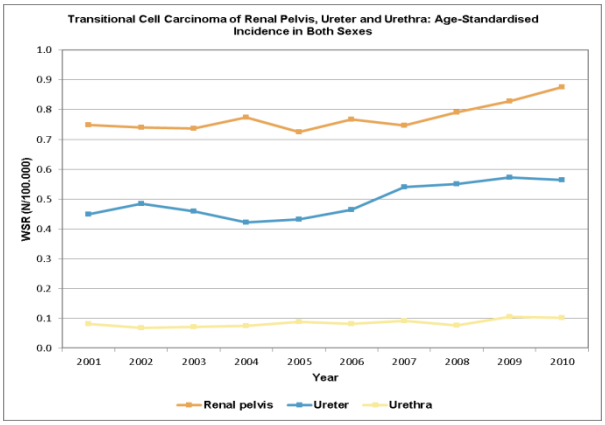
Figure 165. Transitional Cell Carcinoma of Pelvis, Ureter and Urethra: Stage Distribution by Localisation



- Transitional cell carcinoma of renal pelvis has the worst prognostic stage distribution (~60% stage III-IV), followed by the ureter and the urethra (~40% and ~25% stage III-IV, respectively).
- Males have a slightly better stage distribution, mainly due to the prognostic favourable urethral carcinoma that is more frequently observed in males.

3.3 Trends

Figure 166. Transitional Cell Carcinoma of Renal Pelvis, Ureter and Urethra: Age-Standardised Incidence in both Sexes



- Transitional cell carcinoma of renal pelvis, ureter and urethra increase in both sexes, the increase in males is two times higher than in females.
  - Males: EAPC = 2.9% (p = 0.008).
  - Females: EAPC = 1.3% (p = 0.192).
- An increase of transitional carcinoma is observed in the three primary sites.
  - Renal pelvis: EAPC = 2.2% (p = 0.054).
  - Ureter: EAPC = 2.7% (p = 0.105).
  - Urethra: EAPC = 3.9% (p = 0.376).

3.4 Survival

3.4.1 Overall Survival

Table 96. Epithelial Tumours of Pelvis, Ureter and Urethra – Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
EPITHELIAL TUMOURS OF PELVIS, URETER AND URETHRA	1,491	71.8	47.5	36.8	22.6	[34.2 ; 39.5]	74.8	53.8	45.6	35.2	[42.3 ; 48.8]
Transitional cell carcinoma	1,387	73.1	48.6	37.7	23.2	[34.9 ; 40.5]	76.0	54.9	46.5	36.1	[43.0 ; 49.9]
Squamous cell carcinoma with variants	39	51.3	28.2	25.4	-	[13.1 ; 39.7]	54.2	31.7	30.3	-	[15.6 ; 47.4]
Adenocarcinoma with variants	18	*	*	*	*	*	*	*	*	*	*
Salivary gland-type tumours	-	-	-	-	-	-	-	-	-	-	-

- Relative survival decreases to 74.8% at one year after diagnosis and further to 45.6% at five years. Thereafter, survival decreases less steep to a 10-year relative survival of 35.2%.
- Survival is worse for the squamous cell carcinoma than for the transitional cell carcinoma, although these results should be interpreted cautiously because of the low numbers at risk for squamous cell carcinoma.

3.4.2 Survival by Sex

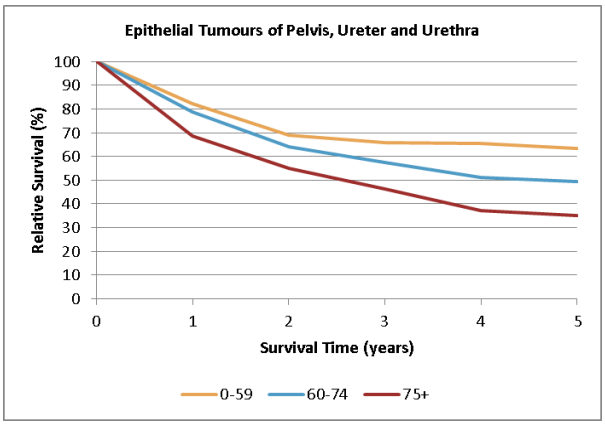
Table 97. Epithelial Tumours of Pelvis, Ureter and Urethra – Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
EPITHELIAL TUMOURS OF PELVIS, URETER AND URETHRA	929	73.4	47.6	37.4	[34.0 ; 40.7]	76.6	54.3	46.7	[42.4 ; 50.9]
Transitional cell carcinoma	878	74.6	49.1	38.5	[35.0 ; 41.9]	77.8	56.0	48.0	[43.6 ; 52.3]
Squamous cell carcinoma with variants	17	*	*	*	*	*	*	*	*
Adenocarcinoma with variants	8	*	*	*	*	*	*	*	*
Salivary gland-type tumours	-	-	-	-	-	-	-	-	-
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
EPITHELIAL TUMOURS OF PELVIS, URETER AND URETHRA	562	69.2	47.2	35.9	[31.7 ; 40.2]	71.7	52.9	43.7	[38.5 ; 49.0]
Transitional cell carcinoma	509	70.5	47.7	36.4	[31.9 ; 40.9]	72.9	53.1	43.8	[38.4 ; 49.3]
Squamous cell carcinoma with variants	22	*	*	*	*	*	*	*	*
Adenocarcinoma with variants	10	*	*	*	*	*	*	*	*
Salivary gland-type tumours	-	-	-	-	-	-	-	-	-

- Prognosis is slightly better in males than in females .

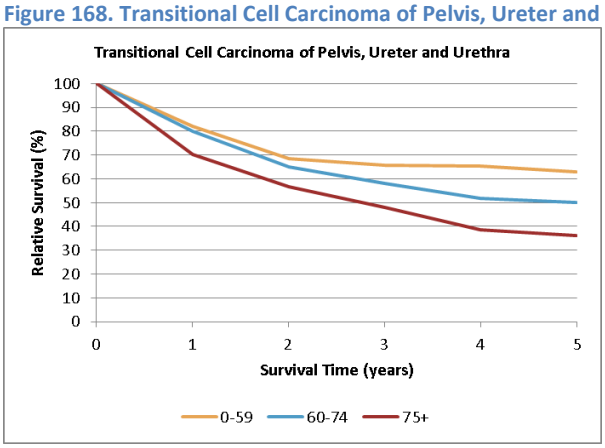
3.4.3 Survival by Age Group

Figure 167. Epithelial Tumours of Pelvis, Ureter and Urethra – Relative Survival by Age Group



- Survival decreases with higher age at diagnosis of the patients. Patients in the age group 0-59 years have a 5-year relative survival of 63.5%, decreasing to 49.4% for patients in the age group 60-74 years. Five-year relative survival for patients aged 75 and above is 35.1%.

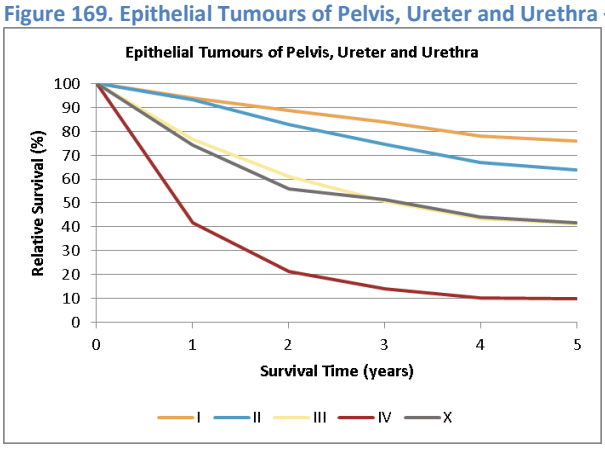
Figure 168. Transitional Cell Carcinoma of Pelvis, Ureter and Urethra – Relative Survival by Age Group



- Because most epithelial tumours of the pelvis, ureter and urethra are transitional cell carcinoma, survival by age group for this subtype is almost the same as for the earlier described survival by age group of all epithelial tumours of the pelvis, ureter and urethra together.

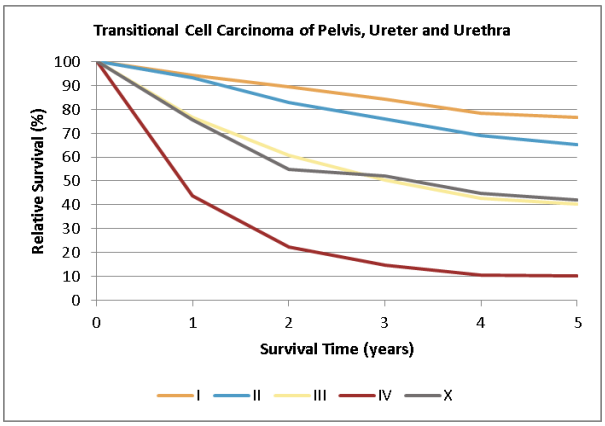
3.4.4 Survival by Stage

Figure 169. Epithelial Tumours of Pelvis, Ureter and Urethra – Relative Survival by Stage



- Survival decreases with the extent of the disease, ranging from a 5-year relative survival of 76.1% for stage I tumours to 9.8% for stage IV tumours.

Figure 170. Transitional Cell Carcinoma of Pelvis, Ureter and Urethra – Relative Survival by Stage



- Because most epithelial tumours of the pelvis, ureter and urethra are transitional cell carcinoma, survival by stage of this subtype is almost the same as the earlier described survival by stage of all epithelial tumours of the pelvis, ureter and urethra together.

CHAPTER 8. RARE MELANOMA

1 Malignant Melanoma of Mucosa

1.1 General Results

Table 98. Malignant Melanoma of Mucosa: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
MALIGNANT MELANOMA OF MUCOSA	R	194	0.32	0.15	71	3.88	0.478	172	28.9
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
MALIGNANT MELANOMA OF MUCOSA	R	45	0.15	0.08	71	11.05	0.245	40	22.3
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
MALIGNANT MELANOMA OF MUCOSA	R	149	0.48	0.21	71	2.48	0.653	132	30.9

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

1.2 Incidence

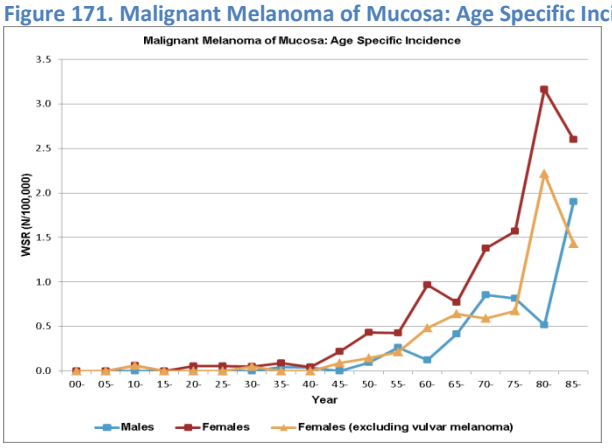
- 194 new malignant melanoma of the mucosa are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 0.4.

Table 99. Malignant Melanoma of Mucosa: Sex Distribution by Localisation

Primary site	Total		Males		Females	
	N	%	N	%	N	%
Vulva	70	36.1	-	-	70	47.0
Nasal cavity, middle ear and accesory sinusses	43	22.2	13	28.9	30	20.1
Anus and anal canal	25	12.9	9	20.0	16	10.7
Rectum	12	6.2	3	6.7	9	6.0
Oral cavity, pharynx and larynx	11	5.7	7	15.6	4	2.7
Vagina	8	4.1	-	-	8	5.4
Oesophagus	7	3.6	2	4.4	5	3.4
Penis	5	2.6	5	11.1	-	-
Urinary tract	7	3.6	3	6.7	4	2.7
Cervix	3	1.5	-	-	3	2.0
Scrotum	2	1.0	2	4.4	-	-
Galbladder	1	0.5	1	2.2	0	0.0
Total	**194**		**45**		**149**	

- Vulvar melanoma represent half of all diagnoses in females. Since it is impossible to differentiate vulvar skin, a lot of the vulvar melanoma will not be mucosal melanoma but vulvar skin melanoma. A similar note is valid for melanoma of penis and scrotum although this group is very small.

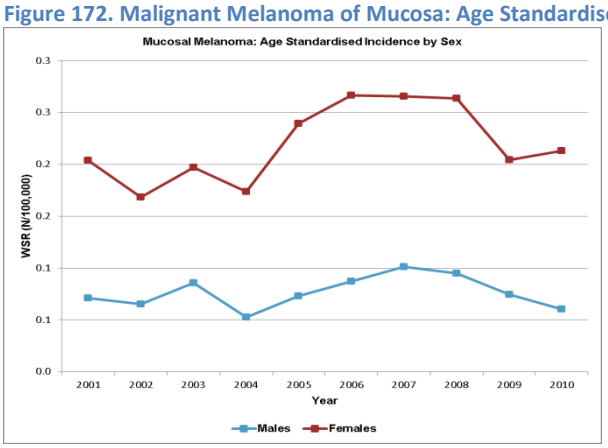
Figure 171. Malignant Melanoma of Mucosa: Age Specific Incidence



- Incidence rates increase from the age of 50 years.
- In all age groups, incidence rates for females are higher than for males. This higher female incidence is mainly due to the high incidence of vulvar melanoma.

1.3 Trends

Figure 172. Malignant Melanoma of Mucosa: Age Standardised Incidence by Sex (three year moving average)



- No significant trends are observed.

1.4 Survival

1.4.1 Overall Survival

Table 100. Malignant Melanoma of Mucosa - Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
MALIGNANT MELANOMA OF MUCOSA	172	68.0	40.3	23.3	14.2	[16.6 ; 30.7]	70.9	45.9	28.9	21.3	[20.6 ; 38.1]

- Prognosis of mucosal melanoma is poor, with a 5 year relative survival of 28.9%.

1.4.2 Survival by Sex

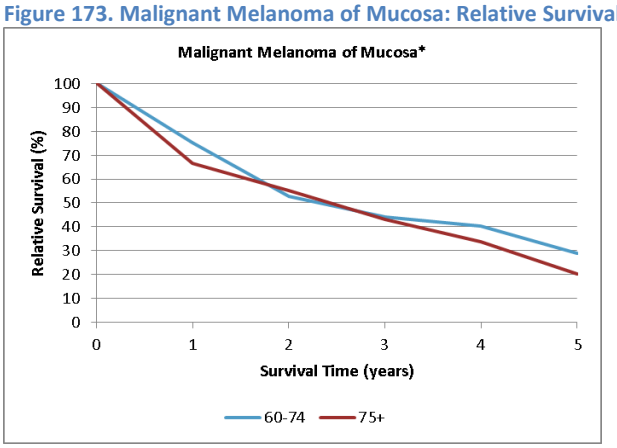
Table 101. Malignant Melanoma of Mucosa - Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
MALIGNANT MELANOMA OF MUCOSA	40	60.0	33.7	17.3	[6.2 ; 33.1]	63.0	38.7	22.3	[8.1 ; 42.1]
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
MALIGNANT MELANOMA OF MUCOSA	132	70.5	42.3	25.0	[17.2 ; 33.4]	73.3	48.1	30.9	[21.3 ; 41.3]

- Prognosis is poor for both sexes, although females have a somewhat better 5-year relative survival than males (30.9% and 22.3% respectively).

1.4.3 Survival by Age Group

Figure 173. Malignant Melanoma of Mucosa: Relative Survival by Age Group*



*Survival of the age group 0-59 years is not shown because the number at risk is smaller than 35 cases.

- The relative survival between the age group 60-74 years and 75 years and older is comparable for the first three years after diagnosis. At 5 years, there is a difference of about 10% in favour of the youngest patients.

2 Malignant Melanoma of Uvea

2.1 General Results

Table 102. Malignant Melanoma of Uvea: Incidence, Trends, Survival

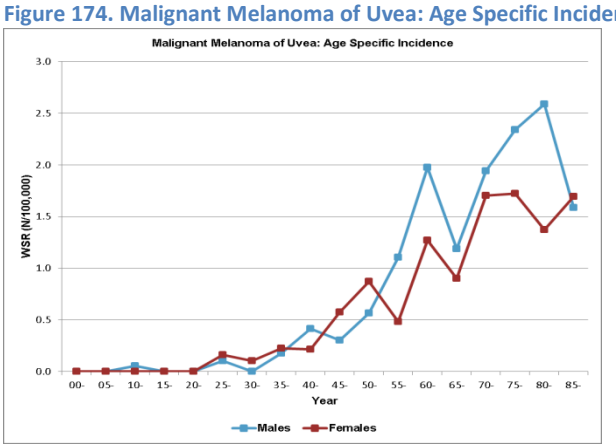
Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
MALIGNANT MELANOMA OF UVEA	R	339	0.56	0.31	64	2.87	0.518	310	67.0
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
MALIGNANT MELANOMA OF UVEA	R	174	0.58	0.34	64	3.38	0.621	94	66.5
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
MALIGNANT MELANOMA OF UVEA	R	165	0.54	0.29	65	2.83	0.545	96	67.3

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

2.2 Incidence

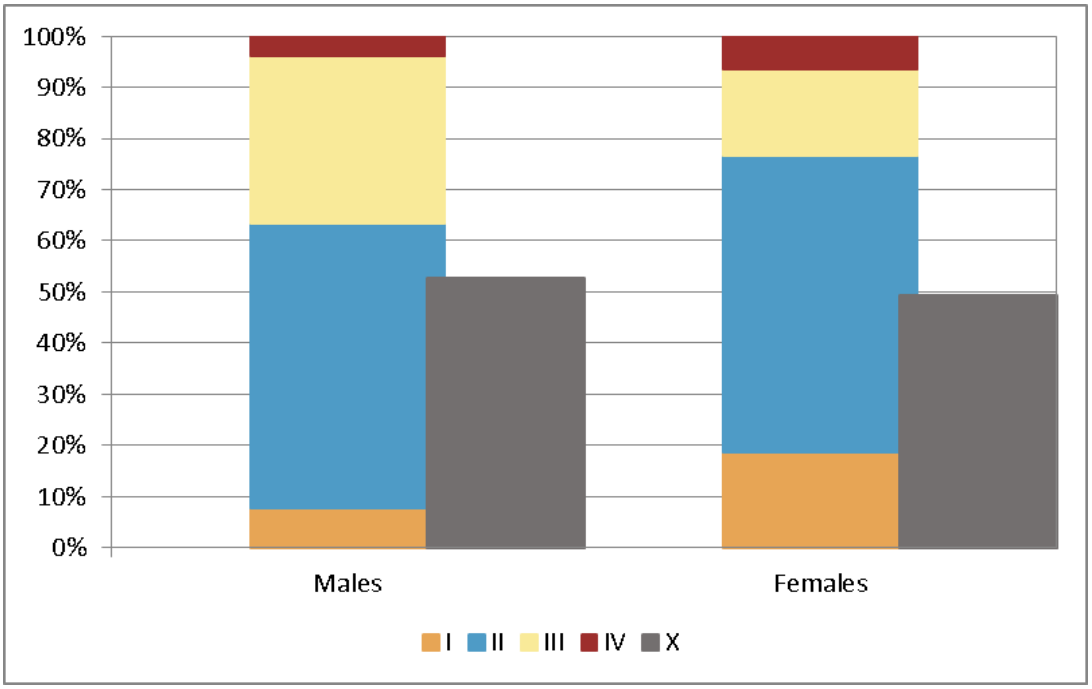
- 339 new malignant melanoma of the uvea are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 1.2.

Figure 174. Malignant Melanoma of Uvea: Age Specific Incidence by Sex



- Uveal melanoma occur already at an early age.
- There is a comparable age specific incidence between the two sexes.

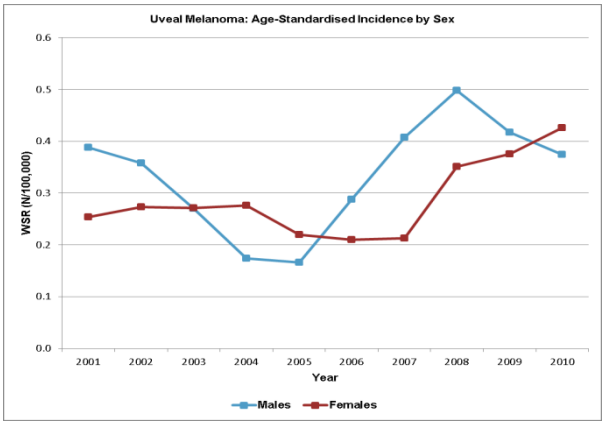
Figure 175. Malignant Melanoma of Uvea: Stage Distribution by Sex



- Information on stage is available in about 50% of all the uveal melanomas.
- Males have a prognostic less favourable stage distribution than females.

2.3 Trends

Figure 176. Malignant Melanoma of Uvea: Age Standardised Incidence by Sex (three year moving average)



- No significant trends are observed in males nor in females.

2.4 Survival

2.4.1 Overall Survival

Table 103. Malignant Melanoma of Uvea - Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
MALIGNANT MELANOMA OF UVEA	310	92.6	74.6	58.9	39.4	[52.4 ; 64.8]	95.0	80.6	67.0	51.2	[59.6 ; 73.7]

- Overall survival is moderate, with a 5-year relative survival of 67.0%.

2.4.2 Survival by Sex

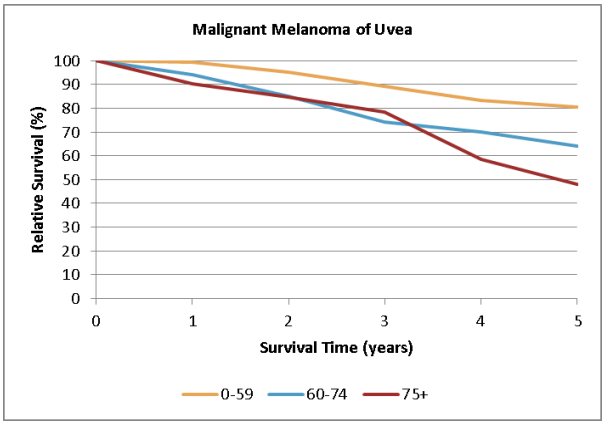
Table 104. Malignant Melanoma of Uvea - Survival by Sex

Males	N	Observed Survival				Relative Survival			
	at risk	1 year	3 year	5 year	5 year CI	1 year	3 year	5 year	5 year CI
MALIGNANT MELANOMA OF UVEA	148	91.9	69.8	58.0	[48.6 ; 66.2]	94.4	75.8	66.5	[55.8 ; 76.0]
Females	**N**	**Observed Survival**				**Relative Survival**			
	at risk	1 year	3 year	5 year	5 year CI	1 year	3 year	5 year	5 year CI
MALIGNANT MELANOMA OF UVEA	162	93.2	78.9	59.7	[50.4 ; 67.8]	95.6	84.9	67.3	[56.8 ; 76.4]

- Prognosis is comparable between males and females.

2.4.3 Survival by Age Group

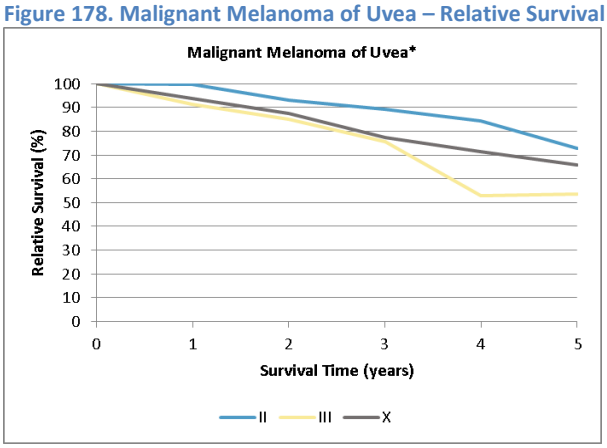
Figure 177. Malignant Melanoma of Uvea – Relative Survival by Age Group



- Prognosis is rather good in the youngest patient group, aged between 0 and 59 year, with a 5-year relative survival of about 80%.
- The prognosis is worse in the oldest patients.

2.4.4 Survival by Stage

Figure 178. Malignant Melanoma of Uvea – Relative Survival by Stage



* Survival of the stage I and IV is not shown because the number at risk is smaller than 35 cases

- Prognosis is worse in more advanced stages.

CHAPTER 9. RARE NEUROENDOCRINE TUMOURS AND CANCERS OF ENDOCRINE ORGANS.

1. Neuroendocrine Tumours

1.1 General Results

Table 105. Neuroendocrine Tumours: Incidence, Trends, Survival

Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
NEUROENDOCRINE TUMOURS	C	3,776	6.21	3.72	62	5.8	0.001	3,032	66.3
Well differentiated endocrine tumours, carcinoid	R	293	0.48	0.24	67	-3.2	0.358	252	34.4
Well differentiated endocrine tumours, atypical carcinoid	R	17	0.03	0.01	66	*	*	13	*
Well differentiated not functioning endocrine carcinoma of pancreas and digestive tract	R	2,000	3.29	2.20	58	11.1	0.001	1,771	80.7
Well differentiated functioning endocrine carcinoma of pancreas and digestive tract	R	25	0.04	0.03	54	3.2	0.538	23	*
Poorly differentiated endocrine carcinoma (lung small cell carcinoma and skin excluded)	R	618	1.02	0.49	69	0.7	0.759	508	14.7
Mixed endocrine-exocrine carcinoma	R	24	0.04	0.02	66	25.1	0.016	23	*
Endocrine carcinoma of thyroid gland	R	164	0.27	0.17	59	3.2	0.217	149	77.1
Endocrine carcinoma of skin	R	322	0.53	0.21	75	4.9	0.013	0	-
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
NEUROENDOCRINE TUMOURS	R	1,773	5.91	3.59	63	5.6	0.002	1,386	56.7
Well differentiated endocrine tumours, carcinoid	R	158	0.53	0.29	66	-3.2	0.470	127	25.3
Well differentiated endocrine tumours, atypical carcinoid	R	6	0.02	0.01	70	*	*	5	*
Well differentiated not functioning endocrine carcinoma of pancreas and digestive tract	R	981	3.27	2.17	59	10.2	0.002	846	77.7
Well differentiated functioning endocrine carcinoma of pancreas and digestive tract	R	9	0.03	0.02	49	*	*	9	*
Poorly differentiated endocrine carcinoma (lung small cell carcinoma and skin excluded)	R	405	1.35	0.71	69	-1.0	0.654	320	10.5
Mixed endocrine-exocrine carcinoma	R	9	0.03	0.02	61	*	*	9	*
Endocrine carcinoma of thyroid gland	R	69	0.23	0.15	57	1.3	0.755	61	73.0
Endocrine carcinoma of skin	R	120	0.40	0.19	74	5.3	0.132	0	-
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
NEUROENDOCRINE TUMOURS	C	2,003	6.50	3.92	61	5.8	0.001	1,646	74.3
Well differentiated endocrine tumours, carcinoid	R	135	0.44	0.20	68	-3.3	0.275	125	43.8
Well differentiated endocrine tumours, atypical carcinoid	R	11	0.04	0.02	64	*	*	8	*
Well differentiated not functioning endocrine carcinoma of pancreas and digestive tract	R	1,019	3.31	2.25	57	11.7	0.001	925	83.5
Well differentiated functioning endocrine carcinoma of pancreas and digestive tract	R	16	0.05	0.03	57	*	*	14	*
Poorly differentiated endocrine carcinoma (lung small cell carcinoma and skin excluded)	R	213	0.69	0.31	69	5.9	0.136	188	21.5
Mixed endocrine-exocrine carcinoma	R	15	0.05	0.02	68	*	*	14	*
Endocrine carcinoma of thyroid gland	R	95	0.31	0.19	60	9.0	0.173	88	80.0
Endocrine carcinoma of skin	R	202	0.66	0.23	76	4.7	0.084	0	-

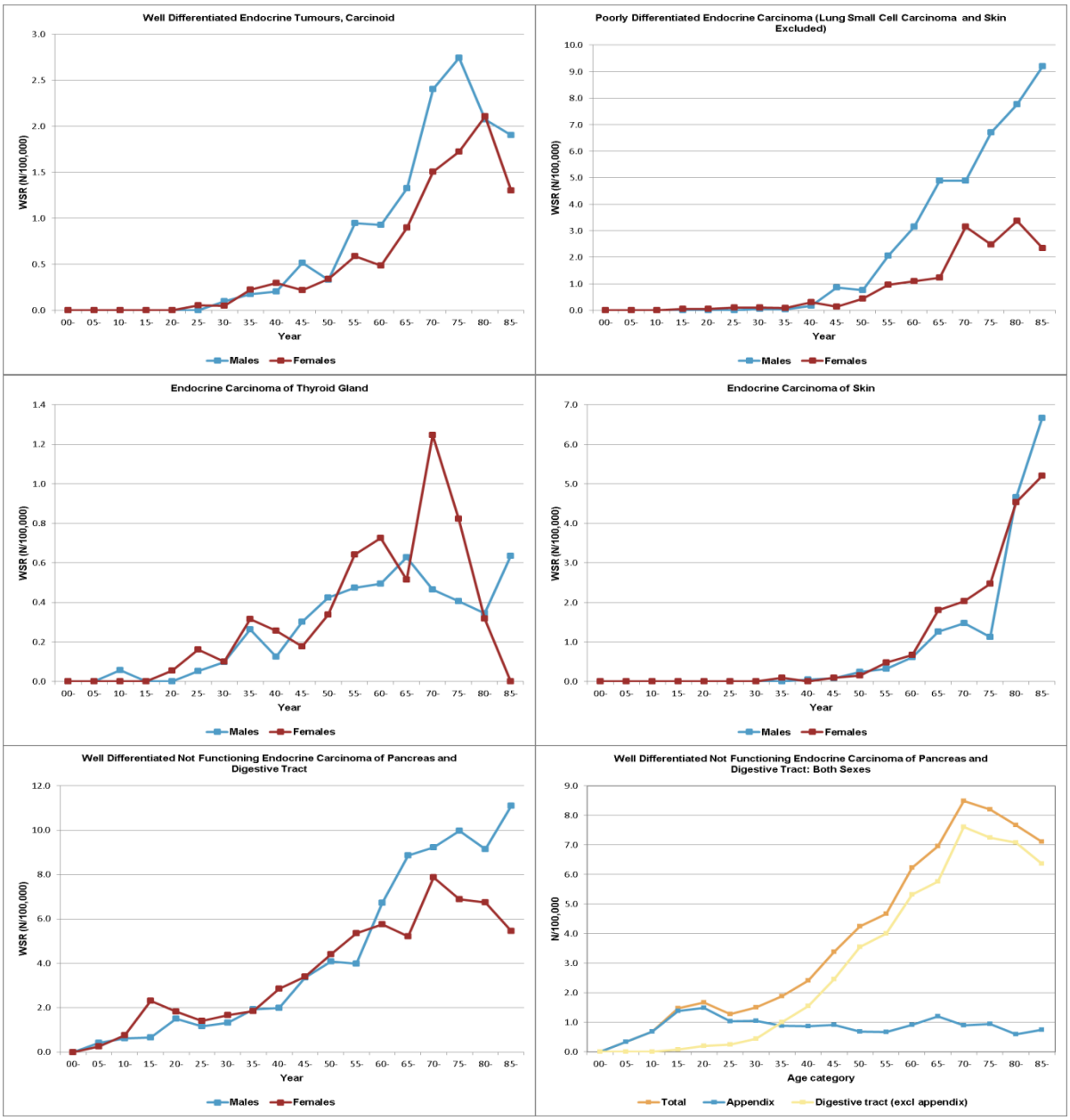
R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

1.2 Incidence

- 3,776 new neuroendocrine tumours are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female (M/F) ratio is 0.9.

- RARECARE differentiates between seven rare entities:
    - 293 diagnoses of ‘well-differentiated endocrine tumours, carcinoid‘ are registered. This excludes tumours of skin, lung and digestive tract (M/F ratio = 1.4). 75% of these tumours have an unspecified primary site, thus a large contribution of primary lung, skin or digestive tract carcinoma cannot be excluded.
    - Only 17 ‘well-differentiated endocrine tumours, atypical carcinoid’ are observed, this entity excludes lung, skin and digestive tract tumours (M/F ratio = 0.4). 11 are diagnosed without a specified primary site, thus primary lung, skin or digestive tract carcinoma cannot be excluded for these cases.
    - With 2,000 new cases of ‘well-differentiated not functioning endocrine carcinoma of pancreas and digestive tract’, this entity represents more than half of all rare neuroendocrine tumours (M/F ratio = 1.0).
    - Well-differentiated functioning endocrine carcinoma of pancreas and digestive tract represents 25 new cases (M/F ratio = 0.6).
    - 618 new diagnoses of ‘poorly differentiated endocrine carcinoma (lung small cell carcinoma and skin excluded)’ are observed (M/F ratio = 2.3). Half of all cases are registered with an unknown primary site, for these cases it cannot be excluded that lung or skin is the primary site.
    - Mixed endocrine-exocrine carcinoma accounts for 25 diagnoses, lung and skin carcinoma are excluded (M/F ratio = 0.8).
    - 164 endocrine carcinoma of thyroid gland are registered (M/F ratio = 0.8).
    - 322 new diagnoses of endocrine carcinoma of skin are registered (M/F ratio = 0.8).

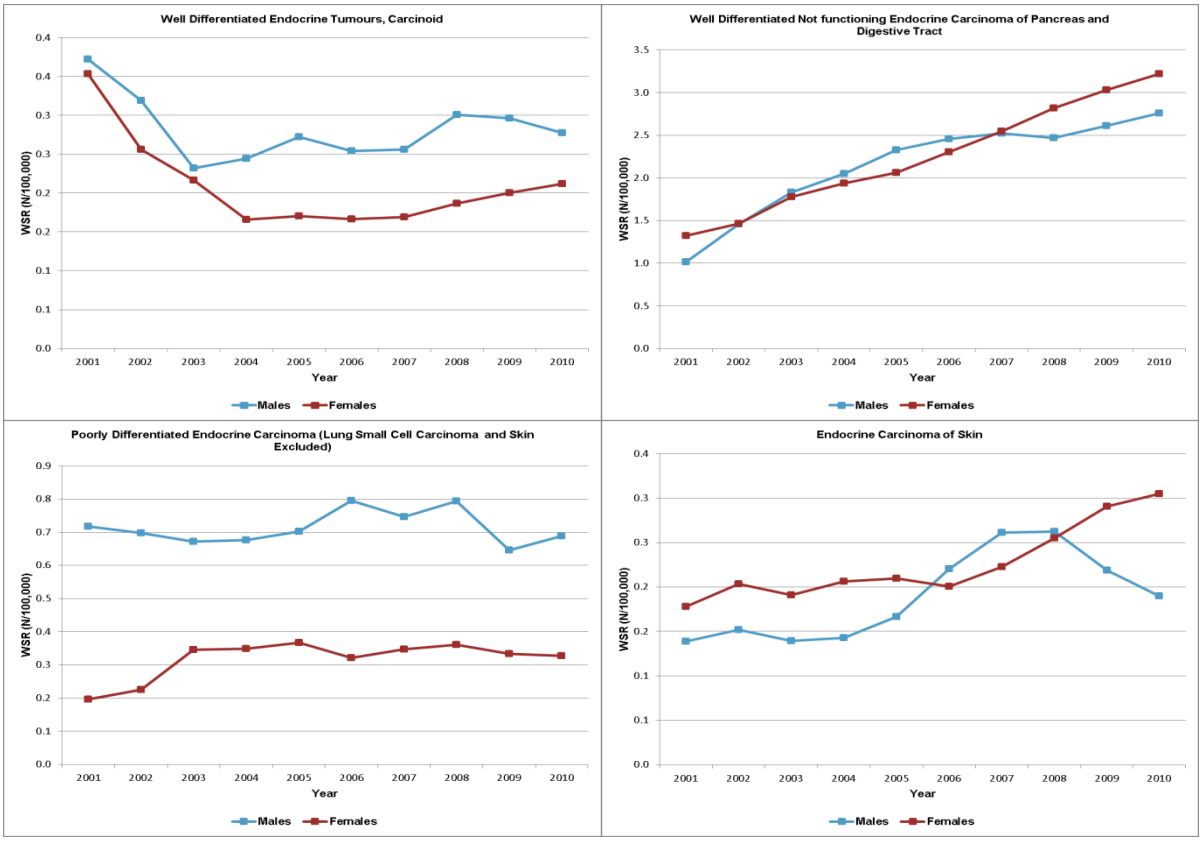
Figure 179. Neuroendocrine Tumours: Age Specific Incidence by Sex and Sublocalisation



- Age specific incidence rates depend greatly on the type of endocrine carcinoma.
- The well-differentiated not functioning carcinoma of pancreas and digestive tract that already occur at an early age are predominantly incidental findings of carcinoid tumours of the appendix.

1.3 Trends

Figure 180. Neuroendocrine Tumours: Age Standardised Incidence



- A significant increase is observed for well-differentiated not functioning endocrine carcinoma of pancreas and digestive tract.

1.4 Survival

1.4.1 Overall Survival

Table 106. Neuroendocrine Tumours - Overall Survival

	N at risk	Observed Survival 1 year	3 year	5 year	10 year	5 year CI	Relative Survival 1 year	3 year	5 year	10 year	5 year CI
NEUROENDOCRINE TUMOURS	3,032	77.6	66.5	61.0	51.2	[59.1 ; 62.8]	79.0	70.0	66.3	61.0	[64.3 ; 68.3]
Well differentiated endocrine tumours, carcinoid	252	58.7	37.5	30.9	21.1	[24.9 ; 37.2]	60.2	40.2	34.4	26.1	[27.7 ; 41.3]
Well differentiated endocrine tumours, atypical carcinoid	13	*	*	*	*	*	*	*	*	*	*
Poorly differentiated endocrine carcinoma (lung small cell carcinoma and skin excluded)	508	35.0	15.0	12.9	9.8	[10.1 ; 16.2]	36.1	16.3	14.7	12.4	[11.5 ; 18.4]
Undifferentiated carcinoma of oesophagus	23	*	*	*	*	*	*	*	*	*	*
Endocrine carcinoma of thyroid gland	149	87.2	82.3	72.1	62.5	[63.3 ; 79.1]	88.3	85.5	77.1	72.1	[67.7 ; 84.6]
Well differentiated not functioning endocrine carcinoma of pancreas and digestive tract	1,771	88.5	80.5	74.2	62.4	[71.9 ; 76.3]	90.1	84.6	80.7	74.8	[78.2 ; 83.1]
Well differentiated functioning endocrine carcinoma of pancreas and digestive tract	23	*	*	*	*	*	*	*	*	*	*
Endocrine carcinoma of skin	-	-	-	-	-	-	-	-	-	-	-

- Neuroendocrine tumours have a rather good prognosis, with a 5-year relative survival of 66.3%.

- There is a big difference in the different histological subtypes. Well-differentiated not functioning endocrine carcinoma of pancreas and digestive tract and endocrine carcinoma of the thyroid gland have the best prognosis.
- Poorly differentiated endocrine carcinoma (lung small cell carcinoma and skin excluded) have the worst prognosis.

1.4.2 Survival by Sex

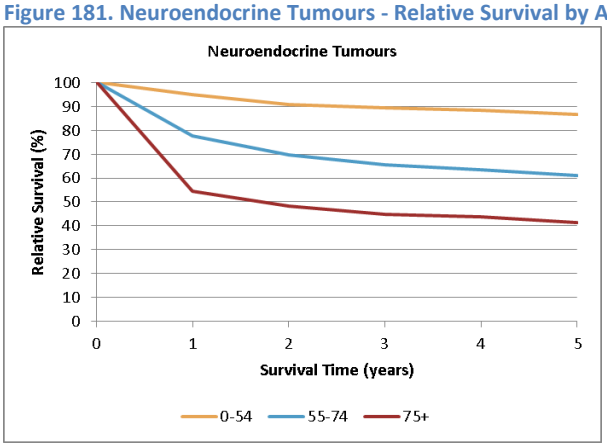
Table 107. Neuroendocrine Tumours - Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
NEUROENDOCRINE TUMOURS	1,386	71.0	57.7	51.2	[48.3 ; 54.0]	72.6	61.4	56.7	[53.5 ; 59.8]
Well differentiated endocrine tumours, carcinoid	127	52.8	28.3	22.8	[15.5 ; 31.0]	54.0	30.3	25.3	[17.2 ; 34.3]
Well differentiated endocrine tumours, atypical carcinoid	5	*	*	*	*	*	*	*	*
Poorly differentiated endocrine carcinoma (lung small cell carcinoma and skin excluded)	320	31.9	12.0	9.1	[6.1 ; 12.8]	32.9	13.2	10.5	[7.0 ; 14.8]
Undifferentiated carcinoma of oesophagus	9	*	*	*	*	*	*	*	*
Endocrine carcinoma of thyroid gland	61	88.5	76.6	68.3	[54.2 ; 78.9]	89.7	80.0	73.0	[57.9 ; 84.4]
Well differentiated not functioning endocrine carcinoma of pancreas and digestive tract	846	86.9	78.0	70.3	[66.8 ; 73.5]	88.7	82.7	77.7	[73.9 ; 81.3]
Well differentiated functioning endocrine carcinoma of pancreas and digestive tract	9	*	*	*	*	*	*	*	*
Endocrine carcinoma of skin	0	-	-	-	-	-	-	-	-
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
NEUROENDOCRINE TUMOURS	1,646	83.1	73.9	69.2	[66.7 ; 71.5]	84.4	77.1	74.3	[71.7 ; 76.8]
Well differentiated endocrine tumours, carcinoid	125	64.8	46.9	39.2	[29.9 ; 48.5]	66.4	50.3	43.8	[33.4 ; 54.1]
Well differentiated endocrine tumours, atypical carcinoid	8	*	*	*	*	*	*	*	*
Poorly differentiated endocrine carcinoma (lung small cell carcinoma and skin excluded)	188	40.4	20.0	19.2	[13.8 ; 25.2]	41.5	21.4	21.5	[15.5 ; 28.3]
Undifferentiated carcinoma of oesophagus	14	*	*	*	*	*	*	*	*
Endocrine carcinoma of thyroid gland	88	86.3	86.3	74.9	[63.1 ; 83.4]	87.3	89.5	80.0	[67.4 ; 89.1]
Well differentiated not functioning endocrine carcinoma of pancreas and digestive tract	925	90.1	82.8	77.8	[74.7 ; 80.5]	91.4	86.3	83.5	[80.2 ; 86.4]
Well differentiated functioning endocrine carcinoma of pancreas and digestive tract	14	*	*	*	*	*	*	*	*
Endocrine carcinoma of skin	0	-	-	-	-	-	-	-	-

- Regardless of the histological subgroup, prognosis is always better in females than males.
- Poorly differentiated endocrine carcinoma in male is the worst prognostic subgroup.
- Well-differentiated not functioning endocrine carcinoma of pancreas and digestive tract in female is the best prognostic subgroup.

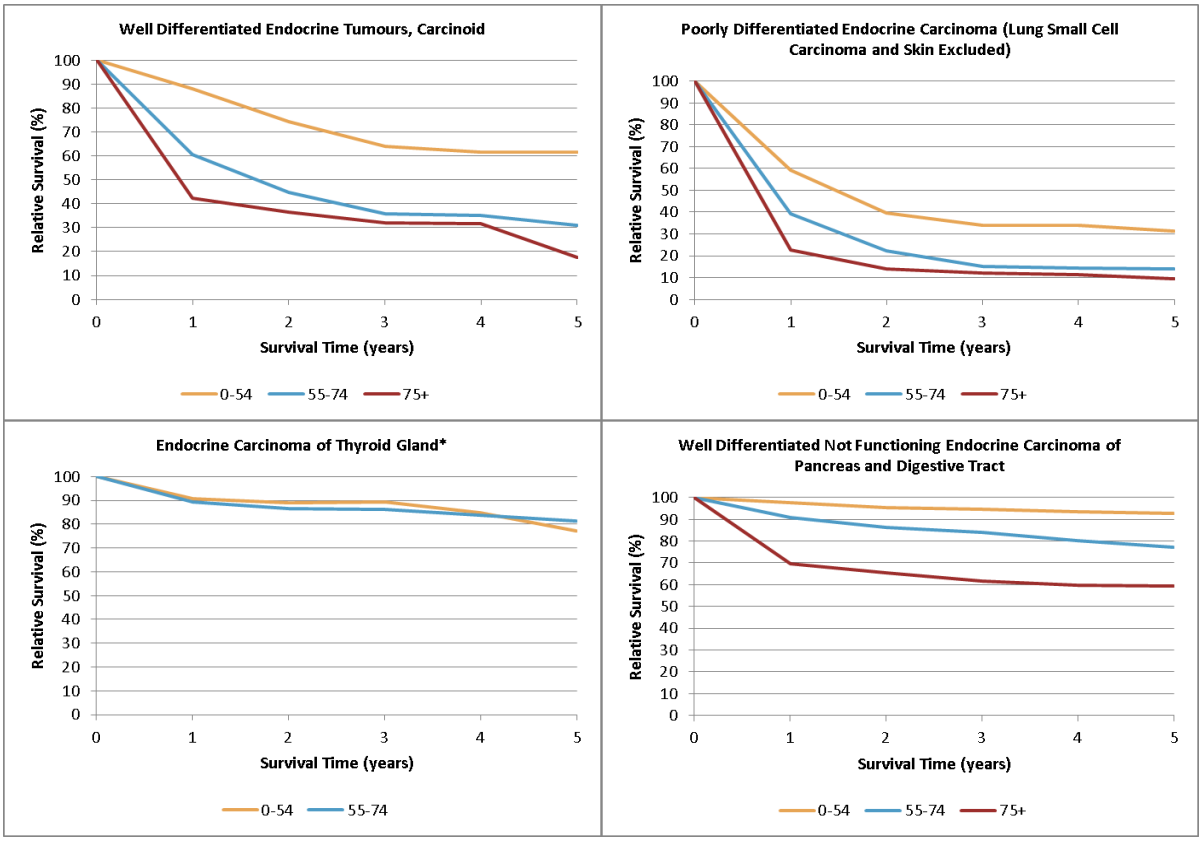
1.4.3 Survival by Age Group

Figure 181. Neuroendocrine Tumours - Relative Survival by Age Group



- Relative survival is prognostically related with age: older patients have a poorer 5-year relative survival than younger patients.

Figure 182. Well-differentiated Endocrine Tumours (Carcinoid), Poorly Differentiated Endocrine Carcinoma (Lung Small Cell Carcinoma and Skin Excluded), Endocrine Carcinoma of Thyroid Gland and Well-differentiated Not Functioning Endocrine Carcinoma of Pancreas and Digestive Tract - Relative Survival by Age Group

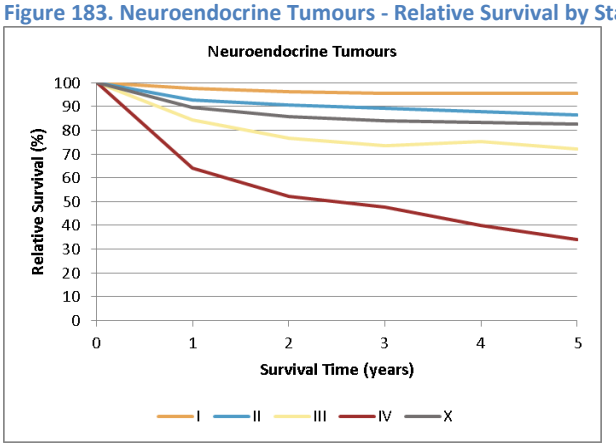


* Survival for patients of 75 years and older is not calculated because the number of patients at risk is below 35

- For most subtypes, there is a clear age-dependent effect on relative survival. This is not true for endocrine carcinoma of thyroid gland, where patients of 0-54 years have almost the same prognosis as patients of 55-74 years.

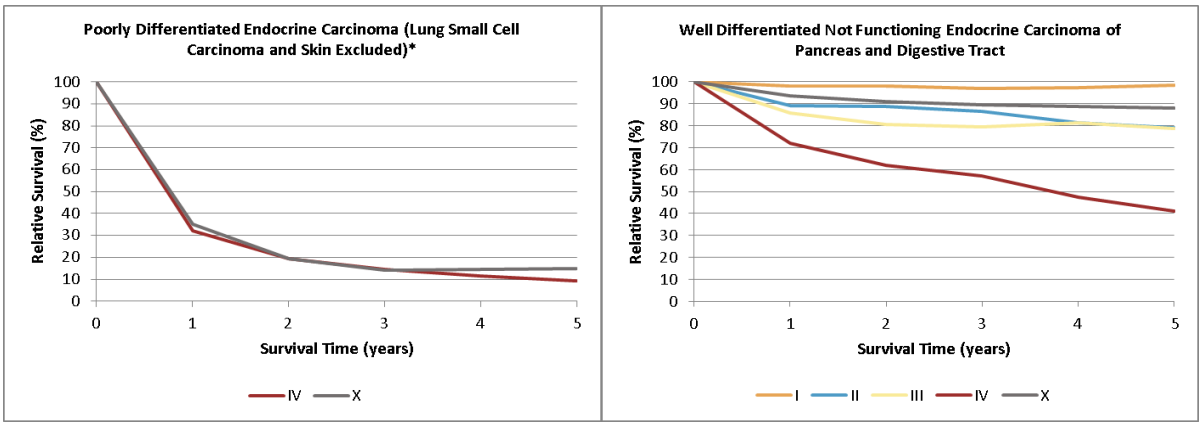
1.4.4 Survival by Stage

Figure 183. Neuroendocrine Tumours - Relative Survival by Stage



- Prognosis depends on the stage of the disease: the more extensive the disease is, the worse the prognosis.
- Stage I and II disease have a good prognosis, with a 5-year relative survival of 95.6% and 86.6% respectively.
- Stage IV has the worst prognosis, with 5-year relative survival rates of less than 40%.

Figure 184. Poorly Differentiated Endocrine Carcinoma (Lung Small Cell Carcinoma and Skin Excluded) and Well-differentiated Not Functioning Endocrine Carcinoma of Pancreas and Digestive Tract - Relative Survival by Stage



* Survival for stage I-III is not calculated because the number of patients at risk for each of these stages is below 35.

- Because a great majority of patients with a neuroendocrine cancers are diagnosed with a well-differentiated non-functioning endocrine carcinoma of the pancreas and digestive tract, survival by stage group is very similar to the survival rates for all neuroendocrine tumours together.

2. Carcinoma of Endocrine Organs

2.1 General Results

Table 108. Carcinoma of Endocrine Organs: Incidence, Trends, Survival

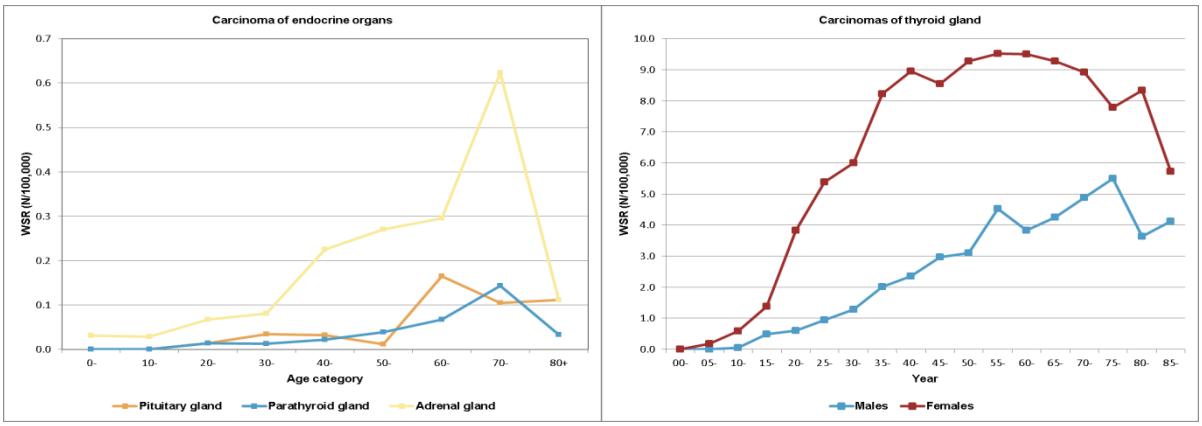
Flemish Region 2001-2010		Incidence				Trend		Survival	
Both Sexes						EAPC		Relative Survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
CARCINOMA OF ENDOCRINE ORGANS	R	2,933	4.82	3.42	53	7.2	<0.001	2,684	86.0
Carcinomas of pituitary gland	R	27	0.04	0.03	62	-6.2	0.267	23	*
Carcinomas of thyroid gland	R	2,608	4.29	3.08	53	7.9	<0.001	2,388	88.7
Carcinomas of parathyroid gland	R	20	0.03	0.02	62	-7.6	0.349	18	*
Carcinoma of adrenal gland	R	110	0.18	0.12	56	-0.3	0.926	103	42.0
Males						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
CARCINOMA OF ENDOCRINE ORGANS	R	819	2.73	1.84	56	6.8	<0.001	723	80.3
Carcinomas of pituitary gland	R	14	0.05	0.03	64	*	*	11	*
Carcinomas of thyroid gland	R	663	2.21	1.50	56	8.6	<0.001	584	84.6
Carcinomas of parathyroid gland	R	15	0.05	0.03	61	-6.0	0.458	14	*
Carcinoma of adrenal gland	R	56	0.19	0.13	58	-2.9	0.478	51	39.8
Females						EAPC		Relative survival	
	R/C	N	CR	WSR	Avg Age	%	p-value	N at risk	5yr (%)
CARCINOMA OF ENDOCRINE ORGANS	C	2,114	6.86	5.02	52	7.4	<0.001	1,961	88.2
Carcinomas of pituitary gland	R	13	0.04	0.03	59	-2.8	0.498	12	*
Carcinomas of thyroid gland	C	1,945	6.31	4.67	52	7.7	0.001	1,804	90.0
Carcinomas of parathyroid gland	R	5	0.02	0.01	67	*	*	4	*
Carcinoma of adrenal gland	R	54	0.18	0.12	54	2.5	0.686	52	44.1

R/C: Rare or common
CR: Crude rate (N/100,000 person years)
WSR: age-standardised rate, using the world population (N/100,000 person years)
EAPC: estimated annual percentage change
RS: relative survival
AvgAge: average age at diagnosis

2.2 Incidence

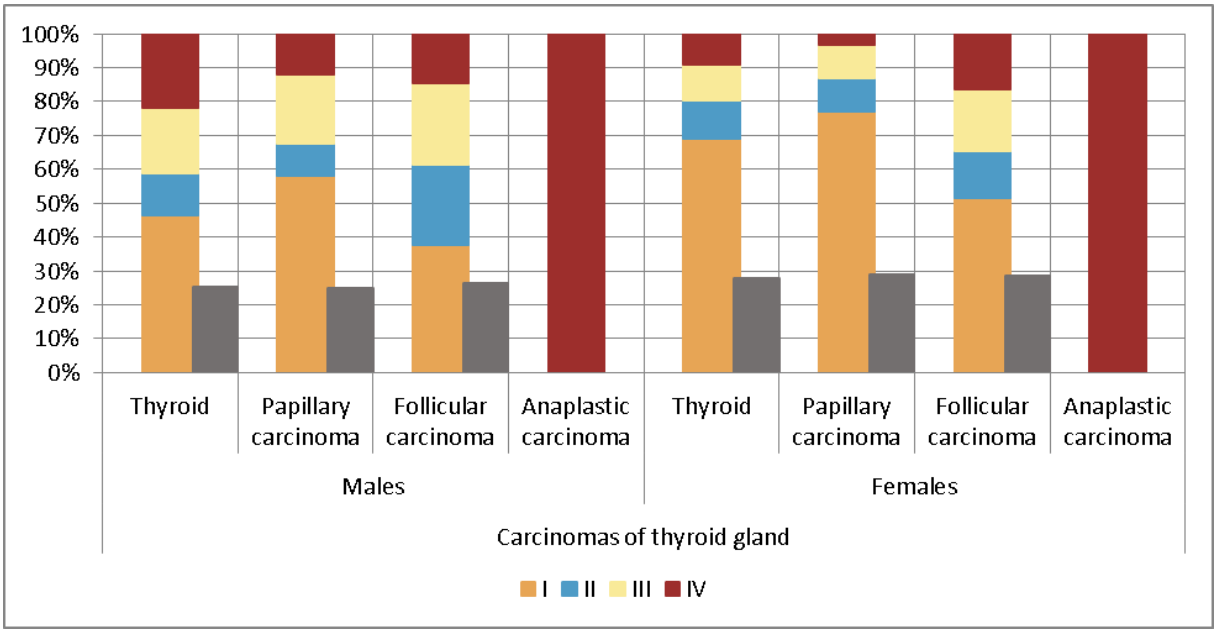
- 2,933 new carcinoma of the endocrine organs are diagnosed in the Flemish Region between 2001 and 2010.
- The male/female ratio is 0.4.
- RARECARE differentiates between four rare entities:
    - Only 27 cases of carcinoma of pituitary gland are diagnosed in the Flemish Region between 2001 and 2010. The male/female ratio is 1.0.
    - Thyroid carcinoma is the most common carcinoma of endocrine organs (89%). The male/female ratio is 0.3.
    - Carcinomas of parathyroid gland account for 20 new cases.
    - Adrenal gland carcinomas represent 110 new diagnoses; The male/female ratio is 1.0.

Figure 185. Carcinomas of Endocrine Organs: Age Specific Incidence by Sublocalisation and Caricnomas of Thyroid Gland: Age Specific Incidence by Sex, Flemish Region 2001-2010



- Carcinoma of adrenal gland is also observed in children and young adults, although the highest rates occur in the elderly.
- Thyroid carcinoma already occurs at an early age. In females the incidence rates increase rapidly from the age of 15 years to reach a peak around the age of 60 years. In males, the age specific incidence rates increase more gradually without showing a clear peak.

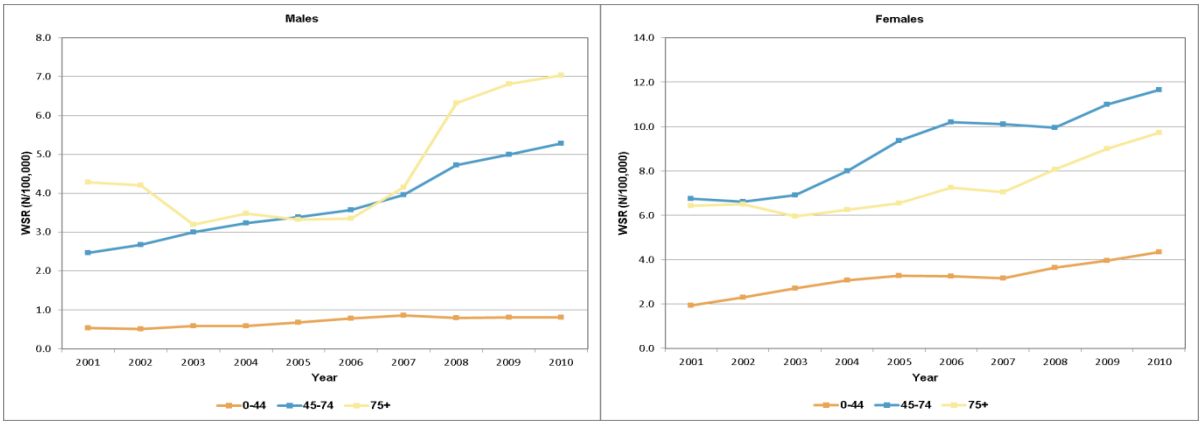
Figure 186. Carcinomas of Thyroid Gland: Stage Distribution by Histology and Sex



- Information on stage is available in about 75% of all new diagnoses.
- Females have a prognostic more favourable stage distribution than males.
- Papillary thyroid carcinoma has the prognostic best stage distribution, anaplastic carcinoma has a very poor prognosis and is always diagnosed as stage IV.

2.3 Trends

Figure 187. Carcinomas of Thyroid Gland: Age Standardised Incidence by Age Group in Males and Females (three year moving average)



- Significant increases are observed for thyroid gland carcinoma in every age group in both sexes.

2.4 Survival

2.4.1 Overall Survival

Table 109. Carcinoma of Endocrine Organs - Overall Survival

	N	Observed Survival					Relative Survival				
	at risk	1 year	3 year	5 year	10 year	5 year CI	1 year	3 year	5 year	10 year	5 year CI
CARCINOMA OF ENDOCRINE ORGANS	2,684	90.0	86.0	82.0	73.8	[80.3 ; 83.5]	90.9	88.5	86.0	82.3	[84.3 ; 87.6]
Carcinomas of pituitary gland	23	*	*	*	*	*	*	*	*	*	*
Carcinomas of thyroid gland	2,388	91.1	87.8	84.7	76.5	[83.1 ; 86.2]	92.0	90.2	88.7	84.9	[87.0 ; 90.2]
Carcinomas of parathyroid gland	18	*	*	*	*	*	*	*	*	*	*
Carcinoma of adrenal gland	103	68.0	50.8	39.5	34.9	[29.3 ; 49.6]	68.8	52.7	42.0	40.4	[31.1 ; 52.7]

- Thyroid gland cancer has a good prognosis, with a 5-year relative survival of more than 85%.
- Inversely, prognosis is worse for adrenal gland carcinoma, for which the 5-year relative survival is 42%.

2.4.2 Survival by Sex

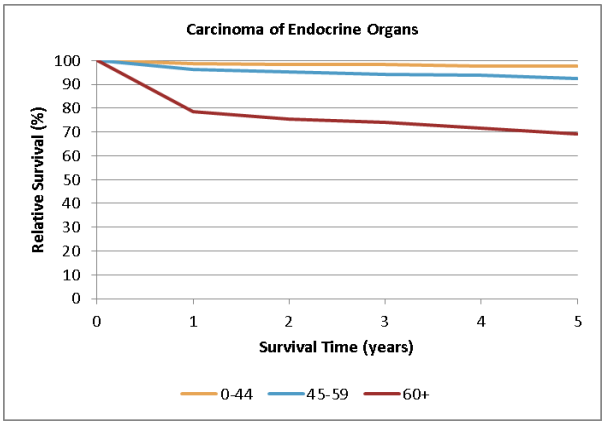
Table 110. Carcinoma of Endocrine Organs - Survival by Sex

Males	N at risk	Observed Survival 1 year	3 year	5 year	5 year CI	Relative Survival 1 year	3 year	5 year	5 year CI
CARCINOMA OF ENDOCRINE ORGANS	723	85.5	79.5	74.8	[71.2 ; 77.9]	86.7	83.0	80.3	[76.5 ; 83.7]
Carcinomas of pituitary gland	11	*	*	*	*	*	*	*	*
Carcinomas of thyroid gland	584	87.0	82.1	78.9	[75.2 ; 82.1]	88.2	85.5	84.6	[80.6 ; 88.0]
Carcinomas of parathyroid gland	14	*	*	*	*	*	*	*	*
Carcinoma of adrenal gland	51	62.8	48.0	37.0	[23.0 ; 51.1]	63.9	50.6	39.8	[24.7 ; 55.0]
Females	**N at risk**	**Observed Survival 1 year**	**3 year**	**5 year**	**5 year CI**	**Relative Survival 1 year**	**3 year**	**5 year**	**5 year CI**
CARCINOMA OF ENDOCRINE ORGANS	1,961	91.6	88.4	84.7	[82.8 ; 86.3]	92.4	90.5	88.2	[86.3 ; 89.9]
Carcinomas of pituitary gland	12	*	*	*	*	*	*	*	*
Carcinomas of thyroid gland	1,804	92.5	89.6	86.6	[84.8 ; 88.2]	93.2	91.7	90.0	[88.2 ; 91.7]
Carcinomas of parathyroid gland	4	*	*	*	*	*	*	*	*
Carcinoma of adrenal gland	52	73.1	53.5	42.2	[27.5 ; 56.2]	73.7	54.7	44.1	[28.7 ; 58.6]

- Prognosis for carcinoma of endocrine organs is much better in females than in males, with a pronounced difference in the survival rates.

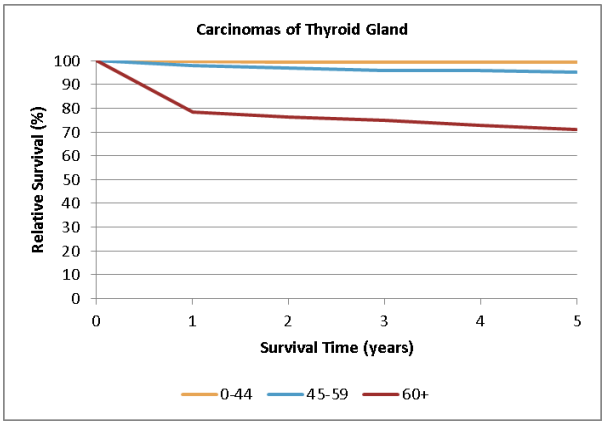
2.4.3 Survival by Age Group

Figure 188. Carcinoma of Endocrine Organs - Relative Survival by Age Groups



- Prognosis is inversely related with age. Survival of the age groups 0-44 years and 45-60 years is almost comparable.
- The patients of 60 years and older have a much worse prognosis.

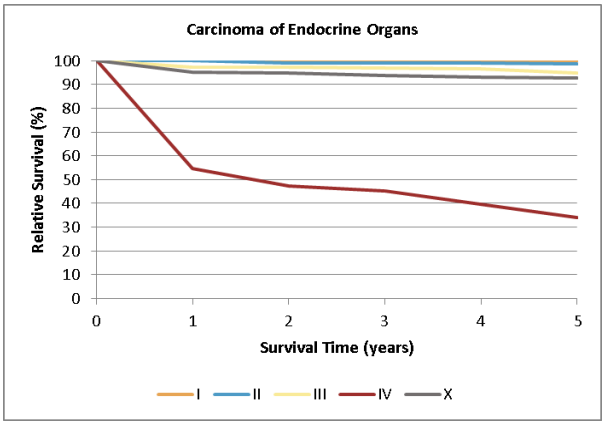
Figure 189. Carcinomas of Thyroid Gland - Relative Survival by Age Groups



- Because a great majority of all patients with a carcinoma of endocrine organs are diagnosed with a thyroid gland carcinoma, survival by age group is very similar to the rates for all carcinoma of endocrine organs together.

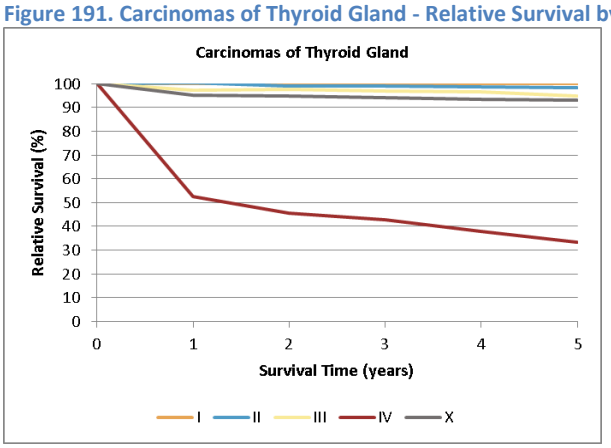
2.4.4 Survival by Stage

Figure 190. Carcinoma of Endocrine Organs - Relative Survival by Stage



- Prognosis is very good in early stage carcinomas of endocrine organs, with a 5-year relative survival of more than 90% for all the stage I, II, III and X tumours.
- Stage IV tumours have a much worse prognosis. Their 5-year relative survival is less than 35%.

Figure 191. Carcinomas of Thyroid Gland - Relative Survival by Stage



- Because a great majority of all patients with a carcinoma of endocrine organs are diagnosed with a thyroid gland carcinoma, survival by stage for this subtype is very similar to the rates for all carcinoma of endocrine organs together.

Belgian Cancer Registry

PART IV

CLINICAL CARE FOR SELECTED RARE CANCERS IN THE FLEMISH REGION, 2004-2007

CHAPTER 1. NASOPHARYNX

1. Introduction

1.1 General Information and Aetiology

The nasopharynx is the uppermost, nasal part of the pharynx. It extends from the base of the skull to the upper surface of the soft palate. It differs from the oral and laryngeal parts of the pharynx in that its cavity always remains patent (open). In front, it communicates through the conchae with the nasal cavities. On its lateral wall is the pharyngeal ostium of the Eustachian tube, behind the ostium is a deep recess, the fossa Rosenmüller. On the posterior wall is a prominence, best marked in childhood, produced by a mass of lymphoid tissue, known as the pharyngeal tonsil (Figure 192).

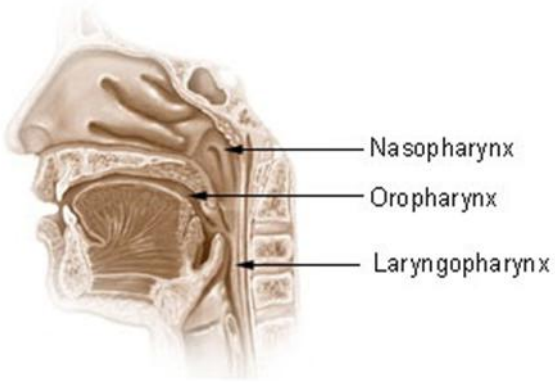


Figure 192. Location of the Nasopharynx

The Nasopharyngeal-Carcinoma (NPC) arises from the mucosal epithelium of the nasopharynx and is associated with an Epstein-Barr virus (EBV) infection [1]. EBV can infect epithelial cells and is associated with their transformation [1,2]. The EBV DNA levels in blood plasma also appear to correlate with treatment response and may predict disease recurrence [2]. The World Health Organization (WHO) classifies NPC in 3 different types: squamous cell carcinoma (I), keratinizing undifferentiated carcinoma (II) and non-keratinizing undifferentiated carcinoma (III) [3,4]. Type III is most common and strongly associated with EBV-infection of the cancerous cells. In adults, other likely aetiological factors include genetic susceptibility and food-consumption (particular salted fish), containing carcinogenic volatile nitrosamines [5].

Nasopharyngeal cancers are rare in most parts of the world including the Flemish Region but have a higher incidence in certain other populations such as Chinese [5,6]. In high-risk groups, the incidence of NPC peaks at 40-60 years. Males are more frequently affected by this cancer than females.

1.2 Diagnosis and Treatment

The first procedure in the diagnosis is the anamnesis, followed by a clinical examination. Afterwards directed technical examinations are performed. Those may include MRI, CT, PET and (nasal) Endoscopy. The diagnosis is confirmed histologically on a biopsy specimen which is mostly taken during endoscopy [7].

The treatment of choice is radiotherapy, eventually in combination with chemotherapy, depending on the stage of the disease. This primary treatment can be followed by adjuvant chemotherapy [7,8]. In the past, induction chemotherapy was sometimes administered although recent data did not show any benefit [9].In case of residual tumour in the neck after therapy, a neck dissection should be performed [8].

2. Data Selection

All nasopharyngeal cancers diagnosed between 2004 and 2007 for patients with an official residence in the Flemish Region are selected, resulting in 80 patients (for detailed information on the selected topography and morphology codes, see Appendix A). As described in Figure 193, 9 of them are excluded resulting in 71 patients for which results are presented in this chapter.

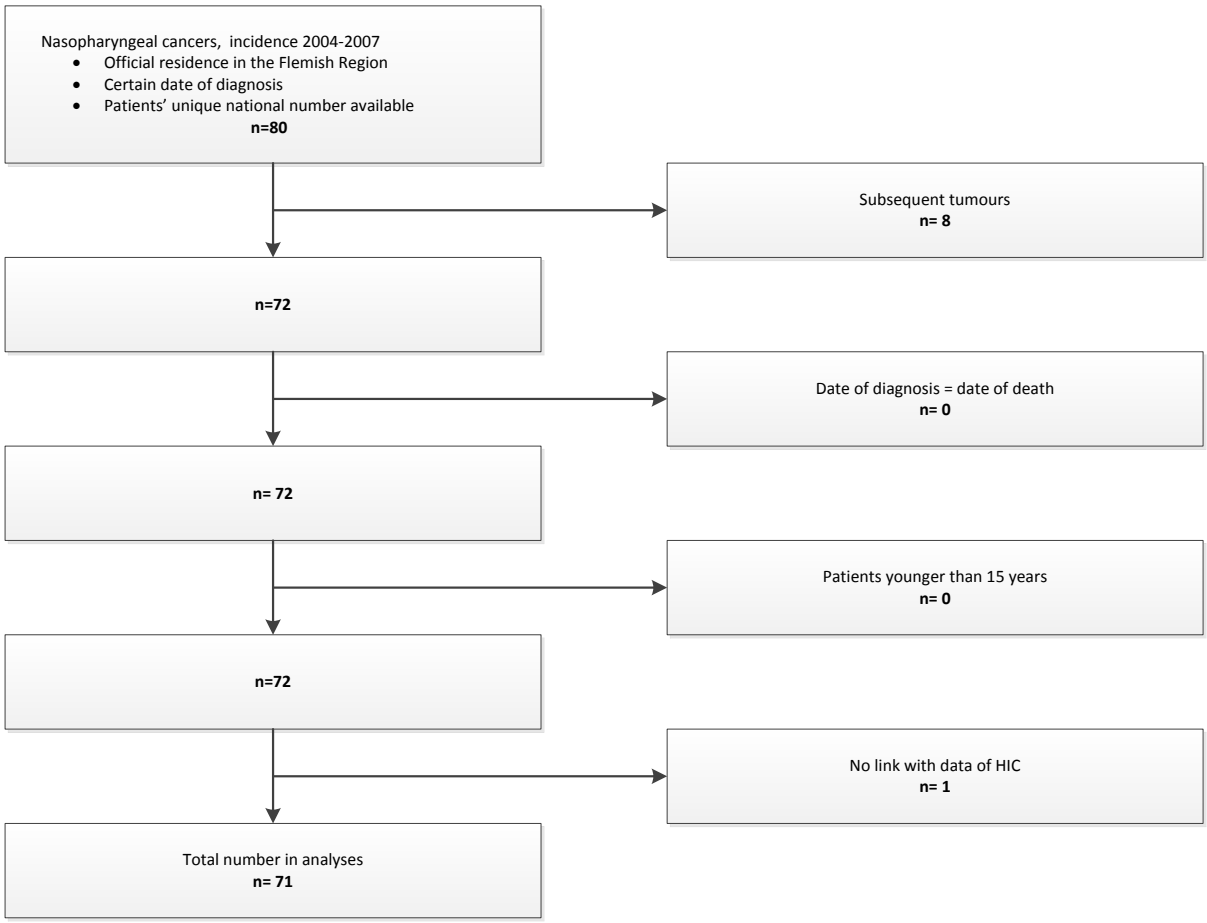


Figure 193. Selection of Nasopharyngeal Tumours (Flemish Region, 2004-2007)

3. Patient Characteristics

Nasopharyngeal cancer is very uncommon with only 71 patients diagnosed in the period 2004-2007 (Table 111), and females are less frequently affected than males (male/female ratio: 3.72). No clear trend in incidence rates is observed over the years.

The median age at diagnosis is 56 years for males and 57 years for females. The minimum age is 20 years while the maximum is 90. For further analyses, patients are divided into three age groups: 15-49 years, 50-64 years and 65+ years (Table 112).

Table 111. Nasopharyngeal Cancer: Incidence (Flemish Region, 2004-2007)

	Males		Females		Total	
Incidence Year	n	ESR	n	ESR	n	ESR
2004	14	0.45	2	0.07	16	0.25
2005	11	0.33	2	0.05	13	0.18
2006	15	0.45	4	0.11	19	0.27
2007	15	0.43	8	0.20	23	0.31
2004-2007	55	0.41	16	0.11	71	0.25

ESR: age-standardised rate, using the European Standard Population (n/100,000 person years)

Table 112. Nasopharyngeal Cancer: Age distribution (Flemish Region, 2004-2007)

	Males	Females	Total
15-49 years	20	5	25
50-64 years	17	4	21
65+ years	18	7	25

4. Tumour Characteristics

Localisation, morphology, differentiation grade and staging of the selected nasopharyngeal tumours are presented in Table 113. As these tumours are only rarely treated by surgery, only combined stage is reported. Almost all tumours (94.4%) have an unspecified localisation. The majority of the tumours are classified as squamous cell carcinoma although about one fourth (26.8%) of the tumours are classified as lymphoepithelial carcinoma. Differentiation grade is unknown in 15.5% of the patients. Well differentiated tumours are rather uncommon, all other differentiation grades are regularly observed varying in proportion between 16.9% and 33.8%.Tumours are more often diagnosed in a more advanced stage III or IV.

Table 113. Nasopharyngeal Cancer: Tumour Characteristics (Flemish Region, 2004-2007)

	N	% of total	% of known
Localisation			
Superior wall of nasopharynx (C11.0)	1	1.4	33.3
Posterior wall of nasopharynx (C11.1)	2	2.8	66.7
Overlapping lesion of nasopharynx (C11.8)	1	1.4	/
Nasopharynx, unspecified (C11.9)	67	94.4	/
Morphology			
Squamous cell carcinoma	49	69.0	72.1
Lymphoepithelial carcinoma	19	26.8	27.9
Other defined carcinoma	3	4.2	/
Differentiation grade			
Well differentiated	4	5.6	6.7
Moderately differentiated	12	16.9	20.0
Poorly differentiated	24	33.8	40.0
Undifferentiated	20	28.2	33.3
Unknown	11	15.5	/
Combined stage			
I	3	4.2	5.2
II	7	9.9	12.1
III	22	31.0	37.9
IV	26	36.6	44.8
Unknown	13	18.3	/

Stage IV tumours seem to occur more frequently in females, and in the middle age group (50-60 years) (Figure 194 and Figure 195). However, both results should be interpreted cautiously because of the low number of patients included in the analyses.

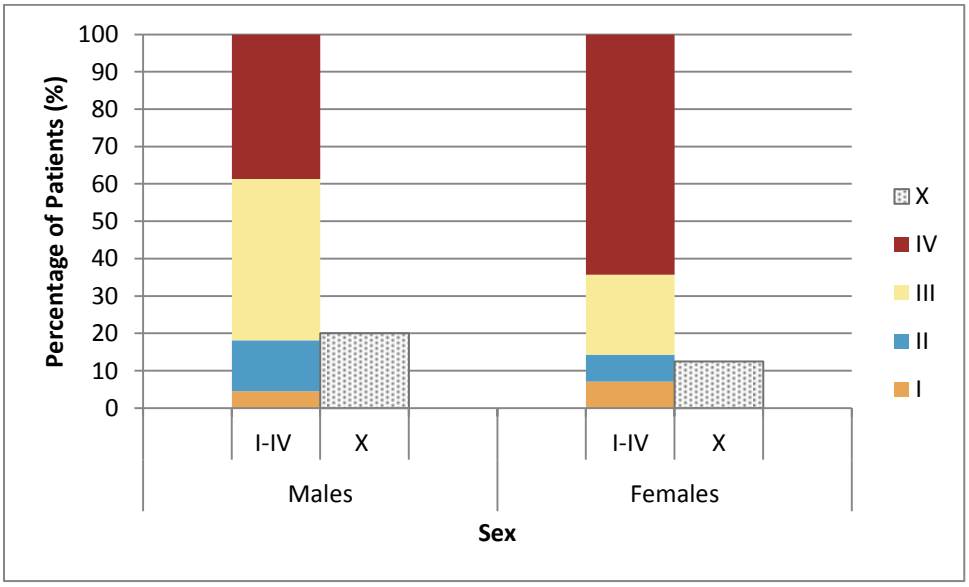


Figure 194. Nasopharyngeal cancer: Stage Distribution by Sex (Flemish Region, 2004-2007)

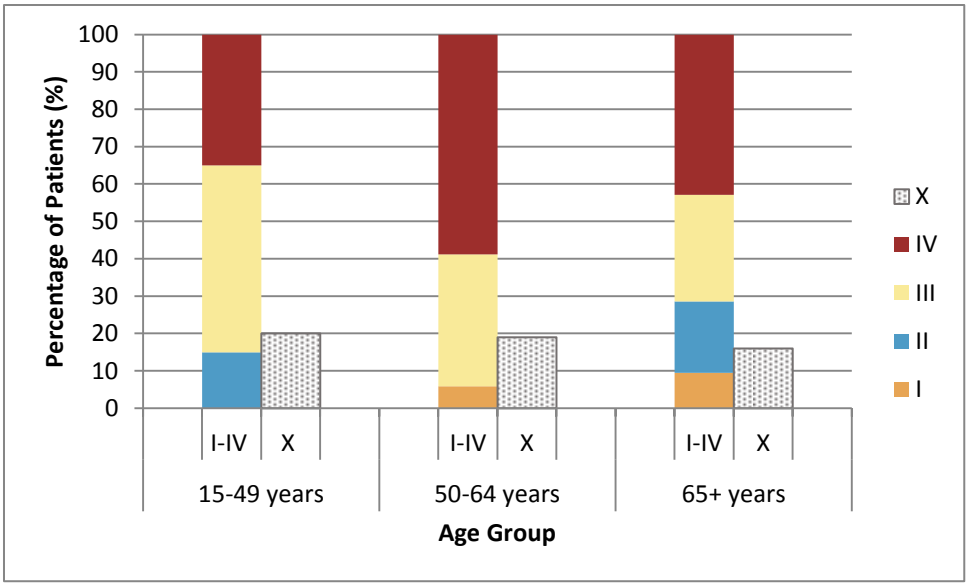


Figure 195. Nasopharyngeal Cancer: Stage Distribution by Age Group (Flemish Region, 2004-2007)

5. Diagnostic and Therapeutic Procedures

5.1 Diagnosis and Staging

An overview of the diagnostic and staging procedures for the nasopharyngeal cancers diagnosed in the Flemish Region between 2004 and 2007 is given in Table 114. Almost all cancers are confirmed by pathological examination (97.2%). A CT-scan is performed in all but 2 patients, MRI is done in 76% of the patients. An X-ray of the chest is charged to 80.3% of the patients. 59.2% of the patients have undergone PET-scanning.

Screening for second primary tumours in the respiratory or digestive tract is performed in 59.2% and 53.5% respectively. Biopsies of the lymph nodes seem to be uncommon.

Table 114. Nasopharyngeal Cancer: Overview of Diagnostic and Staging Procedures (Flemish Region, 2004-2007)

Diagnostic Procedure (-3m<inc<+3m)	Total (N=71)		2004 (N=16)		2005 (N=13)		2006 (N=19)		2007 (N=23)	
	n	%	n	%	n	%	n	%	n	%
Tissue Examination	**69**	**97.2**	**15**	**93.8**	**13**	**100.0**	**19**	**100.0**	**22**	**95.7**
Histological Diagnosis	68	95.8	15	93.8	12	92.3	19	100.0	22	95.7
Cytology	19	26.8	3	18.8	4	30.8	5	26.3	7	30.4
Imaging	**69**	**97.2**	**15**	**93.8**	**13**	**100.0**	**19**	**100.0**	**22**	**95.7**
Head X-ray	4	5.6	1	6.3	0	0.0	1	5.3	2	8.7
CT	69	97.2	15	93.8	13	100.0	19	100.0	22	95.7
MRI	54	76.1	12	75	9	69.2	15	78.9	18	78.3
Ultrasound Neck	21	29.6	4	25.0	3	23.1	7	36.8	7	30.4
PET Scan	42	59.2	6	37.5	6	46.2	17	89.5	13	56.5
Chest X-ray	57	80.3	14	87.5	10	76.9	15	78.9	18	78.3
Ultrasound Abdomen	29	40.8	9	56.3	4	30.8	6	31.6	10	43.5
Screening for Second Primary Malignancies	**54**	**76.1**	**13**	**81.3**	**11**	**84.6**	**15**	**78.9**	**15**	**65.2**
Respiratory Tract	42	59.2	9	56.3	7	53.8	13	68.4	13	56.5
Digestive Tract	38	53.5	10	62.5	10	76.9	7	36.8	11	47.8
Other Procedures										
Lymph Node Biopsy	11	15.5	4	25.0	2	15.4	2	10.5	3	13.0

5.2 Multidisciplinary Oncological Consult

About 66% of all nasopharyngeal cancer patients have been discussed at a multidisciplinary oncological consult (MOC) within one month before till three months after incidence date. The proportion of patients discussed at a MOC increases over the years from 56.3% to 73.9% (Table 115).

Table 115. Nasopharyngeal Cancer: Frequency of Multidisciplinary Oncological Consult (Flemish Region, 2004-2007)

	MOC	
Incidence Year	n	%
2004 (n=16)	9	56.3
2005 (n=13)	7	53.8
2006 (n=19)	14	73.7
2007 (n=23)	17	73.9
Total (n=71)	47	66.2

5.3 Therapeutic Procedures

Most patients are primarily treated by radiotherapy (88.7%), which is most often preceded by chemotherapy (76.0%). Surgery for nasopharyngeal carcinoma is only charged in 4.2% of all patients. For an additional 4 patients, no primary treatment is registered (Table 116).

Table 116. Nasopharyngeal Cancer: Overview of Treatment Schemes (Flemish Region, 2004-2007)

Treatment Scheme	n	%
Radiotherapy	**63**	**88.7**
Alone	9	12.7
Chemo < RT	39	54.9
Chemo < RT < Chemo	15	21.1
Chemotherapy only	**1**	**1.4**
Surgery < Chemo/RT	**3**	**4.2**
No primary treatment registered	**4**	**5.6**

6. Survival

6.1 Observed and Relative Survival

Survival results for patients with a nasopharyngeal cancer are shown in Table 117. Additionally to the above described exclusion criteria for all analyses, one patient is excluded from the survival analysis because he/she is lost to follow-up at the incidence date. About half of the patients diagnosed with a nasopharyngeal tumour deceases during the first five years after diagnosis (5-year relative survival: 52.8%).

Table 117. Nasopharyngeal Cancer: Observed and Relative Survival (Flemish Region, 2004-2007)

	Observed Survival (%)					Relative Survival (%)				
N at risk	1 year	2 year	3 year	4 year	5 year	1 year	2 year	3 year	4 year	5 year
70	81.4	65.7	61.4	57.1	49.8	82.9	67.9	64.0	60.0	52.8

No further analyses have been performed because of the low number at risk which makes it impossible to have multiple subgroups with 35 or more patients.

7. Analyses by Volume

During the period 2004-2007, Belgian patients with nasopharyngeal cancer are treated in 15 different Flemish hospitals. The mean number of patients (during the period 2004-2007) by hospital is 4.9 and the median is 3, with a range between 1 and 14. The distribution of the number of patients (=volume) per hospital is displayed in Figure 196.

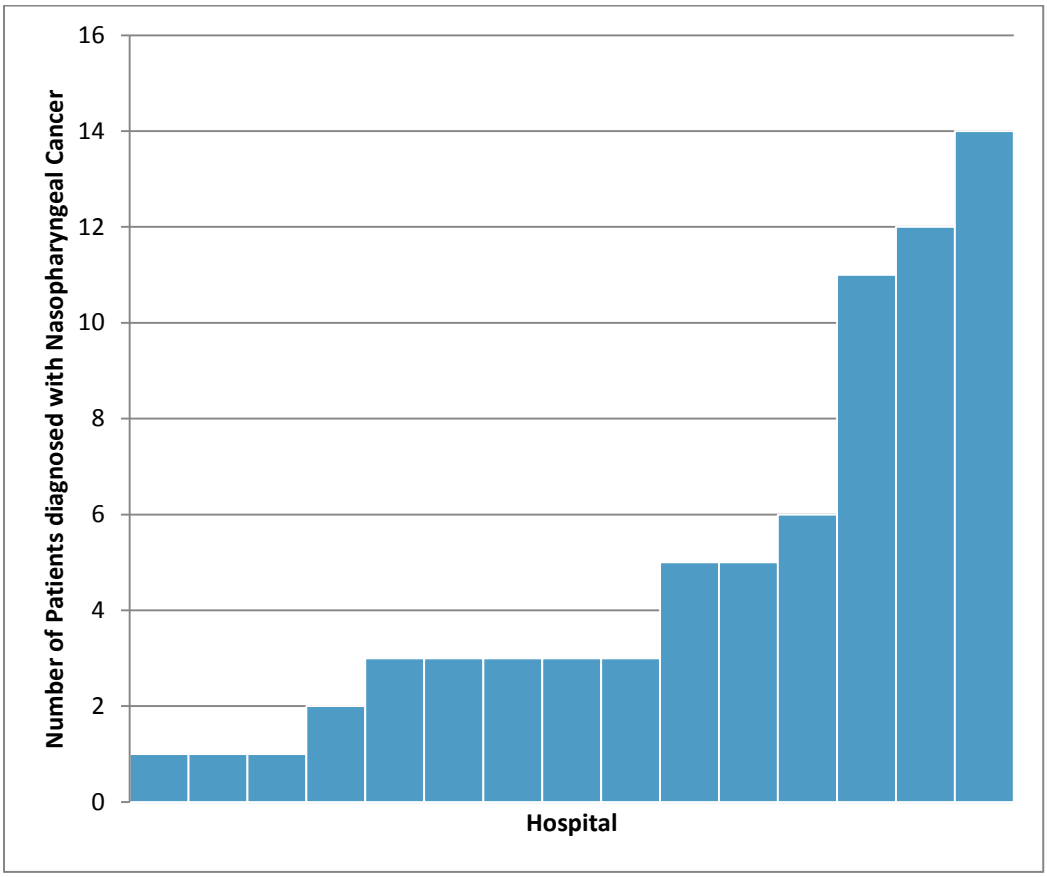


Figure 196. Distribution of Patients with Nasopharyngeal Cancer by Hospital (Flemish Hospitals, 2004-2007)

The low number of patients with nasopharyngeal cancer prevents further analyses based on volume of the hospital.

8. References

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CHAPTER 2. SALIVARY GLANDS

1. Introduction

1.1 General Information and Aetiology

The salivary glands are exocrine glands that produce saliva. Besides the hundreds of minor salivary glands located throughout the palate, nasal, laryngeal and the oral cavity, there are three pairs of major salivary glands. The largest of these three are the parotid glands, which are located in front and just beneath the ears. The second are the sublingual glands which can be found under the tongue in the floor of the mouth. The third pair of salivary glands are the submandibular glands which are situated beneath the lower jaw (Figure 197). In this chapter, we will only describe the malignancies of the major salivary glands.

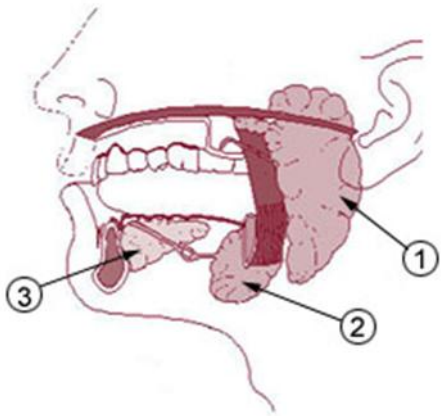

Figure 197. Anatomy of the Salivary Glands: the Parotid Gland (1), the Submandibular Gland (2) and the Sublingual Gland (3)

Tumours of the salivary glands are rather uncommon representing in the United States 0.5% of all malignancies and less than 5% of all head and neck cancers [1].

They originate most frequently from the parotid gland. Aetiology of these cancers is not completely established but has been associated with viral infections, exposure to ionising radiation and occupational exposure to carcinogens. A relationship with smoking and estrogen/progesterone hormones has inconsistently been reported [2].

The malignancies of the salivary glands comprise of a morphologically diverse group of tumours , which have been divided by the World Health Organization into 24 different subtypes with different clinical courses and prognoses [2]. Sex-dependent differences in incidence of these subtypes are noted. Squamous cell carcinoma, adenocarcinoma-NOS and salivary duct carcinoma occur more often in males than females, while the opposite is true for acinic cell and adenoid cystic carcinoma [3]. Most of these subtypes have their highest incidence in the sixth and seventh decades. Among all patients, pleiomorphic adenoma occur most frequently.

1.2 Diagnosis and Treatment

The first step in the diagnosis is the anamnesis, followed by a clinical examination. Depending on the findings, technical examinations such as MRI, CT and ultrasound are performed with a preference for MRI scanning. When a suspicious lesion is diagnosed, histological confirmation is obliged and a biopsy is necessary. Different types of biopsies may be done, depending on the localization and the size of the lesion. Histological confirmation can be a difficult assignment given the morphological heterogeneities in this group of cancers. False negative diagnoses due to sampling errors can occur [1].

The basic treatment for salivary gland tumours is complete surgical excision, with or without postoperative irradiation. The choice for irradiation is dependent on the clinical stage and the histological grade of the tumour. It is indicated for stage II to IV high grade tumours and for stage III and IV low grade tumours. Additionally, it is also always advised when surgery was micro- or macroscopically incomplete, when there is neural or perineural invasion, when there are lymph node metastases or for adenoid cystic carcinoma. Chemotherapy is sometimes associated to the adjuvant radiation therapy.

Radiotherapy alone or in combination with chemotherapy is the choice for inoperable tumours or for patients unfit for surgery. Palliative chemotherapy, eventually combined with palliative radiation therapy, is the only treatment option in metastatic setting. Neck dissection is recommended when positive lymph nodes are observed [4,5].

2. Data Selection

All salivary gland cancers diagnosed between 2004 and 2007 for patients with an official residence in the Flemish Region are selected, resulting in 266 cases (for detailed information on selected topography and morphology codes, see Appendix A). As described in Figure 198, 31 of them are excluded, resulting in 235 patients for which results are presented in this chapter.

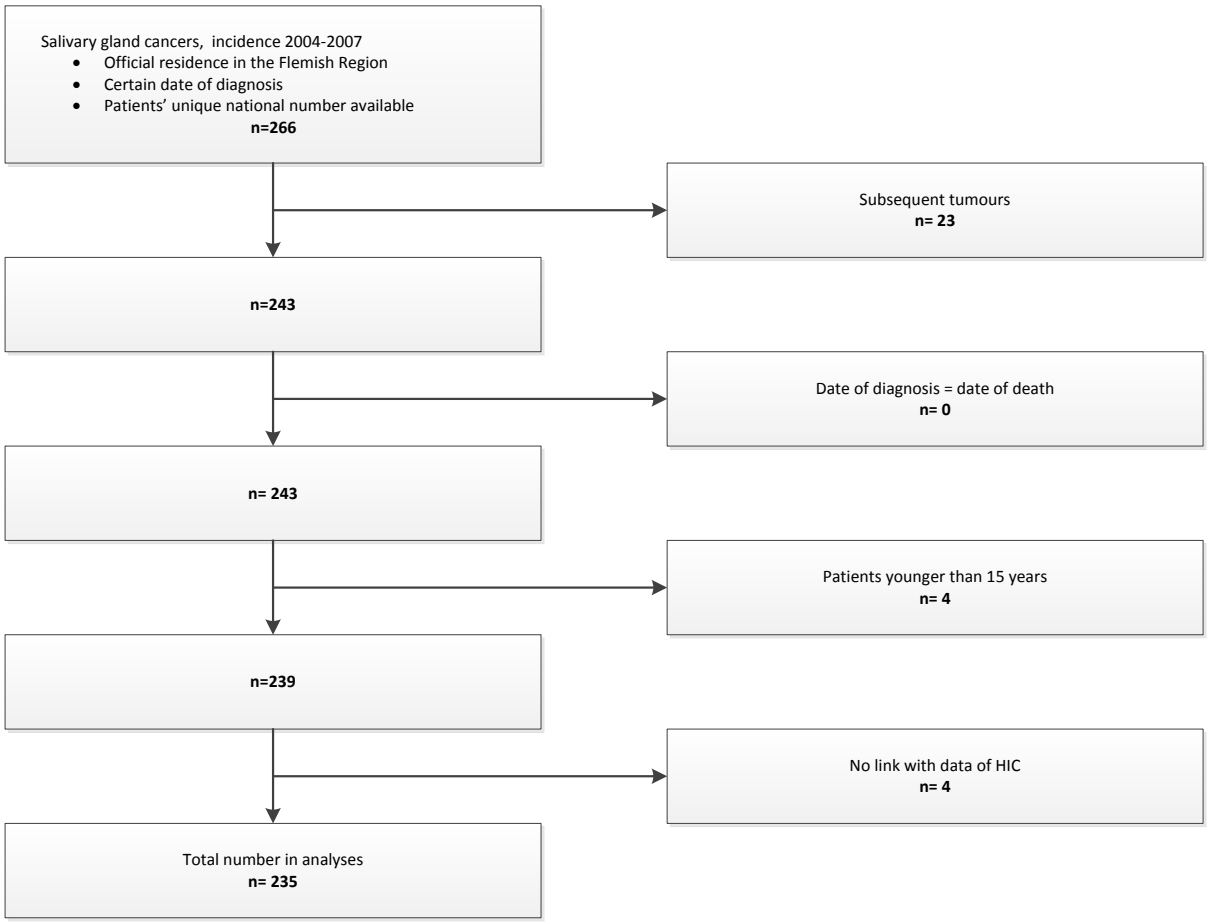

Figure 198. Selection of Salivary Gland Tumours (Flemish Region, 2004-2007)

3. Patient Characteristics

During the period 2004-2007, slightly more males (n=129) than females (n=106) are diagnosed with an epithelial tumour of the major salivary glands in the Flemish Region (male/female ratio: 1.29). No clear trend in age-standardised rates can be observed over these incidence years (Table 118).

The median age is 67 years for males and 61.5 years for females. Age at diagnosis ranges between 19 and 92 years. For further analyses, the patients are divided into three age groups: 15-59 years old, 60-74 years and 75+ years (Table 119).

Table 118. Cancer of Salivary Glands: Incidence (Flemish Region, 2004-2007)

	Males		Females		Total	
Incidence Year	n	ESR	n	ESR	n	ESR
2004	35	0.97	19	0.49	54	0.68
2005	31	0.85	37	0.98	68	0.89
2006	26	0.72	25	0.66	51	0.66
2007	37	1.00	25	0.59	62	0.77
Total	129	0.88	106	0.68	235	0.75

ESR: age-standardised rate, using the European Standard Population (n/100,000 person years)

Table 119. Cancer of Salivary Glands: Age Distribution (Flemish Region, 2004-2007)

	Males	Females	Total
15-59 years	39	47	86
60-74 years	49	35	84
75+ years	41	24	65

4. Tumour Characteristics

Sublocalisation, morphology, differentiation grade and stage (clinical, pathological and combined stage) of the selected salivary glands cancer are described in

. The majority of the tumours with a known localisation are located in the parotid glands. The second most frequent localisation are the submandibular glands, tumours of the sublingual glands are rare. The differentiation grade is unknown in almost half of the tumours (45.9%). Amongst tumours with a known differentiation grade, all possible grades occur although undifferentiated tumours are rare (only 7.0% of the tumours with a known grade).

Table 120. Cancer of Salivary Glands: Tumour Characteristics (Flemish Region, 2004-2007)

	N	% of total	% of known
Localisation			
Malignant neoplasm of parotid gland (C07.9)	164	69.8	84.9
Submandibular gland (C08.0)	24	10.2	12.4
Sublingual gland (C08.1)	5	2.1	2.6
Major salivary gland, unspecified (C08.9)	42	17.9	/
Morphology			
Mucoepidermoid carcinoma (high and low grade)	23	9.8	9.9
Low grade salivary gland	48	20.4	20.7
- Acinic cell carcinoma	*26*	*11.1*	*11.2*
- Other specified carcinoma - Low grade	*22*	*9.4*	*9.5*
High grade salivary gland	161	68.5	69.4
- Adenoid cystic carcinoma	*34*	*14.5*	*14.7*
- Carcinoma ex-pleomorphic adenoma	*17*	*7.2*	*7.3*
- Other specified carcinoma – High grade	*110*	*46.8*	*47.4*
Other	3	1.3	/
Differentiation grade			
Well differentiated	40	17.0	31.5
Moderately differentiated	29	12.3	22.8
Poorly differentiated	49	20.9	38.6
Undifferentiated	9	3.8	7.0
Unknown	108	45.9	/
Clinical stage			
I	25	10.6	23.8
II	21	8.9	20.0
III	18	7.7	17.1
IV	41	17.5	39.0
Unknown	130	55.3	/
Pathological stage			
I	20	8.5	18.5
II	23	9.8	21.3
III	21	8.9	19.4
IV	44	18.7	40.7
Unknown	127	54.0	/
Combined stage			
I	31	13.2	21.7
II	26	11.1	18.2
III	25	10.6	17.5
IV	61	26.0	42.7
Unknown	92	39.1	/

Males are more frequently diagnosed with stage III-IV tumours than females (stage III – IV in males: 71.4% of known stages, in females: 47.0%; Figure 199). Older patients (60-74 years and 75+ years) present more often with advanced stage disease than younger patients (Figure 200).

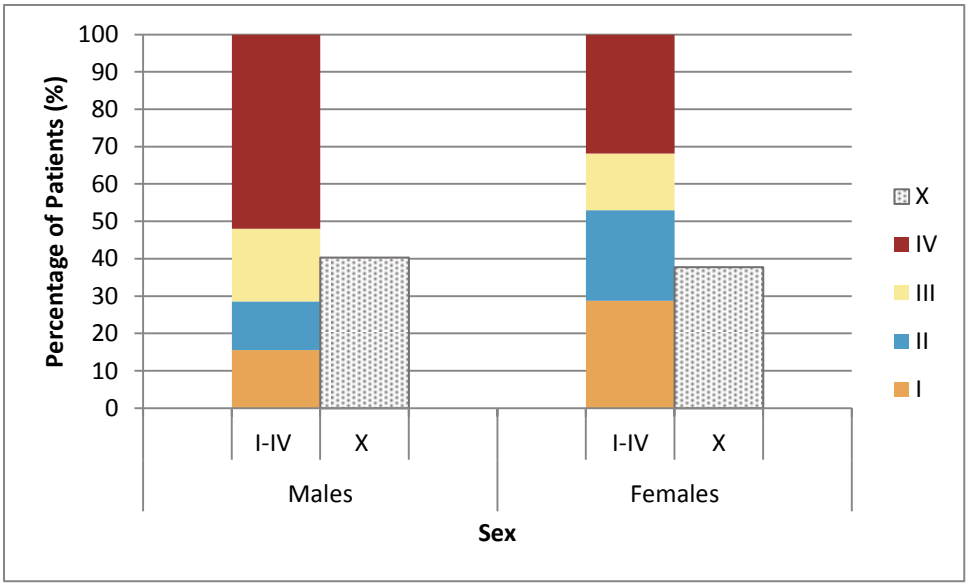

Figure 199. Cancer of Salivary Glands: Stage Distribution by Sex (Flemish Region, 2004-2007)

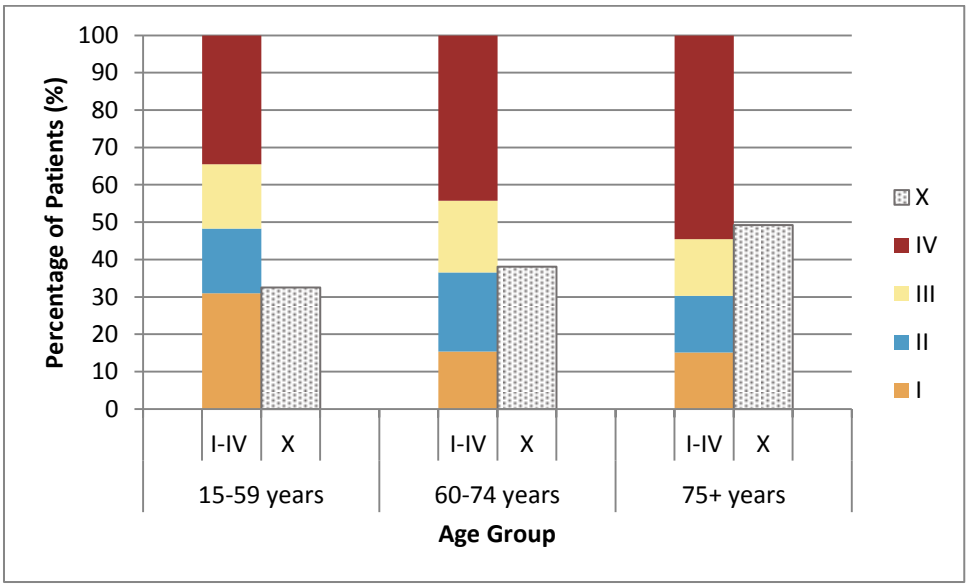

Figure 200. Cancer of Salivary Glands: Stage Distribution by Age Group (Flemish Region, 2004-2007)

5. Diagnostic and Therapeutic Procedures

5.1 Diagnosis and Staging

An overview of the diagnostic and staging procedures for the patients with cancer of salivary glands diagnosed in the Flemish Region between 2004 and 2007 is given in Table 121.

Almost all cancers are confirmed by pathological examination within three months around incidence date (97.9%). This pathological confirmation is most often based on histology (97.0%), only a small part of patients have undergone a cytology examination (30.6%). Two patients are found to be only

charged for cytology examination, without histological examination. The number of patients who are examined by imaging is high (96.6%). The most frequently used imaging technique is CT scanning (87.7% of all patients) followed by X-ray of the chest (68.9%). MRI is performed in 39.1% of the patients, a PET-scan in about one forth (27.2%).

Table 121. Cancer of Salivary Glands: Overview of Diagnostic and Staging Procedures (Flemish Region, 2004-2007)

Diagnostic Procedure (-3m<inc<+3m)	Total (N=235)		2004 (N=54)		2005 (N=68)		2006 (N=51)		2007 (N=62)	
	n	%	n	%	n	%	n	%	n	%
Tissue Examination	**230**	**97.9**	**51**	**94.4**	**66**	**97.1**	**51**	**100.0**	**62**	**100.0**
Histological Diagnosis	228	97.0	51	94.4	65	95.6	50	98.0	62	100.0
Cytology	72	30.6	20	37.0	19	27.9	16	31.4	17	27.4
Imaging	**227**	**96.6**	**51**	**94.4**	**67**	**98.5**	**49**	**96.1**	**60**	**96.8**
CT	206	87.7	45	83.3	59	86.8	44	86.3	58	93.5
MRI	92	39.1	18	33.3	28	41.2	21	41.2	25	40.3
Ultrasound Neck	89	37.9	21	38.9	27	39.7	19	37.3	22	35.5
PET Scan	64	27.2	13	24.1	15	22.1	16	31.4	20	32.3
Ultrasound Abdomen	67	28.5	17	31.5	21	30.9	18	35.3	11	17.7
Chest X-ray	162	68.9	42	77.8	44	64.7	35	68.6	41	66.1
Other Procedures										
Lymph Node Biopsy	24	10.2	4	7.4	5	7.4	11	21.6	4	6.5

5.2 Multidisciplinary Oncological Consult

More than half of the patients are discussed at a multidisciplinary oncological consult (MOC) within 1 month before till three months after incidence date (Table 122). The proportion of discussed patients greatly differs between the incidence years under consideration: from 44.4% (2004) to 80.4% (2006).

Table 122. Cancer of Salivary Glands: Frequency of Multidisciplinary Oncological Consult (Flemish Region, 2004-2007)

	MOC	
Incidence Year	n	%
2004 (n=54)	24	44.4
2005 (n=68)	34	50.0
2006 (n=51)	41	80.4
2007 (n=62)	41	66.1
Total (n=235)	140	59.6

5.3 Therapeutic Procedures

According to the nomenclature codes, three groups of surgery are taken into account in the analyses. The first group are codes used for surgeries of the salivary glands itself. The second group are surgeries that are invoiced with nomenclature codes for surgeries of the head or mouth region. When both types of surgery have taken place within the timeframe one month before until six months after diagnosis, the surgery closest to incidence is selected. If none of them has taken place, surgeries that are invoiced as lymphadenectomies are taken into account as a third group of surgeries. This is done because intermediate results showed that a considerable number of patients is charged for a lymphadenectomy without any other registered type of surgery and because lymphadenectomies without surgery of the tumour itself are regarded as rather unlikely.

Table 123 gives an overview of the selected surgeries. The majority of patients who has undergone surgery within the time period, was charged for a salivary gland surgery. Surgeries of the head and mouth are taken into account in 13.2% of the surgically treated patients while patients treated with a lymphadenectomy comprise 16.2% of the surgically treated patients.

Table 123. Cancer of Salivary Glands: Overview of the Selected Surgeries (Flemish Region, 2004-2007)

Type of Surgery	n	%
Salivary Gland Surgery	144	70.6
Head and Mouth Surgery	27	13.2
Lymphadenectomy	33	16.2

Treatment schemes for all patients are displayed in Table 124. More than 85% of the patients is primarily treated with surgery (204 patients). For 76 of these patients, surgery is the only treatment. A larger group (126 patients) receive adjuvant radiotherapy, mostly alone and only exceptionally in combination with chemotherapy. Adjuvant chemotherapy without radiation is given in a minority of cases.

A small part of the patients receive radiotherapy as the primary treatment (9.0%), sometimes combined with chemotherapy (2.6%) but most often alone (6.4%).

No registered primary treatment is found within the time frame for 9 patients (3.8%).

Table 124. Cancer of Salivary Glands: Overview of Treatment Schemes (Flemish Region, 2004-2007)

Treatment Scheme	n	%
Surgery	**204**	**86.8**
Adjuvant radiotherapy	115	48.9
Adjuvant chemoradiotherapy	11	4.7
Adjuvant chemotherapy	2	0.9
No other therapy	76	32.3
Radiotherapy only	**15**	**6.4**
Chemoradiotherapy	**6**	**2.6**
Chemotherapy only	**1**	**0.4**
No primary treatment registered	**9**	**3.8**

6. Survival

6.1 Observed and Relative Survival

Survival decreases from diagnosis to reach a 5-year observed survival of 55.7% and a 5-year relative survival of 64.1% (Table 125).

Table 125. Cancer of Salivary Glands: Observed and Relative Survival (Flemish Region, 2004-2007)

	Observed Survival (%)					Relative Survival (%)				
N at risk	1 year	2 year	3 year	4 year	5 year	1 year	2 year	3 year	4 year	5 year
235	82.6	72.3	66.4	59.1	55.7	85.3	76.7	72.2	66.2	64.1

6.2 Relative Survival by Sex

Survival is clearly better for females than for males (Table 126). This sex difference arises shortly after diagnosis and enlarges continuously thereafter.

Table 126. Cancer of Salivary Glands: Relative Survival by Sex (Flemish Region, 2004-2007)

	N at risk	%	Relative Survival (%)				
			1 year	2 year	3 year	4 year	5 year
Males	129	54.9	82.5	72.2	67.4	59.3	57.2
Females	106	45.1	88.5	81.9	78.0	74.0	72.0

6.3 Relative Survival by Age Group

Survival is best in the youngest age group (15-59 year), with a 5-year relative survival of 70.7%. In the older age groups the survival is less good, with a 5-year relative survival of 64.8% and 53.7% for the age groups 60-74 years and 75+ years, respectively (Table 127).

Table 127. Cancer of Salivary Glands: Relative Survival by Age Group (Flemish Region, 2004-2007)

	N at risk	%	Relative Survival (%)				
			1 year	2 year	3 year	4 year	5 year
15-59 years	86	36.6	92.1	85.4	80.9	74.1	70.7
60-74 years	84	35.7	92.0	79.9	75.0	68.7	64.8
75+ years	65	27.7	65.9	59.2	55.2	50.2	53.7

6.4 Relative Survival by Stage

Due to the low number of stage I (n=31), stage II (n=26) and stage III (n=25) cancers, they are grouped together in the analysis of survival by stage and indicated with stage I-III. Survival is highly dependent on the stage of the tumour. There is a pronounced difference between stage IV and the non-stage IV lesions, with a difference of relative survival at 5 years of almost 50% (Figure 201).

It should be noted that, in line with other head and neck cancers, some locally or regionally advanced diseases are also categorised as stage IV (stage IVA or IVB, more precisely). Salivary gland tumours with distant metastases are defined as Stage IVC. Most stage IV tumours in this study are stage IVA (n=46), only 4 tumours are staged as IVB and 11 as IVC.

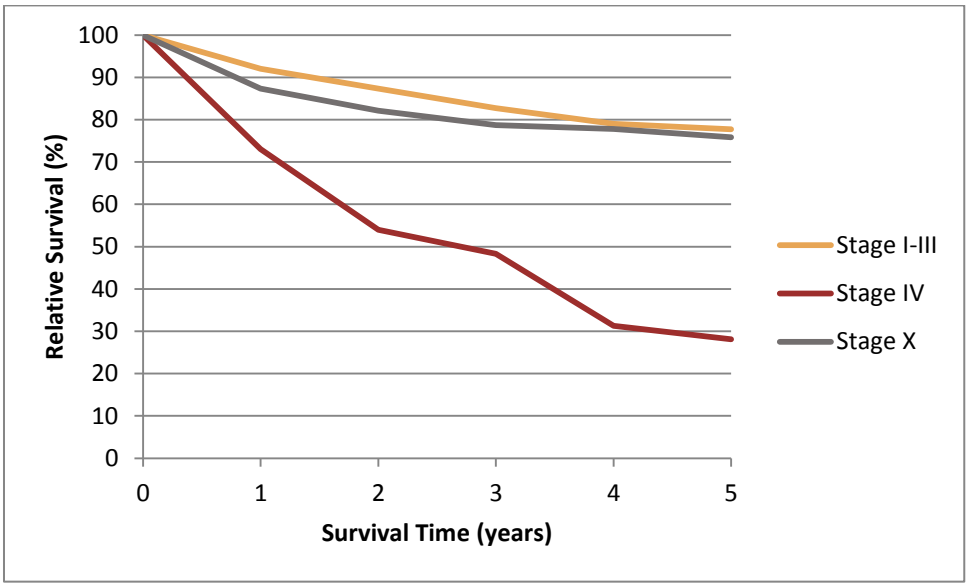

Figure 201. Cancer of Salivary Glands: Relative Survival by Stage (Flemish Region, 2004-2007)

6.5 Relative Survival by Morphology Groups (Low versus High Grade)

There is a significant difference between low and high grade salivary gland cancers. The 5-year relative survival for low grade cancers is about 85%, in high grade cancers this is about 55% (Figure 202).

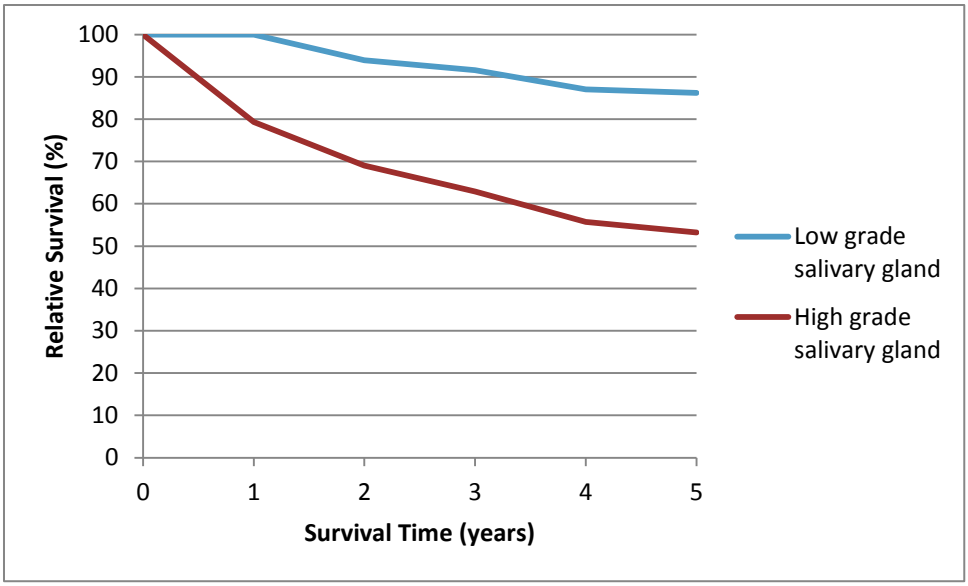

Figure 202. Cancer of Salivary Glands: Relative Survival by Morphology Groups (Flemish Region, 2004-2007)

6.6 Relative Survival by Treatment

Looking at the patients who are primarily treated by surgery (excluding stage IV disease), the addition of adjuvant radiotherapy seems to be associated with worse prognosis (Figure 203). This confirms the clinical practice of preserving adjuvant radiotherapy for cases with more aggressive cancers.

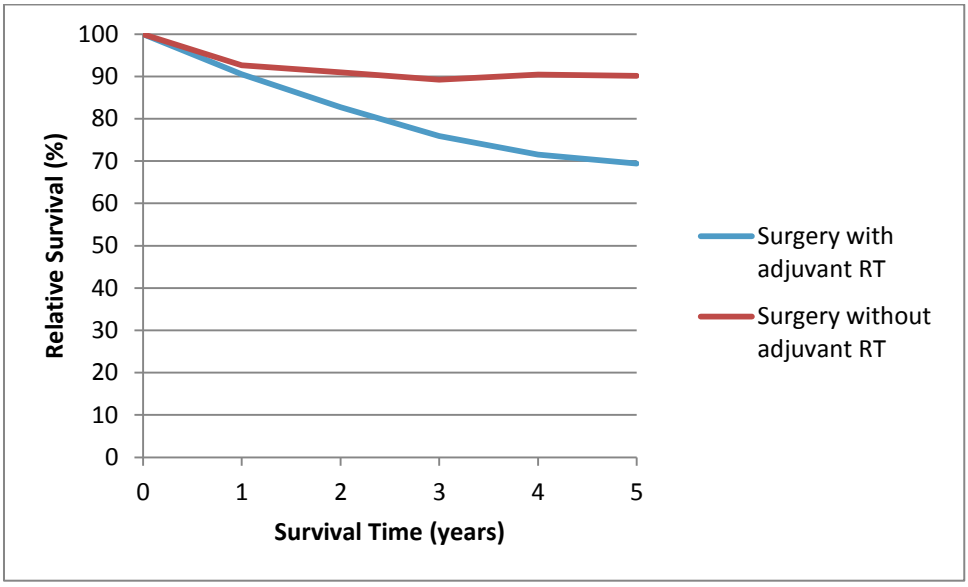

Figure 203. Cancer of Salivary Glands: Relative Survival by Treatment – Excluding Stage IV (Flemish Region, 2004-2007)

7. Analyses by Volume

During the period 2004-2007, Belgian patients with salivary glands cancer are managed in 46 different Flemish hospitals. The mean number of patients (during the period 2004-2007) by hospital is 5.1 and the median number of patients is 3, with a range between 1 and 33. The distribution of the number of patients (=volume) per hospital is displayed in Figure 204.

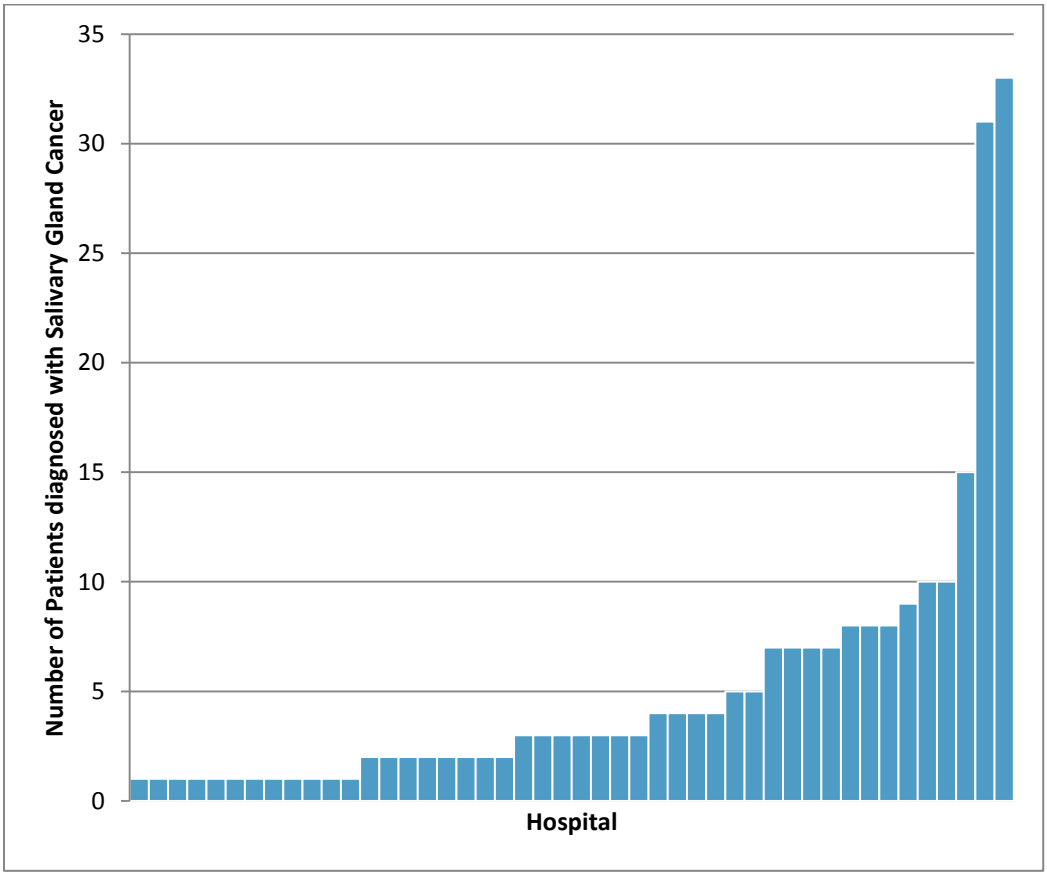

Figure 204. Cancer of Salivary Glands: Distribution of Patients by Hospital (Flemish Hospitals, 2004-2007)

228 Flemish patients (97.0%) can be assigned to a hospital (see Methodology for the rules applied to assign a patient to one hospital). Because of the low number of patients diagnosed with a tumour of the salivary glands who are treated in a large number of different hospitals, the maximum number of patients per hospital is very small. Therefore, no further analyses on the volume of the hospital are performed.

8. References

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CHAPTER 3. HYPOPHARYNX

1. Introduction

1.1 General Information and Aetiology

The human pharynx is the part of the throat situated between the nasal cavity and the esophagus and can be divided into three parts: the nasopharynx at the top, the oropharynx in the middle and the hypopharynx at the bottom of the pharynx. The superior boundary of the hypopharynx is formed by the hyoid bone, while the inferior boundary is at the lower level of the cricoid cartilage. The hypopharynx itself can be divided into three sub-sites: the pyriform sinus, the postcricoid region and the posterior pharyngeal wall (Figure 205). The hypopharynx is richly supplied with lymphatics.

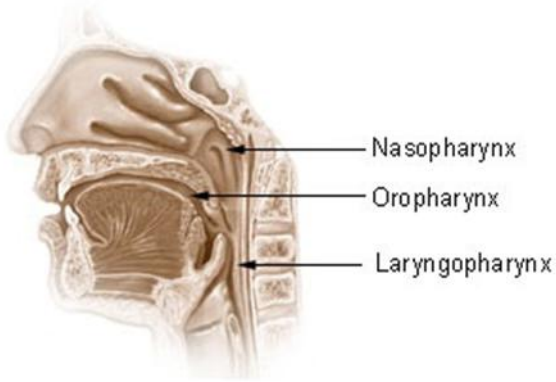

Figure 205. Hypopharynx (i.e. Laryngopharynx)

Hypopharyngeal cancer is most frequently diagnosed in men between 55 and 70 years old. However, women are becoming increasingly affected because of increased smoking behavior and are proportionally more represented in the age category above 75 years [1].

Next to alcohol and tobacco consumption, the development of hypopharyngeal cancer might be influenced by environmental exposure to certain substances (for example metals, wood fibre, coal mine dust, ceramic substances), exposure to radiotherapy of the head-and-neck region at young age, HPV-infection or Plummer-Vinson syndrome [1, 2].

Symptoms are rather vague and range from sore throat, hoarseness and referred headache to lymph node swelling in the neck, dysphagia and stridor. Therefore, hypopharyngeal cancer often presents at advanced stage at diagnosis.

1.2 Diagnosis and Treatment

A detailed history and physical examination needs to be performed in first instance, supplemented with a direct or indirect visualization of the tumour by endoscopy (laryngo-hypopharyngoscopy). In patients presenting with dysphagia, X-ray of the swallowing tract should routinely be performed. Imaging by CT and/or MRI is necessary for determining the tumor size and invasion depth. As for most head and neck cancer types, a careful search for second primary tumours of the upper aerodigestive tract is indicated [3]. Most of the hypopharyngeal cancers arise from the sinus pyriformis and 60-70% of the patients presents with a neck lymph node metastasis [2].

As for all cancers, histological confirmation of the disease is mandatory. In alignment with other head and neck regions, almost all hypopharyngeal cancers are squamous cell carcinoma (+/- 95%) [1].

Treatment of hypopharyngeal cancer is historically based on surgery followed by radiotherapy. This surgery is large and encompasses extirpation of pharynx +/- larynx accompanied by an “en bloc” removal of the neck lymph nodes. Plastic surgery is often needed to restore continuity of the digestive tract. As international randomized clinical trials on larynx preservation have shown no worse outcome for treatment by combinations of chemotherapy and radiotherapy (eventually followed by salvage surgery), this conservative approach is often preferred [3-5].

5-year relative survival rates for hypopharyngeal cancer are around 30% in Belgium, but can differ between sexes, age categories, stages and subsites [6].

2. Data Selection

All hypopharyngeal cancers diagnosed between 2004 and 2007 for patients with an official residence in the Flemish Region are selected, resulting in 451 cases (for detailed information on selected topography and morphology codes, see Appendix A). As described in Figure 206, 67 of them are excluded, resulting in 384 patients for whom results are presented in this chapter.

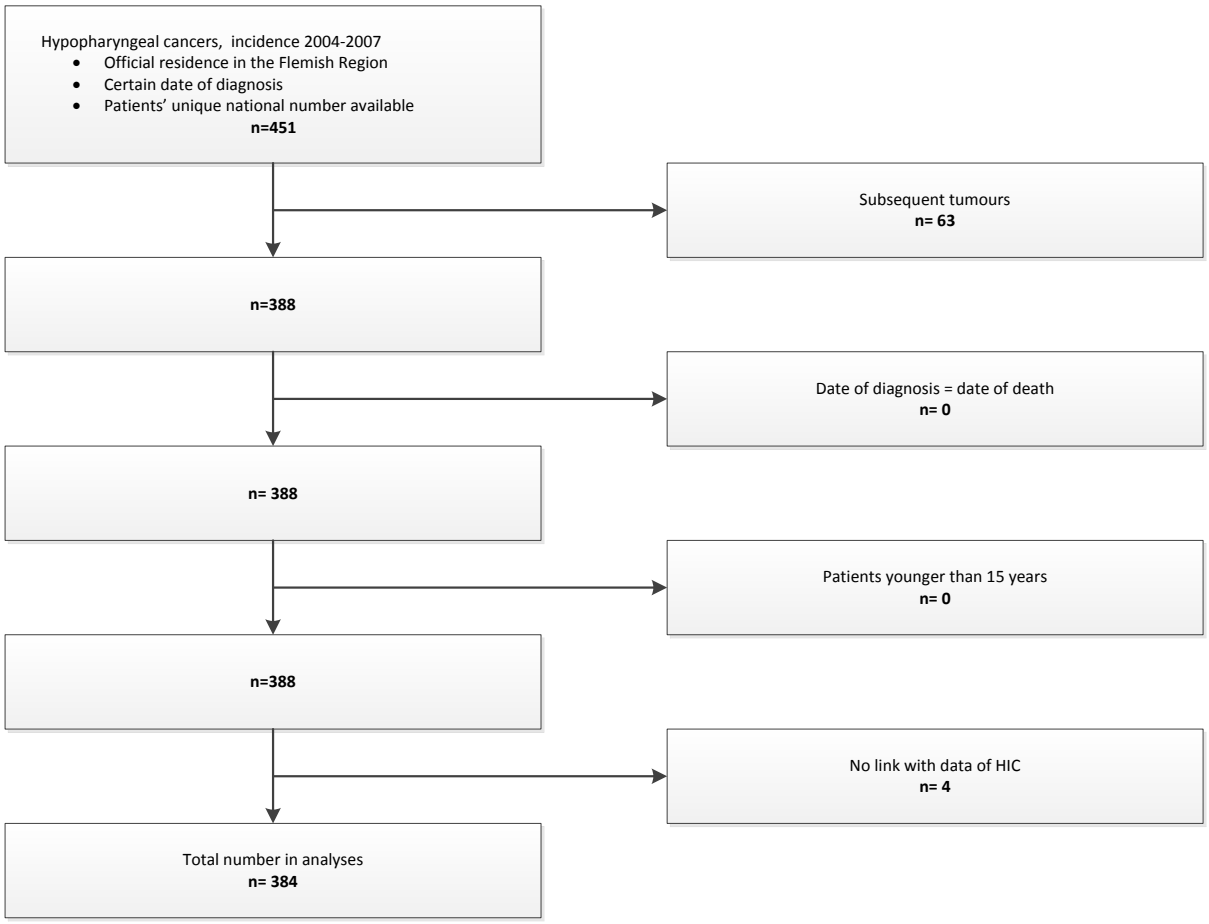

Figure 206. Selection of Hypopharyngeal Tumours (Flemish Region, 2004-2007)

3. Patient Characteristics

Males are much more often diagnosed with a hypopharyngeal tumour (male/female ratio: 7.88) during the incidence years 2004-2007. No clear trend in age-standardised rates can be observed over these incidence years (Table 128).

The median age is 58 years for males and 57.5 years for females. Age at diagnosis ranges between 38 and 90 years. For further analyses, patients are divided into three age groups: 15-59 years, 60-69 years and 70+ years (Table 129).

Table 128. Hypopharyngeal Cancer: Incidence (Flemish Region, 2004-2007)

	Males		Females		Total	
Incidence Year	n	ESR	n	ESR	n	ESR
2004	92	2.81	12	0.34	104	1.56
2005	71	2.10	11	0.30	82	1.19
2006	83	2.43	7	0.20	90	1.28
2007	92	2.74	16	0.44	108	1.58
2004-2007	338	2.52	46	0.32	384	1.40

ESR: age-standardised rate, using the European Standard Population (n/100,000 person years)

Table 129. Hypopharyngeal Cancer: Age Distribution (Flemish Region, 2004-2007)

	Males	Females	Total
15-59 years	193	24	217
60-69 years	95	11	106
70+ years	50	11	61

4. Tumour Characteristics

Sublocalisation, morphology, differentiation grade and stage (clinical, pathological and combined stage) are described in Table 130. Almost all hypopharyngeal tumours with a defined localisation are located in the pyriform sinus, the other sublocalisations are rather rare. The majority of the tumours are moderately or poorly differentiated. Most patients are diagnosed with a stage IV tumour.

Table 130. Hypopharyngeal Cancer: Tumour Characteristics (Flemish Region, 2004-2007)

	N	% of total	% of known
Localisation			
Malignant neoplasm of pyriform sinus (C12.9)	239	62.2	89.8
Postcricoid region (C13.0)	4	1.0	1.5
Aryepiglottic fold, hypopharyngeal aspect (C13.1)	13	3.4	4.9
Posterior wall of hypopharynx (C13.2)	10	2.6	3.8
Overlapping lesion of hypopharynx (C13.8)	5	1.3	/
Hypopharynx, unspecified (C13.9)	113	29.4	/
Morphology			
Squamous cell carcinoma	379	98.7	/
Other specified carcinoma	5	1.3	/
Differentiation grade			
Well differentiated	28	7.3	8.4
Moderately differentiated	150	39.1	45.2
Poorly differentiated	145	37.8	43.7
Undifferentiated	9	2.3	2.7
Unknown	52	13.5	/
Clinical stage			
I	10	2.6	3.0
II	19	5.0	5.7
III	58	15.1	17.5
IV	245	63.8	73.8
Unknown	52	13.5	/
Pathological stage			
I	9	2.3	7.0
II	2	0.5	1.6
III	18	4.7	14.0
IV	100	26.0	77.5
Unknown	255	66.4	/
Combined stage			
I	14	3.6	4.0
II	17	4.4	4.8
III	58	15.1	16.4
IV	264	68.8	74.8
Unknown	31	8.1	/

Females are diagnosed with less severe stages than males, resulting in a higher proportion of stage I and II tumours (Figure 207). More males than females have tumours with an unknown stage. Patients in the oldest age group seem to have lower stages at diagnosis than the younger patients (Figure 208).

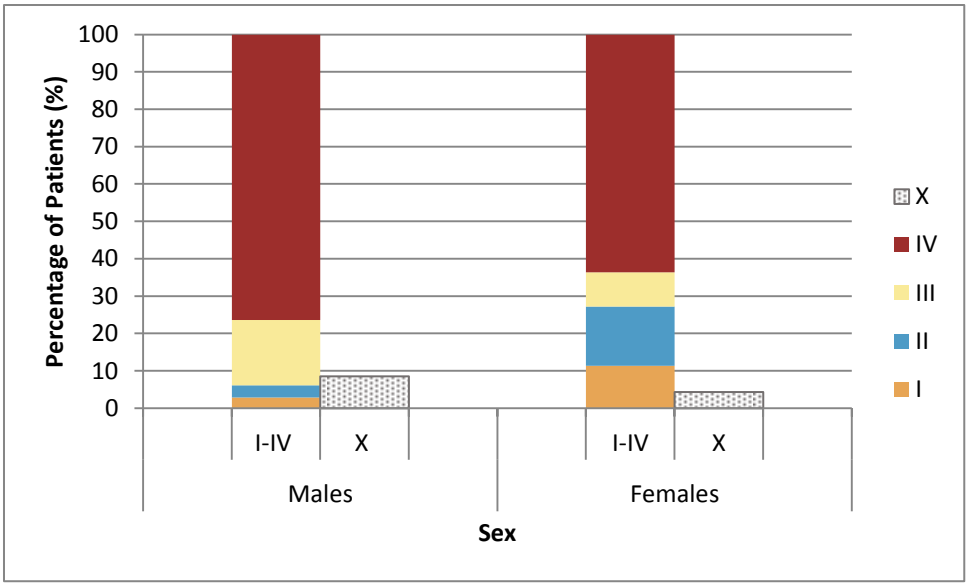

Figure 207. Hypopharyngeal Cancer: Stage Distribution by Sex (Flemish Region, 2004-2007)

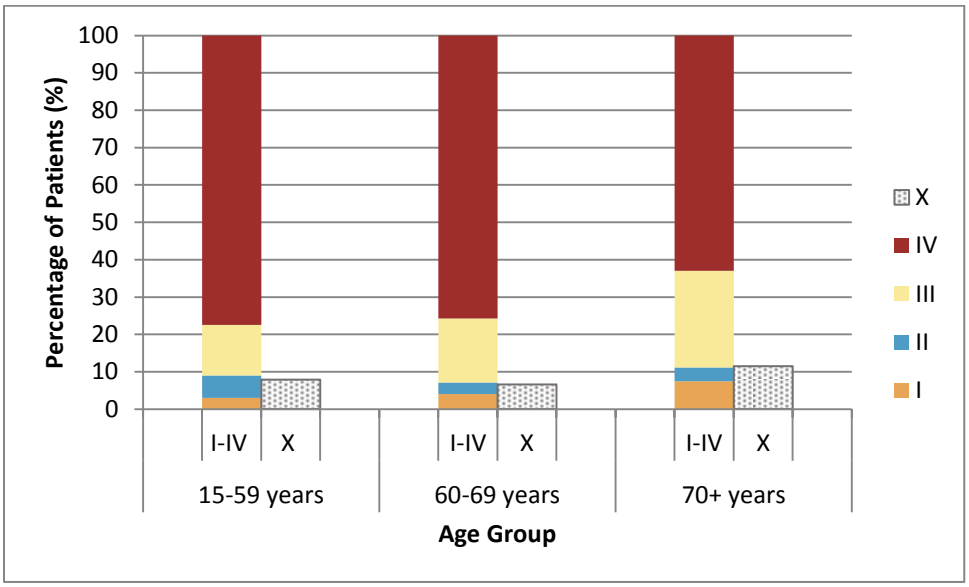

Figure 208. Hypopharyngeal Cancer: Stage Distribution by Age Group (Flemish Region, 2004-2007)

5. Diagnostic and Therapeutic Procedures

5.1 Diagnosis and Staging

An overview of the diagnostic and staging procedures for the hypopharyngeal cancer patients in the Flemish Region diagnosed between 2004 and 2007 is given in Table 131. Almost all cancers are confirmed by pathological examination (97.9%). For the majority of the patients, endoscopy is found to be charged (93.2%). While CT scanning is most often used in the staging procedure (97.7%), an X-ray of the chest is also frequently performed (88.0%). Other imaging techniques such as PET-scanning are somewhat less frequently used but nevertheless seem to have a role in the diagnosis of

hypopharyngeal cancer. Screening of the respiratory tract is not commonly used as a diagnostic technique (13.3%), although screening of the digestive tract is done for a large part of the patients (76.0%).

Table 131. Hypopharyngeal Cancer: Overview of Diagnostic and Staging Procedures (Flemish Region, 2004-2007)

Diagnostic Procedure (-3m<inc<+3m)	Total (N=384)		2004 (N=104)		2005 (N=82)		2006 (N=90)		2007 (N=108)	
	n	%	n	%	n	%	n	%	n	%
Tissue Examination	**378**	**98.4**	**103**	**99.0**	**80**	**97.6**	**88**	**97.8**	**107**	**99.1**
Histological Diagnosis	377	98.2	103	99.0	80	97.6	88	97.8	106	98.1
Cytology	80	20.8	17	16.3	20	24.4	20	22.2	23	21.3
Imaging	**378**	**98.4**	**103**	**99.0**	**80**	**97.6**	**88**	**97.8**	**107**	**99.1**
CT	375	97.7	101	97.1	79	96.3	88	97.8	107	99.1
MRI	133	34.6	38	36.5	25	30.5	24	26.7	46	42.6
Larynx/Pharynx X-ray	78	20.3	23	22.1	20	24.4	20	22.2	15	13.9
Ultrasound Neck	78	20.3	19	18.3	17	20.7	22	24.4	20	18.5
PET Scan	196	51.0	47	45.2	42	51.2	45	50.0	62	57.4
Chest X-ray	338	88.0	98	94.2	69	84.1	77	85.6	94	87.0
Ultrasound Abdomen	186	48.4	57	54.8	39	47.6	41	45.6	49	45.4
Screening for Second Primary Malignancies	**297**	**77.3**	**84**	**80.8**	**56**	**68.3**	**71**	**78.9**	**86**	**79.6**
Respiratory Tract	51	13.3	14	13.5	8	9.8	17	18.9	12	11.1
Digestive Tract	292	76.0	82	78.8	56	68.3	69	76.7	85	78.7
Other Procedures										
Lymph Node Biopsy	28	7.3	6	5.8	10	12.2	6	6.7	6	5.6

5.2 Multidisciplinary Oncological Consult

About 73% of all hypopharyngeal cancer patients are discussed at a multidisciplinary oncological consult (MOC) within 1 month before till three months after incidence date (Table 132). No clear trend can be observed over the incidence years.

Table 132. Hypopharyngeal Cancer: Frequency of Multidisciplinary Oncological Consult (Flemish Region, 2004-2007)

	MOC	
Incidence Year	n	%
2004 (n=104)	77	74.0
2005 (n=82)	58	70.7
2006 (n=90)	62	68.9
2007 (n=108)	85	78.7
Total (n=384)	282	73.4

5.3 Therapeutic Procedures

Two different surgery types are taken into account for the treatment analyses: surgery for larger hypopharyngeal tumours (i.e. major surgery) and lymphadenectomies. Major surgeries always receive priority when performed within the studied timeframe. In contrast to other head and neck tumours, minor surgeries are not incorporated in the analyses of surgery because they are mostly used for diagnostic rather than therapeutic purposes. Therefore, it is possible that the number of patients treated with primary surgery is somewhat underestimated.

Within the timeframe of one month before until six months after the incidence date, about one-third of the patients (125 patients) undergo surgery as primary treatment. 62 patients received a major surgery within six months after diagnosis (Table 133). 58 of these patients treated with major surgery also received a lymphadenectomy within the timeframe. Additionally, 63 patients only received a lymphadenectomy.

Table 133. Hypopharyngeal Cancer: Overview of the Selected of Surgeries (Flemish Region, 2004-2007)

Type of Surgery	n	%
Major Surgery	62	49.6
Lymphadenectomy	63	50.4

For 9 patients, the surgical procedure is carried out soon after radiotherapy and therefore considered as salvage surgery. For the remaining 116 operated patients, the surgical procedure is considered to be the cornerstone of the treatment. Most of these are postoperatively irradiated either with or without concomitant chemotherapy (94.0%) (Table 134).

However, the majority of the patients are primarily treated with radiotherapy (57.6%). Irradiation is in about one-third of the cases performed alone and in two-third of the cases in combination with chemotherapy.

Based on the health insurance data, no oncologic treatment (surgery, radiotherapy or chemotherapy) was found within the studied timeframe for 6.8% of the patients.

Table 134. Hypopharyngeal Cancer: Overview of Treatment Schemes (Flemish Region, 2004-2007)

Treatment Scheme	n	%
Surgery	**116**	**30.2**
Adjuvant radiotherapy	53	13.8
Adjuvant chemoradiotherapy	51	13.3
No other therapy	7	1.8
Other therapy		
Surgery < chemotherapy	3	0.8
Chemotherapy < surgery < radiotherapy	1	0.3
Chemotherapy < surgery < chemoradiotherapy	1	0.3
Radiotherapy only	**71**	**18.5**
Concomitant chemoradiotherapy	**159**	**41.4**
Chemotherapy only	**12**	**3.1**
No primary treatment registered	**26**	**6.8**

6. Survival

6.1 Observed and Relative Survival

Survival is poor for patients diagnosed with a hypopharyngeal tumour (Table 135). About one-third of the patients dies in the first year after diagnosis. After five years of follow-up, relative survival has further decreased to 29.6%.

Table 135. Hypopharyngeal Cancer: Observed and Relative Survival (Flemish Region, 2004-2007)

	Observed Survival (%)					Relative Survival (%)				
N at risk	1 year	2 year	3 year	4 year	5 year	1 year	2 year	3 year	4 year	5 year
384	67.4	49.2	38.3	32.3	27.3	68.5	50.7	40.1	34.4	29.6

6.2 Relative Survival by Sex

Survival is very similar between males and females, both having a five-year relative survival around 30% (Table 136).

Table 136. Hypopharyngeal Cancer: Relative Survival by Sex (Flemish Region, 2004-2007)

			Relative Survival (%)				
	N at risk	%	1 year	2 year	3 year	4 year	5 year
Males	338	88.0	68.8	50.6	40.3	34.1	29.3
Females	46	12.0	66.1	51.3	38.3	36.3	32.0

6.3 Relative Survival by Age Group

No clear trend can be observed between the age of the patient at diagnosis and the prognosis. A somewhat better prognosis is seen for the middle age group (Table 137).

Table 137. Hypopharyngeal Cancer: Relative Survival by Age Group (Flemish Region, 2004-2007)

	N at risk	%	Relative Survival (%)				
			1 year	2 year	3 year	4 year	5 year
15-59 years	217	56.5	69.5	47.5	37.5	33.0	27.5
60-69 years	106	27.6	67.9	55.2	44.2	37.9	34.4
70+ years	61	15.9	65.9	54.8	42.3	32.7	28.1

6.4 Relative Survival by Stage

Survival is not displayed for the lower stages because the number at risk is to low. Survival is much better for patients diagnosed with a stage III tumour (45.7%) than for patients diagnosed with a stage IV tumour (23.5%, all stage IV tumours together). It should however be noted that, in line with other head and neck cancers, some locally or regionally advanced diseases are also categorised as stage IV (stage IVA or IVB, more precisely). Shortly after diagnosis, survival of stage IVA is slightly better than survival of stage IVB, but this difference disappears later onwards (Figure 209). Hypopharyngeal tumours with distant metastases, categorised as Stage IVC, are rare in this study (only 31 patients in this selection of patients).

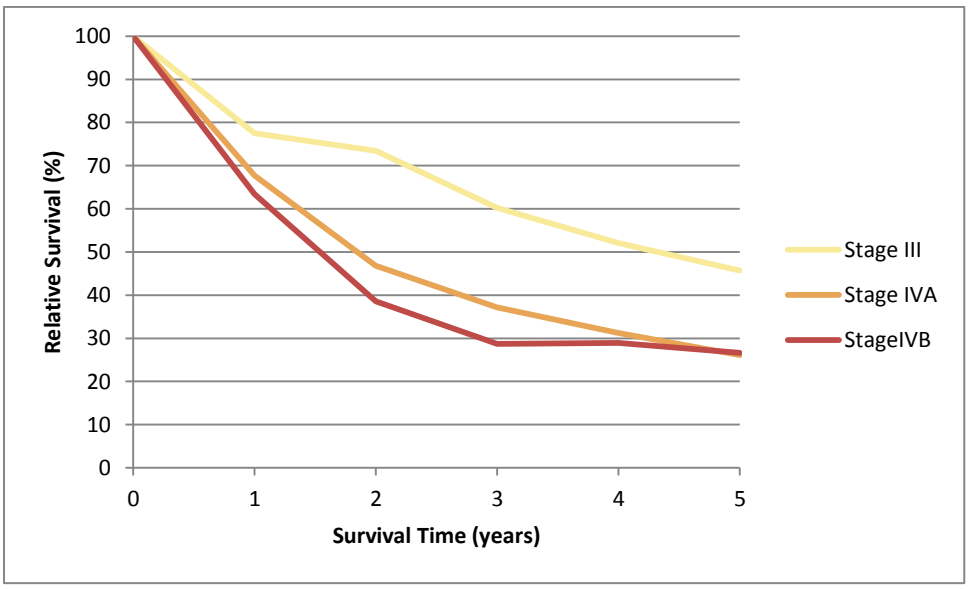

Figure 209. Hypopharyngeal Cancer: Relative Survival by Stage (Flemish Region, 2004-2007)

6.5 Relative Survival by Primary Treatment

Survival is similar for patients primarily treated with radiation or surgery (Figure 210). A small advantage for patients for which radiation is the cornerstone of the treatment is observed from two years after diagnosis till the end of the observation period.

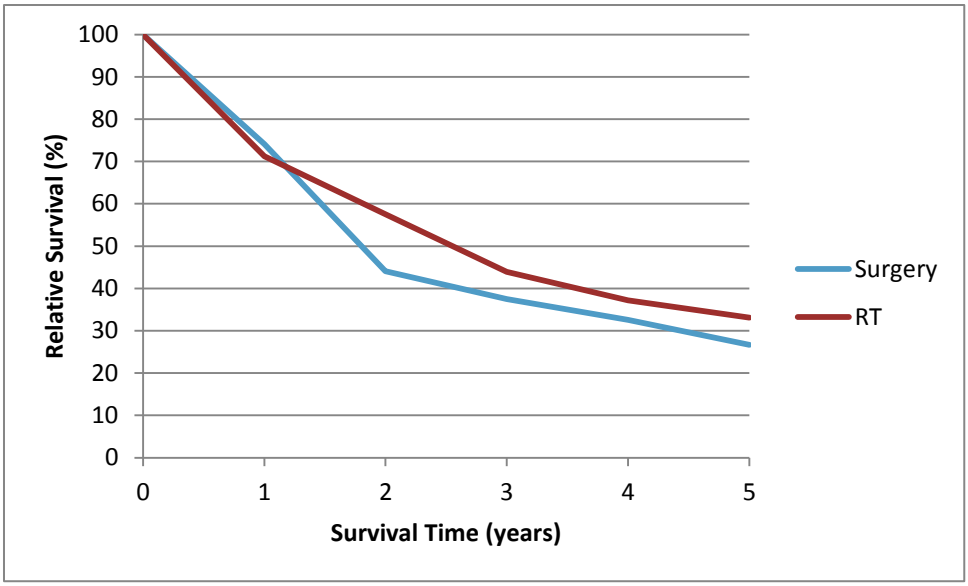

Figure 210. Hypopharyngeal Cancer: Relative Survival by Primary Treatment (Flemish Region, 2004-2007)

7. Analyses by Volume

During the period 2004-2007, Belgian patients with hypopharyngeal cancer are treated in 29 different Flemish hospitals. The mean number of patients (during the period 2004-2007) by hospital is 13.5 and the median number is 2, with a range between 1 and 56. The distribution of the number of patients (=volume) per hospital is displayed in Figure 211.

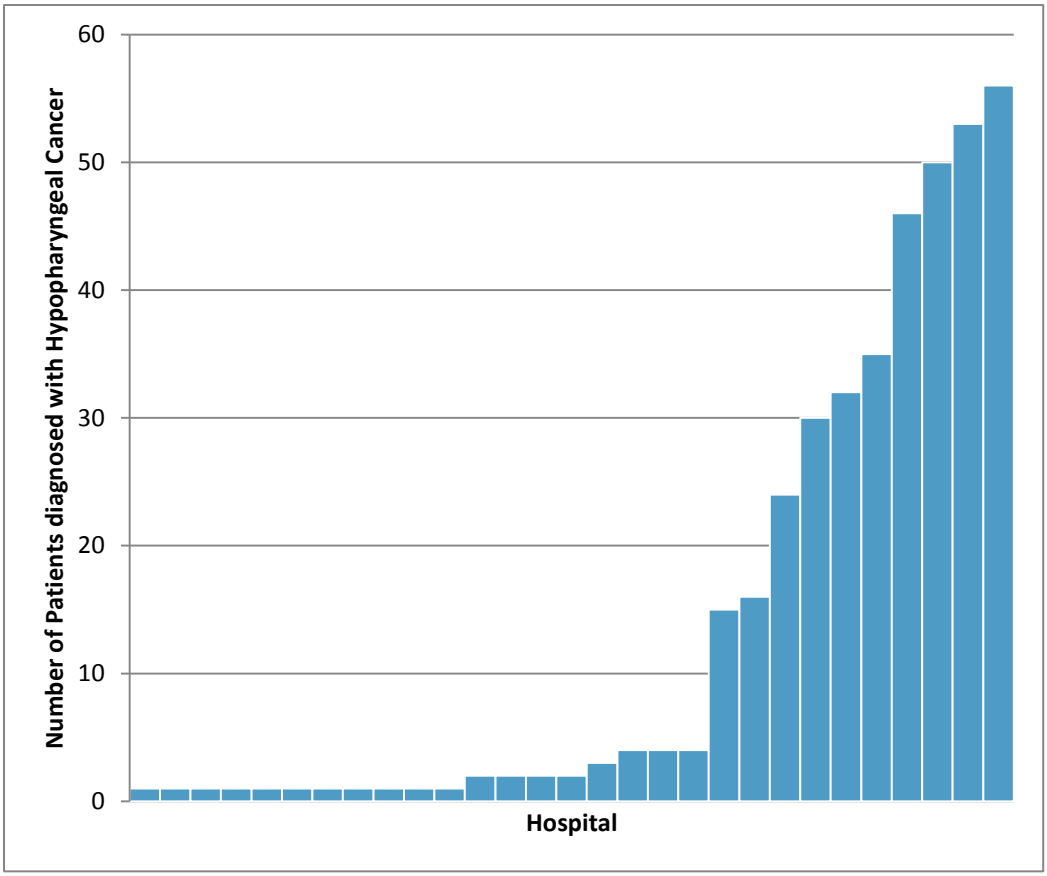

Figure 211. Hypopharyngeal Cancer: Distribution of Patients by Hospital (Flemish Hospitals, 2004-2007)

370 of the Flemish patients (96.4%) can be assigned to a hospital (see Methodology for the rules applied to assign a patient to one hospital). Considering hospitals having taken care of 40 or more patients diagnosed during the period 2004-2007 as high-volume hospitals, 189 patients are assigned to high-volume hospitals and 181 are assigned to low-volume hospitals.

Treatment schemes are similar for high-volume and low-volume hospitals (Figure 212). A frequently used treatment scheme is chemoradiotherapy (45.5% in high-volume hospitals and 40.3% in low-volume hospitals). The second most often used treatment is surgery (with or without (neo-) adjuvant treatment), with 32.8% of the patients in the high-volume hospitals and 29.8% in the low-volume hospitals. The third regularly used treatment is radiotherapy only (16.4% in high-volume hospitals and 21.5% in low-volume hospitals). Chemotherapy only and no oncological treatment are uncommon.

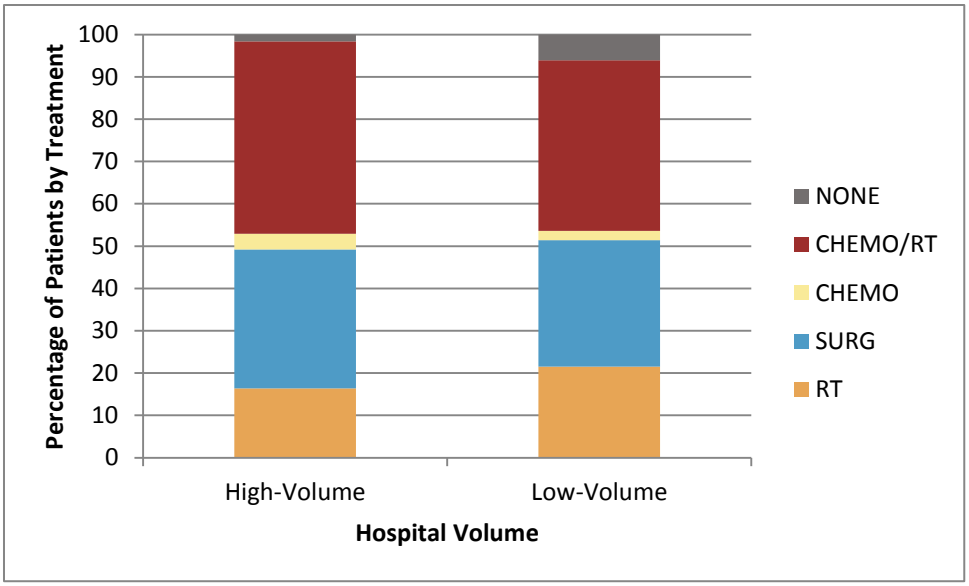

Figure 212. Hypopharyngeal Cancer: Primary Treatment by Hospital Volume (High-Volume versus Low-Volume Hospitals) (Flemish Region, 2004-2007)

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CHAPTER 4. LARYNX

1. Introduction

1.1 General Information and Aetiology

The larynx is found anterior in the neck, at the level of the C3-C6 vertebrae. It connects the inferior part of the pharynx (hypopharynx) with the trachea. The laryngeal skeleton consists of nine cartilages, three single (epiglottic, thyroid and cricoid) and three paired (arytenoid, corniculate and cuneiform) . The hyoid bone is not part of the larynx, though it is connected to it. The larynx extends from the tip of the epiglottis to the inferior border of the cricoid cartilage and it can be divided into three subregions: supraglottis, glottis and subglottis (Figure 213).

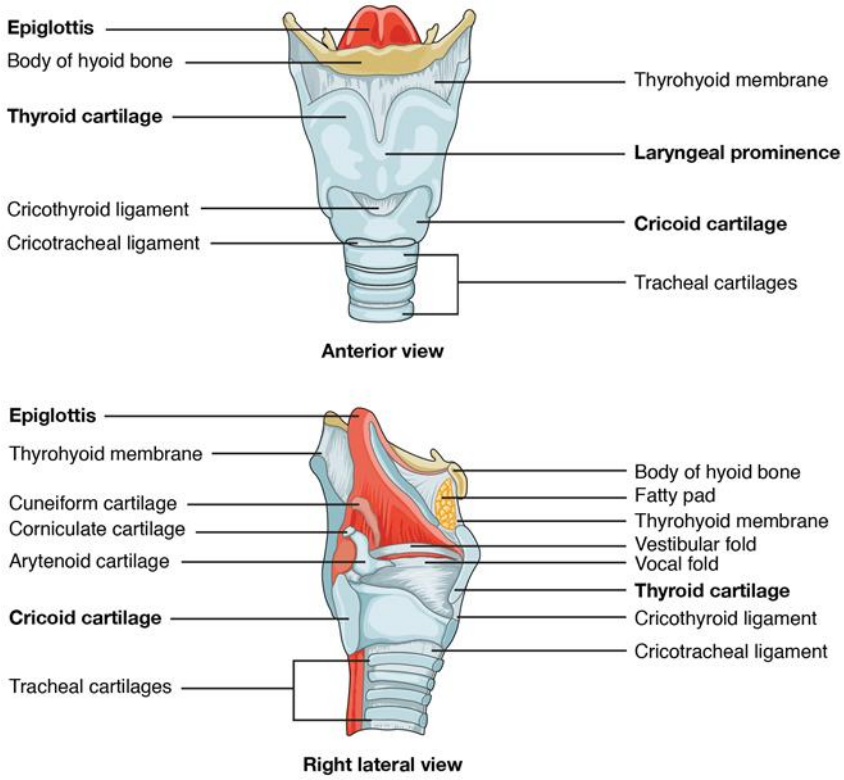

Figure 213: Anatomy of the larynx: anterior and right lateral view (OpenStax College. Organs and Structures of the Respiratory System, OpenStax CNX Web site. http://cnx.org/content/m46548/1.8/, Jul 8, 2013.)

In the Flemish Region, for the period 2004-2007, laryngeal cancer account for about 28% of all head- and neck cancers [1]. Squamous cell carcinomas (SCC) are the most frequent neoplasms at these sites and represent more than 95 % of all laryngeal cancers .

The main risk factors in the development of laryngeal cancer are alcohol drinking and tobacco smoking. No association with gastro-oesophageal reflux disease or immunosuppressive problems is known nor shown [2,3].

In laryngeal cancer, an important distinction between glottic and supra-glottic cancer needs to be made. Cancer of the vocal cords (glottic cancer) usually causes hoarseness and is therefore often recognised in an early stage. In addition, the lymphatic network of the vocal cords is very limited, preventing the cancer from spreading to regional lymph nodes. These factors contribute to a good prognosis of glottic cancer. In contrast, the supraglottic region is drained by an abundant network of lymphatic vessels [3]. Cancers originating from these region often present with lymph-node involvement and have a bad prognosis [3].

1.2 Diagnosis and Treatment

The first procedure in the diagnosis is the anamnesis, followed by a clinical examination. Afterwards directed technical examinations are performed, such as MRI, CT, PET, endoscopy,…. Due to the higher risk of second primary cancers (lung and oesophagus), screening for these cancers is recommended [4].

In the treatment decision, it is import to differentiate between larynx preserving surgery and total laryngectomy. In case of a stage I laryngeal cancer, (endoscopic) surgery of radiotherapy can be performed as main treatment. Stage II is treated with radiotherapy or with surgery (partial or total laryngectomy depending on the location of the tumor) with or without adjuvant radiation therapy depending on the risk factors [5]. Stage III tumors are usually treated with a concomitant treatment of radiotherapy and chemotherapy. Sometimes surgery, with a complete resection of the larynx, is performed, followed by radiotherapy. In stage IV tumors, the cancer has at least spread into the surrounding area. Usually a total laryngectomy and lymphadenectomy is performed to remove the cancer and draining lymph nodes, followed by radiotherapy [4,6]. If surgery cannot be performed, for example for medical reasons, radio(chemo)therapy is a good alternative [6].

2. Data Selection

All laryngeal cancers diagnosed between 2004 and 2007 for patients with an official residence in the Flemish Region are selected, resulting in 1,431 cases (for detailed information on selected topography and morphology codes, see Appendix A). As described in Figure 214, 154 of them are excluded resulting in 1,277 patients for whom results are presented in this chapter.

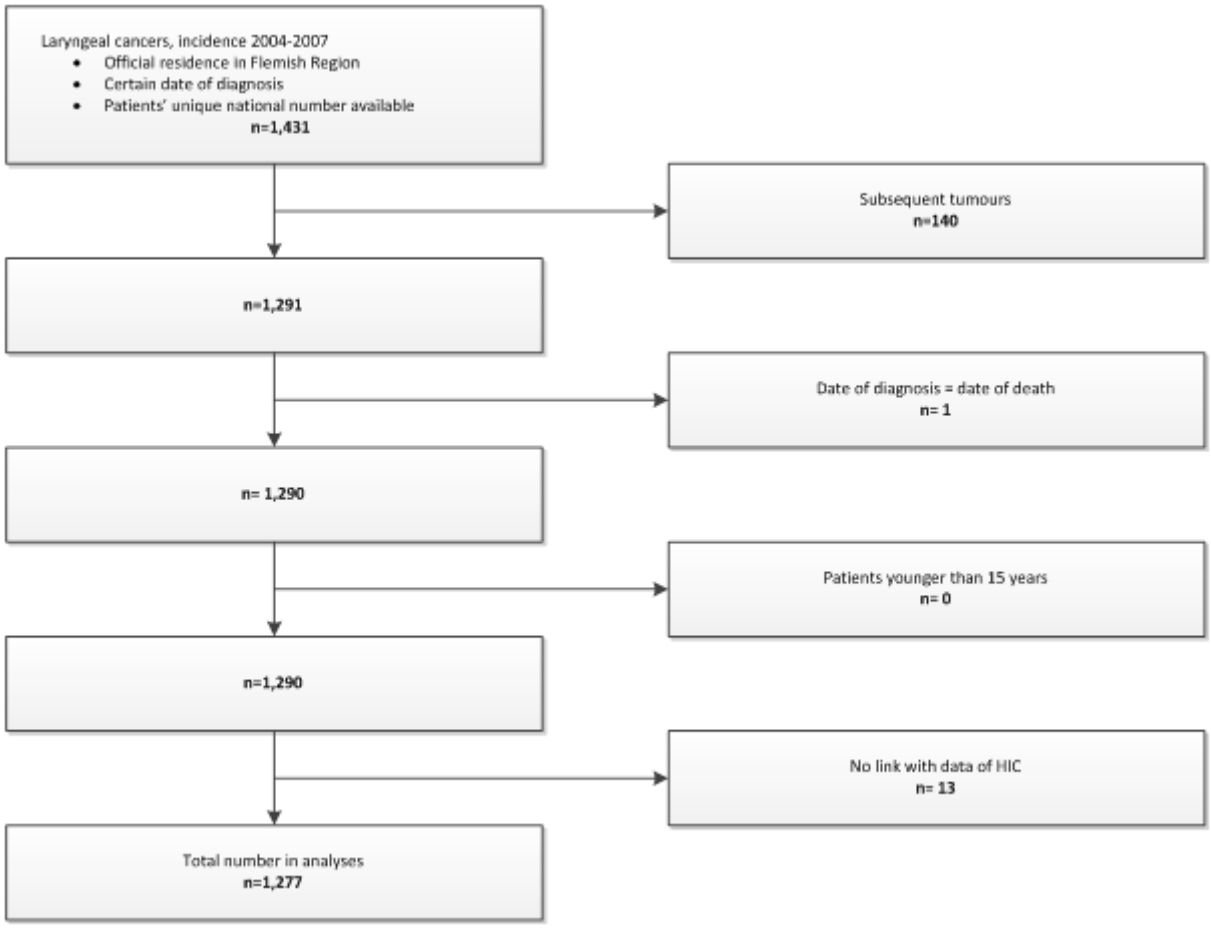

Figure 214. Selection of Laryngeal Tumours (Flemish Region, 2004-2007)

3. Patient Characteristics

Males are more often diagnosed with a laryngeal tumour than females (male/female ratio: 9.34) during the incidence years 2004-2007. No clear trend in age-standardised rates can be observed over the incidence years (Table 138).

The median age is 64 years for males and 63 years for females. Age at diagnosis ranges from 21 to 95 years. For further analyses, patients are divided into three age groups: 15-59 years, 60-69 years and 70+ years (Table 139).

Table 138. Laryngeal Cancer: Incidence (Flemish Region, 2004-2007)

	Males		Females		Total	
Incidence Year	n	ESR	n	ESR	n	ESR
2004	307	8.81	39	1.02	346	4.70
2005	268	7.48	27	0.70	295	3.91
2006	275	7.45	25	0.67	300	3.91
2007	295	8.06	41	1.02	336	4.38
2004-2007	1,145	7.94	132	0.85	1,277	4.22

ESR: age-standardised rate, using the European Standard Population (n/100,000 person years)

Table 139. Laryngeal Cancer: Age Distribution (Flemish Region, 2004-2007)

	Males	Females	Total
15-59 years	384	54	438
60-69 years	383	34	417
70+ years	378	44	422

4. Tumour Characteristics

Sublocalisation, morphology, differentiation grade and stage (clinical, pathological and combined stage) of the selected laryngeal tumours are described in Table 140. The most affected localisations are the glottis and the supraglottis. While undifferentiated tumours are rarely diagnosed (0.6%), moderately differentiated tumours occur most frequent (37.7%). Almost all (99.7%) diagnosed laryngeal tumours are squamous cell carcinomas. About one-third of the patients are diagnosed with a stage I tumour, and more than one-fourth are diagnosed with a stage IV disease. 171 tumours (13.4%) can not be staged because of a localisation coded as C32.3 (laryngeal cartilage), C32.8 (overlapping lesion of larynx) or C32.9 (larynx, unspecified), or a morphology coded 8980 (carcinosarcoma). These tumours are displayed as stage 'NA'.

Table 140. Laryngeal Cancer: Tumour Characteristics (Flemish Region, 2004-2007)

	N	% of total	% of known
Localisation			
Glottis (C32.0)	747	58.5	67.0
Supraglottis (C32.1)	341	26.7	30.6
Subglottis (C32.2)	19	1.5	1.7
Laryngeal cartilage (C32.3)	8	0.6	0.7
Overlapping lesion of larynx (C32.8)	9	0.7	/
Larynx, unspecified (C32.9)	153	12.0	/
Morphology			
Squamous cell carcinoma	1,273	99.7	/
Other defined carcinoma	4	0.3	/
Differentiation grade			
Well differentiated	259	20.3	25.1
Moderately differentiated	482	37.7	46.7
Poorly differentiated	283	22.2	27.4
Undifferentiated	8	0.6	0.8
Unknown	245	19.2	/
Clinical stage			
0	2	0.2	0.2
I	337	30.5	37.2
II	170	15.4	18.8
III	141	12.7	15.6
IV	256	23.1	28.3
Unknown	200	18.1	/
Pathological stage			
I	91	8.2	29.6
II	39	3.5	12.7
III	54	4.9	17.6
IV	123	11.1	40.1
Unknown	799	72.2	/
Combined stage			
I	364	32.9	38.1
II	175	15.8	18.3
III	138	12.5	14.4
IV	279	25.2	29.2
Unknown	150	13.6	/

Note: 171 cases have a localisation or morphology for which staging is not applicable (NA)

Females are more frequently diagnosed with a stage IV tumour (males: 28.6%, females: 35.2%) and less frequently with a stage III tumour (males: 14.7%, females: 12.1%) than males (Figure 215). Stage distribution is similar for the different age groups, although there is a trend for less advanced tumours being more frequent in older patients (Figure 216).

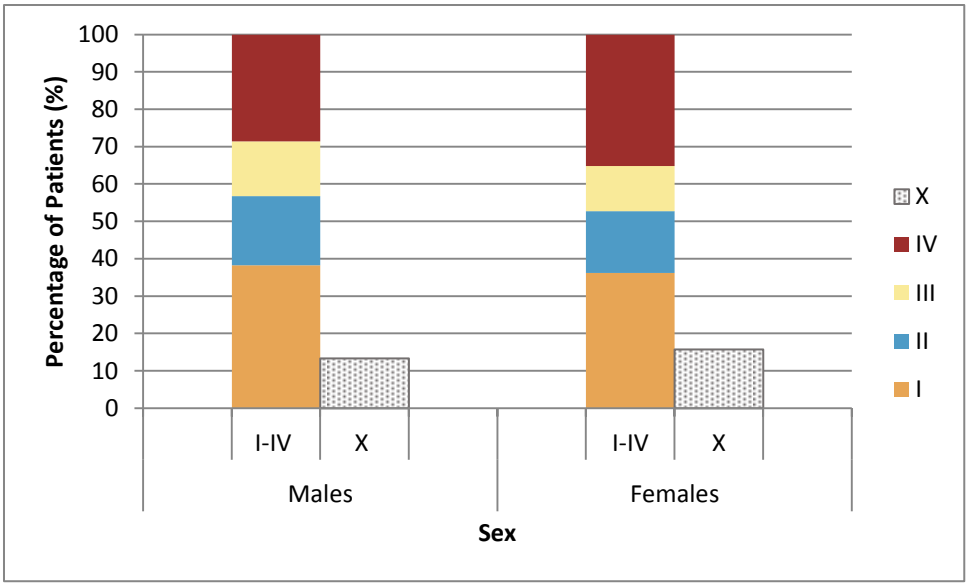

Figure 215. Laryngeal Cancer: Stage Distribution by Sex (Flemish Region, 2004-2007)

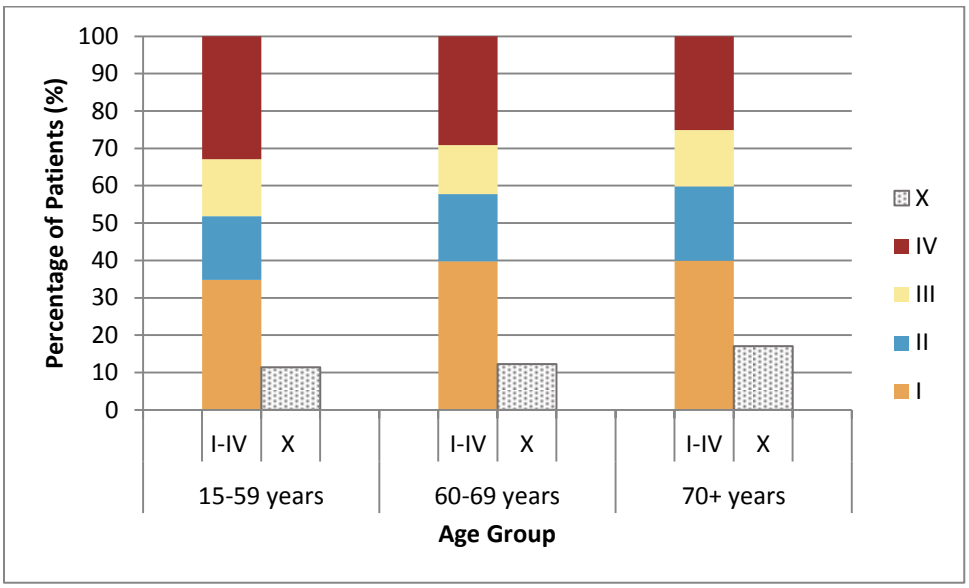

Figure 216. Laryngeal cancer: Stage Distribution by Age Group (Flemish Region, 2004-2007)

5. Diagnostic and Therapeutic Procedures

5.1 Diagnosis and Staging

Table 141 gives an overview of the diagnostic and therapeutic procedures for the laryngeal cancer patients in the Flemish Region diagnosed in the incidence years 2004 to 2007. Almost all cancers are confirmed by pathological examination (98.6%), which is always based on histology. The imaging technique most frequently used is CT scanning (93.5%) but chest X-rays are also often performed (79.5%). All other imaging techniques are rather infrequently used compared with other head and

neck tumours (range 8.3%-39.9%). PET scanning is charged in 22.4% of the patients and MRI in 22.8%. Screening for second primary cancers of the upper respiratory and digestive tract occurs in 11.6% and 48.1% of the patients, respectively.

Table 141. Laryngeal Cancer: Overview of Diagnostic and Staging Procedures (Flemish Region, 2004-2007)

Diagnostic Procedure (-3m<inc<+3m)	Total (N=1,277)		2004 (N=346)		2005 (N=295)		2006 (N=300)		2007 (N=336)	
	n	%	n	%	n	%	n	%	n	%
Tissue Examination	**1,257**	**98.4**	**337**	**97.4**	**293**	**99.3**	**298**	**99.3**	**329**	**97.9**
Histological Diagnosis	1,257	98.4	337	97.4	293	99.3	298	99.3	329	97.9
Cytology	168	13.2	42	12.1	35	11.9	41	13.7	50	14.9
Imaging	**1,226**	**96.0**	**325**	**93.9**	**284**	**96.3**	**293**	**97.7**	**324**	**96.4**
CT	1,194	93.5	313	90.5	273	92.5	288	96.0	320	95.2
MRI	291	22.8	78	22.5	61	20.7	67	22.3	85	25.3
Ultrasound Neck	106	8.3	30	8.7	22	7.5	24	8.0	30	8.9
PET Scan	286	22.4	64	18.5	71	24.1	70	23.3	81	24.1
Chest X-ray	1,015	79.5	277	80.1	240	81.4	230	76.7	268	79.8
Ultrasound Abdomen	509	39.9	119	34.4	114	38.6	131	43.7	145	43.2
Screening for Second Primary Malignancies	**640**	**50.1**	**152**	**43.9**	**158**	**53.6**	**152**	**50.7**	**178**	**53.0**
Respiratory Tract	148	11.6	37	10.7	39	13.2	31	10.3	41	12.2
Digestive Tract	614	48.1	145	41.9	154	52.2	145	48.3	170	50.6
Other Procedures										
Lymph Node Biopsy	25	2.0	11	3.2	3	1.0	6	2.0	5	1.5

5.2 Multidisciplinary Oncological Consult

About 59% of all laryngeal cancer patients are discussed at a multidisciplinary oncological consult (MOC) within one month before till three months after incidence date. An increase in the proportion of patients discussed at a MOC is observed over time, rising from 47.1% in 2004 to 72.0% in 2007 (Table 142).

Table 142. Laryngeal Cancer: Frequency of Multidisciplinary Oncological Consult (Flemish Region, 2004-2007)

	MOC	
Incidence Year	n	%
2004 (n=346)	163	47.1
2005 (n=295)	173	58.6
2006 (n=300)	176	58.7
2007 (n=336)	242	72.0
Total (n=1,277)	754	59.0

5.3 Therapeutic Procedures

Three types of surgery are studied: major surgery (i.e. (sub)total laryngectomy), minor surgery (e.g. endoscopic surgery on the larynx) and lymphadenectomies. The major or minor surgery closest to the incidence date is selected as surgery. When none of them has taken place, lymphadenectomies are taken into account.

Of all recorded surgeries, minor surgery is most frequently performed (73.4%), followed by major surgery (21.3%). Patients for which a lymphadenectomy is charged are uncommon (5.3% of all surgically treated patients) (Table 143).

Table 143. Laryngeal Cancer: Overview of the Selected Surgeries (Flemish Region, 2004-2007)

Type of Surgery	n	%
Major Surgery	146	21.3
Minor Surgery	503	73.4
Lymphadenectomy	36	5.3

For 21 patients, the surgical procedure was carried out after radiotherapy and therefore considered as salvage surgery. For the remaining 664 surgically treated patients (52.0% of all patients), the surgical procedure was considered to be the cornerstone of the treatment (Table 144). For 187 patients surgery was the only oncological treatment. However, a majority of the surgically treated patients (n=459; 69.1%) received adjuvant radiotherapy with or without chemotherapy.

A large part of the patients only receives radiotherapy as the treatment for their laryngeal cancer (30.0%). Chemotherapy only or concomitant chemoradiotherapy are less frequently used (1.3% and 9.3% respectively). For about 6% of the patients, no charged primary oncological treatment can be found.

Table 144. Laryngeal Cancer: Overview of Treatment Schemes (Flemish Region, 2004-2007)

Treatment Scheme	n	%
Surgery	**664**	**52.0**
Adjuvant radiotherapy	357	28.0
Adjuvant chemoradiotherapy	97	7.6
No other therapy	187	14.6
Other therapy		
Surgery < chemotherapy	13	1.0
Chemotherapy < surgery	5	0.4
Chemotherapy < surgery < radiotherapy	3	0.2
Chemotherapy < surgery < chemoradiotherapy	2	0.2
Radiotherapy only	**399**	**31.2**
Chemoradiotherapy	**124**	**9.7**
Chemotherapy only	**16**	**1.3**
No primary treatment registered	**74**	**5.8**

6. Survival

6.1 Observed and Relative Survival

Patients with laryngeal cancers have a relative good prognosis compared with patients with other types of head and neck cancer. The five-year relative survival rate is 65.4% (Table 145).

Table 145. Laryngeal Cancer: Observed and Relative Survival (Flemish Region, 2004-2007)

	Observed Survival (%)					Relative Survival (%)				
N at risk	1 year	2 year	3 year	4 year	5 year	1 year	2 year	3 year	4 year	5 year
1,277	84.7	74.1	67.5	62.4	57.2	86.8	77.9	72.9	69.3	65.4

6.2 Relative Survival by Sex

In contrast to most cancer types, survival is slightly better for males than for females (Table 146).

Table 146. Laryngeal Cancer: Relative Survival by Sex (Flemish Region, 2004-2007)

			Relative Survival (%)				
	N at risk	%	1 year	2 year	3 year	4 year	5 year
Males	1,145	89.7	87.1	78.7	73.8	70.3	66.1
Females	132	10.3	84.6	71.1	65.1	61.2	59.7

6.3 Relative Survival by Age Group

Survival is lower for the oldest age group (5-year relative survival of 60.7%) than for the younger age groups (5-year relative survival of 65.7% and 68.5% for the age groups 15-59 years and 60-69 years respectively) (Table 147).

Table 147. Laryngeal Cancer: Relative Survival by Age Group (Flemish Region, 2004-2007)

	N at risk	%	Relative Survival (%)				
			1 year	2 year	3 year	4 year	5 year
15-59 years	438	34.3	89.3	78.5	73.8	69.5	65.7
60-69 years	417	32.7	89.5	80.2	74.4	71.5	68.5
70+ years	422	33.0	81.3	74.8	70.1	66.3	60.7

6.4 Relative Survival by Stage

Survival is highly dependent on the stage of the tumour. There is a much better survival for stage I tumours (5-year relative survival: 88.4%) compared with stage IV tumours (5-year relative survival: 38.5%) (Figure 217). It should be noted that some locally or regionally advanced diseases are categorised as stage IV (stage IVA or IVB, more precisely) although laryngeal tumours with distant metastases are also categorised as stage IV (Stage IVC)). Most stage IV tumours in this study (n=111) are stage IVA, only 17 tumours are staged as IVB and 22 as IVC.

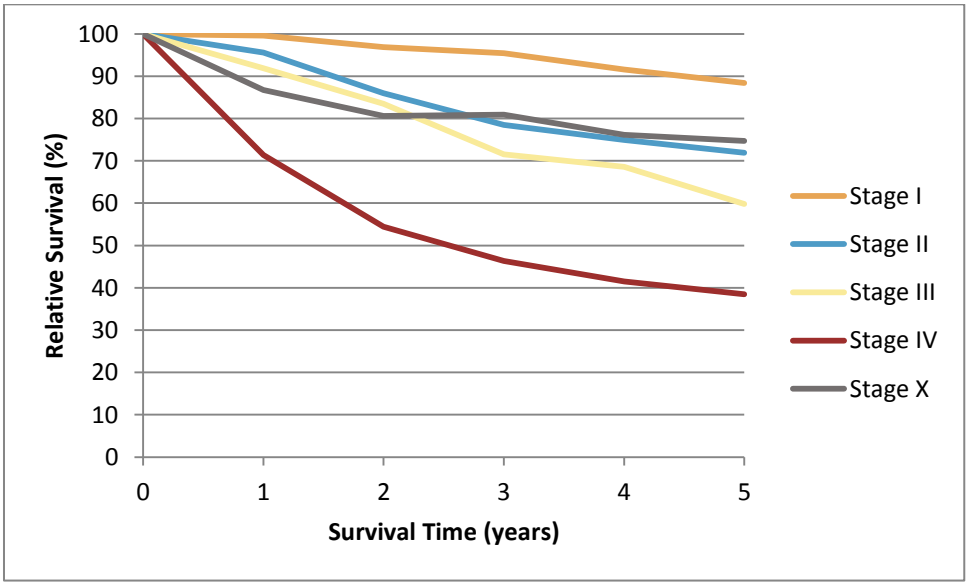

Figure 217. Laryngeal Cancer: Relative Survival by Stage (Flemish Region, 2004-2007)

6.5 Relative Survival by Sublocalisation

Survival is highly dependent on the sublocalisation (Figure 218). Tumours located in the glottis have a much better survival (5-year relative survival: 77.2%) than tumours originating from the supraglottis (5-year relative survival: 48.1%) and tumours with an unspecified laryngeal localisation (5-year relative survival: 53.8%).

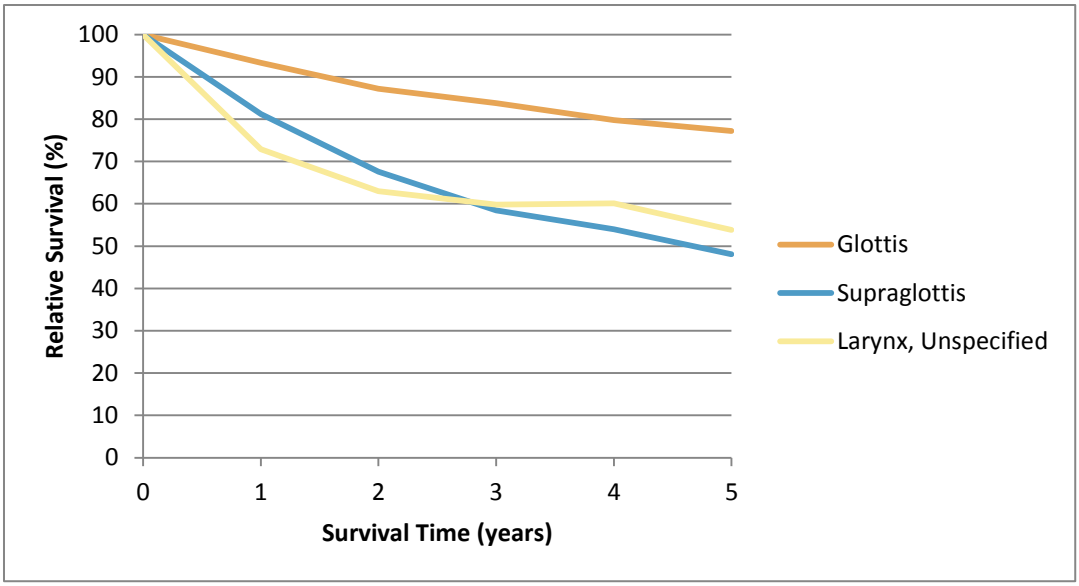

Figure 218. Laryngeal Cancer: Relative Survival by Sublocalisation (Flemish Region, 2004-2007)

6.6 Relative Survival by Primary Treatment

Survival results by primary treatment are reported separately for the lower and higher stages, because treatment choice and survival are dependent on the stage of the tumour.

For the lower stages (stage I and II), survival is comparable between patients treated with RT and patients treated with surgery (only few patients were treated with chemoradiotherapy and are therefore not shown in Figure 219).

Survival patterns are different for the higher stages (stage III to IVb), were similar results are seen for patients treated with chemoradiotherapy and surgery, and worse results for those treated with radiotherapy only (Figure 220).

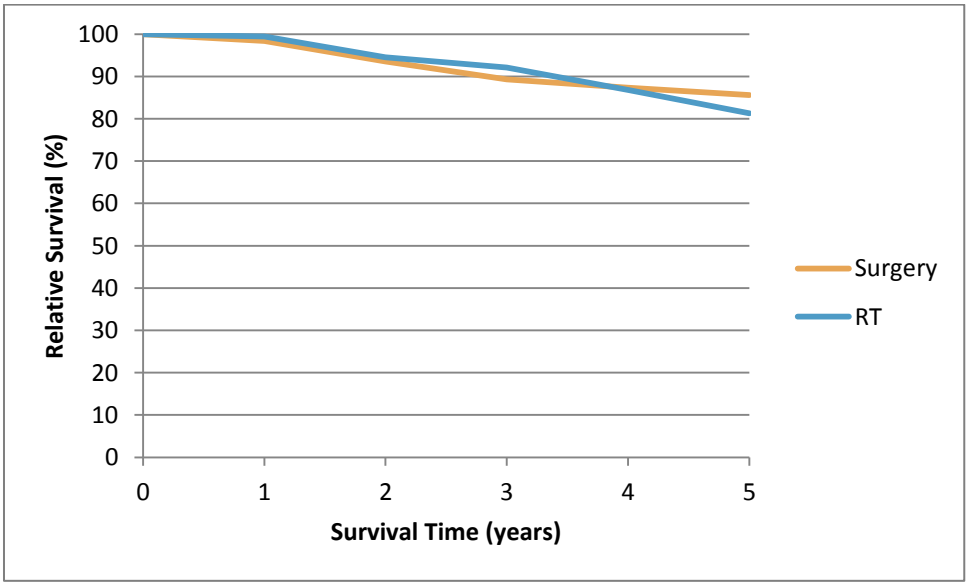

Figure 219. Laryngeal Cancer: Relative Survival by Primary Treatment for Tumours with Stage I-II (Flemish Region, 2004-2007)

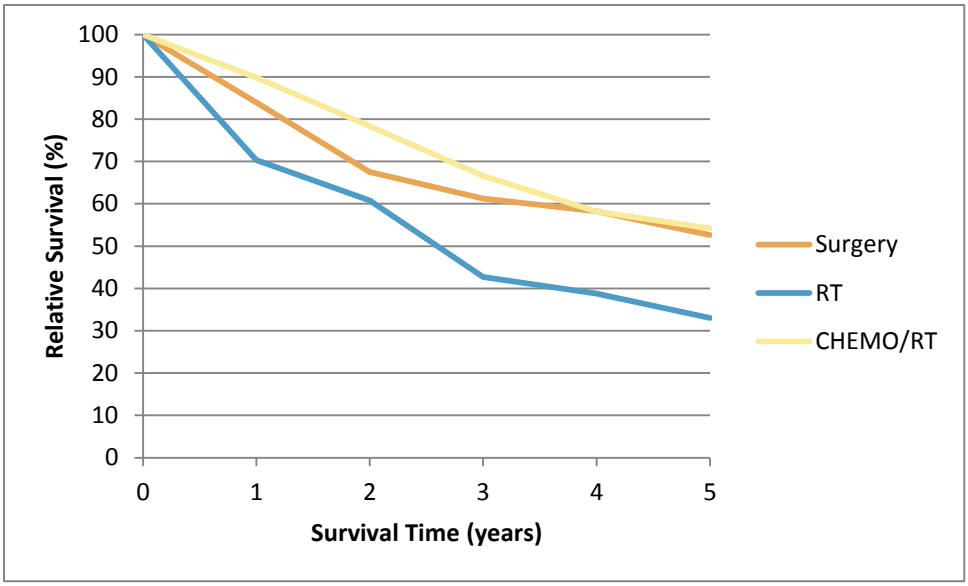

Figure 220. Laryngeal Cancer: Relative Survival by Primary Treatment for Tumours with Stage III to IVB (Flemish Region, 2004-2007)

7. Analyses by Volume

During the period 2004-2007, Belgian patients with laryngeal cancer are treated in 55 different Flemish hospitals. The mean number of patients (during the period 2004-2007) treated or followed for laryngeal cancer by hospital is 22.0 and the median is 11, with a range between 1 and 170. The distribution of the number of patients (=volume) per hospital is displayed in Figure 221.

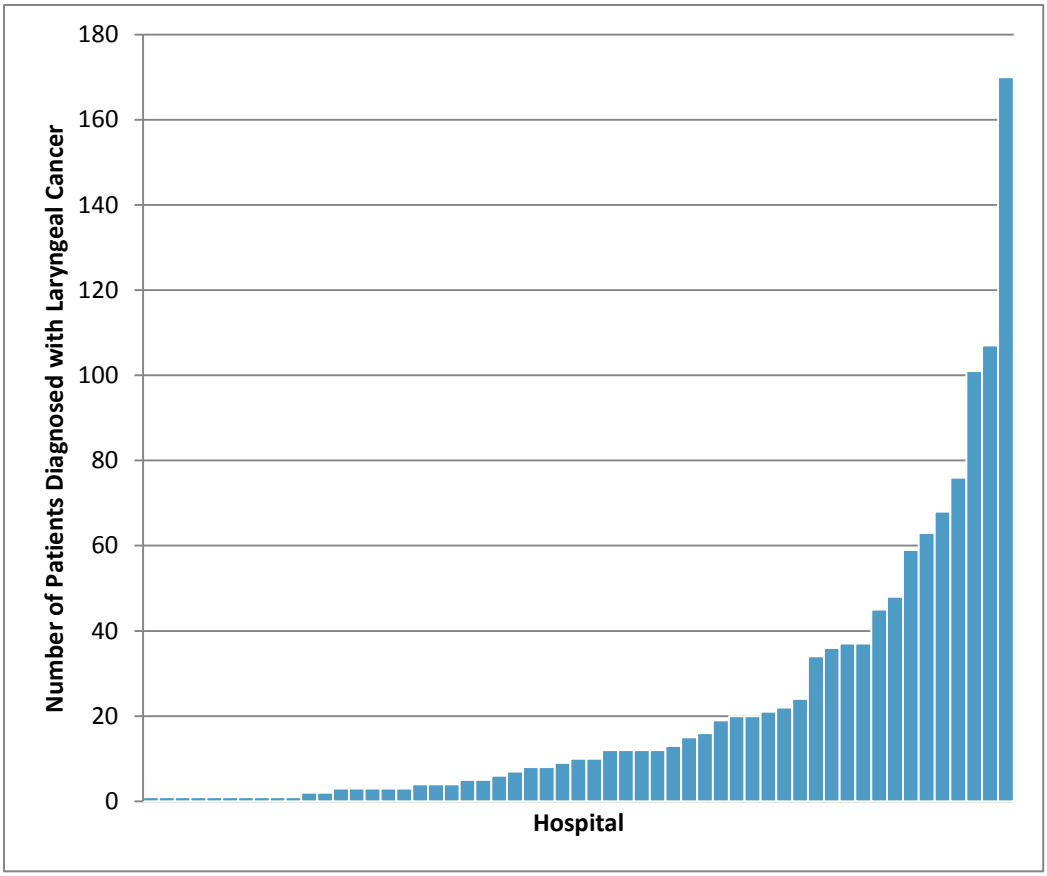

Figure 221. Laryngeal Cancer: Distribution of Patients by Hospital (Flemish Hospitals, 2004-2007)

1,215 of the Flemish patients (95.1%) can be assigned to a hospital (see Methodology for the rules applied to assign a patient to one hospital). Considering a hospitals having taken care of 60 or more patients diagnosed during the period 2004-2007 as high-volume hospitals, 568 patients are assigned to high-volume hospitals and 647 are assigned to low-volume hospitals.

Treatment schemes are different for high-volume and low-volume hospitals (Figure 222). In high-volume hospitals, 43.7% of the patients are primarily treated with radiotherapy, while another 12.7% are treated with chemoradiotherapy. Another 41.0% of the patients are primarily treated with surgery (with or without (neo-) adjuvant therapy). For low-volume hospitals only 21.6% of the patients are primarily treated with radiotherapy and another 8.0% are treated with chemoradiotherapy. The proportion of patients primarily treated with surgery is much larger than for the high-volume hospitals (66.5%).

Patients only treated with chemotherapy or without any registered oncological treatment are rare in both high- and low volume hospitals.

It should be noted that the difference in the proportion of patients treated with radio- or chemoradiotherapy in the high-volume versus low-volume hospitals can at least partly be explained because the RT centres are overrepresented in the high-volume group due to the rules for assignment that give a rather high priority to the hospital were the RT has taken place.

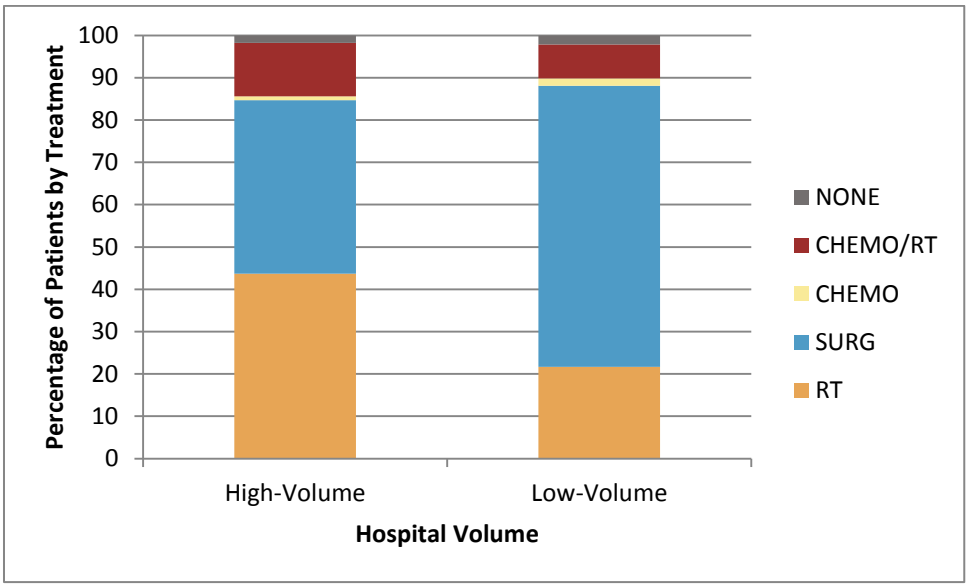

Figure 222. Laryngeal Cancer: Primary Treatment by Hospital Volume (High-Volume versus Low-Volume Hospitals) (Flemish Region, 2004-2007)

8. References

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CHAPTER 5. OROPHARYNX

1. Introduction

1.1 General Information and Aetiology

The oropharyngeal region is located between the soft palate (uvula) superiorly and the hyoid bone inferiorly, it is continuous with the oral cavity anteriorly and communicates with the nasopharynx superiorly and the supraglottic larynx and hypopharynx inferiorly. The oropharynx is divided into the following sites (Figure 223): base of the tongue, the tonsillar region and the soft palate [1].

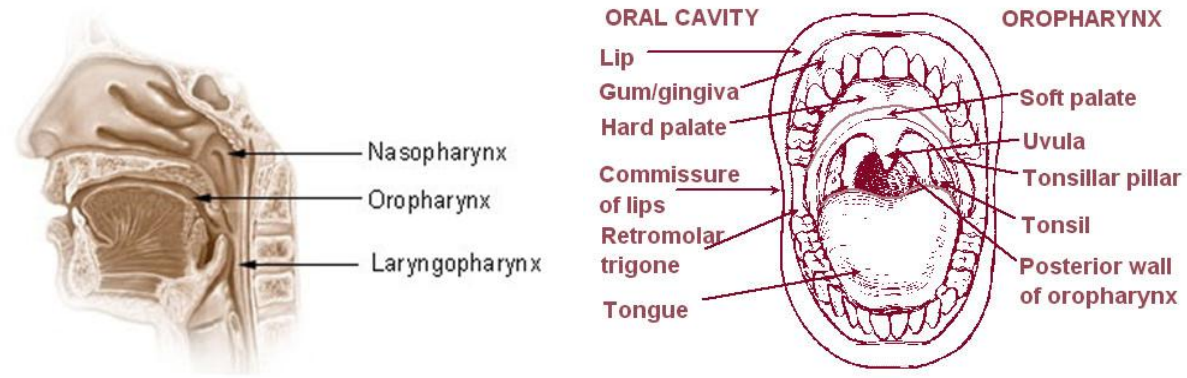

Figure 223. Location and Anatomy of the Oropharynx

Oropharyngeal cancer is uncommon and typically involves patients in the fifth through seventh decades of life. Men are affected 3 to 5 times more often than women. Similar to other cancers in the head and neck region, the most common risk factors to develop cancer of the oropharynx are tobacco and alcohol consumption. Infection with carcinogenic subtypes of human papillomavirus (HPV; especially HPV-16) is also an important risk factor. Another possible, but less established risk factor includes poor diet habits. A large part of the patients presents with lymph node involvement at time of diagnosis.

1.2 Diagnosis and Treatment

Diagnosis starts with a clinical examination. Adequate inspection with direct or indirect endoscopy plays an important role. Palpation of the location itself (if possible) and additionally of the lymph nodes of the neck is also necessary. Clinical staging is completed with magnetic resonance imaging (MRI) or computed tomography (CT). Pathological staging is done by histological examination of the surgically resected primary tumour and lymph nodes. HPV testing is recommended because HPV infection is related to the development of an important proportion of oropharyngeal tumours[1-3].

Oropharyngeal cancer can be treated with several treatment options, concerning primary surgery, radiotherapy or chemoradiotherapy. The treatment choice depends on the stage of the disease, the operability and the general condition of the patient. Depending on the pathologic result of the resected specimen, adjuvant radio- or chemoradiotherapy may be necessary. When the patient is treated with primary radio- or chemoradiotherapy, surgery may be necessary for the management of residual or recurrent diseases.

There is no experts agreement on the possibility of induction chemotherapy [2].

2. Data Selection

All oropharyngeal cancers diagnosed between 2004 and 2007 for patients with an official residence in the Flemish Region are selected, resulting in 923 cases (for detailed information on selected topography and morphology codes, see Appendix A). As described in Figure 224, 112 of them are excluded resulting in 811 patients for which results are presented in this chapter.

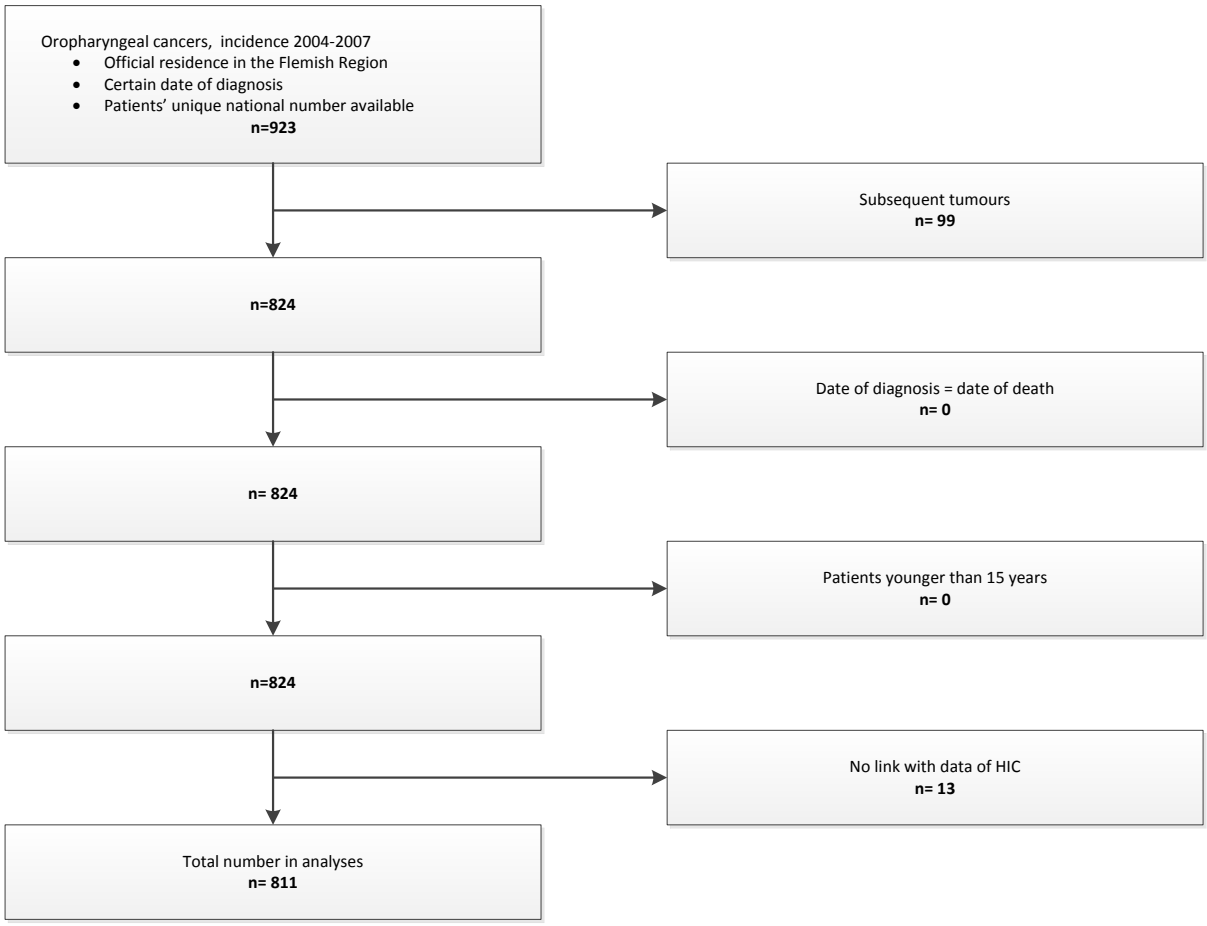

Figure 224. Selection of Oropharyngeal Tumours (Flemish Region, 2004-2007)

3. Patient Characteristics

Males are more frequently diagnosed with a tumour of the oropharynx than females (male/female ratio = 3.97) during the observed period (Table 148). No clear trend in age standardised rates can be observed over the years 2004-2007.

The median age is 59 years for males and 60 years for females. For further analyses, the patients are divided in three age categories: 15-54 years, 55-64 years and 65 years and older (Table 149).

Table 148. Oropharyngeal Cancer: Incidence (Flemish Region, 2004-2007)

	Males		Females		Total	
Incidence Year	n	ESR	n	ESR	n	ESR
2004	152	4.62	42	1.12	194	2.84
2005	138	4.13	38	1.05	176	2.56
2006	159	4.56	50	1.35	209	2.91
2007	189	5.41	43	1.20	232	3.26
2004-2007	638	4.69	173	1.18	811	2.90

ESR: age-standardised rate, using the European Standard Population (n/100,000 person years)

Table 149. Oropharyngeal Cancer: Age Distribution (Flemish Region, 2004-2007)

	Males	Females	Total
15-54 years	220	56	276
55-64 years	234	54	288
65+ years	184	63	247

4. Tumour Characteristics

Sublocalisation, morphology, differentiation grade and stage (clinical, pathological and combined stage) of the selected oropharyngeal cancers are described in Table 150. Hundred-twenty tumours (14.8%) cannot be staged because their localisation is coded as C10.8 (overlapping region of the oropharynx) or C10.9 (oropharynx, not otherwise specified). These tumours are displayed as stage 'NA'.

Table 150. Oropharyngeal Cancer: Tumour Characteristics (Flemish Region, 2004-2007)

	N	% of total	% of known
Localisation			
Base of tongue (C01.9)	144	17.8	24.4
Soft palate and uvula (C05.1, C05.2)	65	8.0	11.0
Tonsil (C09)	380	46.9	64.5
Oropharynx, other and unspecified (C02.4, C02.8, C05.9, C10.0, C10.1, C10.2, C10.3, C10.8, C10.9)	222	27.4	/
Morphology			
Squamous cell carcinoma	798	98.4	/
Other Specified Carcinoma	13	1.6	/
Differentiation grade			
Well differentiated	91	11.2	13.5
Moderately differentiated	321	39.6	47.6
Poorly differentiated	245	30.2	36.3
Undifferentiated	18	2.2	2.7
Unknown	136	16.8	/
Clinical stage			
0	2	0.2	0.3
I	41	5.1	7.0
II	65	8.0	11.1
III	134	16.5	22.9
IV	344	42.4	58.7
Unknown	105	12.9	/
Pathological stage			
I	28	3.4	14.0
II	26	3.2	13.0
III	42	5.2	21.0
IV	104	12.8	52.0
Unknown	491	60.5	/
Combined stage			
I	46	5.7	7.5
II	74	9.1	12.1
III	132	16.3	21.6
IV	358	44.1	58.7
Unknown	81	10.0	/

Note: 120 cases have a localisation for which staging is not applicable (NA)

Almost all oropharyngeal cancers are squamous cell carcinoma. The majority of the cases originate from the tonsil region and have a moderate or poor differentiation grade. Due to the rich lymphatics in this region, the disease is often extended to the lymph nodes at diagnosis. As shown in Figure 225 and Figure 226, no major differences in stage distribution are seen between both sexes or amongst different age categories.

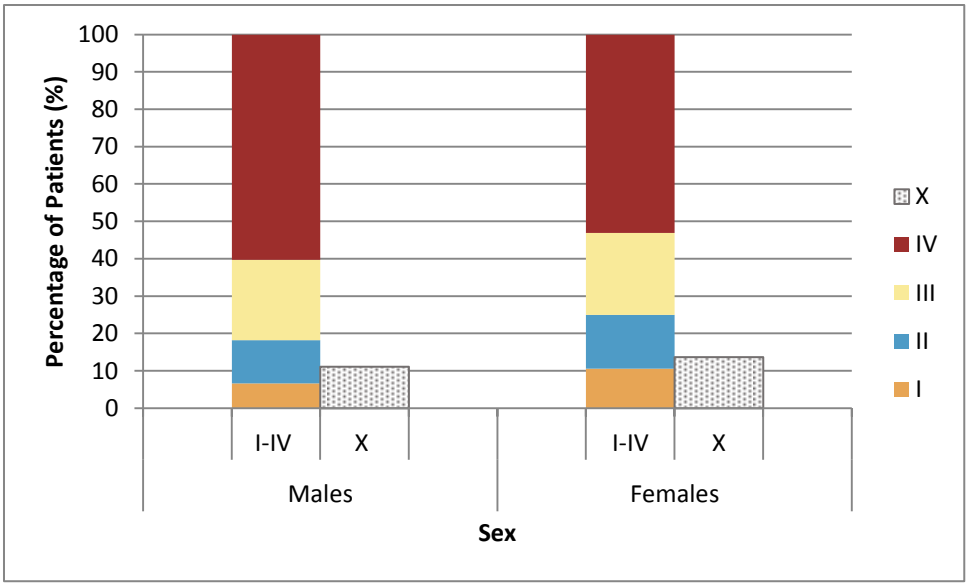

Figure 225. Oropharyngeal cancer: Stage Distribution by Sex (Flemish Region, 2004-2007)

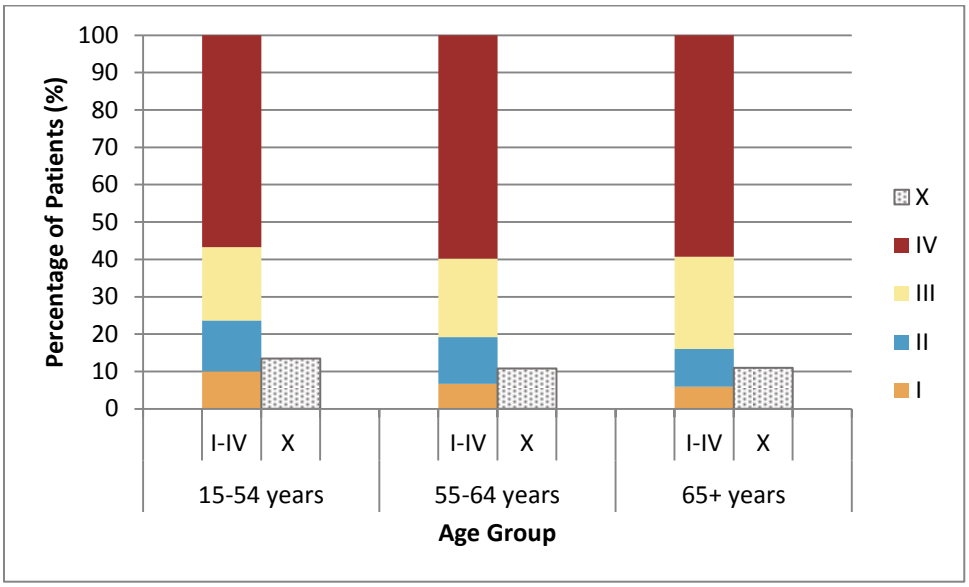

Figure 226. Oropharyngeal Cancer: Stage Distribution by Age Group (Flemish Region, 2004-2007)

5. Diagnostic and Therapeutic Procedures

5.1 Diagnosis and Staging

All procedures regarding diagnosis and staging of the oropharyngeal cancers occurring within three months around incidence date are studied (Table 151).

The diagnosis of cancer is confirmed by tissue examination performed by the pathologist in almost all cases (96.9%). Exceptionally, cytology is found to be the sole specimen that serves as the basis for diagnosis.

To evaluate tumour extent, imaging techniques are frequently used (97.4%). CT is used more often than more advanced techniques as MRI and PET as a staging procedure.

As indicated, most patients undergo screening for second primary cancers in the upper aerodigestive tract, especially by laryngoscopy, tracheoscopy or bronchoscopy (79.9%).

Biopsies of suspected neck lymph nodes are less frequently performed (6.3%).

Table 151. Oropharyngeal Cancer: Overview of Diagnostic and Staging Procedures (Flemish Region, 2004-2007)

Diagnostic Procedure (-3m<inc<+3m)	Total (N=811)		2004 (N=194)		2005 (N=176)		2006 (N=209)		2007 (N=232)	
	n	%	n	%	n	%	n	%	n	%
Tissue Examination	**786**	**96.9**	**185**	**95.4**	**170**	**96.6**	**205**	**98.1**	**226**	**97.4**
Histological Diagnosis	781	96.3	185	95.4	168	95.5	203	97.1	225	97.0
Cytology	183	22.6	46	23.7	42	23.9	42	20.1	53	22.8
Imaging	**790**	**97.4**	**187**	**96.4**	**170**	**96.6**	**204**	**97.6**	**229**	**98.7**
CT	777	95.8	182	93.8	168	95.5	201	96.2	226	97.4
MRI	347	42.8	77	39.7	79	44.9	94	45.0	97	41.8
Ultrasound Neck	144	17.8	34	17.5	32	18.2	44	21.1	34	14.7
PET Scan	356	43.9	56	28.9	83	47.2	97	46.4	120	51.7
Chest X-ray	673	83.0	166	85.6	147	83.5	168	80.4	192	82.8
Ultrasound Abdomen	408	50.3	98	50.5	84	47.7	99	47.4	127	54.7
Screening for Second Primary Malignancies	**711**	**87.7**	**168**	**86.6**	**159**	**90.3**	**178**	**85.2**	**206**	**88.8**
Respiratory Tract	648	79.9	155	79.9	142	80.7	163	78.0	188	81.0
Digestive Tract	484	59.7	110	56.7	109	61.9	118	56.5	147	63.4
Other Procedures										
Lymph Node Biopsy	51	6.3	10	5.2	12	6.8	10	4.8	19	8.2

5.2 Multidisciplinary Oncological Consult

Overall, about 65% of all oropharyngeal cancer patients are discussed at a multidisciplinary oncological consult (MOC) within 1 month before till three months after incidence date. An increase of the proportion of patients discussed at a MOC is observed during the observation period, ranging from 60% in 2004 to 70% in 2007 (Table 152).

Table 152. Oropharyngeal Cancer: Frequency of Multidisciplinary Oncological Consult (Flemish Region, 2004-2007)

	MOC	
Incidence Year	n	%
2004 (n=194)	117	60.3
2005 (n=176)	110	62.5
2006 (n=209)	139	66.5
2007 (n=232)	163	70.3
Total (n=811)	529	65.2

5.3 Therapeutic Procedures

Three different surgery types are taken into account for the treatment analyses: major surgery for larger oropharynx tumours (e.g tonsillectomy), minor surgery (e.g. mucosal resection), and lymphadenectomies. Major surgeries always receive priority when performed within the studied timeframe. Otherwise, minor surgery or lymphadenectomy is taken into account, with preference for the surgical procedure that is closest to incidence date.

Within one month before and six months after incidence date, 43.6% of the patients undergo surgery. For half of these patients, major surgery has been performed (Table 153).

Table 153. Oropharyngeal Cancer: Overview of the Selected Surgeries (Flemish Region, 2004-2007)

Type of Surgery	n	%
Major Surgery	188	50.0
Minor Surgery	95	25.3
Lymphadenectomy	93	24.7

For 22 patients, the surgical procedure is carried out after radiotherapy (within the timeframe of six months after incidence) and therefore considered as salvage surgery. For the remaining 354 operated patients, the surgical procedure is considered to be the cornerstone of the treatment (Table 154). The majority of these are postoperatively irradiated either with or without chemotherapy. The number of patients who undergo surgery without adjuvant radio- or chemotherapy is very limited.

The other half of the patients are mainly treated with radiotherapy. This irradiation is sometimes performed alone but more frequently in combination with chemotherapy.

No indications on any oncological treatment (surgery, radiotherapy or chemotherapy) within the studied timeframe are found for only about 8% of the patients.

Table 154. Oropharyngeal Cancer: Overview of Treatment Schemes (Flemish Region, 2004-2007)

Treatment Scheme	n	%
Surgery	**354**	**43.6**
Adjuvant radiotherapy	142	17.5
Adjuvant chemoradiotherapy	146	18.0
No other therapy	56	6.9
Other therapy		
Surgery < chemotherapy	6	0.7
Chemotherapy < surgery	2	0.2
Chemotherapy < surgery < chemotherapy	1	0.1
Chemotherapy < surgery < chemoradiotherapy	1	0.1
Radiotherapy only	**130**	**16.0**
Chemoradiotherapy	**246**	**30.3**
Chemotherapy only	**19**	**2.3**
No primary treatment registered	**62**	**7.6**

6. Survival

6.1 Observed and Relative Survival

Survival of oropharyngeal cancer patients is rather poor, with less than half of the patients being still alive at five years after diagnosis (Table 155).

Table 155. Oropharyngeal Cancer: Observed and Relative Survival (Flemish Region, 2004-2007)

	Observed Survival (%)					Relative Survival (%)				
N at risk	1 year	2 year	3 year	4 year	5 year	1 year	2 year	3 year	4 year	5 year
811	76.1	61.4	53.0	48.3	43.4	77.3	63.3	55.5	51.4	46.9

6.2 Relative Survival by Sex

Survival is different between males and females. Already at one year after diagnosis, a 10% difference in relative survival in favour of females is noted. This disparity enlarges throughout the follow-up time (Table 156).

Table 156. Oropharyngeal Cancer: Relative Survival by Sex (Flemish Region, 2004-2007)

			Relative Survival (%)				
	N at risk	%	1 year	2 year	3 year	4 year	5 year
Males	638	78.7	75.1	60.4	52.5	47.5	43.0
Females	173	21.3	85.5	74.0	66.5	65.5	60.9

6.3 Relative Survival by Age Group

Patients of 65 years and older have a worse prognosis than younger patients (Table 157). The difference between patients in the age group 15-54 years and the age group 55-64 years is rather small.

Table 157. Oropharyngeal Cancer: Relative Survival by Age Group (Flemish Region, 2004-2007)

	N at risk	%	Relative Survival (%)				
			1 year	2 year	3 year	4 year	5 year
15-54 years	276	34.0	81.4	62.0	54.5	51.8	47.9
55-64 years	288	35.5	79.5	68.2	61.4	56.9	49.8
65+ years	247	30.5	69.8	58.9	49.3	43.7	41.6

6.4 Relative Survival by Stage

Survival is better for patients diagnosed with a Stage I tumour (5-year relative survival: 77.3%), compared with the other stages (Figure 227). Survival is worst for patients diagnosed with a Stage IV tumour (5-year relative survival: 40.8%). However, it should be noted that, in line with other head and neck cancers, some locally or regionally advanced diseases are also categorised as stage IV (stage IVA or IVB, more precisely). Oropharyngeal tumours with distant metastases are labelled as Stage IVC, but are seldom in this study (only 23 patients in this selection of patients). Consequently, survival for stage IV cancers is rather high compared to other types of cancers.

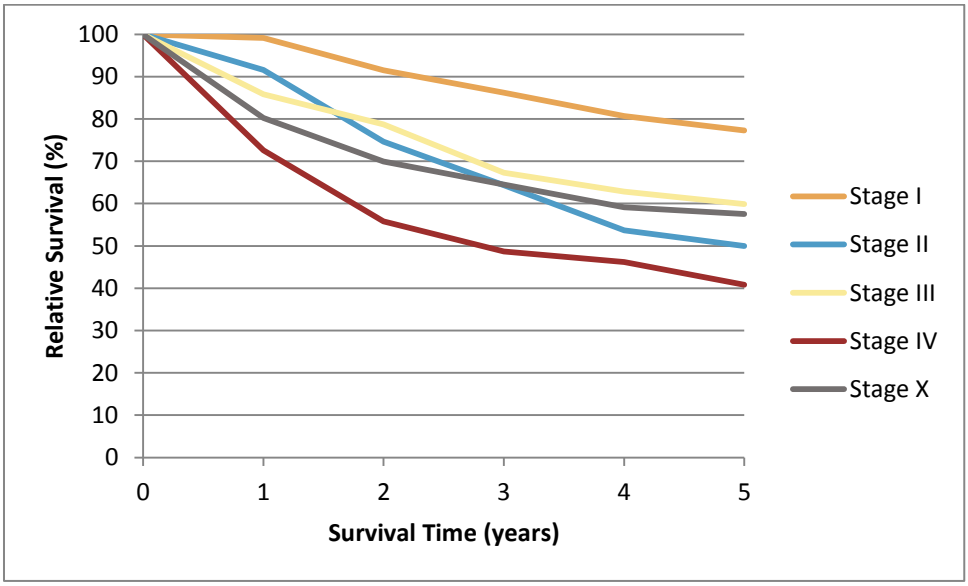

Figure 227. Oropharyngeal Cancer: Relative Survival by Stage (Flemish Region, 2004-2007)

6.5 Relative Survival by Sublocalisation

Patients diagnosed with a tumour in the soft palate or uvula have the best prognosis (5-year relative survival: 61.7%) of all patients diagnosed with an oropharyngeal tumour. Patients with a tumour of the tonsil have a 5-year relative survival of 52.8% and patients with a tumour of the base of tongue a survival of 41.2% (Figure 228).

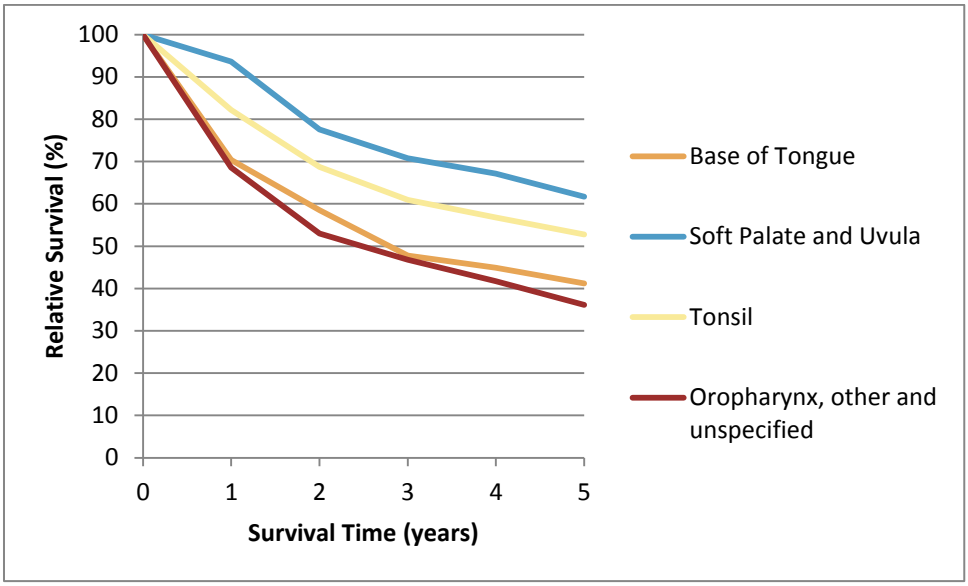

Figure 228. Oropharyngeal Cancer: Relative Survival by Sublocalisation (Flemish Region, 2004-2007)

6.6 Relative Survival by Primary Treatment

For all cases together, 5-year relative survival is better for patients who are primarily treated with surgery (57.3%) than for patients primarily treated with radiotherapy (41.3%) or with chemoradiotherapy (45.0%). However, different results are obtained when separating early and advanced disease stages. For early stages (stage I and II), survival is very similar for patients treated with primary surgery as for patients treated with primary radiotherapy (Figure 229, chemoradiotherapy not displayed because the number at risk is lower than 35). For the more advanced stages (Stage III to IVb), improved survival is noted for patients primarily treated with surgery and chemoradiotherapy (CHEMO/RT) in comparison to patients primarily treated with radiotherapy only (Figure 230). A preservation of more complicated treatment options for patients with an operable tumours or with a better performance status might explain this discrepancy.

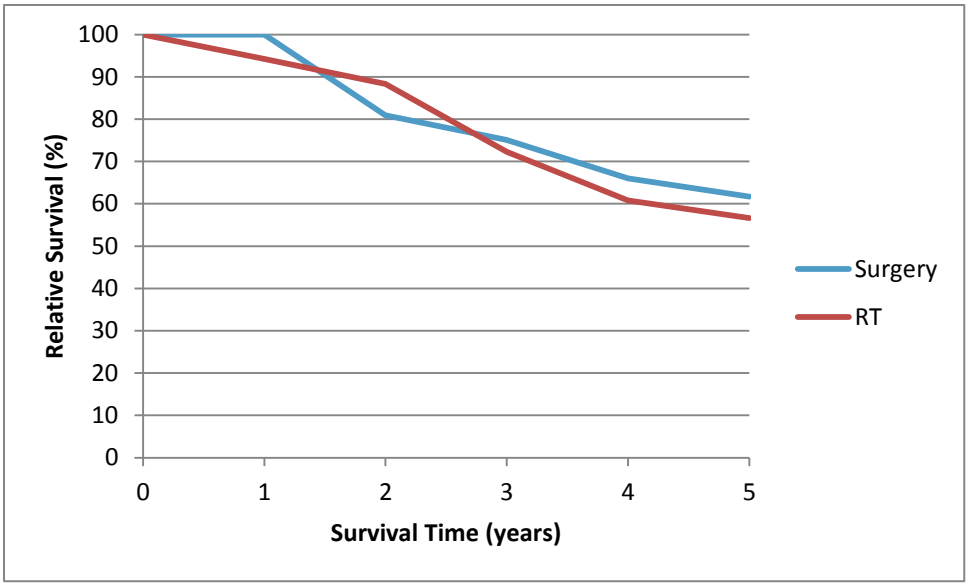

Figure 229. Oropharyngeal Cancer: Relative Survival by Primary Treatment - Stage I & II (Flemish Region, 2004-2007)

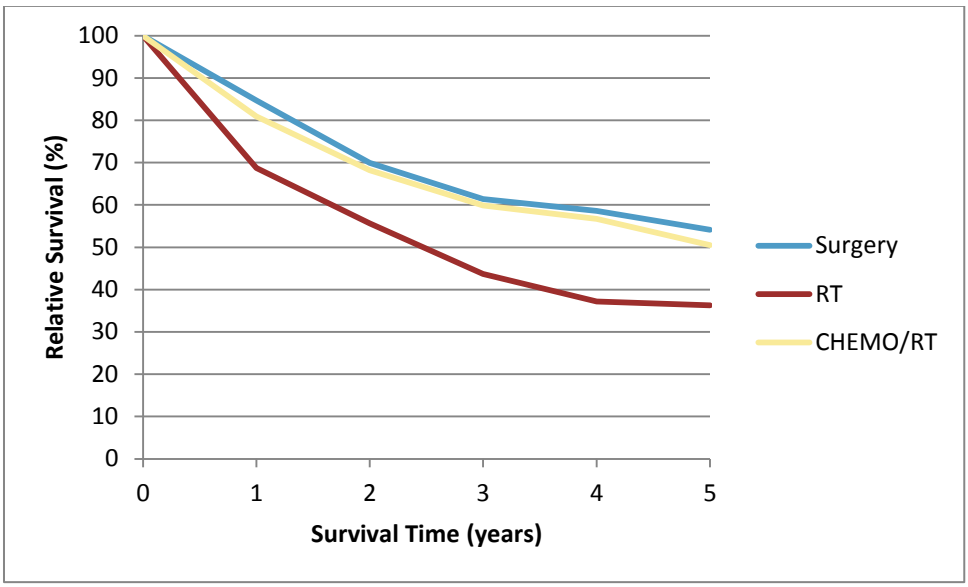

Figure 230. Oropharyngeal Cancer: Relative Survival by Primary Treatment - Stage III – IVb (Flemish Region, 2004-2007)

7. Analyses by Volume

During the period 2004-2007, Belgian patients with oropharyngeal cancer are treated in 46 different Flemish hospitals. The mean number of patients (during the period 2004-2007) by hospital is 17.0 and the median number is 5, with a range between 1 and 115. The distribution of the number of patients (=volume) per hospital is displayed in Figure 231.

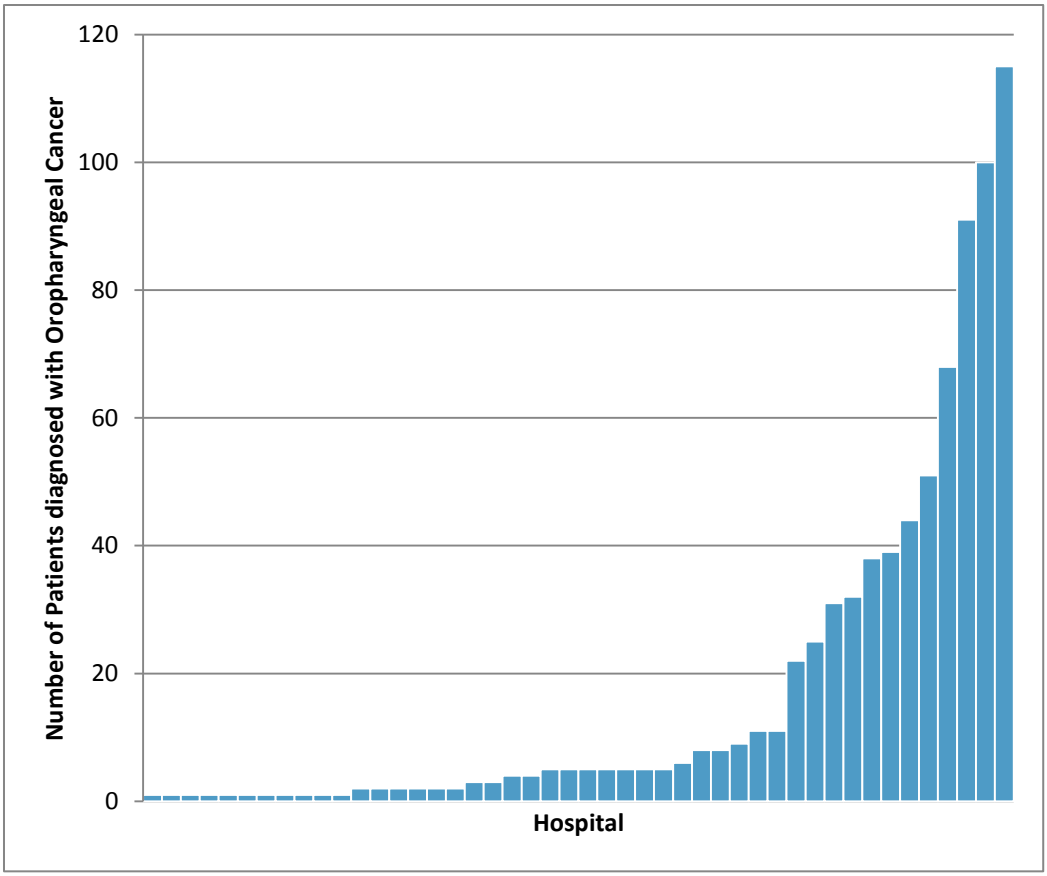

Figure 231. Oropharyngeal Cancer: Distribution of Patients by Hospital (Flemish Hospitals, 2004-2007)

768 Flemish patients (94.7%) can be assigned to a hospital (see Methodology for the rules applied to assign a patient to one hospital). Considering hospitals having taken care of 80 or more patients diagnosed during the period 2004-2007 as high-volume hospitals, 321 patients are assigned to high-volume hospitals and 447 patients are assigned to low-volume hospitals.

Treatment schemes are different for low-volume and high-volume hospitals (Figure 232). In high-volume hospitals, 19.3% of the patients is treated with RT, 36.4% is treated with chemoradiotherapy, while another 38.6% is primarily treated with surgery. For low-volume hospitals these percentages are 15.0%, 28.9% and 50.3%, respectively. The differences between high- and low volume hospitals can partly be explained because the RT centres are overrepresented in the high-volume group due to the rules for assignment that give a rather high priority to the hospital where the RT has taken place.

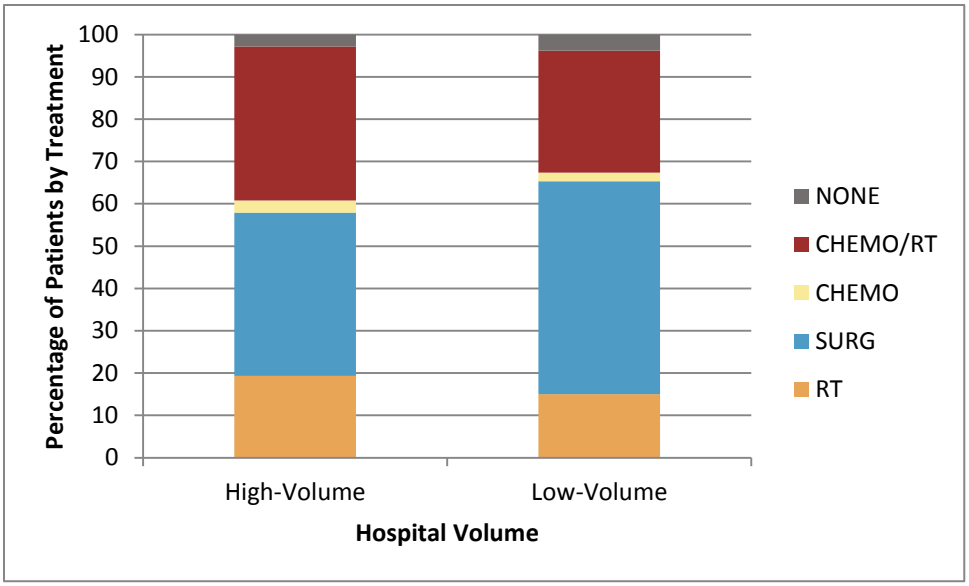

Figure 232. Oropharyngeal Cancer: Primary Treatment by Hospital Volume (High-Volume versus Low-Volume Hospitals) (Flemish Region, 2004-2007)

8. References

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CHAPTER 6. ORAL CAVITY

1. Introduction

1.1 General Information and Aetiology

The oral cavity extends from the lips to the palatoglossal folds and consists of the anterior two thirds of the tongue, floor of the mouth, buccal mucosa, lower and upper alveolar ridge, hard palate and retromolar gingiva (Figure 233) [1].

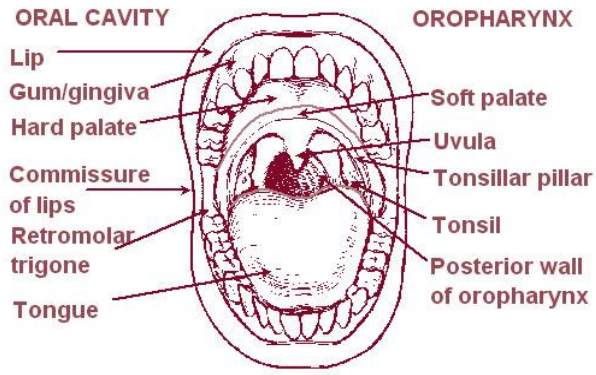

Figure 233. Anatomy of the Oral Cavity

In Belgium for incidence year 2008, 612 patients are diagnosed with a carcinoma of the oral cavity. Men are more than twice as frequently affected than women [2]. Besides excess in smoking and alcohol consumption, other aetiological risk factors are known such as poor mouth hygiene, chronic irritation, food or vitamin deficiencies and genetic factors. Nevertheless, especially older women sometimes develop cancer of the oral cavity without any known risk factor [1,3].

At early stage, these cancers often stay asymptomatic or cause non-specific problems such as gum bleeding or difficulties with false teeth. Later onwards, local pain, chewing, swallowing or speaking problems, cranial neuropathies or trismus may occur [3].

1.2 Diagnosis and Treatment

The clinical diagnosis of malignancy can be preceded by a history of premalignant lesions such as leukoplakia or eryhtroplakia. Patients presenting with suspicious symptoms should be carefully examined, both concerning the oral cavity itself as the regional (neck) lymph nodes. Definitive histological confirmation is as always necessary [3].

The information obtained from clinical examination should be supplemented with imaging by CT and MRI in order to judge on the extent of the tumor and invasion of regional lymph nodes. Dental radiographs or an orthopantomogram may help in identifying involvement of the underlying bone.

The importance of distant metastasis is increasing as locoregional control improves. These distant metastases most often occur in lung, liver or bone [3,4].

As for head and neck cancer sublocalisations, active screening for second primary tumors is often performed, with an X-ray of the thorax and an oesophagoscopy [3,4].

Treatment modalities are chosen in function of the clinical staging, the patients' comorbidities and the expertise of the oncologic center. For small primary tumours, surgery and radiotherapy generally yield equal results. For larger tumours or in case of invaded lymph nodes, a combination treatment of surgery plus radio(chemo)therapy is indicated. Inoperable patients may be treated with chemoradiotherapy. In the majority of the patients, the bilateral neck lymph nodes are also treated [3,4].

Relative survival rates at 5 years after diagnosis situate around 50%, but differences in sex, age and stage are noted [5].

2. Data Selection

All cancers of oral cavity diagnosed between 2004 and 2007 for patients with an official residence in the Flemish Region are selected, resulting in 1,211 cases (for detailed information on selected topography and morphology codes, see Appendix A). As described in Figure 234, 144 of them are excluded resulting in 1,077 patients for which results are presented in this chapter.

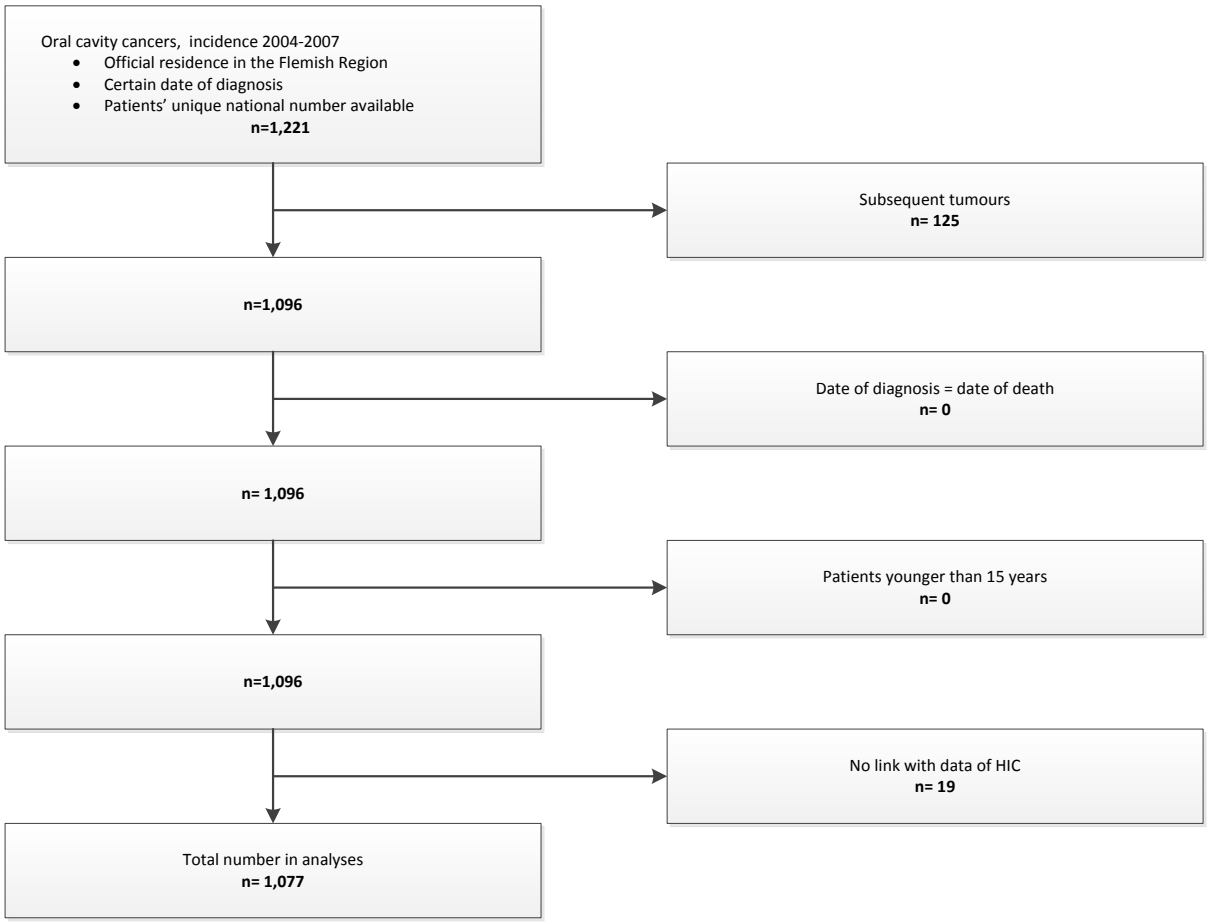

Figure 234. Selection of Oral Cavity Tumours (Flemish Region, 2004-2007)

3. Patient Characteristics

Males are more frequently diagnosed with a tumour of the oral cavity than females (male/female ratio = 2.76) during the observed period (Table 158). There seem to be a decreasing trends over the incidence years.

The median age is 58 years for males and 62.5 years for females. For further analyses, the patients are divided in three age categories: 15 -54 years, 55-64 years and 65 years and older (Table 159).

Table 158. Oral Cavity Cancer: Incidence (Flemish Region, 2004-2007)

	Males		Females		Total	
Incidence Year	n	ESR	n	ESR	n	ESR
2004	212	6.37	76	2.00	288	4.15
2005	201	5.89	101	2.61	302	4.25
2006	196	5.67	71	1.80	267	3.71
2007	152	4.29	68	1.61	220	2.94
2004-2007	761	5.55	316	2.01	1077	3.76

ESR: age-standardised rate, using the European Standard Population (n/100,000 person years)

Table 159. Oral Cavity Cancer: Age Distribution (Flemish Region, 2004-2007)

	Males	Females	Total
15-54 years	258	85	343
55-64 years	279	85	364
65+ years	224	146	370

4. Tumour Characteristics

Sublocalisation, morphology, differentiation grade and stage (clinical, pathological and combined stage) of the selected oral cavity cancers are described in Table 160. Six-hundred-fifteen tumours (57.1%) are staged as “Other and unspecified parts” of respectively the tongue (C02.0-C02.3, C02.9) and mouth (C06).

Table 160. Oral Cavity Cancer: Tumour Characteristics (Flemish Region, 2004-2007)

	N	% of total	% of known
Localisation			
Other and unspecified parts of tongue (C02.0-C02.3, C02.9)	399	37.0	46.3
Gum (C03)	66	6.1	7.7
Floor of mouth (C04)	381	35.4	44.3
Hard palate (C05.0)	15	1.4	1.7
Other and unspecified parts of mouth (C06)	216	20.1	/
Morphology			
Squamous cell carcinoma	1,077	100.0	/
Differentiation grade			
Well differentiated	243	22.6	26.0
Moderately differentiated	448	41.6	47.9
Poorly differentiated	236	21.9	25.2
Undifferentiated	9	0.8	1.0
Unknown	141	13.1	/
Clinical stage			
0	1	0.1	0.1
I	151	14.0	19.3
II	174	16.2	22.3
III	118	11.0	15.1
IV	338	31.4	43.2
Unknown	295	27.4	/
Pathological stage			
I	177	16.4	29.1
II	130	12.1	21.4
III	87	8.1	14.3
IV	214	19.9	35.2
Unknown	469	43.5	/
Combined stage			
I	214	19.9	23.6
II	178	16.5	19.6
III	124	11.5	13.7
IV	390	36.2	43.0
Unknown	171	15.9	/

All oral cavity cancers have a squamous cell carcinoma histology. The majority of the cases originate from the tongue and the floor of mouth. Moderate differentiation is the most commonly and undifferentiated the least commonly diagnosed differentiation grade. As shown in Figure 235 and Figure 236, no major differences in stage distribution are seen between both sexes or amongst different age categories. Nevertheless, the youngest age group (15-54 years) has a slightly more

favorable stage distribution and the oldest age group has a higher proportion of missing data concerning the stage of the disease.

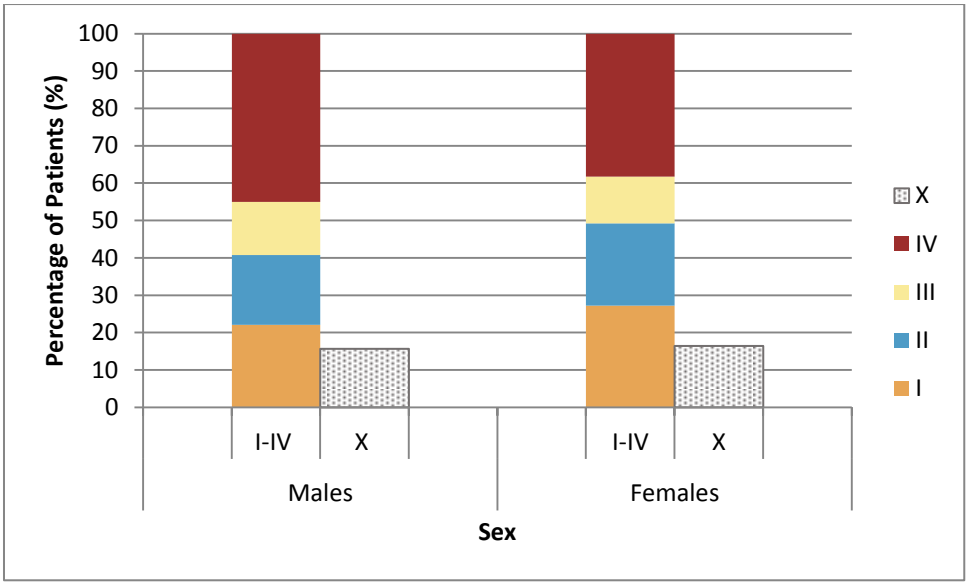

Figure 235. Oral Cavity Cancer: Stage Distribution by Sex (Flemish Region, 2004-2007)

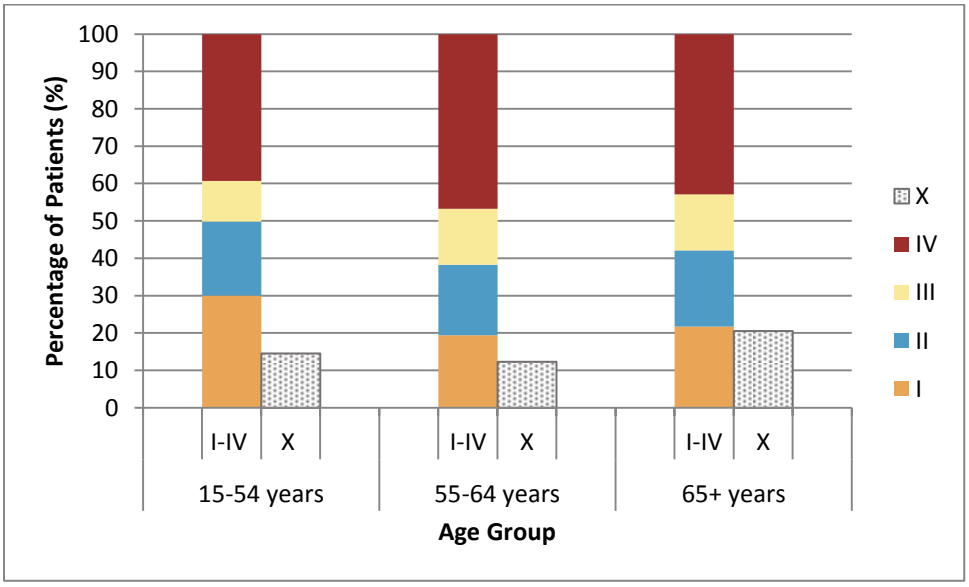

Figure 236. Oral Cavity Cancer: Stage Distribution by Age Group (Flemish Region, 2004-2007)

5. Diagnostic and Therapeutic Procedures

5.1 Diagnosis and Staging

All procedures regarding diagnosis and staging of the oral cavity cancers occurring within three months around incidence date are described in Table 161.

The diagnosis of cancer is confirmed by pathology tissue examination in almost all cases (97.4%). Very rare, cytology is found to be the sole specimen that serves as the basis for diagnosis.

To evaluate tumour extent, imaging techniques are frequently used (94.2%). CT is performed in almost nine patients on ten. An X-ray of the chest is done in more than 85% of the patients. MRI and PET are used in about one patient on three.

As indicated, more than half of the patients undergo screening for second primary cancers in the upper aerodigestive tract (63.6%).

Biopsies of suspected neck lymph nodes are uncommonly performed (2.7%).

Table 161. Oral Cavity Cancer: Overview of Diagnostic and Staging Procedures (Flemish Region, 2004-2007)

Diagnostic Procedure (-3m<inc<+3m)	Total (N=1,077)		2004 (N=288)		2005 (N=302)		2006 (N=267)		2007 (N=220)	
	n	%	n	%	n	%	n	%	n	%
Tissue Examination	**1,049**	**97.4**	**282**	**97.9**	**291**	**96.4**	**259**	**97.0**	**217**	**98.6**
Histological Diagnosis	1,048	97.3	282	97.9	291	96.4	259	97.0	216	98.2
Cytology	147	13.6	34	11.8	42	13.9	41	15.4	30	13.6
Imaging	**1,014**	**94.2**	**275**	**95.5**	**276**	**91.4**	**256**	**95.9**	**207**	**94.1**
CT	955	88.7	254	88.2	259	85.8	250	93.6	192	87.3
MRI	389	36.1	96	33.3	118	39.1	94	35.2	81	36.8
Ultrasound Neck	121	11.2	28	9.7	41	13.6	32	12.0	20	9.1
PET Scan	347	32.2	83	28.8	88	29.1	91	34.1	85	38.6
Chest X-ray	920	85.4	259	89.9	240	79.5	233	87.3	188	85.5
Ultrasound Abdomen	499	46.3	132	45.8	129	42.7	133	49.8	105	47.7
Screening for Second Primary Malignancies	**685**	**63.6**	**191**	**66.3**	**181**	**59.9**	**176**	**65.9**	**137**	**62.3**
Respiratory Tract	549	51.0	155	53.8	147	48.7	146	54.7	101	45.9
Digestive Tract	462	42.9	123	42.7	117	38.7	124	46.4	98	44.5
Other Procedures										
Lymph Node Biopsy	29	2.7	6	2.1	11	3.6	7	2.6	5	2.3

5.2 Multidisciplinary Oncological Consult

Overall, about 60% of all oral cavity cancer patients are discussed at a multidisciplinary oncological consult (MOC) within 1 month before till three months after incidence date. An increase of the proportion of patients discussed at a MOC is observed during the observation period, ranging from 52.4 % in 2004 to 62.7% in 2007 (Table 162).

Table 162. Oral Cavity Cancer: Frequency of Multidisciplinary Oncological Consult (Flemish Region, 2004-2007)

	MOC	
Incidence Year	n	%
2004 (n=288)	151	52.4
2005 (n=302)	179	59.3
2006 (n=267)	171	64.0
2007 (n=220)	138	62.7
Total (n=1,077)	639	59.3

5.3 Therapeutic Procedures

Three different surgery types are taken into account for the treatment analyses: major surgery for larger oral cavity tumours (e.g resection uvular cancer), minor surgery (e.g. cryo-surgery), and lymphadenectomies. Major surgeries always receive priority when performed within the studied timeframe. Otherwise, minor surgery or lymphadenectomy is taken into account, with preference for the surgical procedure that is closest to incidence date.

Within one month before and six months after incidence date, more than 70% of the patients has been operated, of which the majority (80.2%) at least major surgery (Table 163).

Table 163. Oral Cavity Cancer: Overview of the Selected Surgeries (Flemish Region, 2004-2007)

Type of Surgery	n	%
Major Surgery	647	80.2
Minor Surgery	116	13.4
Lymphadenectomy	44	5.5

For 13 patients, the surgical procedure is carried out after radiotherapy (within the timeframe of six months after incidence) and therefore considered as salvage surgery. For the remaining 794 operated patients, the surgical procedure is considered to be the cornerstone of the treatment (Table 164). More than halve of these are postoperatively irradiated either with or without concomitant chemotherapy. The number of patients who undergo surgery without adjuvant radio- or chemotherapy is more than 40%.

More than 15% of the patients are mainly treated with radiotherapy. This irradiation is sometimes performed alone but more frequently in combination with chemotherapy. Chemotherapy as only treatment is given in a very small proportion of the patients (1.6%).

No indications on any oncological treatment (surgery, radiotherapy or chemotherapy) within the studied timeframe are found for only about 8% of the patients.

Table 164. Oral Cavity Cancer: Overview of Treatment Schemes (Flemish Region, 2004-2007)

Treatment Scheme	n	%
Surgery	**794**	**73.7**
Adjuvant radiotherapy	314	29.2
Adjuvant chemoradiotherapy	111	10.3
No other therapy	346	32.1
Other therapy		
Surgery < chemotherapy	14	1.3
Chemotherapy < surgery < radiotherapy	1	0.1
Chemotherapy < surgery < chemotherapy	1	0.1
Chemotherapy < surgery < chemoradiotherapy	7	0.6
Radiotherapy	**77**	**7.1**
Chemoradiotherapy	**102**	**9.5**
Chemotherapy only	**17**	**1.6**
No primary treatment registered	**87**	**8.1**

6. Survival

6.1 Observed and Relative Survival

Survival of oral cavity cancer patients is rather poor, with less than half of the patients surviving more than five years (Table 165).

Table 165. Oral Cavity Cancer: Observed and Relative Survival (Flemish Region, 2004-2007)

	Observed Survival (%)					Relative Survival (%)				
N at risk	1 year	2 year	3 year	4 year	5 year	1 year	2 year	3 year	4 year	5 year
1,075	74.7	61.1	55.0	49.9	45.5	76.2	63.3	58.0	53.4	49.5

6.2 Relative Survival by Sex

Survival is comparable between males and females, there is only a slightly difference in favour of females noted during the follow-up (Table 166).

Table 166. Oral Cavity Cancer: Relative Survival by Sex (Flemish Region, 2004-2007)

			Relative Survival (%)				
	N at risk	%	1 year	2 year	3 year	4 year	5 year
Males	759	70.6	76.7	63.4	57.8	52.6	48.6
Females	316	29.4	75.1	63.2	58.5	55.2	51.6

6.3 Relative Survival by Age Group

The youngest patients have the best prognosis, the oldest the worst. The middle age group (55-64 years) has a 5-year relative survival of almost 50% (Table 167). The difference between the youngest and the middle group is comparable to the difference between the middle and the oldest group.

Table 167. Oral Cavity Cancer: Relative Survival by Age Group (Flemish Region, 2004-2007)

	N at risk	%	Relative Survival (%)				
			1 year	2 year	3 year	4 year	5 year
15-54 years	341	31.7	86.2	74.4	67.8	64.5	61.4
55-64 years	364	33.9	78.6	63.6	59.4	54.2	48.1
65+ years	370	34.4	64.1	52.3	46.9	41.4	38.9

6.4 Relative Survival by Stage

Survival is better for patients diagnosed with a stage I tumour (5-year relative survival: 74.3%) compared with the other stages (Figure 237). Survival is worst for patients diagnosed with a stage IV tumour (5-year relative survival: 33.1%). However, it should be noted that, in line with other head and neck cancers, some locally or regionally advanced diseases are also categorised as stage IV (stage IVA or IVB, more precisely). Oral cavity tumours with distant metastases are labelled as Stage IVC, but are rare in this study (only 21 patients in this selection of patients). Consequently, survival for stage IV cancers is rather high compared to other types of cancers.

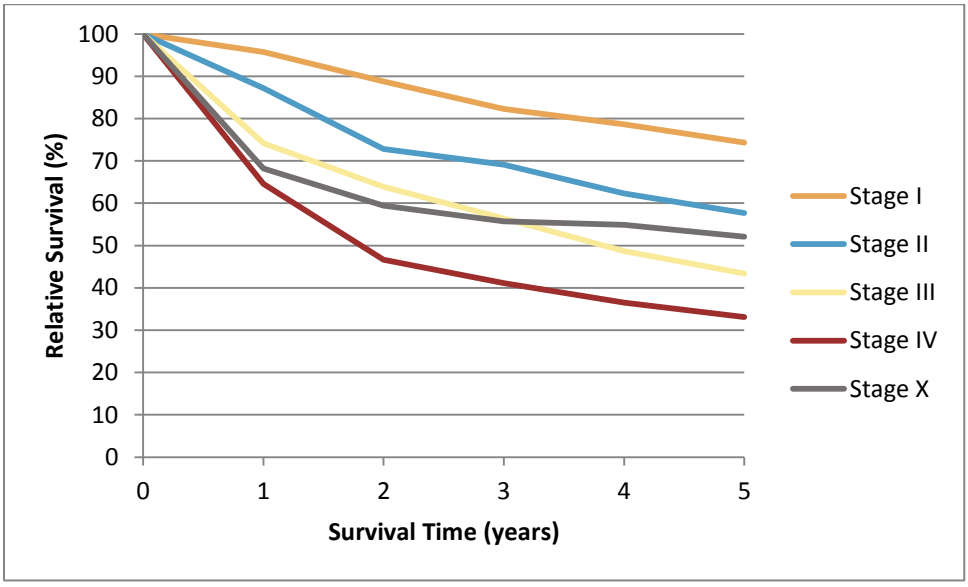

Figure 237. Oral Cavity Cancer: Relative Survival by Stage (Flemish Region, 2004-2007)

6.5 Relative Survival by Sublocalisation

Survival is comparable between the different sublocalisations during the first 5 years of follow-up (Figure 238).

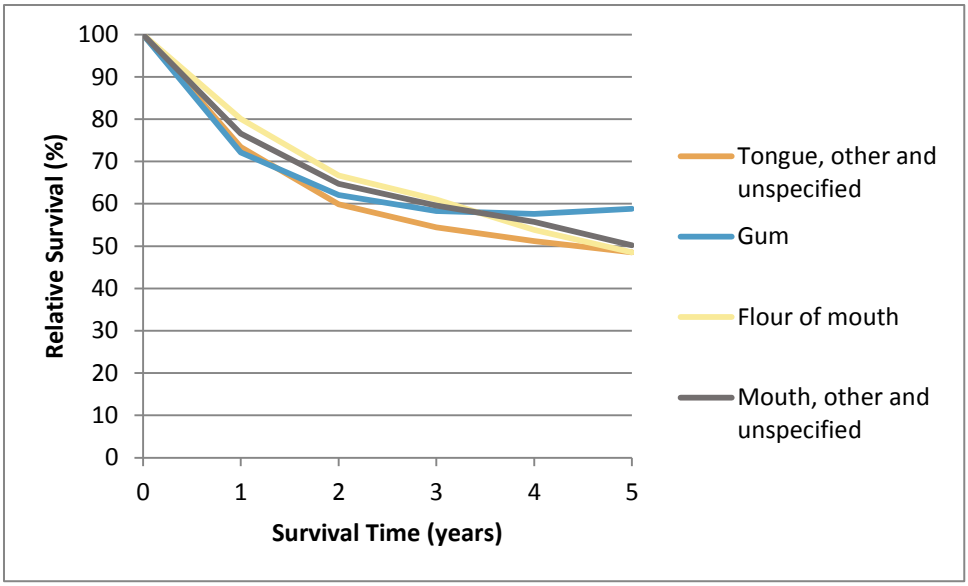

Figure 238. Oral Cavity Cancer: Relative Survival by Sublocalisation (Flemish Region, 2004-2007)

6.6 Relative Survival by Primary Treatment

In the evaluation of survival by primary treatment, we only mention stage III to IVb disease, because a large part of all stage I and II tumours are only treated with surgery (84.1%) and only a small part with radiotherapy (6.9%) or chemoradiotherapy (1.8%). In 7.2% no charged treatments have been registered.

For stage III-IVb diseases, 5-year relative survival is better for patients who are primarily treated with surgery (42.9%) than for patients primarily treated with chemoradiotherapy (29.6%) or radiotherapy (16.2%) (Figure 239).

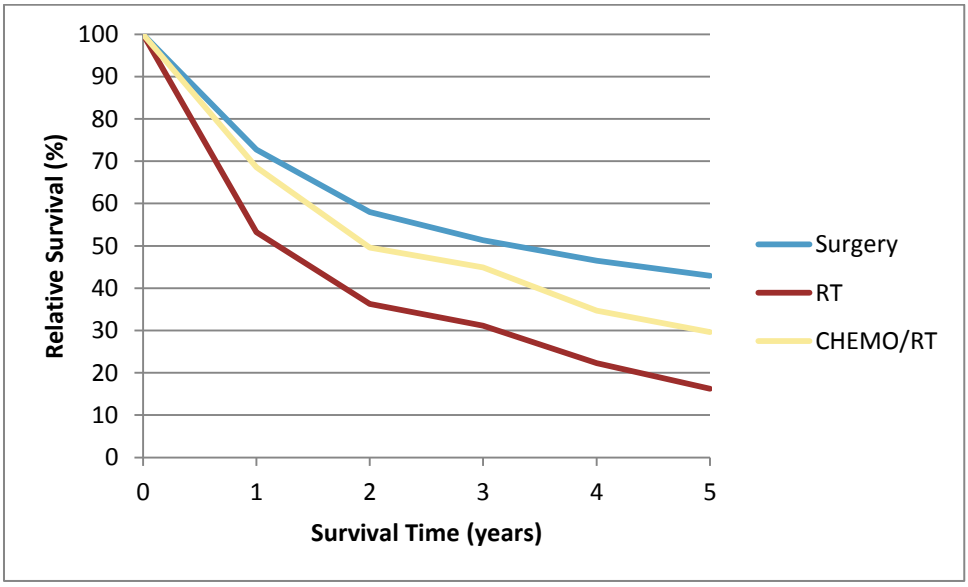

Figure 239. Oral Cavity Cancer: Relative Survival by Primary Treatment - Stage III- IVb (Flemish Region, 2004-2007)

7. Analyses by Volume

During the period 2004-2007, Belgian patients with oral cavity cancer are treated in 54 different Flemish hospitals. The mean number of patients (during the period 2004-2007) by hospital is 18.8 and the median is 5.5, with a range between 1 and 135. The distribution of the number of patients (=volume) per hospital is displayed in Figure 240.

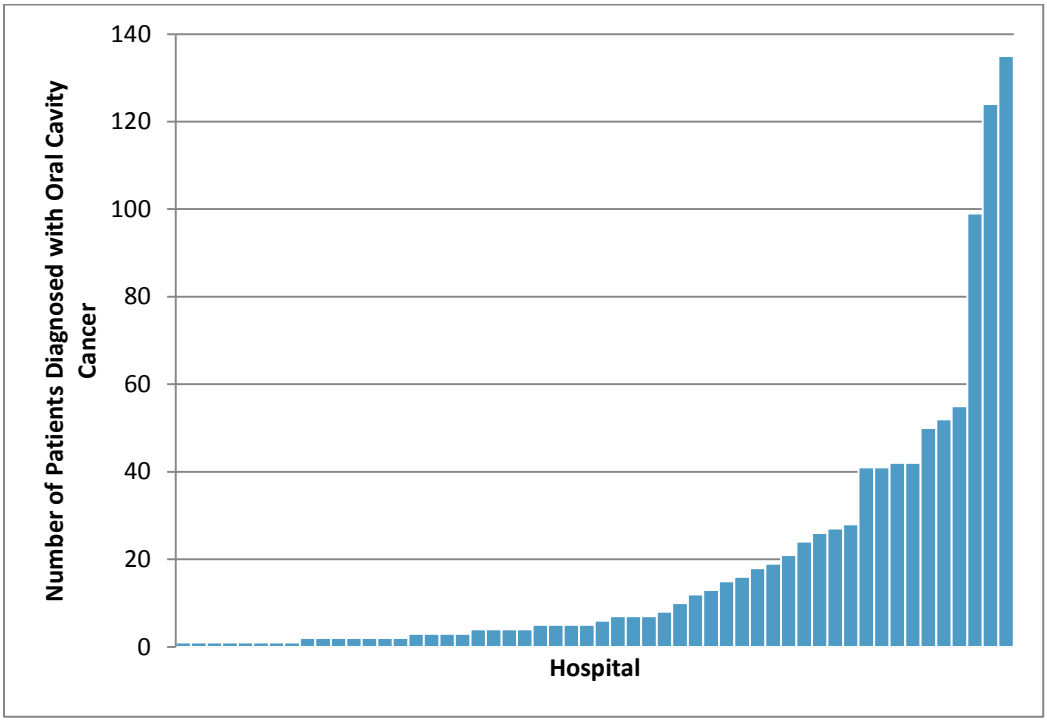

Figure 240. Oral Cavity Cancer: Distribution of Patients by Hospital (Flemish Hospitals, 2004-2007)

1,015 of the Flemish patients (94.2%) can be assigned to a hospital (see Methodology for the rules applied to assign a patient to one hospital). Considering hospitals having taken care of 60 or more patients diagnosed during the period 2004-2007 as high-volume hospitals, 363 patients are assigned to high-volume hospitals and 652 are assigned to low-volume hospitals. Treatment schemes are similar for low-volume and high-volume hospitals (Figure 241). In low-volume hospitals, 78.1% of the patients is primarily treated with surgery, 9.5% is primarily treated with chemo/RT and 7.4% is primarily treated with RT only. For high-volume hospitals these percentages are 76.3%, 11.0% and 8.0%, respectively.

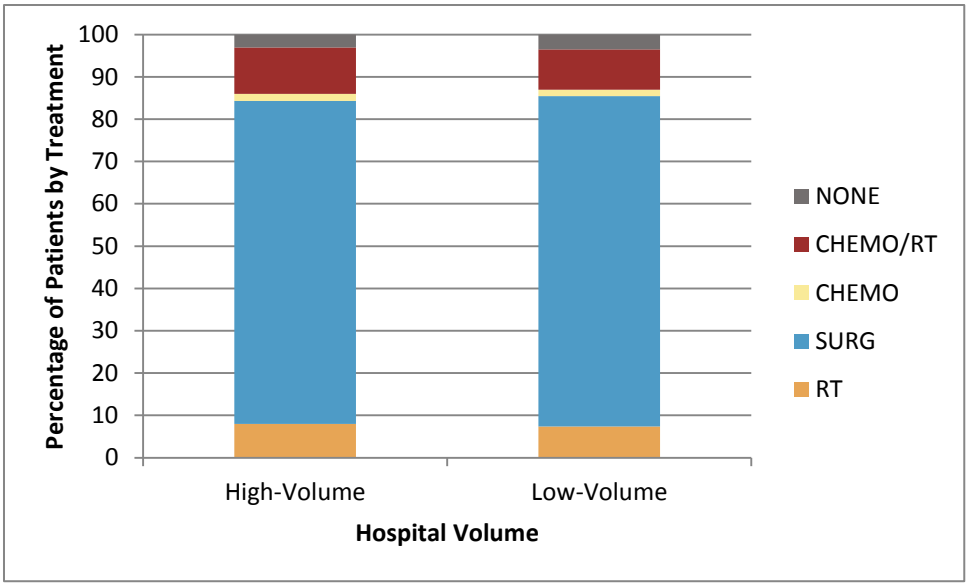

Figure 241. Oral Cavity Cancer: Primary Treatment by Hospital Volume (Low-Volume versus High-Volume Hospitals, Flemish Region, 2004-2007)

8. References

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CHAPTER 7. LIP

1. Introduction

1.1 General Information and Aetiology

Lips are the external part of the mouth. They are bounded externally by facial skin. On the oral cavity side, they are continuous with buccal mucosa (Figure 242). They play a major role in food intake and in articulation of sound and speech.

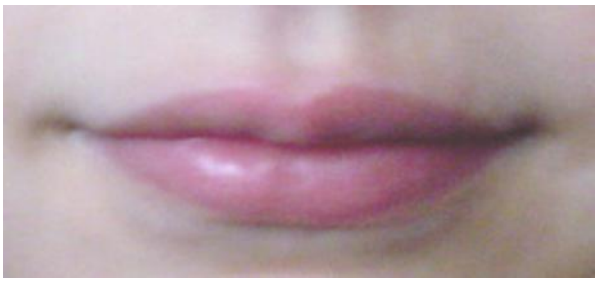

Figure 242. Lip

In the Flemish Region, for the period 2004-2007, lip cancer accounted for 3.8% of all the head and neck cancers [1]. Squamous cell carcinoma are the most frequent neoplasms at this site and represent 98% of all lip cancers in the Flemish Region in this period. Mostly, these cancers originate from the lower lip [2-5].

Lip cancer occurs more often in males than in females and is more common in white people [3, 4, 6].

The main aetiological factor is chronic solar exposure, sometimes associated with work environmental exposure in occupations as fishing and agriculture [2,3,6]. As lip protection is more frequently used by females, this might at least partly explain the sex difference in incidence [6]. Other risk factors associated with lip cancer are tobacco and alcohol consumption [2,3]. Viral factors such as Human Papilloma Virus are also cited to play an aetiological role in lip cancer [3].

At time of diagnosis, lymph node metastasis is observed in about 20% of the cases and mostly associated with extended lesions. Only 5-10% of patients with T1-T2 lesions present with lymph node invasion [3, 5].

Due to its visible location, lip cancers are most frequently diagnosed at an early stage and are therefore generally curable. Five-year relative survival rates are high and range from 85% [7,8] to 94% [9]. Age is shown to be inversely related to prognosis, the disease being more aggressive in younger patients [5]. Prognosis is worse for tumours located on the upper lip [6,8].which is part of the so called “triangle of death”. This triangle extends from the corners of the mouth to the bridge of the nose.

1.2 Diagnosis and Treatment

Besides clinical examination, a biopsy is necessary to confirm the diagnosis [3,10]. The classical workup to look for lymph node metastases consists of a CT-scan and/or MRI [3,10]. Chest imaging, by X-ray, is performed in search of distant metastases[10].

Based on the NCCN guidelines [10], the following standard treatment schemes can be proposed.

For T1 or T2 tumours with no clinically detected lymph node invasion, surgical excision is preferred, eventually completed with radiotherapy in case of positive surgical margins or perineural/vascular/lymphatic invasion.

For other cases (T3 and T4 tumours or N+), surgery is preferred when possible, consisting of excision of the primary lesion and neck dissection. An adjuvant treatment is set up:

- Radiotherapy is possibly performed if one positive node is confirmed after excision.
- Chemoradiotherapy (or eventually radiotherapy) is preferred if extracapsular spread or positive margins are discovered after excision.

Radio(chemo)therapy can also be proposed for non-operable advanced tumours or to patients who are too fragile for surgery [5].Possible morphological and functional damages should be taken into account with surgery of the lip. For this reason brachytherapy can be preferred in small tumours and has been proven to offer the same result in local control and survival [5, 11]. If surgery is chosen for larger tumours, reconstructive surgery will be necessary, not only for an aesthetic purpose, but also for functional reasons [5].

2. Data Selection

All cancers of the lip diagnosed between 2004 and 2007 for patients with an official residence in the Flemish Region are selected, resulting in 190 cases (for detailed information on selected topography and morphology codes, see Appendix A). As described in Figure 243, 23 of them are excluded, resulting in 167 patients for whom results are presented in this chapter.

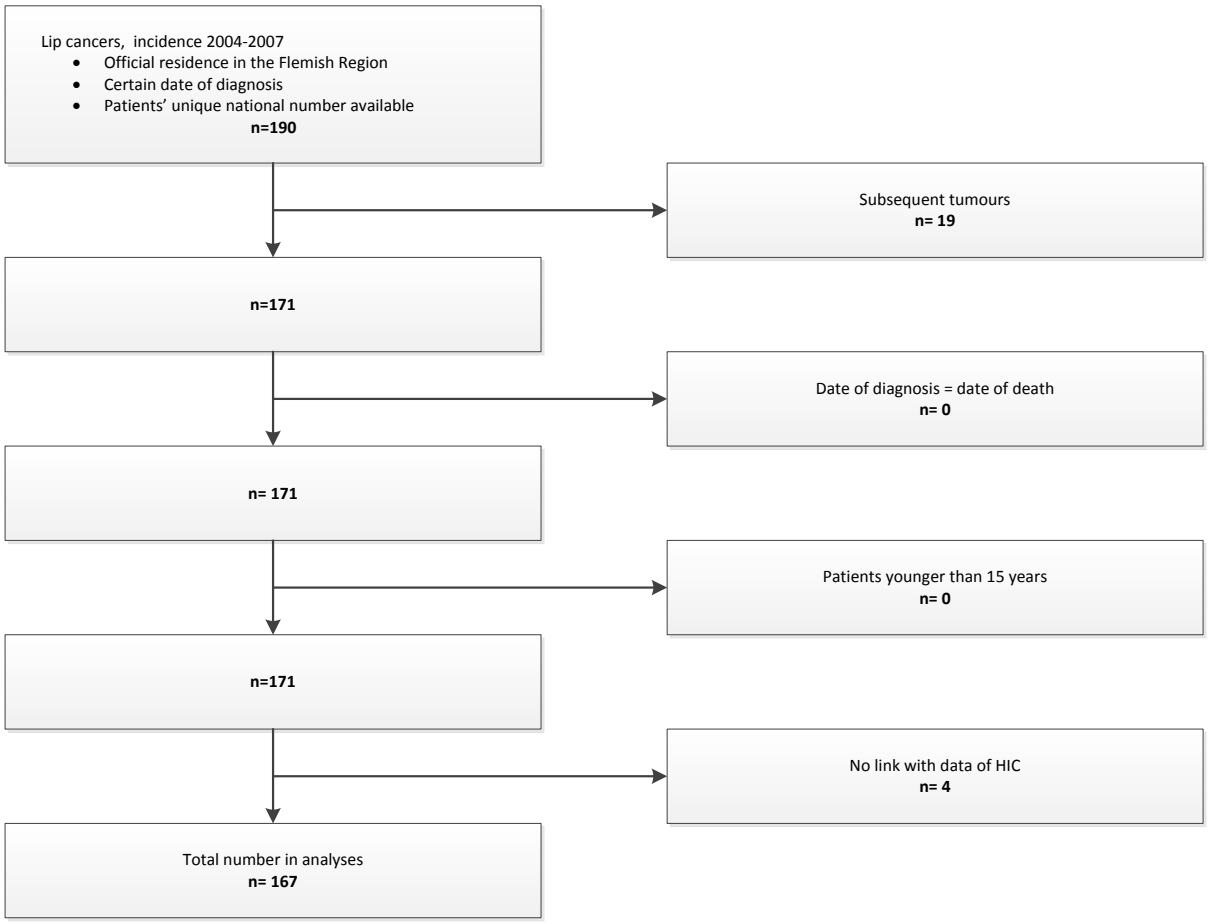

Figure 243. Selection of Lip Tumours (Flemish Region, 2004-2007)

3. Patient Characteristics

The number of patients diagnosed with a tumour of the lip in the Flemish Region is low, namely 167 in the period 2004-2007 (Table 168). Males are more often diagnosed with lip cancer than females (male/female ratio: 4.5). No clear trend in age-standardised rates can be observed, although the lower rate in 2007 is remarkable.

The median age is 72 years for males and 77 years for females. The minimum age is 41 while the maximum is 92. Patients are divided into three age groups for further analyses: 15-54 years, 55-69 years old and 70 years or older (Table 169).

Table 168. Lip Cancer: Incidence (Flemish Region, 2004-2007)

	Males		Females		Total	
Incidence Year	n	ESR	n	ESR	n	ESR
2004	38	0.95	13	0.21	51	0.52
2005	41	1.05	13	0.27	54	0.63
2006	33	0.86	7	0.13	40	0.48
2007	17	0.42	5	0.11	22	0.25
2004-2007	129	0.81	38	0.18	167	0.47

ESR: age-standardised rate, using the European Standard Population (n/100,000 person years)

Table 169. Lip Cancer: Age Distribution (Flemish Region, 2004-2007)

	Males	Females	Total
15-54 years	11	4	15
55-69 years	43	11	54
70+ years	75	23	98

4. Tumour Characteristics

Sublocalisation, morphology, differentiation grade and stage (clinical stage, pathological stage and combined stage) are reported in Table 170. More than half of the tumours of the lip have an unspecified localisation. Amongst the tumours with a specified localisation, the majority is localised on the external lower lip. More than half of the tumours are well-differentiated and no undifferentiated tumours are reported. The stage is often unknown, but for tumours with a known stage, stage I is most common.

Table 170 . Lip Cancer: Tumour Characteristics (Flemish Region, 2004-2007)

	N	% of total	% of known
Localisation			
External upper lip (C00.0)	12	7.2	14.5
External lower lip (C00.1)	59	35.3	71.1
External lip, unspecified (C00.2)	1	0.6	1.2
Lower lip, inner aspect (C00.4)	9	5.4	10.8
Lip, unspecified, inner aspect (C00.5)	2	1.2	2.4
Lip, unspecified (C00.9)	84	50.3	/
Morphology			
Squamous cell carcinoma	176	100.0	100.0
Differentiation grade			
Well differentiated	82	49.1	63.1
Moderately differentiated	35	21.0	26.9
Poorly differentiated	13	7.8	10.0
Undifferentiated	-	0.0	0.0
Unknown	37	22.2	/
Clinical stage			
I	40	24.0	71.4
II	10	6.0	17.9
III	3	1.8	5.4
IV	3	1.8	5.4
Unknown	111	66.5	/
Pathological stage			
I	53	31.7	91.4
II	4	2.4	6.9
III	-	0.0	0.0
IV	1	0.6	1.7
Unknown	109	65.3	/
Combined stage			
I	63	37.7	77.8
II	13	7.8	16.0
III	1	0.6	1.2
IV	4	2.4	4.9
Unknown	86	51.5	/

According to Figure 244, males are diagnosed with less advanced disease than females. It should be noted that the low number of females diagnosed with a lip cancer may influence these results. The proportion of stage IV tumours is higher for the youngest age group (Figure 245) although the low number of patients in this age group may obscure this result. The proportion of tumours with an unknown stage is almost 20% lower for the middle age group (55-64 years old) than for the younger and the older age group.

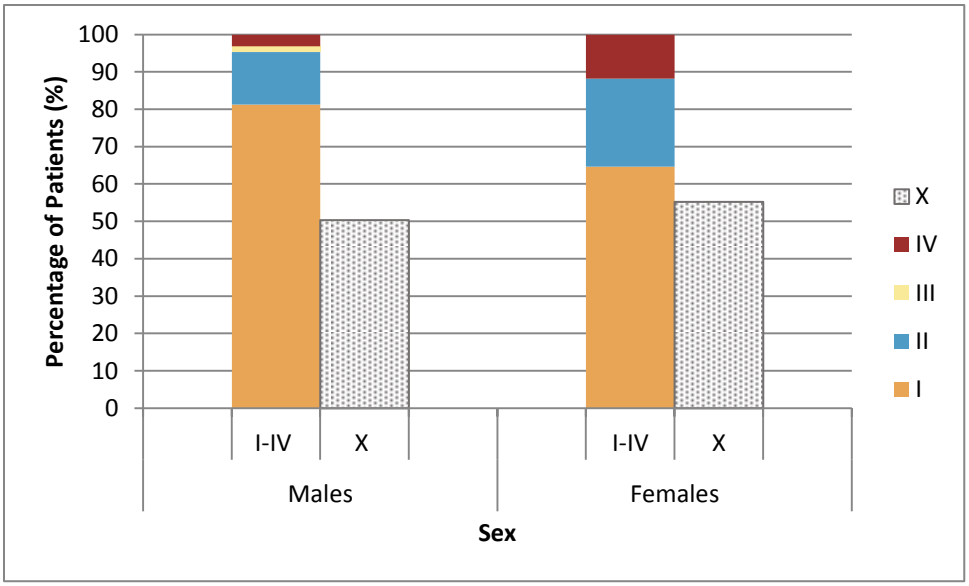

Figure 244. Lip cancer: Stage Distribution by Sex (Flemish Region, 2004-2007)

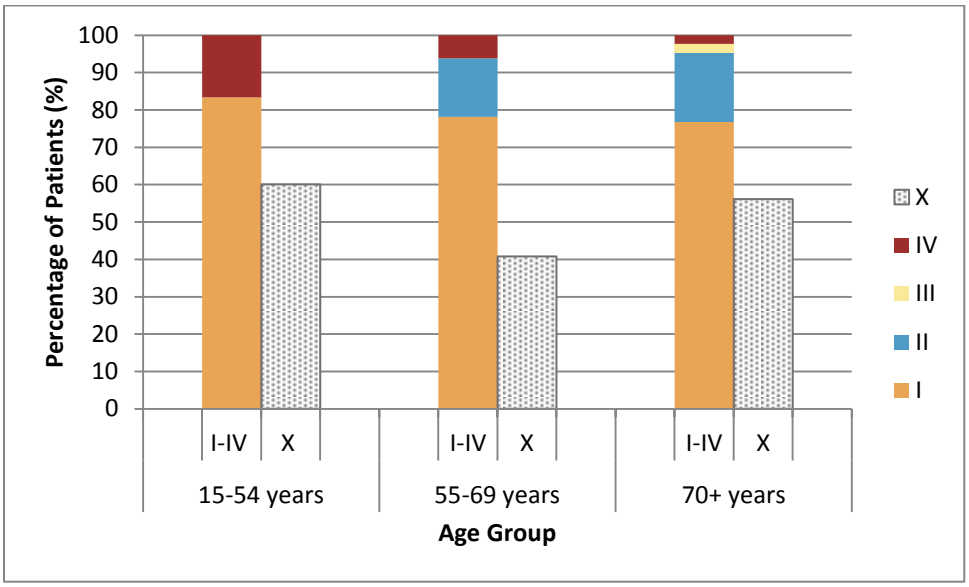

Figure 245. Lip Cancer: Stage Distribution by Age Group (Flemish Region, 2004-2007)

5. Diagnostic and Therapeutic Procedures

5.1 Diagnosis and Staging

An overview of the diagnostic and staging procedures for lip cancer is reported in Table 171.

A tissue examination is performed in almost all cases (98.2%); only 3 patients have not received a histological diagnosis within three months around the incidence date. Cytology is very rare (7.8%) and is only performed in patients who also got a biopsy.

Although CT-scan is the most commonly performed diagnostic technique for analysing tumour extent and lymph node metastasis, its use stays rather uncommon: on average 28.1% of patients receive a CT scan around the incidence date. I It should be noted that the proportion of patients receiving a CT scan largely fluctuates over the studied incidence years. An ultrasound of the neck is performed in about one patient out of five within three months around the incidence date. The proportion of ultrasounds is remarkably higher in 2007 than in the previous years. MRI and PET-scan are rare, with 6.0% and 4.2% of the patients respectively having undergone these examinations.

43.7% of patients undergo a chest X-ray within the studied timeframe.

Table 171. Lip Cancer: Overview of Diagnostic and Staging Procedures (Flemish Region, 2004-2007)

Diagnostic Procedure (-3m<inc<+3m)	Total (N=167)		2004 (N=51)		2005 (N=54)		2006 (N=40)		2007 (N=22)	
	n	%	n	%	n	%	n	%	n	%
Tissue Examination	**164**	**98.2**	**51**	**100.0**	**52**	**96.3**	**39**	**97.5**	**22**	**100.0**
Histological Diagnosis	164	98.2	51	100.0	52	96.3	39	97.5	22	100.0
Cytology	13	7.8	4	7.8	6	11.1	2	5.0	1	4.5
Imaging	**90**	**53.9**	**26**	**51.0**	**35**	**64.8**	**17**	**42.5**	**12**	**54.5**
CT	47	28.1	12	23.5	21	38.9	6	15.0	8	36.4
MRI	7	4.2	2	3.9	2	3.7	0	0.0	3	13.6
Ultrasound Neck	30	18.0	9	17.6	8	14.8	7	17.5	6	27.3
PET Scan	10	6.0	4	7.8	4	7.4	0	0.0	2	9.1
Chest X-ray	73	43.7	23	45.1	28	51.9	13	32.5	9	40.9

5.2 Multidisciplinary Oncological Consultation

In the period 2004-2007, on average 27.5% of the patients are discussed at a multidisciplinary oncological consultation (MOC) within one month before till three months after their incidence date (Table 172). This proportion is remarkably higher in 2007, where a MOC is charged for 40.9% of patients.

Table 172. Lip Cancer: Frequency of Multidisciplinary Oncological Consult (Flemish Region, 2004-2007)

	MOC	
Incidence Year	n	%
2004 (n=51)	13	25.5
2005 (n=54)	16	29.6
2006 (n=40)	8	20.0
2007 (n=22)	9	40.9
Total (n=167)	46	27.5

5.3 Therapeutic Procedures

As reported in the list of nomenclature codes, plastic surgery codes were included in the list of codes to consider for surgery (see Appendix D8).

The majority of the patients underwent surgery within six months after incidence (90.4%; Table 173). Adjuvant treatment is only added in 13.2% of patients and consists of radiotherapy (n=17), chemoradiotherapy (n=1) or chemotherapy only (n=2).

For patients treated without surgical intervention, radiotherapy is the most frequently chosen treatment option (n=11) and is given alone (n=10) or in combination with chemotherapy (n=1).

Brachytherapy (n=15) and external radiotherapy (n=14) are equally distributed amongst all registered radiation therapy regimens (n=30).

One patient is only treated with chemotherapy. In three patients, no treatment procedure could be retrieved from our database.

Table 173. Lip Cancer: Overview of Treatment Schemes (Flemish Region, 2004-2007)

Treatment Scheme	n	%
Surgery	**151**	**90.4**
Adjuvant radiotherapy	17	10.2
Brachytherapy	*10*	*6.0*
External radiation therapy	*6*	*3.6*
Both brachy- and external radiation therapy	*1*	*0.6*
Adjuvant chemoradiotherapy	1	0.6
External radiation therapy	*1*	*0.6*
Adjuvant chemotherapy	2	1.2
No other therapy	131	78.4
Radiotherapy only	**11**	**6.6**
Brachytherapy	5	3.0
External radiation therapy	6	3.6
Concomitant chemoradiotherapy	**1**	**0.6**
External radiation therapy	1	0.6
Chemotherapy only	**1**	**0.6**
No primary treatment registered	**3**	**1.8**

Lymphadenectomy is performed in only 3.0% of cases (within six months after incidence date) which seems to be low.

6. Survival

6.1 Observed and Relative Survival

Survival is high for patients with lip cancer, with a 5-year observed survival equal to 71.9% and a 5-year relative survival equal to 91.0% (Table 174).

Table 174. Lip Cancer: Observed and Relative Survival (Flemish Region, 2004-2007)

	Observed Survival (%)					Relative Survival (%)				
N at risk	1 year	2 year	3 year	4 year	5 year	1 year	2 year	3 year	4 year	5 year
167	92.2	88.0	83.8	77.2	71.9	96.3	96.2	96.0	92.9	91.0

6.2 Relative Survival by Sex

A difference in 5-year relative survival can be observed between males and females (88.4% and 100.0% for males and females respectively), although the survival results for females should be interpreted with caution because of the rather low numbers at risk (Table 175).

Table 175. Lip Cancer: Relative Survival by Sex (Flemish Region, 2004-2007)

	N at risk	%	Relative Survival (%)				
			1 year	2 year	3 year	4 year	5 year
Males	129	77.2	95.5	93.6	96.9	91.6	88.4
Females	38	22.8	99.4	100.0	92.7	97.7	100.0

6.3 Relative Survival by Age Group

Survival is slightly higher in the age group 70 years and older (5-year relative survival 90.8%) than in the age group 55-69 years (5-year relative survival 87.0%) (Table 176).

Table 176. Lip Cancer: Relative Survival by Age Group (Flemish Region, 2004-2007)

	N at risk	%	Relative Survival (%)				
			1 year	2 year	3 year	4 year	5 year
15-54 years	15	9.0	*	*	*	*	*
55-69 years	54	32.3	95.7	93.2	92.4	87.8	87.0
70+ years	98	58.7	96.1	97.2	97.2	94.3	90.8

7. Analyses by Volume

During the period 2004-2007, Belgian patients with lip cancer are treated in 45 different Flemish hospitals. The mean number of patients (during the period 2004-2007) by hospital is 3.4 and the median number of patients is 3, with a range between 1 and 12. The distribution of the number of patients (=volume) per hospital is displayed in Figure 246.

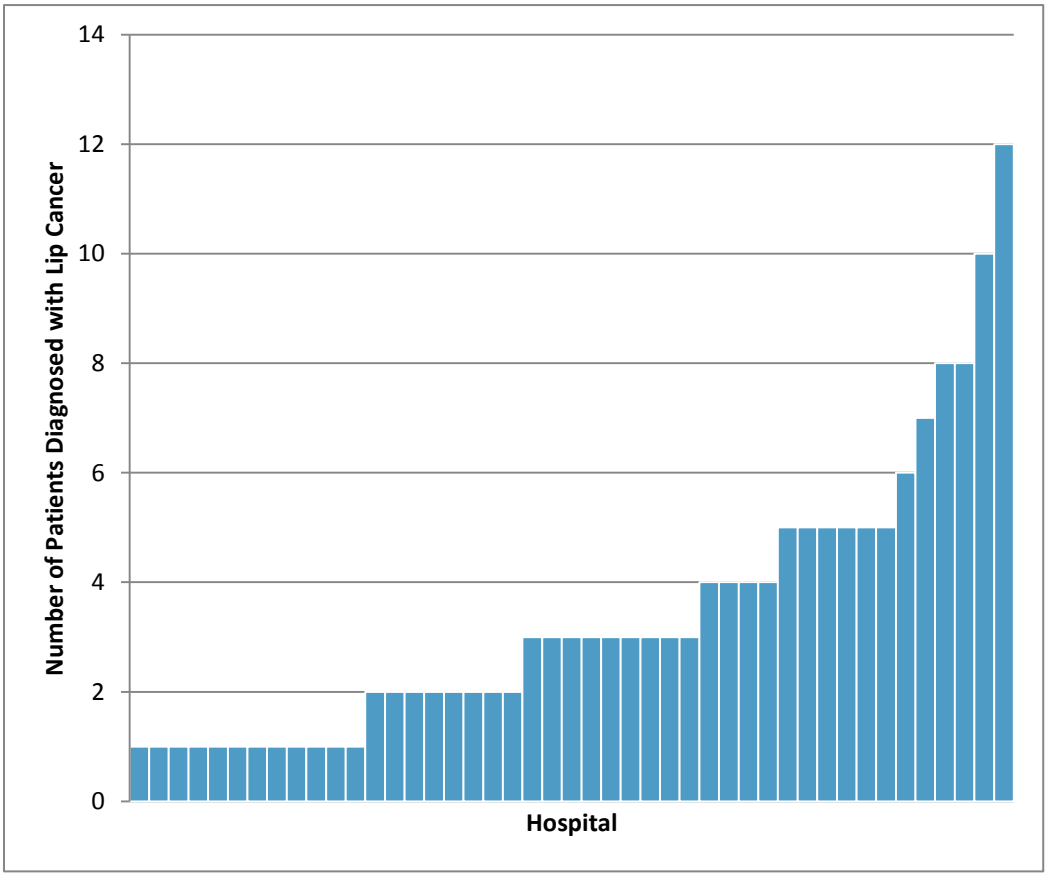

Figure 246. Lip Cancer: Distribution of Patients by Hospital (Flemish Hospitals, 2004-2007)

156 Flemish patients (93.4%) can be assigned to a hospital (see Methodology for the rules applied to assign a patient to one hospital). Because the number of patients diagnosed with a tumour of the lip

is low and the number of treating hospitals is large, the maximum number of patients treated per hospital is small. Therefore, no further analyses on the volume of the hospital are performed.

8. References

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CHAPTER 8. ANAL CANAL

1. Introduction

1.1 General Information and Aetiology

The anal canal is the terminal part of the large intestine and is situated between the rectum and the anus (Figure 247). At the anal verge, where the canal meets the outside skin of the anus, the squamous cells of the lower anal canal merge with the skin just outside the anus. The skin around the anal verge is also made up of squamous cells, but it also contains sweat glands and hair follicles.

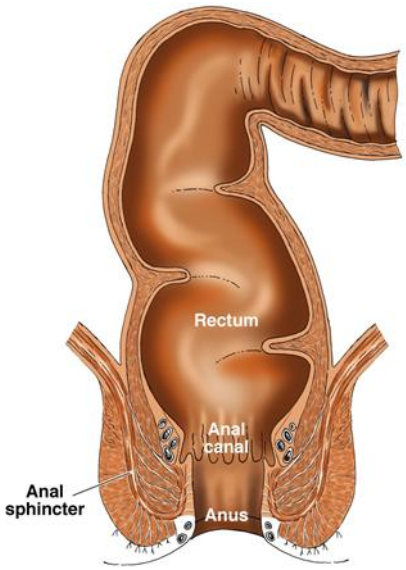

Figure 247. Anatomy of the Anus

In the Flemish Region, for the period 2004-2007, anal cancer accounts for only 1.3% of colorecto-anal tumours [1]. Squamous cell carcinomas (SCC) are the most frequent neoplasms at these sites [2] and represent around 80% of all anal cancers [1].

Human papilloma virus (HPV) infection, particularly when transmitted through anal intercourse, is pointed as the major risk factor in developing an anal SCC [3,4]. Having multiple sex partners, due to the increased risk of exposure to the HPV, is also a well-known risk factor. Tobacco smoking also plays a significant role in the anal-cancer development, independent of other risk factors such as sexual activity. People infected with human immunodeficiency virus (HIV) have an at least 25 fold higher risk to develop anal cancer [5].

1.2 Diagnosis and Treatment

Digital rectal examination (DRE), anoscopy and palpation of inguinal lymph nodes with fine needle aspiration (FNA) of enlarged nodes are recommended. Inguinal and pararectal lymph nodes should be evaluated with computerised tomography (CT) or magnetic resonance imaging (MRI). It is recommended to search for lung metastases with chest X-ray or chest CT scan. A PET-CT scan should also be considered for staging or treatment planning [6-8].

The management of anal tumours changes considerably over the last three decades. Prior to this period, the standard treatment for cancer of the anal canal is abdominal-perineal resection (APR), which requires a permanent colostomy. The organ preservation concept gains ground following the finding of a high response rate from chemoradiation prior to APR by Nigro [9], and in the 1980s chemotherapy with fluorouracil (5-FU) plus and mitomycin combined with radiotherapy becomes the standard regimen, with APR only for unresponsive or recurrent cases (salvage surgery) [10]. In the following years two randomised trials show that chemoradiation with 5-FU and mitomycin is more effective than radiotherapy alone in controlling local disease [11].

Small, well differentiated tumors of the anal margin, not involving the anal sphincter and without lymph node metastases, may be treated with local excision. In cases with inadequate margins, re-excision or radio(chemo)therapy is performed.

In metastatic setting, cisplatinum-based chemotherapy is used. The necessary of radiotherapy depends on the location and symptoms of the metastasis.

2. Data Selection

All anal cancers diagnosed between 2004 and 2007 for patients with an official residence in the Flemish Region are selected, resulting in 168 cases (for detailed information on selected topography and morphology codes, see Appendix A). As described in Figure 248, nineteen of them are excluded resulting in 149 patients for which results are presented in this chapter.

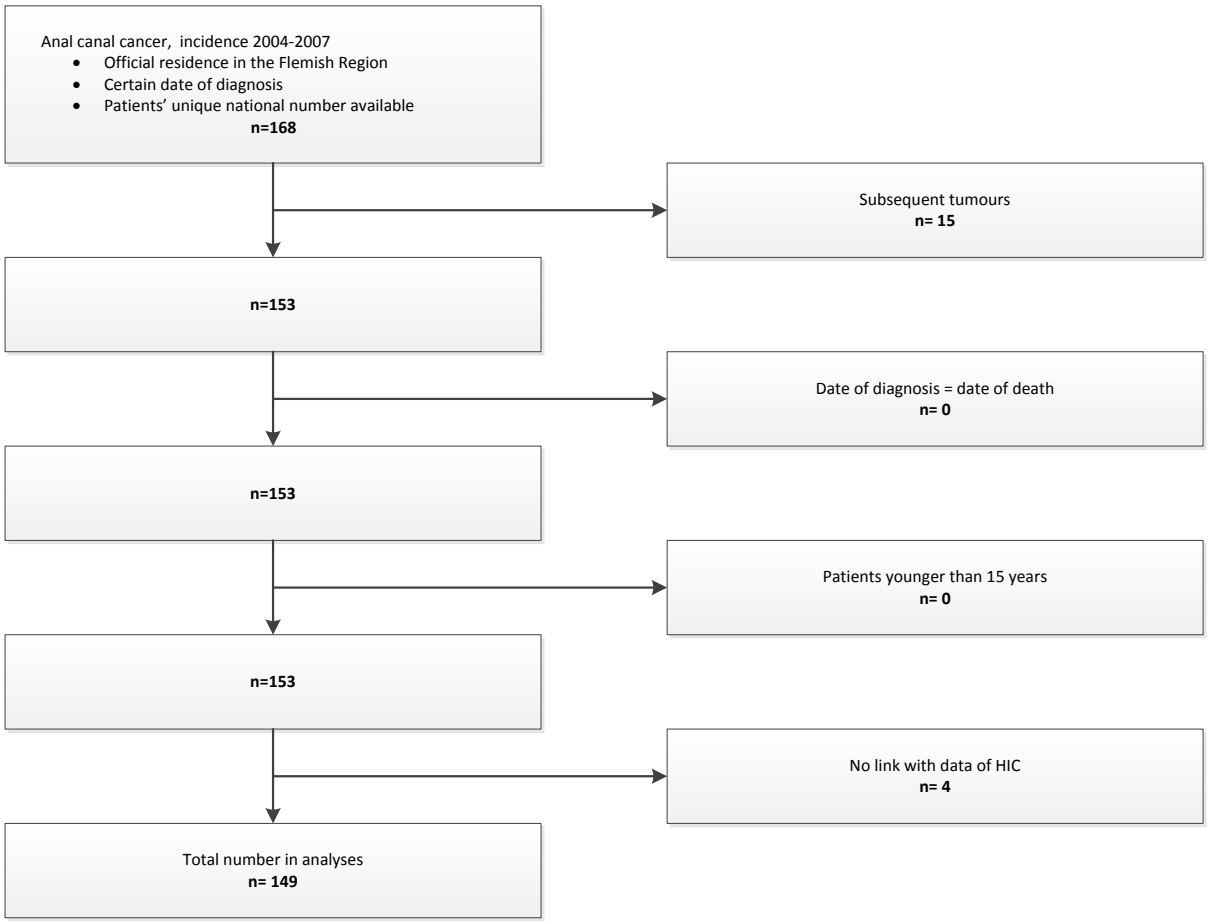

Figure 248. Selection of Anal Canal Tumours (Flemish Region, 2004-2007)

3. Patient Characteristics

During the observed period, a larger number of females (n=91; 61.1%) in comparison with males (n=58; 38.9%) are diagnosed with an epithelial tumour of the anal canal, with a male/female ratio of 0.74 (Table 177). These numbers correspond to age standardised rates of 0.40/100,000 person years and 0.54/100,000 person years, for males and females respectively. No clear trend in incidence rates is observed over the years.

Table 177. Anal Canal Cancer: Incidence (Flemish Region, 2004-2007)

	Males		Females		Total	
Incidence Year	n	ESR	n	ESR	n	ESR
2004	13	0.38	18	0.46	31	0.42
2005	19	0.54	22	0.54	41	0.54
2006	12	0.32	23	0.57	35	0.44
2007	14	0.38	28	0.59	42	0.49
2004-2007	58	0.40	91	0.54	149	0.47

ESR: age-standardised rate, using the European Standard Population (n/100,000 person years)

The median age at diagnosis is 63.5 years for males and 64.0 years for females. The minimum age is 34 years while the maximum age is 97 years. For further analysis, patients are divided into three age groups: 15-59 years, 60-74 years and 75+ years (Table 178).

Table 178. Anal Canal Cancer: Age Distribution (Flemish Region, 2004-2007)

	Males	Females	Total
15-59 years	22	38	60
60-74 years	24	20	44
75+ years	12	33	45

4. Tumour Characteristics

Sublocalisation, morphology, differentiation grade and stage (clinical, pathological and combined stage) of the selected anal canal cancers are described in Table 179. Hundred and nine tumours (73.2%) cannot be staged because their localisation is coded as C21.0 (anus, unspecified) or C21.8 (overlapping lesion of rectum, anus and anal canal). These tumours are displayed as stage 'NA'. A larger proportion of tumours (n=98; 65.8%) are squamous cell carcinoma with an unspecified localisation. In 35.5% of the tumours, the differentiation grade is unknown. Most of the tumours for which staging is known are stage II-III (combined stage: n=27; 75%). Rarely, tumours are diagnosed with a stage IV (combined stage: n=2; 5.6%). For 10% of the stageable tumours, staging (i.e. combined staging) is unknown.

Table 179. Anal Canal Cancer: Tumour Characteristics (Flemish Region, 2004-2007)

	N	% of total	% of known
Localisation			
Anus, unspecified (C21.0)	108	72.5	/
Anal canal (C21.1)	39	26.2	97.5
Cloacogenic zone (C21.2)	1	0.7	2.5
Overlapping lesion of rectum, anus and anal canal (C21.8)	1	0.7	/
Morphology			
Squamous cell carcinoma	134	89.9	/
Cloacogenic / basaloid transitional cell carcinoma	15	10.1	/
Differentiation Grade			
Well differentiated	27	18.1	28.7
Moderately differentiated	34	22.8	36.2
Poorly differentiated	33	22.1	35.1
Undifferentiated	2	1.3	/
Unknown	53	35.5	/
Clinical Stage			
I	3	7.5	10.3
II	14	35.0	48.3
III	10	25.0	34.5
IV	2	5.0	6.9
Unknown	11	27.5	/
Pathological Stage			
I	4	10.0	28.6
II	5	12.5	35.7
III	5	12.5	35.7
Unknown	26	65.0	/
Combined Stage			
I	7	17.5	19.4
II	15	37.5	41.7
III	12	30.0	33.3
IV	2	5.0	5.6
Unknown	4	10.0	/

Note: 109 cases (73.2%) have a localisation for which staging is not applicable (NA)

As 73.2% of patients are diagnosed with an anal cancer for which staging is not applicable, the number of remaining patients is too low to perform detailed analyses on the stage distribution by sex and by age category.

5. Diagnostic and Therapeutic Procedures

5.1 Diagnosis and Staging

An overview of the diagnostic and staging procedures that occur for the anal cancer patients diagnosed in the Flemish Region between 2004 and 2007 is given in Table 180. For the observed period, tissue examination is performed in the majority of patients (97.3%) and is mostly based on histological diagnosis (99.3%). Endoscopic examination is performed in 65.1% of patients. To evaluate the tumour extent, different imaging techniques are frequently used (94.0%), of which the majority are CT scanning (86.6%) and chest X-ray (76.5%). A PET scan is only performed in 31.5% of all patients.

Table 180. Anal Canal Cancer: Overview of Diagnostic and Staging Procedures (Flemish Region, 2004-2007)

Diagnostic Procedures (-3m<inc<+3m)	Total (N=149)		2004 (N=31)		2005 (N=41)		2006 (N=35)		2007 (N=42)	
	n	%	n	%	n	%	n	%	n	%
Tissue Examination	**145**	**97.3**	**29**	**93.5**	**40**	**97.6**	**35**	**100.0**	**41**	**97.6**
Histological Diagnosis	144	96.6	29	93.5	39	95.1	35	100.0	41	97.6
Cytology	9	6.0	4	12.9	2	4.9	0	0.0	3	7.1
Endoscopic examination	**97**	**65.1**	**19**	**61.3**	**27**	**65.9**	**24**	**68.6**	**27**	**64.3**
Anorectal Endosonography	39	26.2	7	22.6	13	31.7	10	28.6	9	21.4
Recto(sigmoido)scopy	70	47.0	15	48.4	21	51.2	15	42.9	19	45.2
Colonoscopy	43	28.9	11	35.5	11	26.8	10	28.6	11	26.2
Imaging	**140**	**94.0**	**28**	**90.3**	**38**	**92.7**	**35**	**100.0**	**39**	**92.9**
Ultrasound	48	32.2	15	48.4	15	36.6	10	28.6	8	19.0
CT	129	86.6	24	77.4	36	87.8	32	91.4	37	88.1
MRI	62	41.6	12	38.7	14	34.1	18	51.4	18	42.9
PET Scan	47	31.5	5	16.1	16	39.0	13	37.1	13	31.0
Chest X-ray	114	76.5	26	83.9	33	80.5	27	77.1	28	66.7

5.2 Multidisciplinary Oncological Consult

For the observed period, 57% of anal canal cancer patients are discussed at a multidisciplinary oncological consult (MOC) within 1 month before till three months after incidence date (Table 181). The proportion of patients discussed at MOC fluctuates over the years and no trend can be observed.

Table 181. Anal Canal Cancer: Frequency of Multidisciplinary Oncological Consult (Flemish Region, 2004-2007)

	MOC	
Incidence Year	n	%
2004 (n=31)	17	54.8
2005 (n=41)	24	58.5
2006 (n=35)	22	62.9
2007 (n=42)	22	52.4
Total (n=149)	85	57.0

5.3 Therapeutic Procedures

Radiotherapy is the main treatment in the majority of patients (63.1%) and is always given in combination with chemotherapy (Table 182). From the patients receiving radiotherapy, 13 undergo salvage surgery.

For 20.1% of patients, surgery is the primary treatment. Two different surgery types are taken into account for the treatment analyses: major surgery (e.g. Miles surgery, Hartmann's procedure, proctocolectomy) and minor surgery (e.g. mucosal resection, anal fistula excision). Major surgeries always receive priority when performed within the studied timeframe. When no major surgery was performed within the timeframe, minor surgeries are taken into account. A major surgery was performed in 53.3% of the surgically treated patients (Table 183). In more than half of the patients, adjuvant chemo- and/or radiotherapy is given (56.7%).

A small percentage of patients (1.3%) receive chemotherapy only (for both these patients staging is not applicable). For 15.4% of patients, no major treatment is found. From the total number of patients, 5.4% undergo a lymphadenectomy.

Table 182. Anal Canal Cancer: Overview of Treatment Schemes (Flemish Region, 2004-2007)

Treatment Scheme	n	%
Radiotherapy	**94**	**63.1**
Chemoradiotherapy	94	63.1
Surgery	**30**	**20.1**
Alone	13	8.7
Surgery < Chemo and/or RT	17	11.4
Chemotherapy only	**2**	**1.3**
No primary treatment registered	**23**	**15.4**

Table 183. Anal Canal Cancer: Overview of the Selected Surgeries (Flemish Region, 2004-2007)

Type of Surgery	n	%
Major Surgery	16	53.3
Minor Surgery	14	46.7

6. Survival

6.1 Observed and Relative Survival

Relative survival for anal canal cancer patients is 71.1% at 5 years after incidence (Table 184).

Table 184. Anal Canal Cancer: Observed and Relative Survival (Flemish Region, 2004-2007)

	Observed Survival (%)					Relative Survival (%)				
N at risk	1 year	2 year	3 year	4 year	5 year	1 year	2 year	3 year	4 year	5 year
149	81.2	73.2	67.1	63.1	61.1	84.2	78.3	73.9	71.4	71.1

6.2 Relative Survival by Sex

5-year relative survival is slightly better for females (73.4%) than for males (67.3%) (Table 185).

Table 185. Anal Canal Cancer: Relative Survival by Sex (Flemish Region, 2004-2007)

			Relative Survival (%)				
	N at risk	%	1 year	2 year	3 year	4 year	5 year
Males	58	38.9	80.4	77.5	72.5	69.1	67.3
Females	91	61.1	86.6	78.8	74.9	72.9	73.4

6.3 Relative Survival by Age Group

Five-year relative survival is at least 20% better in the youngest age group (15-59 years old), with a 5-year relative survival of 84.7% (Table 186). The other age categories have a more similar survival, with a 5-year relative survival of 61.3% and 59.4% for the age groups of '60-74 years old' and '75+ years old' respectively. This disparity between the youngest and the oldest age group enlarges throughout the follow-up time.

Table 186. Anal Canal Cancer: Relative Survival by Age Group (Flemish Region, 2004-2007)

			Relative Survival (%)				
	N at risk	%	1 year	2 year	3 year	4 year	5 year
15-59 years	60	40.3	92.0	89.0	87.6	86.2	84.7
60-74 years	44	29.5	76.2	72.7	69.0	62.9	61.3
75+ years	45	30.2	81.2	67.7	56.8	56.4	59.4

6.4 Relative Survival by Sublocalisation

For patients with a known sublocalisation, the 5-year relative survival is 20% better (5-year relative survival: 85.8%) than for the patients with an unspecified sublocalisation (5-year relative survival: 65.9%). The number at risk for the sublocalisations 'cloacogenic zone' and 'overlapping lesion of rectum, anus and anal canal' is lower than 35. As a consequence, these sublocalisations are not represented in Figure 249.

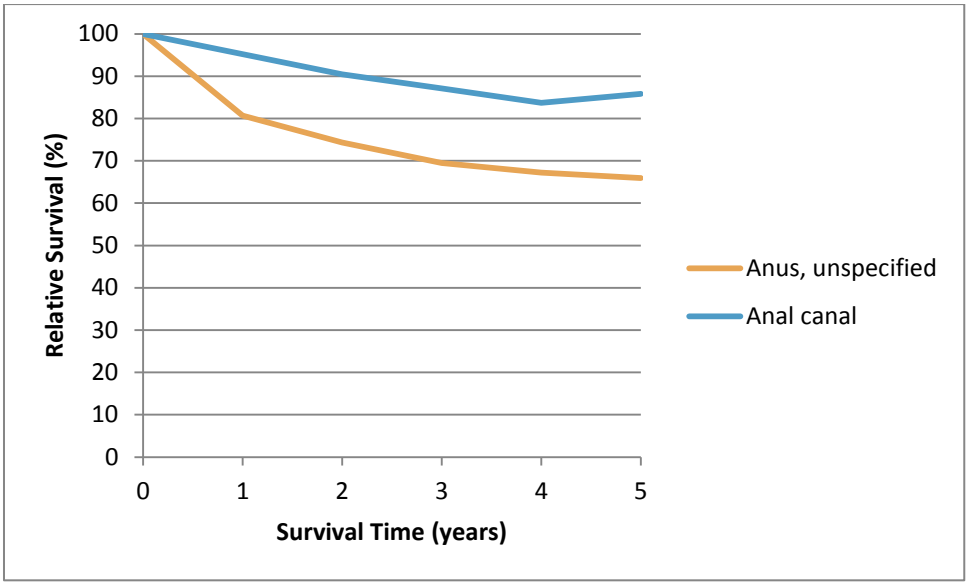

Figure 249. Anal Canal Cancer: Relative Survival by Sublocalisation (Flemish Region, 2004-2007)

7. Analyses by Volume

During the period 2004-2007, Belgian patients with anal canal cancer are treated in 36 different Flemish hospitals. The mean number of patients (during the period 2004-2007) by hospital is 3.8 and the median is 2, with a range between 1 and 16. The distribution of the number of patients (=volume) per hospital is displayed in Figure 250.

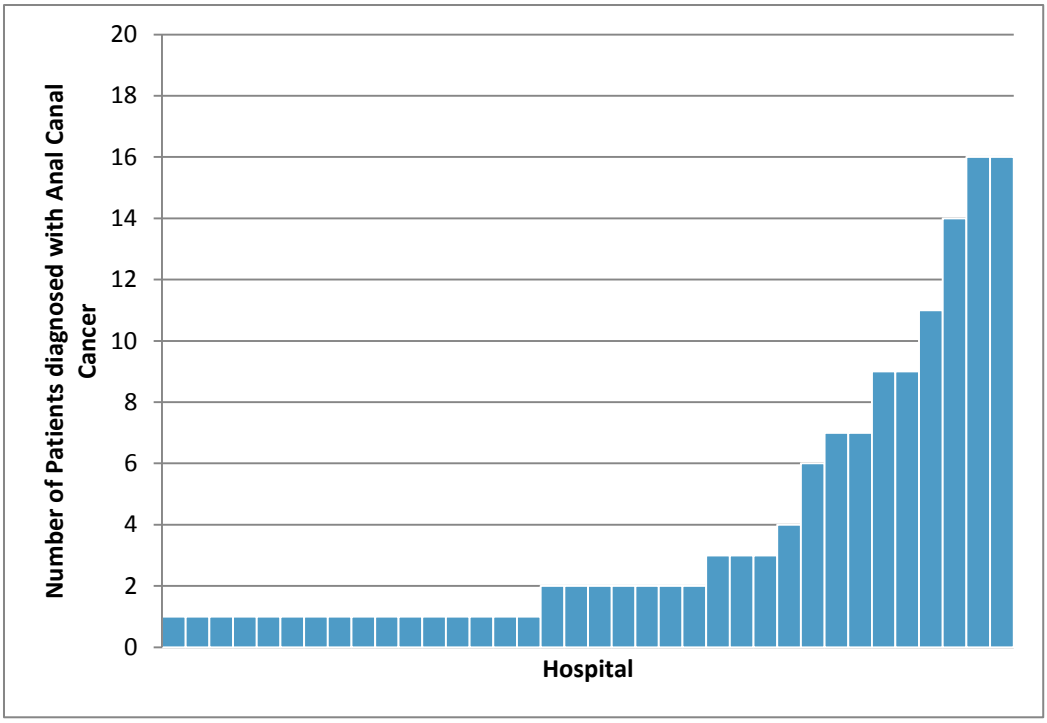

Figure 250. Anal Canal Cancer: Distribution of Patients by Hospital (Flemish Hospitals, 2004-2007)

Fourteen Flemish patients (9.4%) cannot be attributed to a centre. Because of the low number of patients diagnosed with a tumour of anal canal, who are treated in a large number of different hospitals, the maximum number of patients per hospital is very small. Therefore, no further analyses on the volume of the hospital are performed.

8. References

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CHAPTER 9. VULVA

1. Introduction

1.1 General Information and Aetiology

The external genital organs include the mons pubis, labia majora, labia minora and clitoris. The area containing these organs is called the vulva (Figure 251).

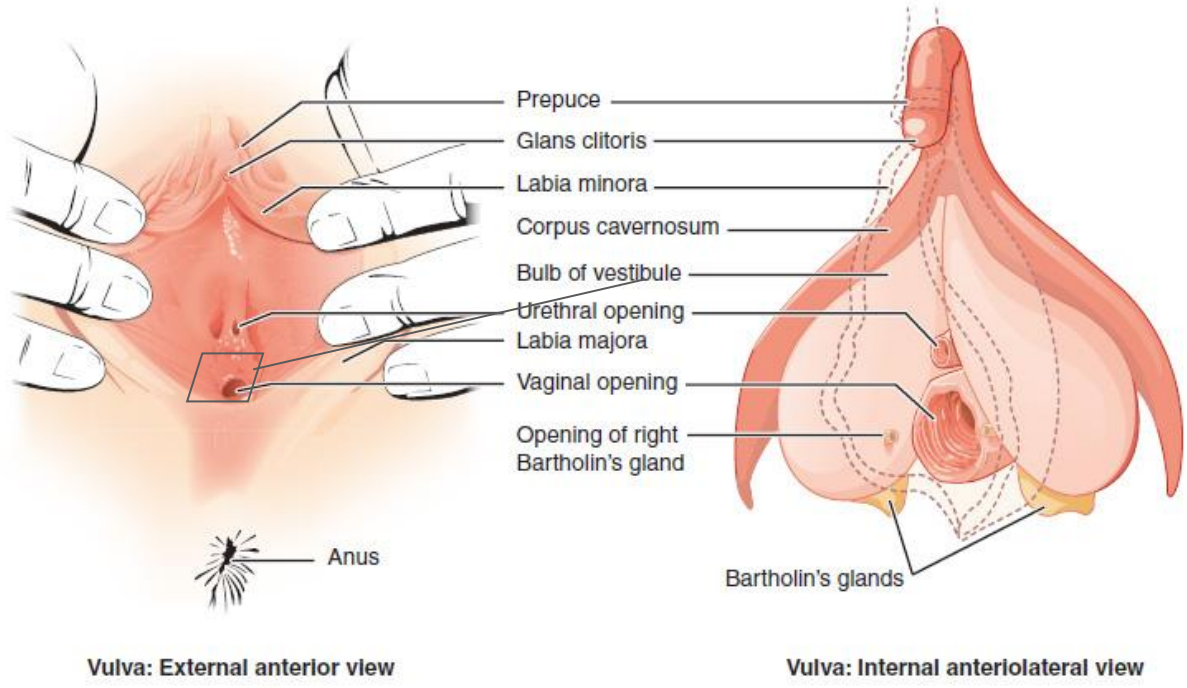

Figure 251. Anatomy of the Vulva (Source: OpenStax College. Anatomy and Physiology of the Female Reproductive System, OpenStax CNX Web site. http://cnx.org/content/m46392/1.3/, Jun 20, 2013.)

In the Flemish Region, for the period 2004-2007, vulvar cancer accounts for about 5% of gynaecological tumours. Squamous cell carcinoma of the vulva are the most frequent neoplasms at these sites [1,2]. In the Flemish Region (2004-2007), squamous cell carcinoma represent 87% of vulvar cancers.

Human papilloma virus (HPV) infection, particularly genotypes HPV 16 and 18, is pointed as one of the major risk factors in developing an epithelial (pre-)malignant tumour in the vulva [2]. Other identified risk factors are tobacco consumption and well-known precursor lesions such as vulvar intraepithelial neoplasia, lichen sclerosis and chronic granulomatous vulvar disease.

Usually solitary, vulvar squamous cell carcinoma appears mainly on the labia minora or majora, while clitoris and perineal localisation are less frequently affected [1].

Women of 70 years and older, who often have a less intensive gynaecological follow-up than younger women, suffer predominantly of vulvar cancer. However, an increase in prevalence among younger patients has been noticed [3]. This observation leads to the following division [2]:

- Cancers related to intraepithelial neoplasia caused by HPV infection, occurring in young women;
- Cancers caused by vulvar non-neoplastic epithelial disorders due to chronic inflammation, afflicting elderly women.

Regional spreading of the disease involves inguinal and femoral nodes, while extension to pelvic nodes is considered as distant metastasis [4]. Prognosis depends on depth of the disease and resection margins and notably on the extent of the disease, recurrence in the groin carrying a very high mortality. Appropriate management of groin lymph nodes appears therefore to be one of the most important factors in reducing mortality [2,4]. One study notes a five-fold increased risk of recurrence in patients with unilateral lymph node involvement compared to node negative patients, and a 17 times higher risk in bilateral lymph node invasion [5]. General 5-year relative survival is reported to range from 70% to 76% [2,6].

1.2 Diagnosis and Treatment

Following international guidelines, beside macroscopical manifestation of the disease, a biopsy (and exfoliative cytology) should always confirm the diagnosis [2,4]. Moreover, a colposcopy of the cervix and vagina, due to the frequent association with other squamous intraepithelial lesions, is indicated [4]. It is a way to confirm the diagnosis and to determine accurately the morphology and the location of the tumour.

CT-scan and MRI/PET-scan of the pelvis are routinely performed when local or distant node involvement is suspected and can also help to assess more precisely the extension of the tumour and the state of adjacent pelvic organs [4,7,8]. X-rays of the chest are useful to evaluate lung involvement [4]. Abdominal and/or transvaginal echography which likely offer more specific imagery can also complete the diagnostic process [7]. Urethrocystoscopy or rectoscopy are not standard, but can be performed in case of bigger lesions and to evaluate organ involvement in locally extensive disease.

Because of its important psychological impact, treatment tends to be as conservative as possible. Moreover, seeing that these cancers affect more frequently older patients, the treatment has to be adapted to the general state of the person. Vulvar cancer management is summarized in Figure 252 [4,9].

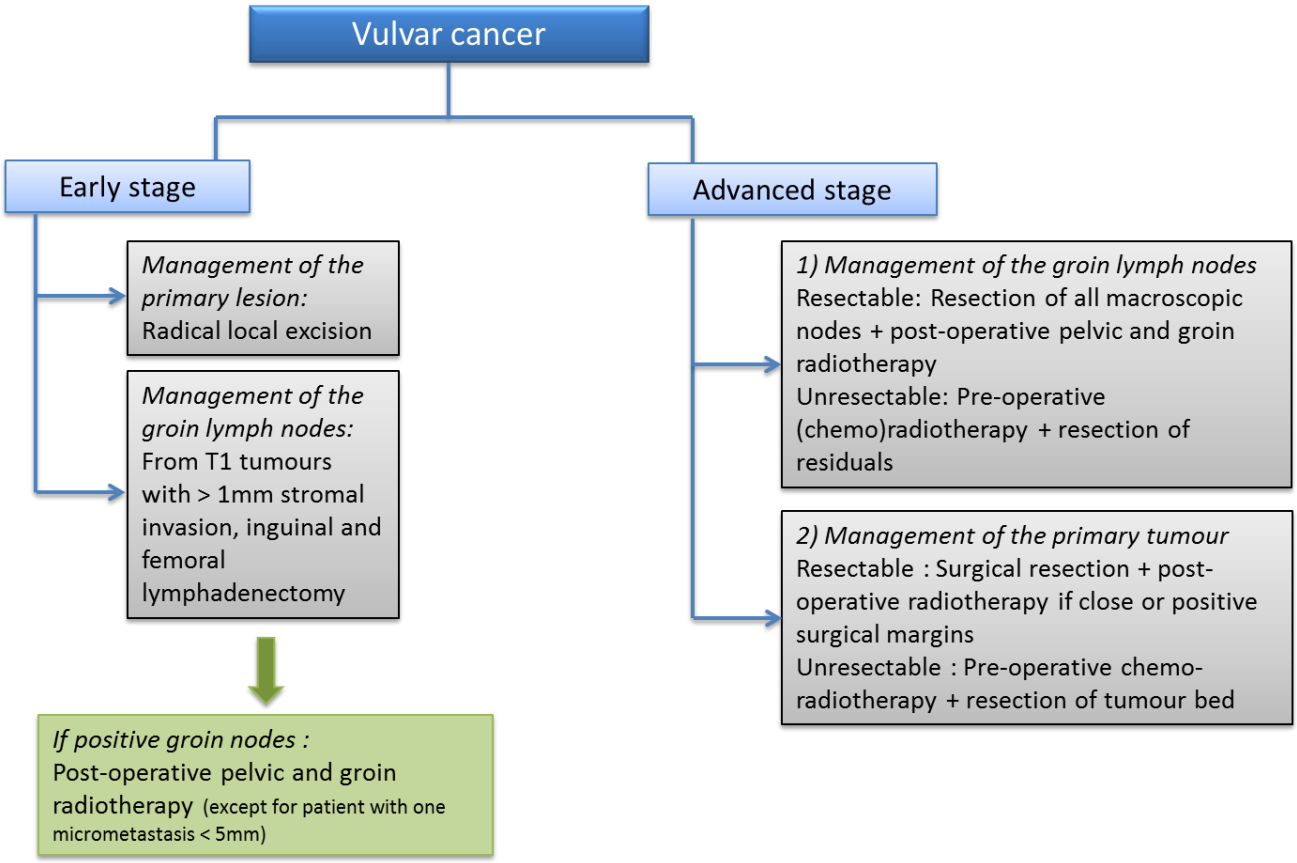

Figure 252. Treatment Scheme of Vulvar Cancer by Stage

When surgery is not possible, chemoradiotherapy is advised (chemotherapy: 5-FU + mitomycine or cisplatinum). Neo-adjuvant chemo/radiotherapy, followed by consideration of surgical resection or pelvic exenteration, could also be performed in advanced stage or if complete remission is not reached within 2-3 months.

2. Data Selection

All vulvar cancers diagnosed between 2004 and 2007 for patients with an official residence in the Flemish Region are selected, resulting in 317 cases (for detailed information on selected topography and morphology codes, see Appendix A). As described in Figure 253, 19 of them are excluded, resulting in 298 patients for which results are presented in this chapter.

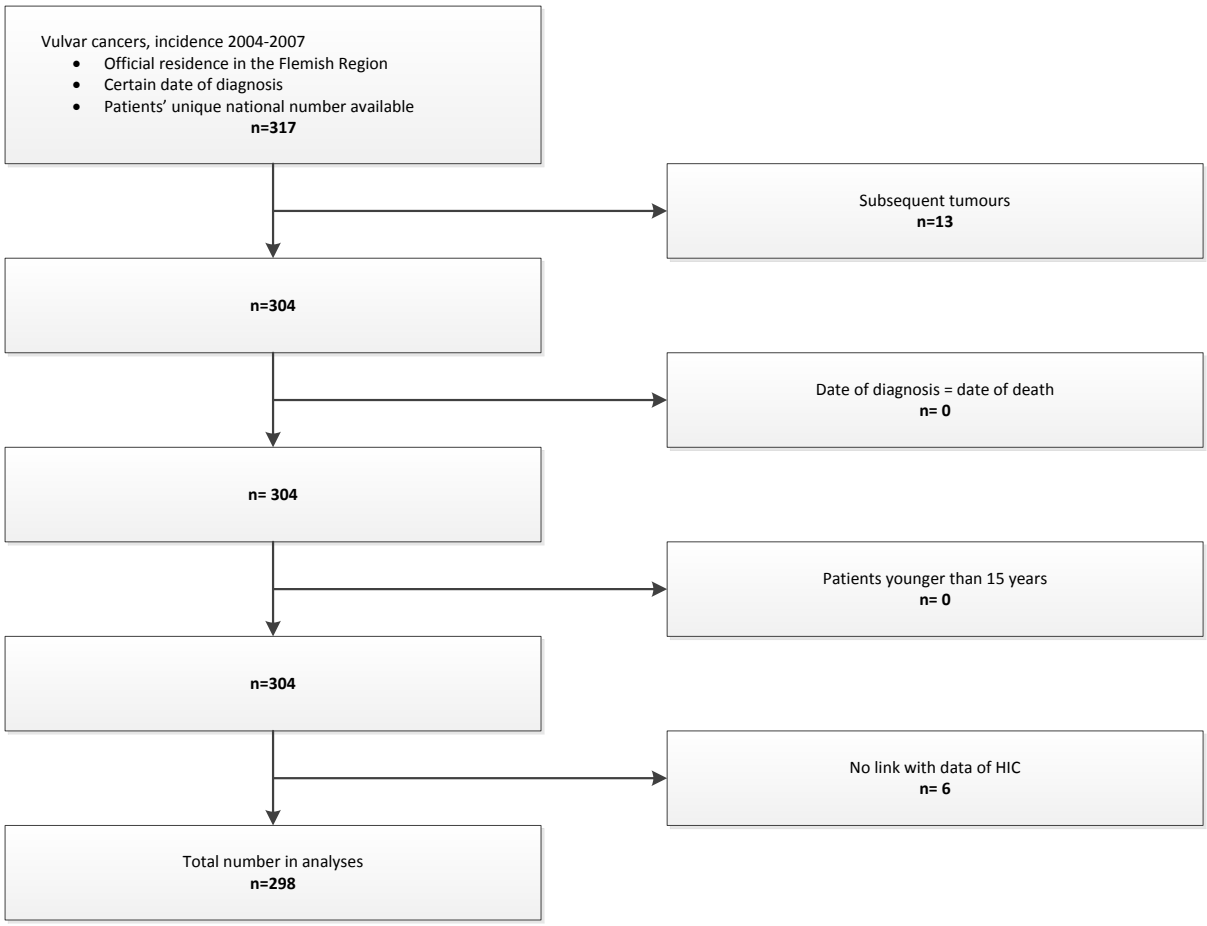

Figure 253. Selection of Vulvar Tumours (Flemish Region, 2004-2007)

3. Patient Characteristics

During the incidence years 2004-2007, 298 females are diagnosed with vulvar cancer. No clear trend in age standardised rates can be observed over the years 2004-2007 (Table 187).

The median age is 71.5 years with a range from 25 years to 102 years. For further analyses, the patients are divided in three age categories: 15 -59 years, 60-74 years and 75 years and older (Table 188).

Table 187. Vulvar Cancer: Incidence (Flemish Region, 2004-2007)

	Females	
Incidence Year	n	ESR
2004	59	1.29
2005	87	1.84
2006	82	1.78
2007	70	1.48
2004-2007	298	1.60

ESR: age-standardised rate, using the European Standard Population (n/100,000 person years)

Table 188. Vulvar Cancer: Age Distribution (Flemish Region, 2004-2007)

	Females
15-59 years	78
60-74 years	91
75+ years	129

4. Tumour Characteristics

Sublocalisation, morphology, differentiation grade and stage (clinical, pathological and combined stage) of the selected vulvar tumours are described in Table 189. Most tumours have an unspecified vulvar localisation (79.5%). Of those tumours with a specified localisation, tumours of the labia minora occur most frequently. While undifferentiated tumours are never diagnosed, well and moderately differentiated tumours are most frequently diagnosed (30.9 and 32.2%, respectively). Most tumours present at an early stage, while distant metastases at diagnosis are very exceptional.

Table 189. Vulvar Cancer: Tumour Characteristics (Flemish Region, 2004-2007)

	N	% of total	% of known
Localisation			
Labium majus (C51.0)	20	6.7	35.1
Labium minus (C51.1)	27	9.1	47.4
Clitoris (C51.2)	10	3.4	17.5
Overlapping lesion of vulva (C51.8)	4	1.3	/
Vulva, unspecified (C51.9)	237	79.5	/
Morphology			
Squamous cell carcinoma	298	100.0	/
Differentiation grade			
Well differentiated	92	30.9	36.7
Moderately differentiated	96	32.2	38.2
Poorly differentiated	63	21.1	25.1
Undifferentiated	-	0.0	0.0
Unknown	47	15.8	/
Clinical stage			
I	50	16.8	43.5
II	29	9.7	25.2
III	23	7.7	20.0
IV	13	4.4	11.3
Unknown	183	61.4	/
Pathological stage			
I	86	28.9	43.9
II	55	18.5	28.1
III	44	14.8	22.4
IV	11	3.7	5.6
Unknown	102	34.2	/
Combined stage			
I	89	29.9	41.6
II	59	19.8	27.6
III	49	16.4	22.9
IV	17	5.7	7.9
Unknown	84	28.2	/

Patients in the youngest age group (15-59 years) are more frequently diagnosed with stage I tumours than the older age groups (Figure 254). The proportion of tumours with an unknown stage is higher in the age group 15-59 years than in the older age groups.

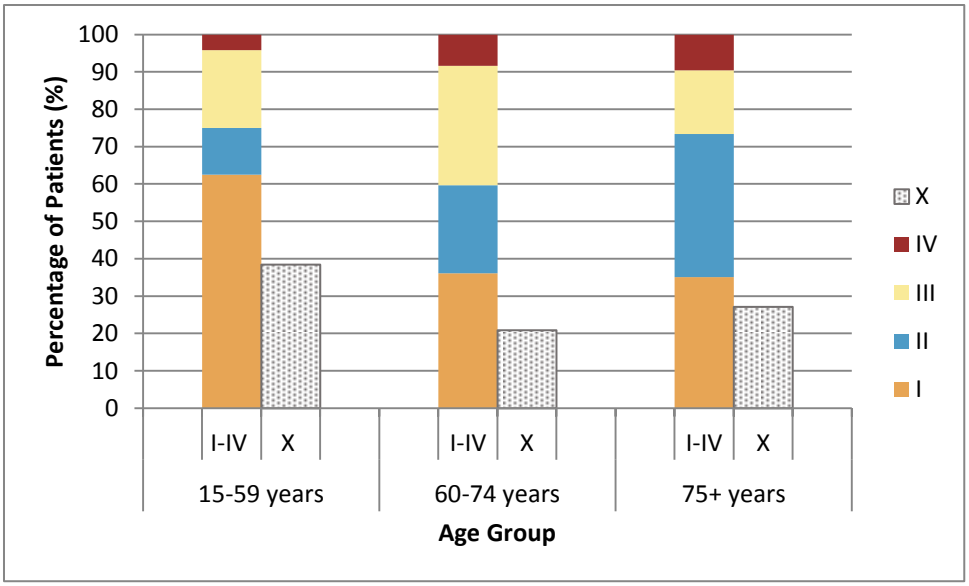

Figure 254. Vulvar Cancer: Stage Distribution by Age Group (Flemish Region, 2004-2007)

5. Diagnostic and Therapeutic Procedures

5.1 Diagnosis and Staging

Table 190 gives an overview of the diagnostic and therapeutic procedures for the vulvar cancer patients in the Flemish Region diagnosed in the incidence years 2004 to 2007. Almost all cancers are confirmed by pathological examination (98.3%), which is in all but one patient based on histology. A very large part of the patients (92.3%) has undergone imaging. However, only chest X-rays (77.9%) and CT scanning (60.4%) are performed in a substantial part of the patients. PET-scan is performed in one patient out of three, MRI is seldom used, more specifically in only 6.0% of the patients.

Table 190. Vulvar Cancer: Overview of Diagnostic and Staging Procedures (Flemish Region, 2004-2007)

Diagnostic Procedure (-3m<inc<+3m)	Total (N=298)		2004 (N=59)		2005 (N=87)		2006 (N=82)		2007 (N=70)	
	n	%	n	%	n	%	n	%	n	%
Tissue Examination	**293**	**98.3**	**58**	**98.3**	**86**	**98.9**	**80**	**97.6**	**69**	**98.6**
Histological Diagnosis	292	98.0	58	98.3	85	97.7	80	97.6	69	98.6
Cytology	36	12.1	12	20.3	8	9.2	5	6.1	11	15.7
Imaging	**275**	**92.3**	**56**	**94.9**	**82**	**94.3**	**73**	**89.0**	**64**	**91.4**
Colposcopy	50	16.8	14	23.7	14	16.1	16	19.5	6	8.6
Pelvic Ultrasound	33	11.1	7	11.9	7	8.0	12	14.6	7	10.0
Vaginal Ultrasound	43	14.4	6	10.2	10	11.5	16	19.5	11	15.7
Cystoscopy	19	6.4	5	8.5	6	6.9	4	4.9	4	5.7
Rectoscopy	13	4.4	5	8.5	3	3.4	2	2.4	3	4.3
CT	180	60.4	40	67.8	52	59.8	38	46.3	50	71.4
Chest X-ray	232	77.9	52	88.1	68	78.2	62	75.6	50	71.4
MRI	18	6.0	4	6.8	3	3.4	6	7.3	5	7.1
PET Scan	103	34.6	20	33.9	32	36.8	22	26.8	29	41.4

5.2 Multidisciplinary Oncological Consult

About 72 of all vulvar cancer patients are discussed at a multidisciplinary oncological consult (MOC) within 1 month before till three months after incidence date. The proportion of patients discussed at a MOC is higher in 2007 (82.9%) than in the previous years (ranging from 67.1 to 71.2%) (Table 191).

Table 191. Vulvar Cancer: Frequency of Multidisciplinary Oncological Consult (Flemish Region, 2004-2007)

	MOC	
Incidence Year	n	%
2004 (n=59)	42	71.2
2005 (n=87)	60	69.0
2006 (n=82)	55	67.1
2007 (n=70)	58	82.9
Total (n=298)	215	72.1

5.3 Therapeutic Procedures

Two types of surgeries are taken into account: major surgeries and minor surgeries. Major surgery has always priority when performed within the selected timeframe (one month before until six months after the incidence date). Only when no major surgery is performed within this timeframe, a minor surgery is selected for the analyses. As shown in Table 192, most of the selected surgeries are major surgeries (91.6%).

Table 192. Vulvar Cancer: Overview of the Selected Surgeries (Flemish Region, 2004-2007)

Type of Surgery	n	%
Major Surgery	251	91.6
Minor Surgery	23	8.4

Almost all patients (91.9%) are treated with surgery for their vulvar tumour and in the majority of these patients (69.1%), this is the only charged oncological treatment they receive (Table 193). 65 patients (21.8%) are treated with adjuvant radiotherapy, with or without chemotherapy. Only 12 patients are treated with chemo- and/or radiotherapy without surgery. For another 12 patients (4.0%), no oncological treatment is found in the health insurance data. From the total number of patients, 49.0% (n= 146) undergo a lymphadenectomy.

Table 193. Vulvar Cancer: Overview of Treatment Schemes (Flemish Region, 2004-2007)

Treatment Scheme	n	%
Surgery	**274**	**91.9**
Adjuvant radiotherapy	47	15.8
Adjuvant chemoradiotherapy	15	5.0
No other therapy	206	69.1
Other therapy		
Surgery < chemotherapy	2	0.7
Chemotherapy < surgery	1	0.3
Chemotherapy < surgery < radiotherapy	3	1.0
Radiotherapy	**6**	**2.0**
Chemoradiotherapy	**1**	**0.3**
Chemotherapy only	**5**	**1.7**
No primary treatment registered	**12**	**4.0**

6. Survival

6.1 Observed and Relative Survival

Survival is rather good for patients diagnosed with a vulvar tumour: 5-year relative survival equals 66.3% (Table 194).

Table 194. Vulvar Cancer: Observed and Relative Survival (Flemish Region, 2004-2007)

	Observed Survival (%)					Relative Survival (%)				
N at risk	1 year	2 year	3 year	4 year	5 year	1 year	2 year	3 year	4 year	5 year
298	83.6	71.1	65.8	59.4	56.0	86.7	76.6	73.1	68.1	66.3

6.2 Relative Survival by Age Group

Prognosis is inversely related with age: the relative survival is 87.0% at 5 years after diagnosis in the youngest age group (15-59 years) and only 51.8% in the oldest age group (75+ years) with the middle age group (60-74 years) in between (65.1%) (Table 195).

Table 195. Vulvar Cancer: Relative Survival by Age Group (Flemish Region, 2004-2007)

	N at risk	%	Relative Survival (%)				
			1 year	2 year	3 year	4 year	5 year
15-59 years	78	26.2	93.8	91.5	87.8	86.8	87.0
60-74 years	91	30.5	88.9	78.6	73.8	67.7	65.1
75+ years	129	43.3	80.4	64.8	62.3	54.9	51.8

6.3 Relative Survival by Stage

Patients diagnosed with a stage I tumour have a good prognosis: 84.2% is still alive five years after diagnosis (Figure 255). Less than half of the patients diagnosed with a stage III tumour survives more than five years. Survival is not shown for patients with a stage IV tumour due to the low number at risk.

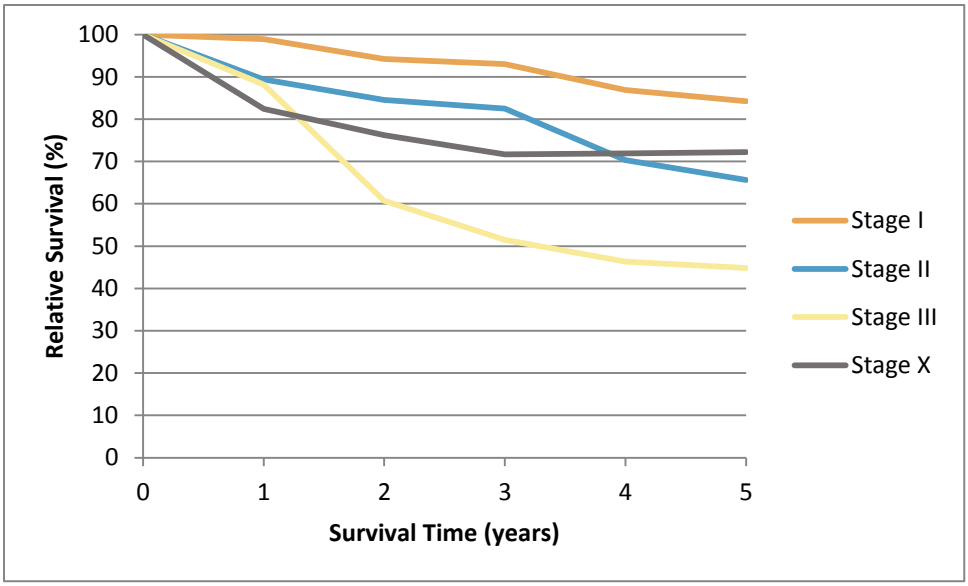

Figure 255. Vulvar Cancer: Relative Survival by Stage (Flemish Region, 2004-2007)

7. Analyses by Volume

During the period 2004-2007, Belgian patients with vulvar cancer are managed in 54 different Flemish hospitals. The mean number of patients (during the period 2004-2007) by hospital is 5.4 and the median is 3, with a range between 1 and 42. The distribution of the number of patients (=volume) per hospital is displayed in Figure 256.Figure 256. Vulvar Cancer: Distribution of Patients by Hospital (Flemish Hospitals, 2004-2007)

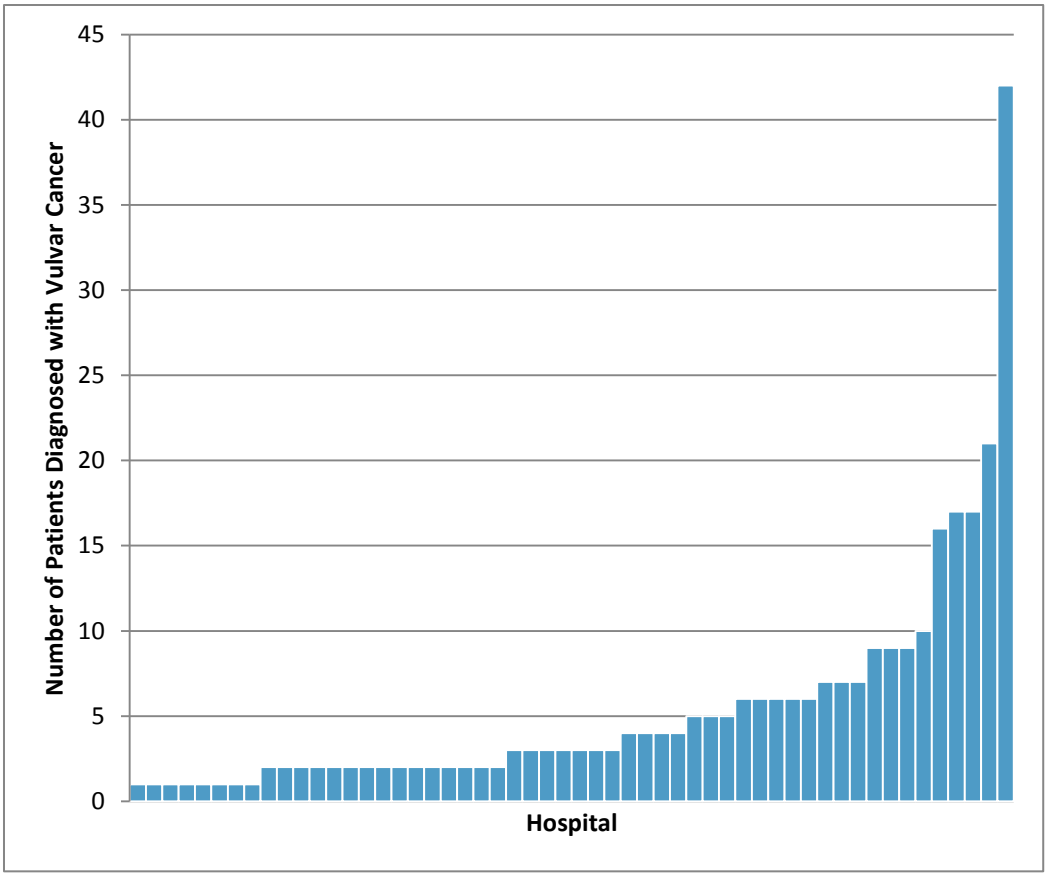

Figure 256. Vulvar Cancer: Distribution of Patients by Hospital (Flemish Hospitals, 2004-2007)

Five Flemish patients (1.7%) cannot be attributed to a centre. Because of the large number of different hospitals who treat patients with vulvar cancer, the maximum number of patients per hospital is too small to divide the hospitals in low- and high-volume hospitals. Therefore, no further analyses on the volume of the hospital are performed.

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CHAPTER 10. VAGINA

1. Introduction

1.1 General Information and Aetiology

The vagina is part of internal female reproductive system. It is an elastic, muscular tube that connects the outside of the body to the cervix (Figure 257).

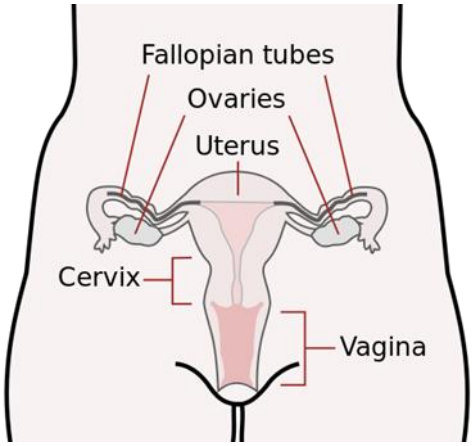

Figure 257. Location of the Vagina

In the Flemish Region, for the period 2004-2007, vaginal cancer accounts for about 2% of gynaecological tumours. Squamous cell carcinoma of the vagina are the most frequent neoplasms at these sites [1]. In the Flemish Region (2004-2007), squamous cell carcinoma represent 70% of vaginal cancers.

One of the major risk factor in developing an epithelial (pre-)malignant tumour of the vagina is Human Papilloma Virus (HPV) infection [1]. Prior pelvic radiation and in situ or invasive cervical cancer history also increase the risk of developing vaginal squamous cell cancer [2].

Tumours involving the vagina often consist of metastatic spread of cancer from a different origin, that can be gynaecological or not [2,3]. Tumours of the vagina involving other genital sites are classified as primary cancer of this other genital organ. For example, a tumour extending to the vulva, will be classified as primary vulvar cancer [2].

Most vaginal cancers are more frequent in post-menopausal or elderly women. Similarly to vulvar cancer, when the tumour occurs in younger patient, the tumour is assumed to be HPV-related. Lung, liver and bony skeleton are metastatic sites for vaginal tumours [2].

Prognosis of vaginal cancer is expected to be worse than for vulvar cancer. The overall 5-year relative survival for squamous cell carcinoma of the vagina ranges from 42% to 54% [1].

1.2 Diagnosis and Treatment

In order to confirm diagnosis with certainty, an histological confirmation by biopsy is needed [3]. Given the proximity and the possible extension of the tumour to the vulva [2], colposcopy will also be considered in analysis for the diagnostic workup. MRI and possibly PET-scan of the pelvis are performed to evaluate local extension of the lesion. CT-scan and preferably PET-scan of the abdomen/pelvis allow an evaluation of the regional extent of the tumour [3]. Chest X-ray is performed, particularly if nor PET-scan neither CT-scan have been performed, in order to assess possible metastasis to lung [3]. If there is suspicion for an invasion of the bladder of the rectum, structures close to the vagina, a cystoscopy and/or rectoscopy are indicated [3,4]. Abdominal or transvaginal echography may also permit to evaluate the state of adjacent organs [2,3].

Treatment tends to be as conservative as possible and has to be adapted to the general state of the person. Similarly to vulvar cancer, treatment for vaginal cancer can have an important psychological impact. Moreover, when considering surgery, the proximity of urethra, bladder and rectum should be taken into account seeing the risk of collateral damages to these structures [2,4].

Figure 258 gives an overview of the treatment schemes for vaginal cancer.

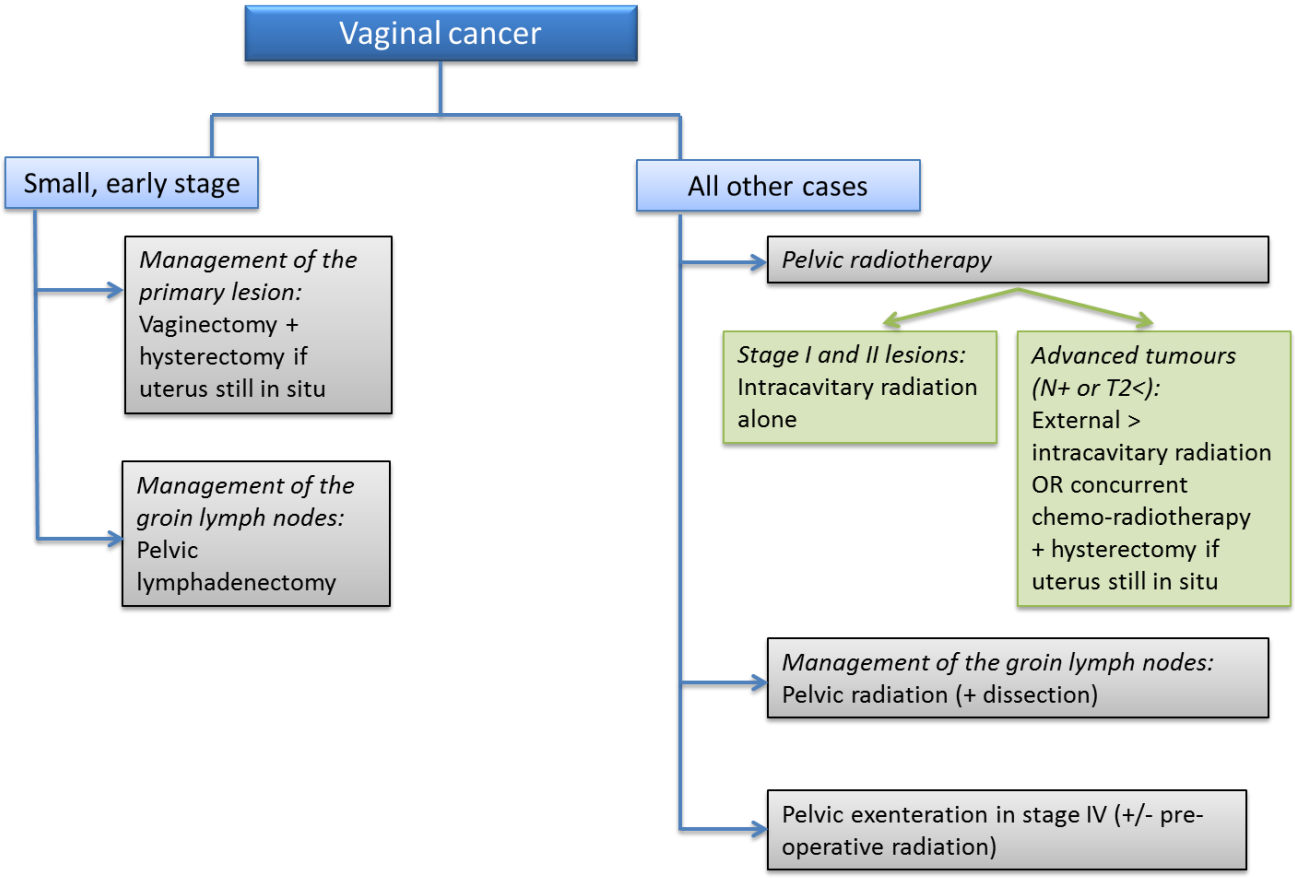

Figure 258. Treatment Schemes of Vaginal Cancer

Radiation therapy as sole or first treatment modality allows to achieve excellent outcome in invasive squamous cell carcinoma of the vagina [5].

Surgery seems to have been more frequently performed in the past than it is nowadays. Surgery is now considered to have a limited role, being only effective for small and early stage tumours. Moreover, damage or injury to bladder and rectum are factors to be taken into account when considering surgery [2]. If the uterus is still in situ, a radical hysterectomy is exerted.

Radiation therapy or concomitant chemoradiation are therefore preferred. Intracavitary radiation is selected in early stage and small lesions, while external radiation, with or without concomitant chemotherapy, is preferred for more advanced and larger lesions. Due to the complex lymphatic drainage of the vagina, every pelvic lymph node is potentially involved. Pelvis lymph node dissection and irradiation should be therefore always be considered [2].

Pelvic exenteration (after primary treatment) is performed in patient with stage IV tumours or if no complete remission is obtained within 2-3 months [2]. Chemotherapy (for advanced stage) – 5-fluorouracil and/or cisplatinum – in combination with radiotherapy allows to some extent a better control of the disease [2].

2. Data Selection

All vaginal cancers diagnosed between 2004 and 2007 for patients with an official residence in the Flemish Region are selected, resulting in 75 cases (for detailed information on selected topography and morphology codes, see Appendix A). As described in Figure 259, 10 of them are excluded resulting in 65 patients for which results are presented in this chapter.

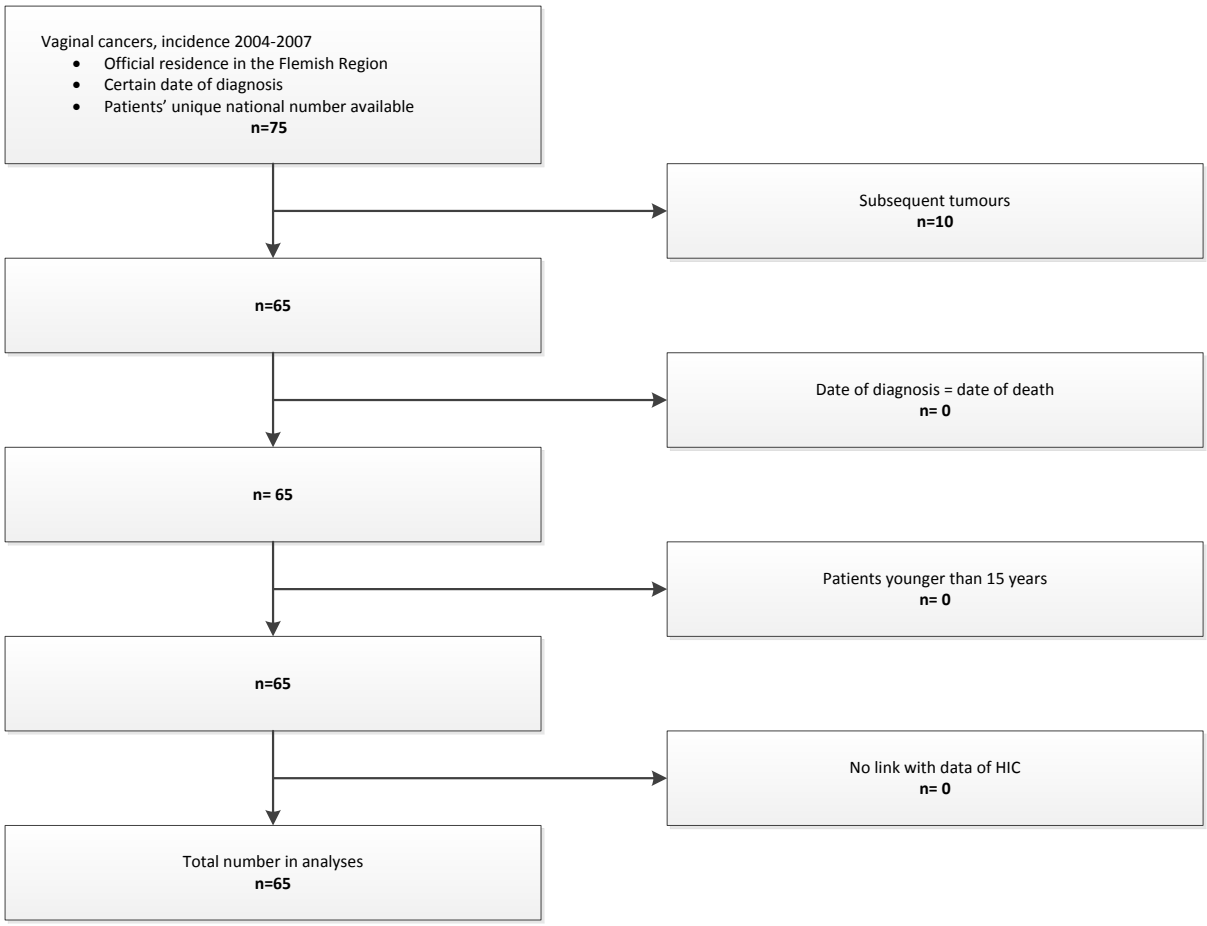

Figure 259. Selection of Vaginal Tumours (Flemish Region, 2004-2007)

3. Patient Characteristics

From 2004 to 2007, 65 women are diagnosed with vaginal cancer in the Flemish Region. No clear trend can be observed between the incidence years (Table 196).

The median age is 73 years, with a range from 31 years to 95 years. For further analyses, the patients are divided in three age categories: 15-59 years, 60-74 years and 75 years and older (Table 197).

Table 196. Vaginal Cancer: Incidence (Flemish Region, 2004-2007)

	Females	
Incidence Year	n	ESR
2004	16	0.33
2005	16	0.33
2006	12	0.21
2007	21	0.43
2004-2007	65	0.33

ESR: age-standardised rate, using the European Standard Population (n/100,000 person years)

Table 197. Vaginal Cancer: Age distribution (Flemish Region, 2004-2007)

	Total
15-59 years	9
60-74 years	27
75+ years	29

4. Tumour Characteristics

Table 198 shows the sublocalisation, morphology, differentiation grade and stage (clinical, pathological and combined stage) of the selected tumours. Undifferentiated tumours are seldom (3.1%), but all other differentiation grades are regularly observed in this tumour selection. The majority of the tumours have an unknown stage (clinical stage: 55.4%, pathological stage: 80.0% and combined stage: 49.2%).

Table 198. Vaginal Cancer: Tumour Characteristics (Flemish Region, 2004-2007)

	N	% of total	% of known
Localisation			
Malignant neoplasm of vagina (C52.9)	65	100.0	/
Morphology			
Squamous cell carcinoma	65	100.0	/
Differentiation grade			
Well differentiated	13	20.0	25.0
Moderately differentiated	20	30.8	38.5
Poorly differentiated	17	26.2	32.7
Undifferentiated	2	3.1	3.8
Unknown	13	20.0	/
Clinical stage			
I	10	15.4	34.5
II	3	4.6	10.3
III	6	9.2	20.7
IV	10	15.4	34.5
Unknown	36	55.4	/
Pathological stage			
I	4	6.2	30.8
II	4	6.2	30.8
III	4	6.2	30.8
IV	1	1.5	7.6
Unknown	52	80.0	/
Combined stage			
I	8	12.3	24.2
II	5	7.7	15.2
III	9	13.8	27.3
IV	11	16.9	33.3
Unknown	32	49.2	/

Stage distribution seems to differ for the different age group. However, due to the low numbers of patients in all age groups, no reliable conclusions can be drawn (Figure 260).

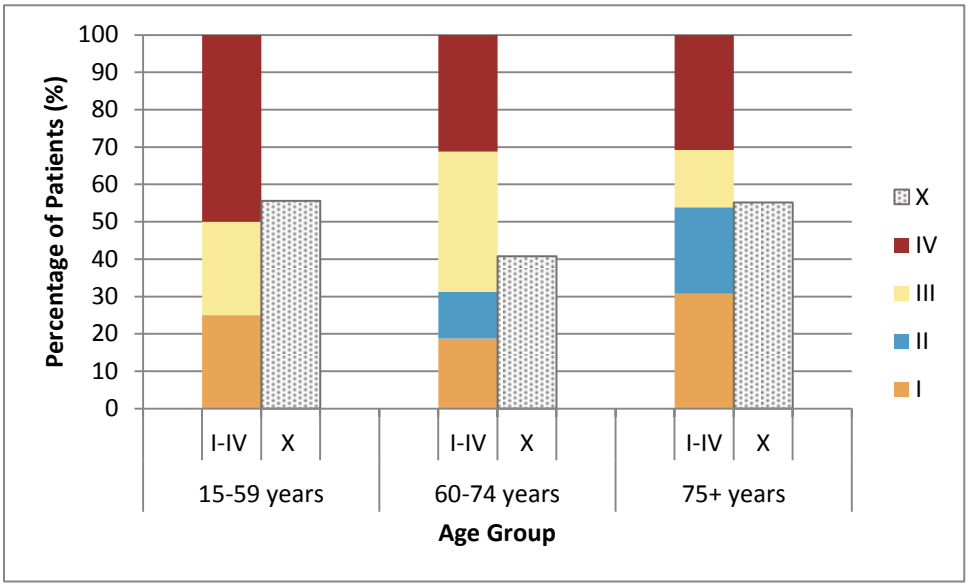

Figure 260. Vaginal Cancer: Stage Distribution by Age Group (Flemish Region, 2004-2007)

5. Diagnostic and Therapeutic Procedures

5.1 Diagnosis and Staging

An overview of the performed diagnostic and staging procedures can be found in Table 199. Almost all cancers are confirmed by pathological examination (96.9%). Pap smear and cytology are also charged as diagnostic procedures in about half of the patients, but their use largely fluctuates over the incidence years.

Imaging procedure are used in 95.4% of the patients. The most often used techniques are CT scanning (83.1%) and X-ray of the thorax (81.5%). MRI and PET scan are performed in more than one patient on three.

Table 199. Vaginal Cancer: Overview of Diagnostic and Staging Procedures (Flemish Region, 2004-2007)

Diagnostic Procedure (-3m<inc<+3m)	Total (N=65)		2004 (N=16)		2005 (N=16)		2006 (N=12)		2007 (N=21)	
	n	%	n	%	n	%	n	%	n	%
Tissue Examination	**64**	**98.5**	**16**	**100.0**	**16**	**100.0**	**12**	**100.0**	**20**	**95.2**
Histological Diagnosis	63	96.9	16	100.0	15	93.8	12	100.0	20	95.2
Cytology	36	55.4	8	50.0	8	50.0	9	75.0	11	52.4
Smear	28	43.1	4	25.0	9	56.3	7	58.3	8	38.1
Imaging	**62**	**95.4**	**16**	**100.0**	**15**	**93.8**	**12**	**100.0**	**19**	**90.5**
Colposcopy	9	13.8	3	18.8	0	0.0	2	16.7	4	19.0
Pelvic Ultrasound	17	26.2	6	37.5	5	31.3	2	16.7	4	19
Vaginal Ultrasound	20	30.8	1	6.3	7	43.8	4	33.3	8	38.1
Cystoscopy	29	44.6	7	43.8	7	43.8	5	41.7	10	47.6
Rectoscopy	10	15.4	2	12.5	4	25.0	2	16.7	2	9.5
CT	54	83.1	15	93.8	14	87.5	9	75.0	16	76.2
Chest X-ray	53	81.5	15	93.8	14	87.5	10	83.3	14	66.7
MRI	22	33.8	6	37.5	5	31.3	3	25.0	8	38.1
PET Scan	24	36.9	5	31.3	4	25.0	5	41.7	10	47.6

5.2 Multidisciplinary Oncological Consult

About 65% of all vaginal cancer patients are discussed at a multidisciplinary oncological consult (MOC) within one month before till three months after the incidence date. The number of patients discussed at a MOC varies per year between 56.3% (2004) and 75.0% (2005) (Table 200).

Table 200. Vaginal Cancer: Frequency of Multidisciplinary Oncological Consult (Flemish Region, 2004-2007)

	MOC	
Incidence Year	n	%
2004 (n=16)	9	56.3
2005 (n=16)	12	75.0
2006 (n=12)	7	58.3
2007 (n=21)	14	66.7
Total (n=65)	42	64.6

5.3 Therapeutic Procedures

In line with the literature (see Introduction), radiotherapy is seen as the major treatment option. Therefore, chemotherapy and surgery are studied in relation to the date of the last radiotherapy session.

Nomenclature codes for surgery are grouped into major surgery (e.g., hysterectomy) or minor surgery (e.g., laser therapy) (Table 201). If a major surgery has taken place within the studied timeframe (see Appendix), this surgery is always selected irrespective of the date of the minor surgery. As a small surgery can also be done for diagnostic purposes, small surgeries are only taken into account when no radiotherapy is performed within the selected timeframe.

Table 201. Vaginal Cancer: Overview of the Selected Surgeries (Flemish Region, 2004-2007)

Type of Surgery	n	%
Major Surgery	26	92.9
Minor Surgery	2	7.1

Patients treated with radiotherapy as primary treatment represent 35.4% of all patients. Nine of them (13.8% of all patients) are also treated with chemotherapy (Table 202).

Surgery as the primary treatment is found in 28 patients (43.1% of all patients). This is the only treatment for the majority of them (15 patients). Twelve patients are postoperatively treated with radiotherapy and chemotherapy. Adjuvant treatment with chemotherapy only is seen in one patient. Chemotherapy as the sole treatment is found in three patients.

Based on the health insurance data, no oncological treatment (radiotherapy, surgery or chemotherapy) is found in eleven patients (16.9%).

For ten patients, a lymphadenectomy has been charged. For the group of surgically treated patients, this is the case for 6 patients (21.4%). For the group of patients treated with radiotherapy, this is the

case for 2 patients (8.7%). Finally, also one of the patients treated with chemotherapy and one of the patients without a primary oncological registered treatment are treated with a lymphadenectomy.

Table 202. Vaginal Cancer: Overview of Treatment Schemes (Flemish Region, 2004-2007)

Treatment Scheme	n	%
Radiotherapy	**23**	**35.4**
Radiotherapy only	14	21.5
Chemoradiotherapy	9	13.8
Surgery	**28**	**43.1**
Surgery only	15	23.1
Surgery + radiotherapy + chemotherapy	12	18.5
Surgery + chemotherapy	1	1.5
Chemotherapy only	**3**	**4.6**
No primary treatment registered	**11**	**16.9**

6. Survival

6.1 Observed and Relative Survival

Survival is bad for patients diagnosed with a vaginal cancer with only slightly more than half of the patients surviving the first year (Table 203). Five years after diagnosis, relative survival has decreased to 34.7%. Due to an insufficient number of patients at risk, no further detailed analyses for survival are performed.

Table 203. Vaginal Cancer: Observed and Relative Survival (Flemish Region, 2004-2007)

	Observed Survival (%)					Relative Survival (%)				
N at risk	1 year	2 year	3 year	4 year	5 year	1 year	2 year	3 year	4 year	5 year
65	55.4	36.9	33.8	32.3	30.8	57.7	39.5	36.8	35.7	34.7

7. Analyses by Volume

During the period 2004-2007, Belgian patients with vaginal cancer are treated in 29 different Flemish hospitals. The mean number of patients (during the period 2004-2007) by hospital is 2.1 and the median 2, with a range between 1 and 7. The distribution of the number of patients (=volume) per hospital is displayed in Figure 261.

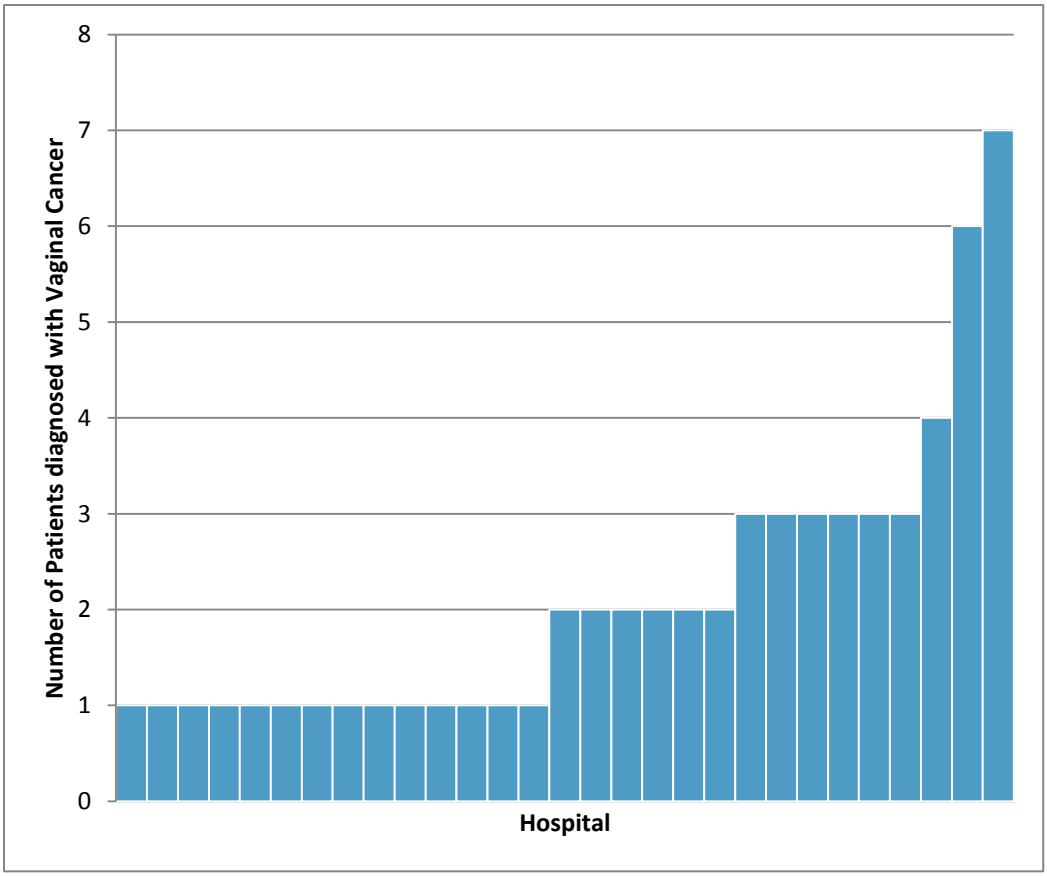

Figure 261. Vaginal Cancer: Distribution of Patients by Hospital (Flemish Hospitals, 2004-2007)

Six of the Flemish patients (9.2%) can not be attributed to a centre. Because of the low number of patients diagnosed with a tumour of vagina who are treated in a large number of different hospitals, the maximum number of patients per hospital is very small. Therefore, no further analyses on the volume of the hospital are performed.

8. References

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CHAPTER 11. MESOTHELIOMA

1. Introduction

1.1 General Information and Aetiology

Mesotheliomas are tumours that arise from the mesothelial cells of the pleura, peritoneum, pericardium or tunica vaginalis [1]. Most are pleural mesotheliomas, the peritoneum is the second most common site of mesothelioma development. Pericardial en tunica vaginalis origin is rare [1]. After a peak, it is estimated that the incidence will decline by the year 2018. Exposure to asbestos is a well-documented aetiological factor for mesothelioma (Figure 262), with occupational exposure being reported in 70-80% of those affected [2-4]. Mostly the delay is about 20 years although more than 40 years can elapse between exposure to asbestos and the diagnosis of mesothelioma [2-3]. There is also a good known synergistic effect between nicotine smoking and asbestos [5]. Most mesothelioma occur in males between 50-70 years old and the most frequently reported symptoms are dyspnea, thoracic pain and coughing [5].

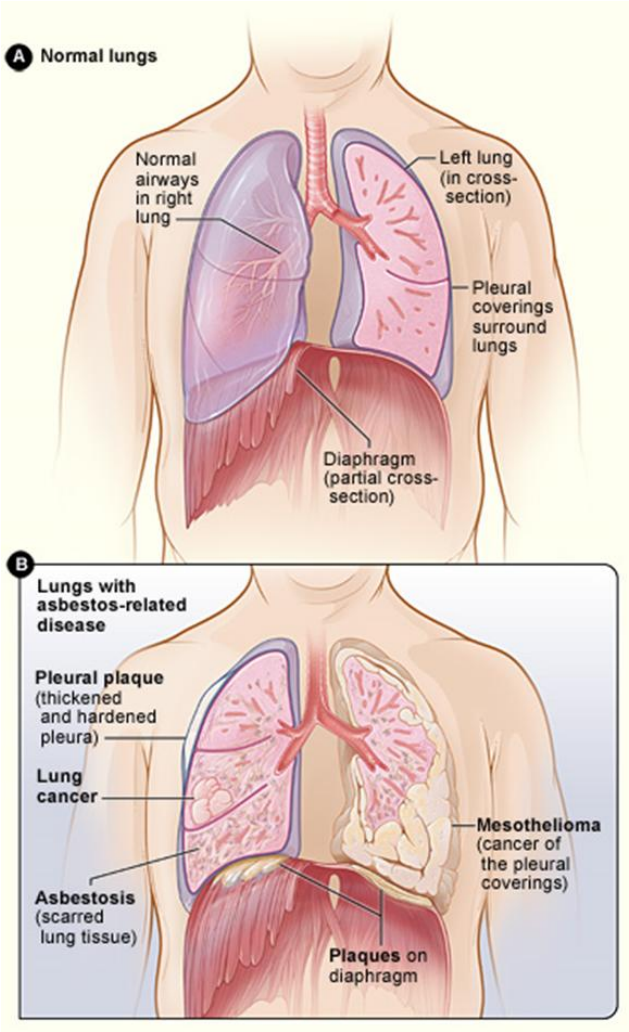

Figure 262. Aetiology of Mesothelioma

1.2 Diagnosis and Treatment

Most people initially undergo basic chest X-ray because of their complaints [5]. In case an abnormality is detected, a more detailed imaging (CT-scan, PET-scan or MRI) will be performed. If mesothelioma is suspected, a biopsy will be recommended to confirm the diagnosis. Most frequently a thoracoscopy is done to receive a biopsy for a pleural mesothelioma [5]. When there is assumption of a peritoneal mesothelioma, a peritoneoscopy to receive a biopsy may be performed. Biopsies may also be taken during more invasive surgical procedures [5].

Treatment options for mesothelioma include surgery, chemotherapy and radiation therapy. The treatment-choice depends on the general condition of the patient and the stage of the disease. Where possible, it's preferred to combine two or more of these treatments [6]. In clinical trials, this multimodal therapy has been shown to improve survival rates [6]. Although early stage cancers may be operated with curative intent, prognosis of mesothelioma is very poor with almost no long term survivors. Sometimes, tumor cells can grow along the tract where biopsy is taken. To prevent painful lesions along the biopsy tract, this area is preventively treated with radiation therapy.

2. Data Selection

All mesotheliomias diagnosed between 2004 and 2007 for patients with an official residence in the Flemish Region are selected, resulting in 623 cases (for detailed information on selected topography and morphology codes, see Appendix A). As described in Figure 263, 67 of them are excluded, resulting in 556 patients for whom results are presented in this chapter.

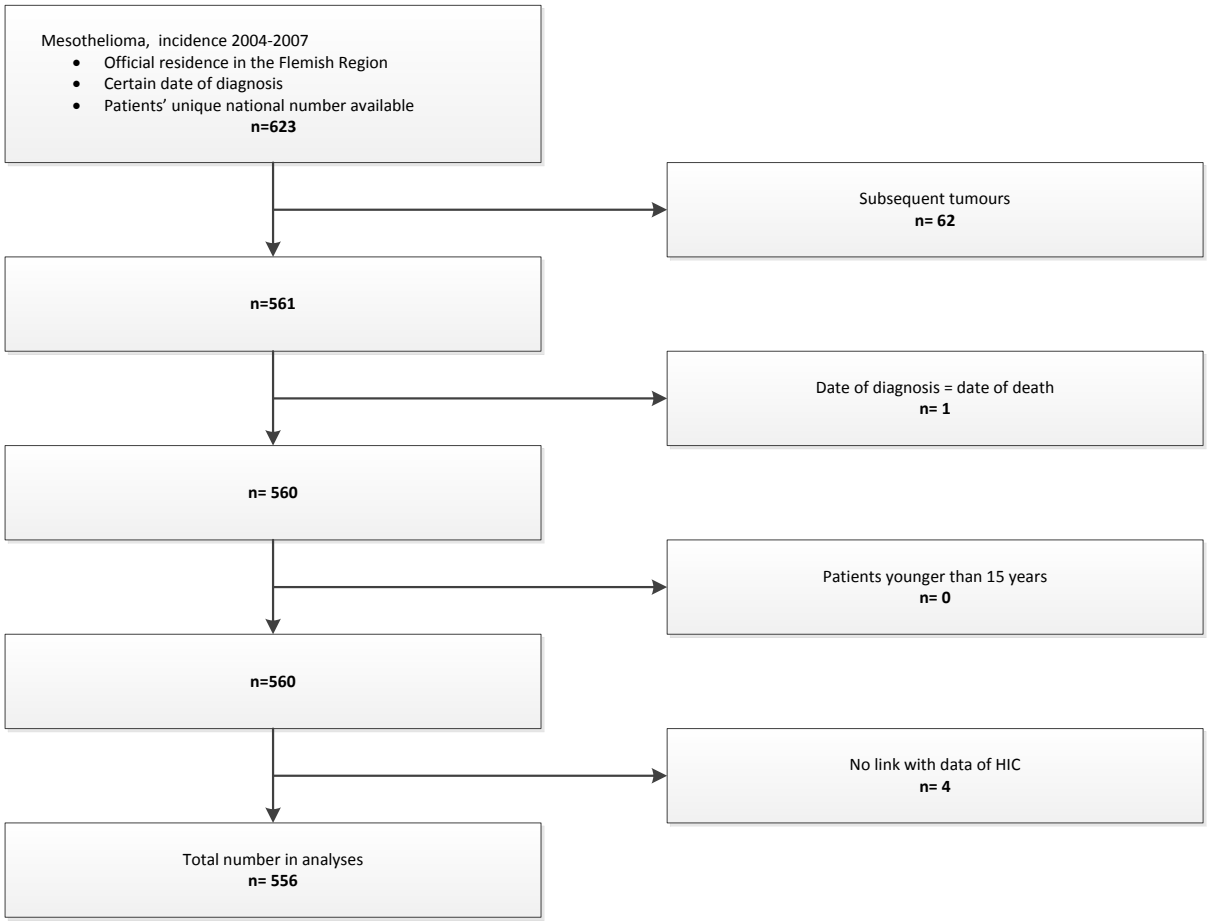

Figure 263. Selection of Mesothelioma (Flemish Region, 2004-2007)

3. Patient Characteristics

Mesotheliomas in the Flemish Region are more frequent in males than in females (male/female ratio: 6.08) during the incidence years 2004-2007 (Table 204). No clear trend in the age-standardised rates can be observed in the studied period.

The median age at diagnosis is almost the same for males and females: 70 years in males and 70.5 years in females. The minimum age is 18 years while the maximum is 90 years. For further analyses, patients are divided into three age groups: 15-59 years, 60-74 years and 75 years or older (Table 205).

Table 204. Mesothelioma: Incidence (Flemish Region, 2004-2007)

	Males		Females		Total	
Incidence year	n	ESR	n	ESR	n	ESR
2004	115	3.04	17	0.36	132	1.60
2005	114	3.05	29	0.69	143	1.75
2006	122	3.16	18	0.43	140	1.72
2007	115	2.94	26	0.49	141	1.62
2004-2007	466	3.04	90	0.50	556	1.67

ESR: age-standardised rate, using the European Standard Population (n/100,000 person years)

Table 205. Mesothelioma: Age Distribution (Flemish Region, 2004-2007)

	Males	Females	Total
15-59 years	83	21	104
60-74 years	255	39	294
75+ years	128	30	158

4. Tumour Characteristics

Table 206 presents information regarding the sublocalisation, morphology, differentiation grade and stage (clinical, pathological and combined stage) of the selected mesotheliomas. Only two patients are diagnosed with a non-pleural localised mesothelioma The majority of the tumours have an unknown differentiation grade. However, it should be noted that the relevance of any form of differentiation grading is doubtful for mesothelioma which are not ordinarily graded and for which no prognostic value has yet been attributed to this tumour characteristic [7]. The stage of the tumours remains unknown for about half of the patients. For the patients with a known stage, stages are more or less evenly distributed. Two tumours (0.4%) could not be staged because their localisation was coded as C45.2 (mesothelioma of pericardium) or C45.7 (mesothelioma of other sites). These tumours are displayed as stage 'NA'.

Table 206. Mesothelioma: Tumour Characteristics (Flemish Region, 2004-2007)

	N	% of total	% of known
Localisation			
Mesothelioma of pleura (C45.0)	554	99.6	99.8
Mesothelioma of pericardium (C45.2)	1	0.2	0.2
Mesothelioma of other sites (C45.7)	1	0.2	/
Morphology			
Epithelioid mesothelioma	219	39.4	/
Other morphologies	337	60.6	/
Differentiation grade			
Well differentiated	16	2.9	26.7
Moderately differentiated	11	2.0	18.3
Poorly differentiated	19	3.4	31.7
Undifferentiated	14	2.5	23.3
Unknown	496	89.2	/
Clinical stage			
I	57	10.3	20.9
II	64	11.6	23.4
III	70	12.6	25.6
IV	82	14.8	30.0
Unknown	281	50.7	/
Pathological stage			
I	11	2.0	20.0
II	10	1.8	18.2
III	19	3.4	34.5
IV	15	2.7	27.3
Unknown	499	90.1	/
Combined stage			
I	59	10.6	20.7
II	63	11.4	22.1
III	76	13.7	26.7
IV	87	15.7	30.5
Unknown	269	48.6	/

Note: 2 cases have a localisation for which staging is not applicable (NA)

Stage distribution is comparable for males and females, but the proportion of females with an unknown stage is higher (Figure 264). Younger patients tend to have less stage I cancers at diagnosis, although they also have less stage IV cancers in comparison with older patients (Figure 265). The proportion of tumours with an unknown stage is much higher for patients aged 75 years or older than for the other age groups.

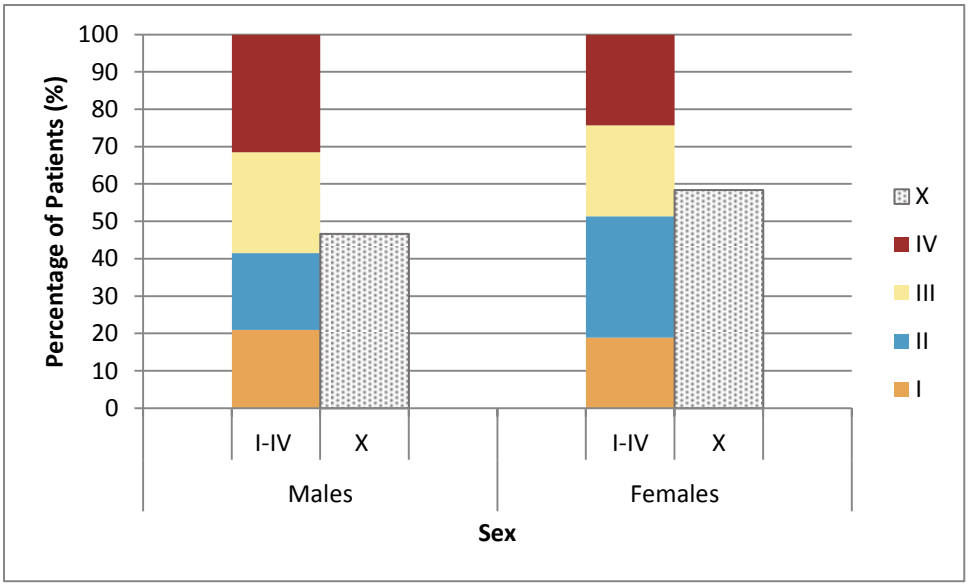

Figure 264. Mesothelioma: Stage Distribution by Sex (Flemish Region, 2004-2007)

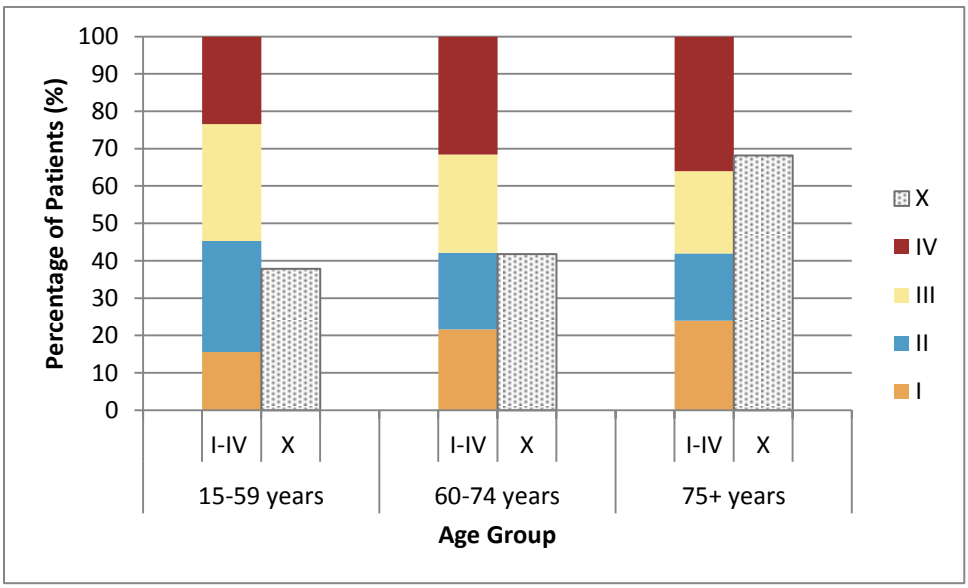

Figure 265. Mesothelioma: Stage Distribution by Age Group (Flemish Region, 2004-2007)

5. Diagnostic and Therapeutic Procedures

5.1 Diagnosis and Staging

An overview of the diagnosis and staging procedures used for mesotheliomas is shown in Table 207.

Histological examination is performed in almost all patients (98.6%) and most often a cytological diagnosis is also charged.

Only for one patient, no imaging procedure has been charged in the staging procedure. The most frequently used imaging techniques are a CT scan (98.4%) and an X-ray of the thorax (98.7%). MRI

scanning is almost never (3.2 %) executed during the staging process of mesothelioma. A punction of the pleura (or ascites) is also performed in about two-third of the patients. Surgical staging by mediastinoscopy or explorative thoracotomy is carried out in about one-third of the patients. PET scanning is performed in almost half of the patients (45.0 %).

Table 207. Mesothelioma: Overview of Diagnostic and Staging Procedures (Flemish Region, 2004-2007)

Diagnostic Procedure (-3m<inc<+3m)	Total (N=556)		2004 (N=132)		2005 (N=143)		2006 (N=140)		2007 (N=141)	
	n	%	n	%	n	%	n	%	n	%
Tissue Examination	**548**	**98.6**	**128**	**97.0**	**142**	**99.3**	**139**	**99.3**	**139**	**98.6**
Histological Diagnosis	545	98.0	127	96.2	141	98.6	139	99.3	138	97.9
Cytology	491	88.3	110	83.3	129	90.2	125	89.3	127	90.1
Imaging	**555**	**99.8**	**132**	**100.0**	**142**	**99.3**	**140**	**100.0**	**141**	**100.0**
CT	547	98.4	128	97.0	141	98.6	140	100.0	138	97.9
MRI	18	3.2	5	3.8	7	4.9	6	4.3	0	0.0
Chest X-ray	549	98.7	128	97.0	141	98.6	139	99.3	141	100.0
PET Scan	250	45.0	62	47.0	61	42.7	71	50.7	56	39.7
CT/MRI Skull	182	32.7	43	32.6	43	30.1	51	36.4	45	31.9
Punction										
Ascites or Pleural Punction	362	65.1	86	65.2	104	72.7	84	60.0	88	62.4
Surgical Staging	**181**	**32.6**	**40**	**30.3**	**49**	**34.3**	**46**	**32.9**	**46**	**32.6**
Mediastinoscopy	66	11.9	12	9.1	25	17.5	19	13.6	10	7.1
Explorative Thoracotomy	139	25.0	34	25.8	31	21.7	32	22.9	42	29.8

5.2 Multidisciplinary Oncological Consult

Overall, about 66% of all mesothelioma patients have been discussed at a multidisciplinary oncological consult (MOC) within one month before till three months after incidence date. No clear trend can be observed over the incidence years (Table 208).

Table 208. Mesothelioma: Frequency of Multidisciplinary Oncological Consult (Flemish Region, 2004-2007)

	MOC	
Incidence Year	n	%
2004 (n=132)	80	60.6
2005 (n=143)	97	67.8
2006 (n=140)	102	72.9
2007 (n=141)	87	61.7
Total (n=566)	366	65.8

5.3 Therapeutic Procedures

Two types of surgery are taken into account: pleural resection and pneumonectomy. The surgery type closest to the incidence date is selected. Based on this criterion, 68.2% of the patients who are operated receive a pleural resection while 31.8% receive a pneumonectomy within the timeframe of one month before until six months after the incidence date (Table 209).

Table 209. Mesothelioma: Overview of the Selected Surgeries (Flemish Region, 2004-2007)

Type of Surgery	n	%
Pleural Resection	73	68.2
Pneumonectomy	34	31.8

Some patients without major surgical intervention receive a supportive surgical treatment such as pleurodesis (n=200) or a thoracotomy with intent to resection (n=4).

Almost 20% of the patients undergo surgery in a time-frame of one month before until six months after incidence. Surgery as the sole therapy is seldom (3.1%); the majority of the surgically treated patients receive neo-adjuvant and/or adjuvant chemo- and/or radiotherapy.

22.8% of the patients receives concomitant chemoradiotherapy without surgery. Radiotherapy is the only oncological treatment for 15.8% of the patients, while 18.7% of the mesothelioma patients only receive chemotherapy (Table 210).

It should be noted that it is unknown whether irradiation (alone or combined with surgery and/or chemotherapy) is performed with a curative intent, a palliative intent or whether it is an irradiation of the entrance gate of the scoop after an endoscopic intervention.

No primary oncological treatment is found for 23.4% of the patients. This high percentage of untreated patients can at least partly be explained by the lethal character of this cancer type. Certainly in case of advanced disease in older patients, treatment might be restricted to palliation and comfort care.

Table 210. Mesothelioma: Overview of Treatment Schemes (Flemish Region, 2004-2007)

Treatment Scheme	n	%
Surgery	**107**	**19.2**
No other therapy	17	3.1
Adjuvant radiotherapy	14	2.5
Adjuvant chemoradiotherapy	19	3.4
Adjuvant chemotherapy	27	4.9
Chemotherapy < surgery	2	0.4
Chemotherapy < surgery < chemotherapy	1	0.2
Chemotherapy < surgery < chemoradiotherapy	2	0.4
Chemotherapy < surgery < radiotherapy	10	1.8
Chemoradiotherapy < surgery	4	0.7
Chemoradiotherapy < surgery < radiotherapy	10	1.8
Radiotherapy < surgery < chemoradiotherapy	1	0.2
Radiotherapy	**88**	**15.8**
Chemoradiotherapy	**127**	**22.8**
Chemotherapy only	**104**	**18.7**
No primary treatment registered	**130**	**23.4**

6. Survival

6.1 Observed and Relative Survival

Survival is very poor for all patients diagnosed with a mesothelioma (Table 211). Within one year after diagnosis, more than half of the patients have already died. Relative survival at five years after diagnosis is only 5.0%.

Table 211. Mesothelioma: Observed and Relative Survival (Flemish Region, 2004-2007)

	Observed Survival (%)					Relative Survival (%)				
N at risk	1 year	2 year	3 year	4 year	5 year	1 year	2 year	3 year	4 year	5 year
556	45.9	19.4	9.7	6.1	4.3	47.4	20.6	10.6	6.9	5.0

6.2 Relative Survival by Sex

Both males and females have very low 5-year relative survival rates. Survival is somewhat better for females although the absolute differences are small (Table 212).

Table 212. Mesothelioma: Relative Survival by Sex (Flemish Region, 2004-2007)

			Relative Survival (%)				
	N at risk	%	1 year	2 year	3 year	4 year	5 year
Males	466	83.8	46.6	20.6	9.6	6.5	4.5
Females	90	16.2	51.0	20.8	15.4	8.6	7.7

6.3 Relative Survival by Age Group

One year after diagnosis, survival is worse for patients aged 75 year and older, but the survival benefit for the younger patients disappears with a longer follow-up (Table 213).

Table 213. Mesothelioma: Relative Survival by Age Group (Flemish Region, 2004-2007)

	N at risk	%	Relative Survival (%)				
			1 year	2 year	3 year	4 year	5 year
15-59 years	104	18.7	54.1	23.3	10.7	5.9	5.9
60-74 years	294	52.9	53.5	23.4	11.6	8.1	4.9
75+ years	158	28.4	30.6	13.2	8.7	5.2	4.8

6.4 Relative Survival by Stage

Until three years after diagnosis, survival is remarkably better for the stage I tumours than for the other stages (Figure 266). Thereafter, survival benefit becomes smaller although prognosis remains slightly better.

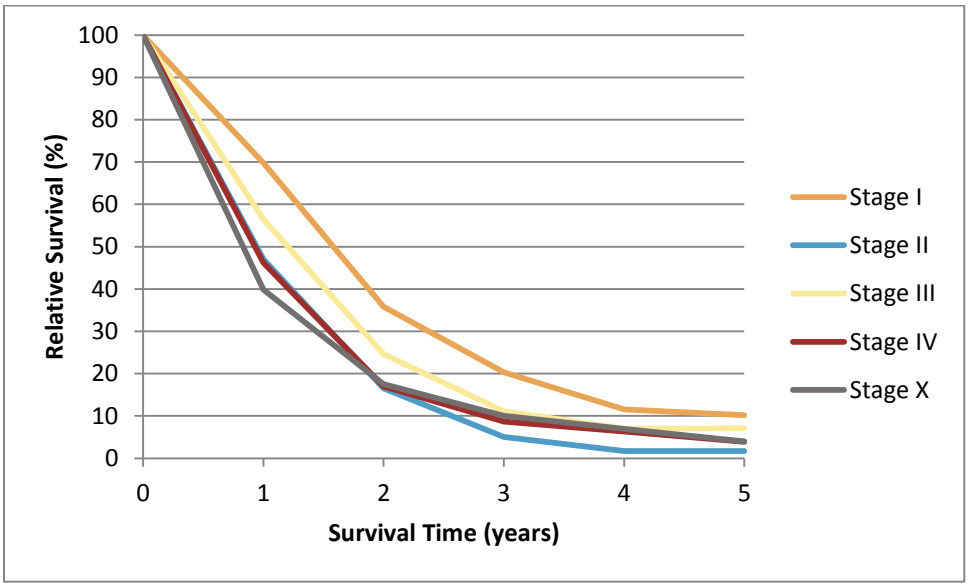

Figure 266. Mesothelioma: Relative Survival by Stage (Flemish Region, 2004-2007)

6.5 Relative Survival by Morphology

Patients diagnosed with an epithelioid mesothelioma (n=219) have a relative survival benefit of 20.3% at 1 year after diagnosis, in comparison with patients diagnosed with another morphological type of mesothelioma (n=337, Figure 267). However, relative survival benefit decreases with increasing follow-up time to only 2.1% at 5 years.

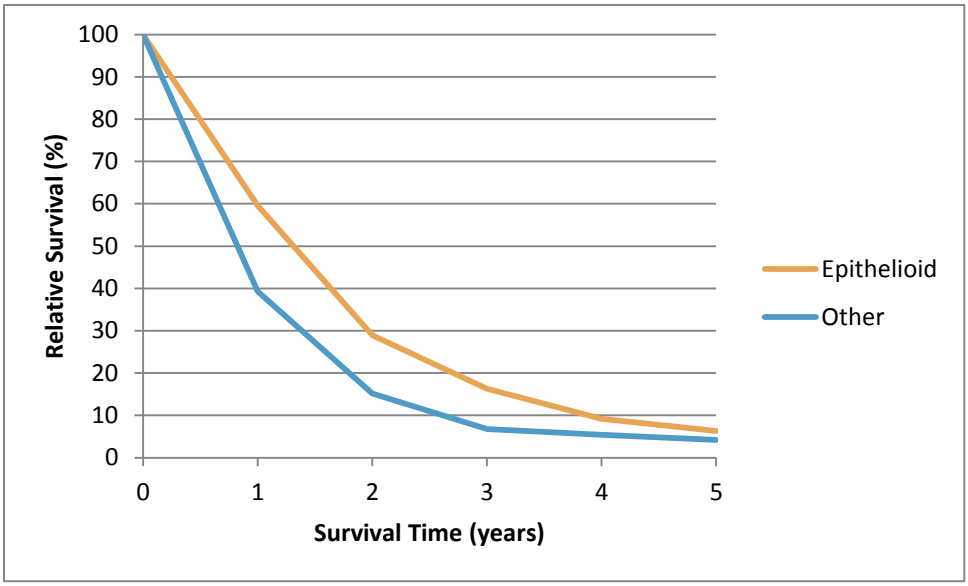

Figure 267. Mesothelioma: Relative Survival by Morphology (Flemish Region, 2004-2007)

6.6 Relative Survival by Primary Treatment

Patients who undergo surgery (pleural resection or pneumonectomy, n=107) have a slightly better survival than patients who only undergo radio- and/or chemotherapy or without any registered treatment (n=449, Figure 268). The survival benefit seems to shrink after three years of follow-up: at three years the relative survival rates are 14.8% and 9.6% in favour of surgically treated patients, and at five years the rates are 7.2% and 4.5% respectively.

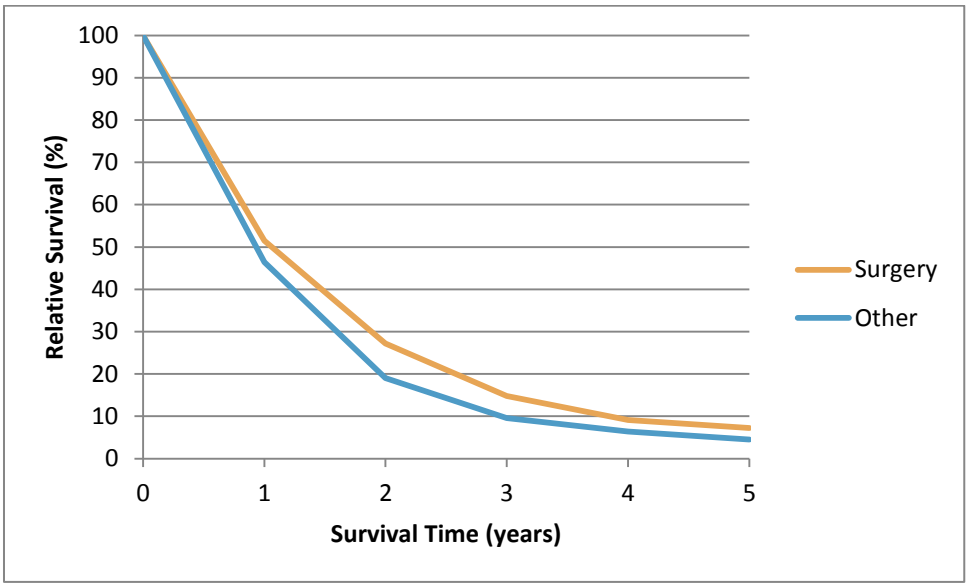

Figure 268. Mesothelioma: Relative Survival by Primary Treatment (Flemish Region, 2004-2007)

7. Analyses by Volume

During the period 2004-2007, Belgian patients with mesothelioma are treated in 49 different Flemish hospitals. The mean number of patients (during the period 2004-2007) by hospital is 9.9 and the median number is 4, with a range between 1 and 69. The distribution of the number of patients (=volume) per hospital is displayed in Figure 269.

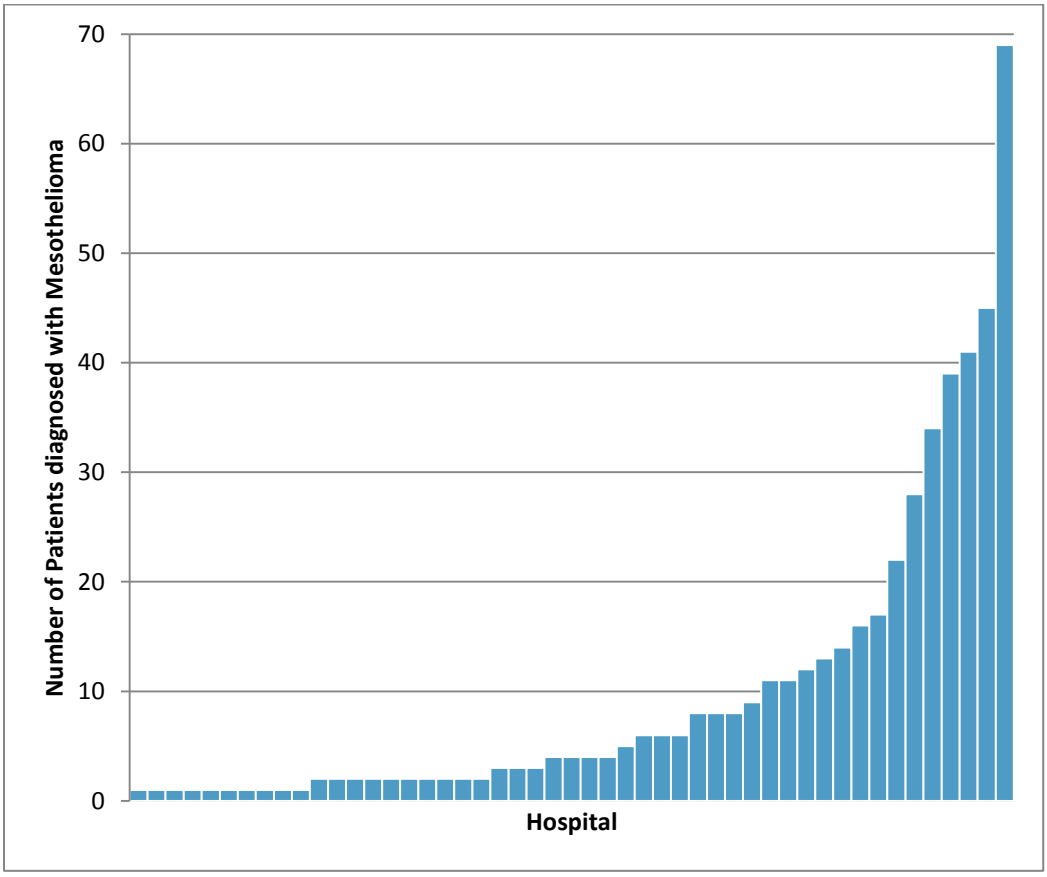

Figure 269. Mesothelioma: Distribution of Patients by Hospital (Flemish Hospitals, 2004-2007)

477 of the Flemish patients (85.8%) can be assigned to a hospital (see Methodology for the rules applied to assign a patient to one hospital). Considering hospitals having taken care of 40 or more patients diagnosed during the period 2004-2007 as high-volume hospitals, 150 patients are assigned to high-volume hospitals and 327 are assigned to low-volume hospitals.

Treatment schemes are different for those considered high-and low-volume hospitals (Figure 270). In high-volume hospitals, 34.0% of the patients is primarily treated with RT and 34.7% with chemoradiotherapy. Surgery (with or without neo- and/or adjuvant treatment) and chemotherapy only, are less frequently used. For low-volume hospitals a larger part of the patients is surgically treated (26.6%). Chemotherapy only and chemoradiotherapy are both used in about one fourth of the patients (24.8% and 22.9% respectively). Additionally, the number of patients without any oncological treatment is higher in low-volume hospitals (15.0%) than high-volume hospitals (3.3%). It should be noted that the difference in the proportion of patients treated with radio- or

chemoradiotherapy in the high-volume versus low-volume hospitals can at least partly be explained by the rules for assignment that give a rather high priority to the hospital were the RT takes place.

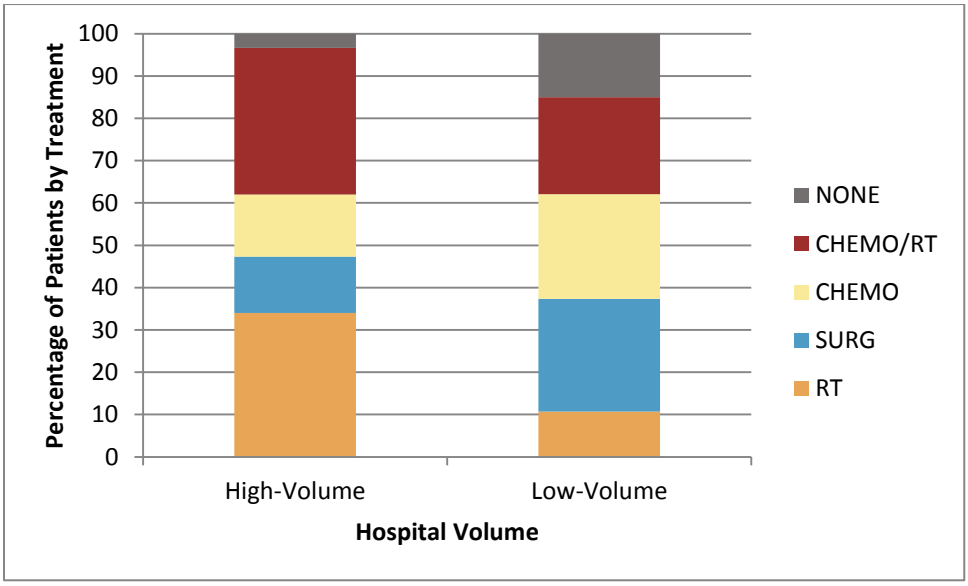

Figure 270. Mesothelioma: Primary Treatment by Hospital Volume (High-Volume versus Low-Volume Hospitals) (Flemish Region, 2004-2007)

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Belgian Cancer Registry

PART V

DISCUSSION AND CONCLUSION

After previous publications on cancer incidence and survival by cancer type in Belgium and by region [1-4], the current publication provides a detailed inventory of rare cancers in the Flemish Region. To identify rare cancers, we used the definition provided by RARECARE, considering malignancies with an incidence rate lower than 6/100,000 per year as rare [5].

The **first part** of the issue describes the incidence, trends and survival of a wide variety of rare cancers in different organs systems. All Belgian patients living in the Flemish Region, with a new cancer diagnosis between 2001 and 2010, are included.

Generally it can be stated that rare cancers are a minority within each group of cancers of a specific organ or organ system. However, there is a marked diversity in incidence amongst the group of rare cancers. Some rare cancers are not so uncommon such as for example squamous cell carcinoma of the larynx (5.94/100,000 per year), other are very rare and have not even been reported during the observation period such as for example lymphoepithelial carcinoma of the thymus. It is also important to mention that in the RARECARE list both sexes are combined to determine a rare cancer. In the present study, the RARECARE definition has been applied to the incidences of both sexes together, but also of each sex separately. In the case of laryngeal cancer, this tumour is a common cancer in males (10.77/100,000 per year) but a rare cancer in females (1.23/100,000 per year). Additionally, not all tumours listed as rare in the RARECARE list, are rare in the Flemish Region, as for example the squamous cell carcinoma of the cervix uteri which is common in the Flemish Region (9.11/100,000 per year) but rare according to the RARECARE list.

Besides testicular and trophoblastic cancer, incidences are very low in young patients between the age of 15 and 40 years. In most cases there is a continuous increase in age specific incidence, starting at ages between 40 and 60 years. As a consequence, most tumours mainly occur in older patients. In some cases however, as for example in papillary serous cystadenocarcinoma of the ovary, there is a peak around 65-70 years followed by a decline thereafter.
The availability of the tumour stage is highly dependent on the cancer type. For example, mesothelioma have a very high percentage of tumours with an unknown stage, in contrast with hypopharyngeal cancers. Besides this variation between cancer types, some variation can also be observed between the different histological subtypes within a cancer entity. For example, the proportion of tumours with an unknown stage is 17.4% for squamous cell carcinoma of the bladder, while this is nearly double (33.5%) for the adenocarcinoma of the bladder.

Concerning the trends in incidence, there is no clear trend in general: some tumours (e.g. squamous cell carcinoma with variants of nasopharynx) show an increase in incidence, some (e.g large cell carcinoma of lung) a decrease and others (e.g. squamous cell carcinoma with variants of oral cavity) remain stable. It is however important to note that trend analyses in this study might be complicated by the low incidences.

Concerning survival, different points have to be highlighted. First of all, a worse prognosis for rare cancers, compared with common cancers is a known phenomenon: in literature, a 5-year relative survival of 65% for common cancers and of 47% for rare cancers is mentioned [5]. Higher ages are

associated with a worse prognosis: the survival of the two youngest age groups are frequently comparable, while the oldest patients have a poorer outcome. The more advanced stages are also associated with a worse prognosis and in the majority of rare cancer entities, females have a better prognosis. Detailed analyses often show differences in survival for different histological subgroups. In lung cancer for example, poorly differentiated endocrine carcinomas clearly have a worse outcome than squamous cell carcinomas. This difference in survival is often related to differences in stage distribution at diagnosis: histological subtypes with lower 5-year survival probabilities present more frequently at more advanced stage.

In the **second part**, a selection of 11 rare cancers is studied more in detail, with particular attention to clinical care including diagnosis and staging, multidisciplinary consultations and treatment, and to the diversity in clinical management. To this purpose, all Belgian patients living in the Flemish Region, with an incidence of a rare cancer between 2004 and 2007 are considered.

Large differences in the availability of the differentiation grade and the stage are observed for the different tumours. The percentage of tumours with an unknown differentiation grade ranges between 13.1% for oral cavity cancers to 45.9% for salivary gland cancers. This proportion is even higher for mesothelioma which are not ordinarily graded: 89.2% of these tumours are registered without differentiation grade. Large differences are also observed in the proportion of unknown stages. For head and neck cancers, this ranges from 8.1% for hypopharyngeal cancers to 51.5% for lip cancers. For non-head and neck cancers, high percentages of unknown stages are reported for cancers of the vagina (49.2%).
No clear trend can be observed in the sex or age-dependent differences in stage distribution for the different tumours: for some tumours the stage distribution is the same for both sexes (e.g. oropharyngeal cancer), for others females have less favourable stages (e.g. nasopharyngeal cancer), while the reverse has also been observed (e.g. salivary gland cancer). For most tumours, older patients have a less favourable stage distribution, although the opposite is also observed (lip and hypopharynx). In laryngeal and oropharyngeal cancer, no difference in stage distribution can be observed between the age groups.

Diagnostic and therapeutic procedures for the selected rare cancers are studied by means of administrative data on medical acts (nomenclature and pharmaceutical specialties), provided by the health insurance companies (HIC). Given the obligatory health insurance for residents of the Flemish Region, HIC data have the enormous advantage of being population-based. Moreover, retrospective studies prevent the costs and efforts associated with prospective registration projects. On the other hand, the use of HIC databases inevitably entails some limitations. A first limitation is that only charged medical acts are available in the HIC data. For example, acts which are not charged because they took place in the context of a sponsored clinical trial, are not available in the HIC data. A second limitation is that the description of the registered medical acts does not directly refer to the diagnosis. A third shortcoming is that small deviations are possible in both the incidence date and the invoice date of the medical act. To overcome the two latter limitations, timeframes are used to restrict the possibility of including medical acts that were conducted for other purposes than the ones of interest.

Across all different rare cancer types, the clinical suspicion of a malignancy is proven by pathology tissue examination in almost 100% of cases. Different staging procedures have been used, but beside lip and vulvar cancer, more than 80% of the patients undergo an examination by CT scanning. It should be noted that within the studied period, nomenclature for CT scanning was not diversified between different anatomical regions. The proportion of patients having undergone CT scanning may therefore be artificially high. A chest X-ray is also performed in a majority of the patients. However, due to the lack of specificity of nomenclature codes as described above, it is not clear if the X-ray is performed in the course of staging or for other reasons such as pre-operatively or to exclude pulmonary infections. Other technical studies are performed at different frequencies depending on the primary tumour, such as endoscopic examinations, PET-scan, MRI… Screening for second primary malignancies of the upper aerodigestive tract is often performed for head and neck cancers. In all studied tumour types, more than 40% of the patients have been screened for a tumour of the upper digestive tract.

For most cancer types, a multidisciplinary oncological consult (MOC) has been charged to more than half of the patients, ranging from 55% to 73%. A major exception to this rule is cancer of lip, for which a MOC is only found in 27.5% of patients. This cancer type may often be treated in a pure ambulatory setting without referral to a hospital and may therefore not be discussed at a MOC. Although an increase in the percentage of patients discussed at the MOC is noted during the observation period for most cancers, the proportion of multidisciplinary discussed patients remains lower than expected. A previous study has shown that the proportion of patients discussed at a MOC is underestimated when making use of HIC data [6]. The absence of a nomenclature code for a MOC in the health insurance database does not always imply that no MOC has taken place within the defined timeframe. It only indicates that no MOC was charged during that timeframe. In this previous study, it has been confirmed that for some patients there is no MOC charged although the meeting has taken place, or that another MOC outside the timeframe has been charged [6].

For each rare cancer entity which has been investigated in detail, treatment schemes have been reconstructed based on HIC data. Certain methodological decisions should be kept in mind when interpreting these results.

Concerning surgery, it is import to mention that patients might have had more surgeries than those that have been selected as basis for the build-up of the treatment schemes. For oral cavity cancers for example, priority has been given to the major surgeries. As a consequence, patients for which major surgery has been selected as the cornerstone of the treatment might also have undergone lymphadenectomy.

For chemotherapy analyses, all antineoplastic and immunomodulating agents (ATC code L01) have been considered together. This choice implies that differences between chemotherapeutic drugs and targeted agents, or the usage of different chemotherapy schedules have not been investigated within the current project. Such detailed analyses might be the subject of future studies.

As for radiotherapy, nomenclature enables a distinction between external radiotherapy, brachytherapy or a combination of both. This differentiation has been taken into account in the analyses of tumour types that are regularly treated with brachytherapy such as lip cancer. On the other hand, nomenclature descriptions for radiotherapy are not referring to the target region for

which the radiation has been charged. It is therefore impossible to discriminate between radiotherapy for a local or regional treatment. In addition, detailed data on the fraction size and number of delivered fractions cannot be retrieved from HIC data.
Concerning the combined use of radiotherapy and chemotherapy, it is hard to retrieve the order in which these modalities have been administrated. Therefore, combined use has always been described as chemoradiotherapy.
Taken these methodological issues into account, the treatment schemes that have been retrieved from the HIC data show in general that most tumour types are treated according to international guidelines. This is not the case for vaginal cancer, for which in contrast to what we expected, surgery is more frequently the cornerstone of the treatment than radiotherapy.
For a certain proportion of patients, no information could be found concerning treatment. This proportion varies between 1.8% and 23.4% for lip cancer and mesothelioma, respectively. For all head and neck cancers and for vulvar cancer no treatment was found in HIC data for less than 10% of patients, for anal canal and vaginal cancer this was the case for more than 15% of the cases. Multiple reasons can be put forward to explain this variance. Some patients who present in very poor performance with an advanced or metastatic cancer, might only be offered supportive care without active oncological treatment. This can especially be the case for mesothelioma as no good therapeutic options are available for this cancer type. On the other hand, no charged medical acts are found for patients who are included in clinical trials with fully sponsored therapeutic regimens.

As head and neck cancers constitute the majority of the cancers which have been studied in detail, we have a further look at the treatment schemes that were set up for these cancer types.
It is clear that for head and neck cancer, treatment greatly depends on the primary localization of the concerned tumour. Lip cancers are almost exclusively treated with surgery. For cancers of the larynx, the oral cavity and the salivary glands, surgery is the treatment of choice, in a majority of the patients followed by adjuvant treatment. Hypopharyngeal and oropharyngeal cancer are most frequently treated with (chemo)radiotherapy although surgery as the cornerstone of the treatment seems to be an alternative for a large amount of patients. As expected, almost all nasopharyngeal cancers are primarily treated with radiotherapy.

Survival results presented in this booklet are frequently hampered by the low numbers at risk at start of the observation period. For nasopharyngeal cancer and vaginal cancer, this problem prevents all further subgroup analyses. For other cancers, certain subgroups are not presented in survival analyses (e.g. stage I and II in hypopharyngeal cancer) or are regrouped to enable estimations of survival (e.g. stages I to III in cancer of salivary glands). Almost all cancers that occur in both sexes have a better prognosis in females. This is not the case for laryngeal cancer, for which males have a better 5-year relative survival than females. Beside in lip cancers for which younger patients have a slightly worse stage distribution, survival for the analysed rare cancers is poorest for the oldest patients. Analyses by stage confirm an inverse relation between the stage of the disease and the outcome of the patients: more advanced cancers have a poorer prognosis. Notably, survival rates of stage IV cancers of the head and neck region are generally higher than for other tumour types. This finding is related with the classification of head and neck cancers, in which some locally or regionally

advanced diseases are diagnosed as stage IVA and IVB. Stage IV disease is not always designated incurable, especially in the absence of distant metastases (stage IVC).
In spite of the low numbers at risk, detailed survival analyses have been performed for several tumour types. These results show a prognostic advantage for certain histology groups as for example low grade cancers in salivary gland tumours, and epithelioid morphologies in mesothelioma.
Of all head and neck cancers, cancer of the lip has the best prognosis and hypopharyngeal cancer the poorest (5-year relative survival of 91.0% versus 29.6%). Besides this difference in survival between the major head and neck cancer regions, variable prognoses are also observed for sublocalisations within some head and neck cancer entities. In oropharyngeal cancer for example, the best survival is seen in lesions of the soft palate and the uvula.

The analyses concerning the distribution of patients by centre show a large spread in the management of patients with rare cancers. The number of hospitals in the Flemish Region taking care of rare cancers ranges from 15 (nasopharyngeal cancer) to 55 (laryngeal cancer). On one hand, this wide range might be related with the large differences in incidence between the rare cancer entities. On the other hand, treatment options might play a role for certain tumour types: the care for nasopharyngeal cancer is probably less dispersed because the main treatment for this tumour type (radiotherapy) is not available in every centre.
Distribution of patients by hospital is inequal, and often large deviations are seen between the mean and median number of patients by hospital. This is for example the case for hypopharyngeal cancer which have been treated in 29 Flemish hospitals during the concerned observation period, with a mean value of 13.5 patients per centre, a mean of 2 and a range between 1 and 56 patients per centre. These data confirm that some hospitals clearly treat more patients with a certain rare cancer entity than others.
In the abscence of published reference values, the cut-off to discern low- from high-volume hospitals has been chosen arbitrarily based on the observed patient distribution. Due to the low number of patients diagnosed and treated in a wide variety of hospitals, analyses of differences in used treatment schemes between low- and high-volume centres are not possible for a number of tumour types (cancer of salivary gland, anal canal cancer, lip cancer, nasopharyngeal cancer, vaginal and vulvar cancer). For hypopharyngeal and oral cavity cancer, treatment schemes are comparable between low- and high-volume hospitals. This is not the case for laryngeal and oropharyngeal cancer and mesothelioma, for which surgery seems to be less frequently considered as the primary treatment in high-volume hospitals compared with their low-volume counterparts. This finding may be confounded by the fact that radiotherapy has been considered in the process of assigning patients to a centre.

In conclusion, the present project is the first to give a detailed insight in the epidemiology and clinical care for rare cancers in the Flemish Region. As registration data at the Belgian Cancer Registry are complete for the Flemish Region from 1999 onwards, the current results can be considered population-based. In view of the obligatory health insurance in our country, the diagnostic and therapeutic acts described by means of HIC data also completely cover the studied population. Despite possible drawbacks associated with their use, HIC data are proven suitable for analyses of cancer care.

We hope that this project may enhance knowledge on rare cancer epidemiology and clinical care, and may be useful in future discussions concerning health care organization for rare cancer management. In line with international initiatives such as RARECARENET, the current results can stimulate further research on these malignancies which are still associated with a poorer outcome than their common counterparts.

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Belgian Cancer Registry

PART VI

APPENDICES

Appendix A: Topography and Morphology Combinations for the Eleven Selected Tumours

Tumour type	Topography	Morphology
Squamous Cell Carcinoma with Variants of Lip	C00.0-C00.9	8004, 8032, 8050-8076, 8078, 8082-8084, 8560, 8980
Epithelial Tumours of Major Salivary Glands	C7, C8	8004, 8012, 8020-8022, 8032, 8050-8076, 8082, 8140, 8147, 8200, 8211, 8230, 8255, 8260, 8262, 8290, 8310, 8320, 8323, 8410, 8430, 8440, 8450, 8480, 8500, 8525, 8550, 8562, 8941, 8980, 8982
Epithelial Tumours of Nasopharynx	C11	8000-8001, 8004, 8010-8011, 8020-8022, 8032, 8050-8076, 8078, 8082-8084, 8123, 8260, 8560, 8980
Squamous Cell Carcinoma with Variants of Hypopharynx	C12, C13	8004, 8020-8022, 8031-8032, 8050-8076, 8078, 8082-8084, 8123, 8560, 8980
Epithelial Tumours of Anal Canal	C21	8000-8001, 8004, 8010-8011, 8020-8022, 8032, 8050-8076, 8078, 8082-8084, 8123-8124, 8140-8141, 8143, 8147, 8190, 8201, 8210-8211, 8215, 8221, 8230-8231, 8255, 8260-8263, 8290, 8310, 8315, 8320, 8323, 8333, 8380-8384, 8401, 8430, 8440-8441, 8450, 8480-8482, 8490, 8500, 8503-8504, 8510, 8512, 8514, 8525, 8542, 8550-8551, 8560, 8562, 8571-8576, 8980
Squamous Cell Carcinoma with Variants of Larynx	C32	8004, 8020-8022, 8031-8032, 8050-8076, 8078, 8082-8084, 8123, 8560, 8980
Epithelial Tumours of Vulva and Vagina	C51, C52	8000, 8001, 8010, 8011, 8020-8022, 8050-8084, 8140-8141, 8143, 8147, 8190-8211, 8230-8231, 8255-8263, 8290, 8310, 8315, 8320, 8323, 8333, 8380-8384, 8390-8420, 8430, 8480-8490, 8500, 8503-8504, 8510, 8512, 8514, 8525, 8542, 8550-8551, 8560, 8562-8576
Malignant Mesothelioma	all cancer sites	9050-9053

Epithelial Tumours of Oropharynx	C01.9, C02.4, C02.8, C05.1-C05.2, C05.9, C09.0-C10.3, C10.8-10.9, C14.2	8000-8001, 8004, 8010-8011, 8020-8022, 8032, 8050-8076, 8078, 8082-8084, 8123, 8560, 8980
Squamous Cell Carcinoma with Variants of Oral Cavity	C02.0-C02.3, C02.9, C03.0-C05.0, C06.0-C06.9	8004, 8020-8022, 8032, 8050-8076, 8078, 8082-8084, 8123, 8560, 8980

Appendix B: Morphology Groups per Tumour

Morphology Groups	Morphology Codes
Nasopharynx	
Squamous Cell Carcinoma	8070-8078
Lymphoepithelial Carcinoma	8082
Other Defined Carcinoma	8020
Salivary Glands	
Mucoepidermoid carcinoma (high and low grade)	8430
Low grade salivary gland	8147, 8260, 8525, 8550, 8562, 8982
Acinic cell carcinoma	8550
Other specified carcinoma - Low grade	8147, 8260, 8525, 8980
High grade salivary gland	8020, 8022, 8070-8078, 8140, 8200, 8290, 8310, 8480, 8500, 8941
Adenoid cystic carcinoma	8200
Carcinoma ex-pleomorphic adenoma	8022, 8941
Other specified carcinoma – High grade	8020, 8070 - 8078, 8140, 8290, 8310, 8480, 8500
Other	8012, 8082
Hypopharynx	
Squamous cell carcinoma	8070-8078, 8083
Other specified carcinoma	8020, 8082
Larynx	
Squamous cell carcinoma	8051, 8070-8078, 8083
Other defined carcinoma	8020, 8082, 8980
Oropharynx	
Squamous cell carcinoma	8051, 8070-8078, 8083
Other Specified Carcinoma	8020, 8082, 8560, 8980
Oral Cavity	
Squamous cell carcinoma	8051, 8070-8078, 8083

Lip	
Squamous Cell Carcinoma	8051, 8070-8078
Anal Canal	
Squamous cell carcinoma	8051, 8070-8078, 8083
Cloacogenic / basaloid transitional cell carcinoma	8123, 8124
Vulva	
Squamous cell carcinoma	8051, 8070-8078, 8083
Vagina	
Squamous cell carcinoma	8051, 8070-8078
Mesothelioma	
Epithelioid mesothelioma	9052
Other	9050, 9051, 9053

Appendix C: Selected Timeframes for Treatment

Medical act	Timeframe
Lip, Salivary Glands, Vulva, Mesothelioma	
Surgery Chemotherapy in the absence of surgery	From one month before until six months after incidence date
Radiotherapy in the absence of surgery	From one month before until nine months after incidence date
Neoadjuvant chemotherapy Neoadjuvant radiotherapy	From one month before incidence date until date of surgery
Adjuvant chemotherapy Adjuvant radiotherapy	From date of surgery until six months after surgery
Oropharynx, Oral Cavity, Larynx, Hypopharynx	
Surgery	From one month before until six months after incidence date
Radiotherapy in the absence of major surgery	From one month before until nine months after incidence date
Chemotherapy in the absence of surgery and radiotherapy	From one month before until six months after incidence date
Chemotherapy in the absence of surgery but with radiotherapy	From one month before surgery until one month after radiotherapy
Neoadjuvant chemotherapy Neoadjuvant radiotherapy	From one month before incidence date until date of surgery
Adjuvant chemotherapy Adjuvant radiotherapy	From date of surgery until six months after surgery
Nasopharynx	
Surgery	From one month before until six months after incidence date
Radiotherapy	From one month before until nine months after incidence date
Chemotherapy in the absence of radiotherapy	From one month before until six months after incidence date
Chemotherapy before radiotherapy	From one month before incidence date until end date of radiotherapy
Chemotherapy after radiotherapy	From end date of radiotherapy until six months after end date of radiotherapy
Anal Canal, Vagina	
Radiotherapy	From one month before until nine months after incidence date

Chemotherapy in the absence of radiotherapy	From one month before until six months after incidence date
Chemotherapy before radiotherapy	From one month before incidence date until end date of radiotherapy
Chemotherapy after radiotherapy	From end date of radiotherapy until six months after end date of radiotherapy
Surgery in the absence of radiotherapy	From one month before until six months after incidence date
Surgery before radiotherapy	From one month before incidence date until end date of radiotherapy
Surgery after radiotherapy	From end date of radiotherapy until six months after end date of radiotherapy

Appendix D: Selected Nomenclature Codes

1. Appendix D1: General Nomenclature Codes

1.1 General Diagnostic Procedures

1.1.1 Tissue Examination

Pathology

Table 214. General Nomenclature Codes for Pathology

Outpatient	Inpatient	Dutch Description
588011	588022	Honorarium voor het pathologisch-anatomische onderzoek door inclusie en coupe van zoveel prelevementen als nodig, ongeacht het aantal coupes en ongeacht het aantal onderzochte organen en met inbegrip van het eventueel macroscopisch onderzoek van operatiestukken, voor die prelevementen die niet overeenkomen met de prestaties 588232 - 588243, 588254 - 588265, 588276 - 588280 of 588291 - 588302
588114	588125	Pathologisch-anatomisch onderzoek met een elektronenmicroscoop, ongeacht de aangewende techniek of technieken, ongeacht het aantal afnamen
588254	588265	Honorarium voor het pathologisch-anatomisch onderzoek door inclusie en coupe, van zoveel prelevementen als nodig, ongeacht het aantal coupes en ongeacht het aantal onderzochte organen, en met inbegrip van het eventueel macroscopisch onderzoek, voor volgende prelevementen : Biopten van volgende diepe organen : - lever, - nier, - nierbekken, - bijnier, - prostaat, - borst, - lymfeklier, - beenmerg, - bot, - schildklier, - speekselklier, - pleura, - long, - testikel, - peritoneum, - retroperitoneum, - mediastinum, - hersenen

588276	588280	Honorarium voor het pathologisch-anatomisch onderzoek, door inclusie en coupe, van zoveel prelevementen als nodig, ongeacht het aantal coupes en ongeacht het aantal onderzochte organen, en met inbegrip van het eventueel macroscopisch onderzoek voor volgende operatiestukken : - lymfeklierexerese, - eenzijdige lymfeklier okselevidement, - eenzijdige lymfeklier liesevidement, - heelkundige longbiopsie, - totale of partiële thymectomie, - resectie van subaponeurotische tumoren, - partiële pancreatectomie, - partiële hepatectomie, - cholecystectomie, - splenectomie, - mesenteriale tumorectomie, - retroperitoneale tumorectomie, - oogbol resectie, - speekselklierresectie (met uitzondering van de accessoire speekselklieren), - partiële of totale glossectomie, - thyroidectomie, - parathyroidectomie, - pharyngectomie, -incisionele borstbiopsie, - borsttumorectomie, - partiële cystectomie (met uitzondering van de endoscopische blaasresectie), - heelkundige of endoscopische prostaatadenomectomie, - epididymectomie, - orchidectomie, - partiële penis amputatie, - diepe hals tumorectomie, - partiële nefrectomie, - uni- of bilaterale adnexectomie, - ovariectomie, - totale salpingectomie, - partiële vulvectomie, - baarmoederhals conisatie of -resectie, - bijnier resectie, - zenuwbiopsie, - spierbiopsie, - hersen-, ruggemerg- of hypofyse- tumor resectie, - bottumor resectie, - tonsillectomie (> 18 jaar), - adenoidectomie (> 18 jaar)
588291	588302	Honorarium voor het pathologisch-anatomisch onderzoek, door inclusie en coupe, van zoveel prelevementen als nodig, ongeacht het aantal coupes en ongeacht het aantal onderzochte organen en met inbegrip van het eventueel macroscopisch onderzoek, voor volgende operatiestukken : - partiële mammectomie met okselklier uitruiming, - totale mammectomie met of zonder okselklier uitruiming, - partiële of totale pneumectomie, - partiële of totale slokdarmresectie, - bilaterale lies klierevidement, - lymfeklierevidement van 2 of meerdere groepen halsklieren, - tumorectomie van de mondbodem met of zonder mandibulectomie, - tumorectomie van het verhemelte met of zonder maxillectomie, - totale maxillectomie, - partiële of totale gastrectomie, - dunne darm resectie, - partiële of totale colectomie, - duodenopancreatectomie, - radicale, totale of subtotale hysterectomie, - abdominoperineale resectie, - partiële of totale laryngectomie, - totale cystectomie, - totale penisamputatie, - totale nefrectomie, - totale prostatectomie (met zaadblaasjes), - hartresectie, - hart long blok, - totale hepatectomie, - totale pelvectomie, - totale vulvectomie, - foetus van 14 tot en met 24 weken
588070	588081	Immunohistologische onderzoeken (maximum 4 per afname) voor het aantonen van antigenen in de coupes, na incubatie met antisera, per gebruikt antiserum

588976	588980	Honorarium voor de immunohistologische onderzoeken voor het aantonen van farmaco-diagnostiche antigenen in de coupes na incubatie met antisera, per gebruikt antiserum, in het kader van het voorschrijven van tumor-specifieke medicatie bij oncologische patiënten
588033	588044	Peroperatoir pathologisch-anatomisch extempore onderzoek, ongeacht het aantal afnamen volgens de vriesmethode en ongeacht het aantal verrichte controle-onderzoeken na inclusie en coupe
588232	588243	Honorarium voor het pathologisch-anatomisch onderzoek door inclusie en coupe, van zoveel prelevementen als nodig, ongeacht het aantal coupes en ongeacht het aantal onderzochte organen, en met inbegrip van het eventueel macroscopisch onderzoek voor volgende prelevementen - vagotomie - vasectomie - tuba-ligatuur - tonsillectomie (< 18 jaar) - adenoidectomie (< 18 jaar) - sympathectomie

Cytology

Table 215. General Nomenclature Codes for Cytology

Outpatient	Inpatient	Dutch Description
588394	588405	Honorarium voor het cytopathologisch onderzoek voor het opzoeken van neoplastische cellen (zowel na uitstrijken en/of insluiten), op urinestalen en/of sputumstalen, ongeacht het aantal uitstrijkpreparaten en/of insluiten
588416	588420	Honorarium voor het cytopathologisch onderzoek voor het opzoeken van neoplastische cellen (zowel na uitstrijken en/of insluiten), van afnamen niet gespecificeerd in de verstrekkingen 588350 - 588361 en 588394 - 588405, ongeacht het aantal uitstrijkpreparaten en/of insluiten per afname

1.1.2 Imaging

PET

Table 216. General Nomenclature Codes for PET Scan

Outpatient	Inpatient	Dutch Description
442971	442982	Positronentomografisch onderzoek door coïncidentiedetectie met protocol en documenten, voor het geheel van het onderzoek
442411	442422	Scintigrafie van een orgaan, van een stelsel of van een deel van het lichaam
442455	442466	Scintigrafie van het ganse lichaam (de scintillogrammen moeten ten minste betrekking hebben op het hoofd, de romp, het abdomen, de schouder- en bekkengordels)
442595	442606	Functionele scintigrafische test die twee opeenvolgende tomografische onderzoeken omvat, met verwerking op computer, die ten minste twee niet-parallelle reconstructievlakken omvat, met protocol en iconografische documenten, niet cumuleerbaar met de verstrekkingen 442411 - 442422, 442455 - 442466, 442610 - 442621 en 442632 - 442643 voor het onderzoek van een zelfde functie dat met een zelfde gemerkt produkt wordt verricht
442610	442621	Functionele scintigrafische test van een orgaan of stelsel van organen, met sequentele inzameling van de gegevens, kwantitatieve analyse met telsysteem (computer) die activiteitscurven in de tijd en/of tabellen met cijfergegevens en/of parametrische beelden omvat, met protocol en iconografische documenten

Chest X-ray

Table 217. General Nomenclature Code for Chest X-ray

Outpatient	Inpatient	Dutch Description
452690	452701	Radiografie van de thorax en de inhoud ervan, één cliché
452712	452723	Radiografie van de thorax en de inhoud ervan, minimum 2 clichés
463691	463702	Radiografie van de thorax en de inhoud ervan, één cliché
463713	463724	Radiografie van de thorax en de inhoud ervan, minimum 2 clichés

1.2 MOC

Table 218. General Nomenclature Codes for MOC

Outpatient	Inpatient	Dutch Description
350372	350383	Schriftelijk verslag van een multidisciplinair oncologisch consult met deelname van minstens drie geneesheren van verschillende specialismen onder leiding van een geneesheer-coördinator, met beschrijving van de diagnose en van het behandelingsplan
350394	350405	Deelname aan multidisciplinair oncologisch consult
350416	350420	Deelname aan multidisciplinair oncologisch consult door de behandelende arts die geen deel uitmaakt van de ziekenhuisstaf
350453	350464	Bijkomend honorarium bij de verstrekking 350372-350383, 350276-350280 en 350291-350302 aanrekenbaar door de geneesheer-specialist in de medische oncologie, of houder van de bijzondere beroepstitel in de klinische hematologie of in de pediatrische hematologie en oncologie, wanneer deze het multidisciplinair oncologisch consult coördineert
350475	350486	Bijkomend honorarium bij de verstrekking 350394-350405 of 350416-350420 aanrekenbaar door de geneesheer-specialist in de medische oncologie, of houder van de bijzondere beroepstitel in de klinische hematologie of in de pediatrische hematologie en oncologie, wanneer deze het multidisciplinair oncologisch consult bijwoont

1.3 General Therapeutic Procedures

1.3.1 Radiotherapy

Table 219. General Nomenclature Codes for Radiotherapy

Outpatient	Inpatient	Dutch Description
External Radiotherapy		
444113	444124	Forfaitair honorarium voor een eenvoudige uitwendige bestralingsreeks van 1 tot 10 fracties voor een patiënt die beantwoordt aan de criteria of lijdt aan een aandoening opgenomen in categorie 1
444135	444146	Forfaitair honorarium voor een eenvoudige uitwendige bestralingsreeks van minstens 11 tot 35 fracties voor een patiënt die beantwoordt aan de criteria of lijdt aan een aandoening opgenomen in categorie 2
444150	444161	Forfaitair honorarium voor een complexe uitwendige bestralingsreeks voor een patiënt die beantwoordt aan de criteria of lijdt aan een aandoening opgenomen in categorie 3
444172	444183	Forfaitair honorarium voor een complexe uitwendige bestralingsreeks voor een patiënt die beantwoordt aan de criteria of lijdt aan een aandoening opgenomen in categorie 4
Brachytherapy		
444216	444220	Forfaitair honorarium voor exclusieve curietherapie voor een patiënt die beantwoordt aan de criteria of lijdt aan een aandoening opgenomen in categorie 7
444253	444264	Forfaitair honorarium voor exclusieve curietherapie voor een patiënt die beantwoordt aan de criteria of lijdt aan een aandoening opgenomen in categorie 8
External Radiotherapy and Brachytherapy Combined		
444290	444301	Forfaitair honorarium voor curietherapie gecombineerd met uitwendige bestralingsreeks voor een patiënt die beantwoordt aan de criteria of lijdt aan een aandoening opgenomen in categorie 5
444312	444323	Forfaitair honorarium voor curietherapie gecombineerd met uitwendige bestralingsreeks voor een patiënt die beantwoordt aan de criteria of lijdt aan een aandoening opgenomen in categorie 6

1.3.2 Chemotherapy

Table 220. General ATC Codes for Chemotherapy

ATC Codes	Description
L01A: Alkylating Agents	
L01AA	Nitrogen Mustard Analogues
L01AA01	Cyclophosphamide
L01AA02	Chlorambucil
L01AA05	Chlormethine
L01AX	Other Alkylating Agents
L01AX04	Dacarbazine
L01B: Antimetabolites	
L01BA	Folic Acid Analogues
L01BA01	Methotrexate
L01BB	Purine Analogues
L01BB02	Mercaptopurine
L01BC	Pyrimidine Analogues
L01BC01	Cytarabine
L01BC02	Fluorouracil
L01C: Plant Alkaloids and Other Natural Products	
L01CA	Vinca Alkaloids and Analogues
L01CA01	Vinblastine
L01CA02	Vincristine
L01CB	Pedophyllotoxin Derivatives

L01CB01	Etoposide
L01D: Cytotoxic Antibiotics and Related Substances	
L01DA	Actinomycines
L01DA01	Dactinomycin
L01DB	Anthracyclines and Related Substances
L01DB01	Doxorubicin
L01DB02	Daunorubicin
L01DC	Other Cytotoxic Antibiotics
L01DC01	Bleomycin
L01X: Other Antineoplastic Agents	
L01XA	Platinum Compounds
L01XA01	Cisplatin
L01XB	Methylhydrazines
L01XB01	Procarbazine
L01XX	Other Antineoplastic Agents
L1XX02	Asparaginase

2. Appendix D2: Nomenclature Codes for Nasopharyngeal Cancer.

2.1 Nasopharyngeal Cancer: Diagnostic Procedures

2.1.1 Tissue Examination

Histological Diagnosis

Table 221. Nasopharyngeal Cancer: Nomenclature Codes for Histological Diagnosis*

Outpatient	Inpatient	Dutch Description
		Biopsy
255791	255802	Endonasale bioptische afname
258834	258845	Nasale endoscopie met of zonder biopsie, met behulp van een rechte optiek of hoekoptiek of van een fibroscoop waarmee het cavum, de meatus, de conchae en de drainagewegen van de maxillaire, frontale, ethmoidale, sphenoïdale sinussen worden geëxploreerd inclusief de eventuele lokale anesthesie

* Nomenclature codes for pathology were also included in the selection of codes for histological diagnosis. For the list of pathology codes, see general nomenclature codes.

Cytology

See general nomenclature codes

2.1.2 Imaging

Head X-ray

Table 222. Nasopharyngeal Cancer: Nomenclature Codes for Head X-ray

Outpatient	Inpatient	Dutch Description
455630	455641	Radiografie van de schedel en van het gelaat en van de sinussen of van de mastoïden of van de rotsbeenderen of van de temporomaxillaire articulaties of van de oogholten of van de foramina optica of van de sfenoïdale spleten, minimum twee clichés, ongeacht het aantal bijkomende clichés
466631	466642	Radiografie van de schedel en van het gelaat en van de sinussen of van de mastoïden of van de rotsbeenderen of van de temporomaxillaire articulaties of van de oogholten of van de foramina optica of van de sfenoïdale spleten, minimum twee clichés, ongeacht het aantal bijkomende clichés

CT

Table 223. Nasopharyngeal Cancer: Nomenclature Codes for CT

Outpatient	Inpatient	Dutch Description
458813	458824	Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek
458533	458544	Verstrekkingen waarvoor de bekwaming van specialist voor röntgendiagnose (R) vereist is - Computergestuurde tomografieën : Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek - K.B. van 22 oktober 1992 - Pseudonomenclatuurcode ingeval de verstrekkingen verricht worden bij kinderen jonger dan 5 jaar, de betrekkelijke waarden (458813) worden verhoogd met 25% (geschrapt op 1/01/2006)
458673	458684	Computergestuurde tomografie van de schedel en/of van faciaal massief, met en/of zonder contrastmiddel, met registreren en clichés, minimum 10 coupes, voor het hele onderzoek

MRI

Table 224. Nasopharyngeal Cancer: Nomenclature Codes for MRI

Outpatient	Inpatient	Dutch Description
459395	459406	NMR-onderzoek van het hoofd (schedel, hersenen, rotsbeen, hypofyse, sinussen,orbita(e) of kaakgewrichten), minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager
459410	459421	NMR-onderzoek van de hals of van de thorax of van het abdomen of van het bekken, minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager

Ultrasound Neck

Table 225. Nasopharyngeal Cancer: Nomenclature Codes for Ultrasound Neck

Outpatient	Inpatient	Dutch Description
460095	460106	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van de hals 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van de hals
469350	469361	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Van de hals

PET Scan

See general nomenclature codes.

Chest X-Ray

See general nomenclature codes.

Ultrasound Abdomen

Table 226. Nasopharyngeal Cancer: Nomenclature Codes for Ultrasound Abdomen

Outpatient	Inpatient	Dutch Description
459712	459723	Totaal abdominaal onderzoek (lever, galblaas, milt, pancreas, nieren of bijnieren, retroperitoneum) waarbij minstens acht verschillende sneden gedokumenteerd inclusief eventueel gebruik van dopplertechnieken
460213	460224	Totaal onderzoek waarbij meerdere bovenvermelde abdominale streken onderzocht worden en minstens acht verschillende sneden gedokumenteerd worden, uitgevoerd door een geneesheer-specialist voor röntgendiagnose (geschrapt op 1/04/2003)
460154	460165	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen
469416	469420	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen
459793	459804	Echografie van minstens twee verschillende anatomische regio's : schedelinhoud (transfontanellair), thorax, borsten, lever-galblaas, pancreas-milt, nieren-blaas, retroperitoneum, grote abdominale vaten, mannelijk of vrouwelijk bekken

2.1.3 Screening

Respiratory Tract

Table 227. Nasopharyngeal Cancer: Nomenclature Codes for Respiratory Tract Screening

Outpatient	Inpatient	Dutch Description
256594	256605	Bioptische afname van de larynx
258075	258086	Microlaryngoscopie in suspensie (Kleinsasser) met of zonder afname voor biopsie
351035	351045	1/04/1985: Tracheoscopie, met of zonder afname voor biopsie 1/10/2008: Tracheo- en/of laryngoscopie, met of zonder afname voor biopsie
471612	471623	Tracheoscopie met verwijderen van tumors en/of coagulatie van letsels
258274	258285	Stroboscopisch onderzoek van de stembanden met een onbuigzaam optisch systeem of door fibroscopie, met of zonder registreren van de bewegingen met een camera en vidéorecorder
257294	257305	Bronchoscopie zonder afname voor biopsie en/of bronchoscopie met therapeutische aspiratie
257316	257320	Bronchoscopie met afname voor biopsie en/of verwijderen van tumors en/of coagulatie van letsels
471715	471726	Bronchoscopie zonder afname voor biopsie
471730	471741	Bronchoscopie met afname voor biopsie, en/of verwijderen van tumors, en/of coagulatie van letsels
471752	471763	Bronchoscopie met transcarinale punctie en eventuele radioscopische controle
471774	471785	Bronchoscopie met bronchoalveolair wassen (min. 100 ml)
471811	471822	Onchoscopie met perifere pulmonaire afnamen voor biopsie (ofwel veelvuldige afnamen, minimum 5, ofwel geleide afname in geval van perifere tumor), inclusief de eventuele radioscopische controle

Digestive Tract

Table 228. Nasopharyngeal Cancer: Nomenclature Codes for Digestive Tract Screening

Outpatient	Inpatient	Dutch Description
472356	472360	Oesofagoscopie
472555	472566	Oesofagoscopie met wegnemen van tumors en/of coagulatie van letsels
472415	472423	Fibrogastroscopie en/of fibrobulboscopie
472570	472581	Fibrogastroscopie en/of fibrobulboscopie met wegnemen van tumors en/of coagulatie van letsels
473056	473060	Fibroduodenoscopie (2e en 3e duodenum)
451076	451080	Radiografie van het slikmechanisme farynx-hypofarynx, met radioscopisch onderzoek met beeldversterker en televisie in gesloten keten, minimum zes clichés
451135	451146	Radiografie van de oesofagus met radioscopisch onderzoek met beeldversterker en televisie in gesloten keten, minimum zes clichés

2.1.4 Other Procedures

Lymph Node Biopsy

Table 229. Nasopharyngeal Cancer: Nomenclature Codes for Lymph Node Biopsy

Outpatient	Inpatient	Dutch Description
258311	258322	Excisie voor biopsie van een oppervlakkinge halsklier
258333	258344	Excisie voor biopsie van een diep gelegen halsklier
312513	312524	Excisie voor biopsie van een oppervlakkige halsklier
312535	312546	Excisie voor biopsie van een kleine diep gelegen halsklier
355692	355703	Punctie van hematopoiëtisch orgaan, exclusief lever en milt

2.2 Nasopharyngeal Cancer: Therapeutic Procedures

2.2.1 Surgery

Table 230. Nasopharyngeal Cancer: Nomenclature Codes for Surgery

Outpatient	Inpatient	Dutch Description
255975	255986	Resectie van andere neusbeentumors dan in de nomenclatuur opgegeven (geschrapt op 1/10/2008)
256550	256561	Wegenemen van nasopharyngeaal fibroom (geschrapt op 1/10/2008)
258451	258462	Heelkundig verwijderen van een expansief diepliggend letsel dat een resectie van een deel van de schedelbasis noodzakelijk maakt
258856	258860	Transorale endoscopische faryngectomie
258893	258904	Endoscopisch procedure voor intratumorale photodynamische behandeling of electroporatietherapie bij mucosatumoren voor de volledige behandeling van het geheel der letsels
259033	259044	Resectie van een expansief letsel van de luchtwegen en/of van het bovenste gedeelte van het spijsverteringskanaal dat het sluiten van een huid- of slijmvliesdefect met een huidlap, een myocutane of een wandelende ent vereist
312653	312664	Heelkundig verwijderen van een expansief diepliggend letsel dat een resectie van een deel van de schedelbasis noodzakelijk maakt

2.2.2 Radiotherapy

See general nomenclature codes.

2.2.3 Chemotherapy

See general nomenclature codes.

3. Appendix D3: Nomenclature Codes for Cancer of Salivary Glands

3.1 Cancer of Salivary Glands: Diagnostic Procedures

3.1.1 Tissue Examination

Histological Diagnosis

Table 231. Cancer of Salivary Glands: Nomenclature Codes for Histological Diagnosis*

Outpatient	Inpatient	Dutch Description
Biopsy		
311975	311986	Speekselklierbiopsie
311953	311964	Tongbiopsie

* Nomenclature codes for pathology were also included in the selection of codes for histological diagnosis. For the list of pathology codes, see general nomenclature codes.

Cytology

See general nomenclature codes.

3.1.2 Imaging

CT

Table 232. Cancer of Salivary Glands: Nomenclature Codes for CT

Outpatient	Inpatient	Dutch Description
458813	458824	Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek
458533	458544	Verstrekkingen waarvoor de bekwaming van specialist voor röntgendiagnose (R) vereist is - Computergestuurde tomografieën : Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek - K.B. van 22 oktober 1992 - Pseudonomenclatuurcode ingeval de verstrekkingen verricht worden bij kinderen jonger dan 5 jaar, de betrekkelijke waarden (458824) worden verhoogd met 25% (geschrapt op 01/01/2006)
458673	458684	Computergestuurde tomografie van de schedel en/of van faciaal massief, met en/of zonder contrastmiddel, met registreren en clichés, minimum 10 coupes, voor het hele onderzoek

MRI

Table 3. Cancer of Salivary Glands: Nomenclature Codes for MRI

Outpatient	Inpatient	Dutch Description
459395	459406	NMR-onderzoek van het hoofd (schedel, hersenen, rotsbeen, hypofyse, sinussen,orbita(e) of kaakgewrichten), minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager
459410	459421	NMR-onderzoek van de hals of van de thorax of van het abdomen of van het bekken, minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager

Ultrasound Neck

Table 233. Cancer of Salivary Glands: Nomenclature Codes for Ultrasound Neck

Outpatient	Inpatient	Dutch Description
460095	460106	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van de hals 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van de hals
469350	469361	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Van de hals

PET Scan

See general nomenclature codes.

Ultrasound Abdomen

Table 234. Cancer of Salivary Glands: Nomenclature Codes for Ultrasound Abdomen

Outpatient	Inpatient	Dutch Description
460154	460165	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen
469416	469420	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen - Van het abdomen : Lever en/of galblaas en/of galwegen
459712	459723	Totaal abdominaal onderzoek (lever, galblaas, milt, pancreas, nieren of bijnieren, retroperitoneum) waarbij minstens acht verschillende sneden gedokumenteerd inclusief eventueel gebruik van dopplertechnieken
460213	460224	Totaal onderzoek waarbij meerdere bovenvermelde abdominale streken onderzocht worden en minstens acht verschillende sneden gedokumenteerd worden, uitgevoerd door een geneesheer-specialist voor röntgendiagnose (geschrapt op 01/04/2003)

Chest X-Ray

See general nomenclature codes.

3.1.3 Other Procedures

Lymph Node Biopsy

Table 235. Cancer of Salivary Glands: Nomenclature Codes for Lymph Node Biopsy

Outpatient	Inpatient	Dutch Description
355692	355703	Punctie van hematopoiëtisch orgaan, exclusief lever en milt
258311	258322	Excisie voor biopsie van een oppervlakkige halsklier
258333	258344	Excisie voor biopsie van een diep gelegen halsklier
312513	312524	Excisie voor biopsie van een oppervlakkige halsklier
312535	312546	Excisie voor biopsie van een kleine diep gelegen halsklier

3.3 Cancer of Salivary Glands: Therapeutic Procedures

3.3.1 Surgery

Salivary Gland Surgery

Table 236. Cancer of Salivary Glands: Nomenclature Codes for Salivary Gland Surgery

Outpatient	Inpatient	Dutch Description
255452	255463	Wegnemen van de parotis met dissectie van nervus facialis
255474	255485	Totale of gedeeltelijke parotidectomie zonder dissectie van nervus facialis (geschrapt op 01/05/2009)
311710	311721	Exeresis van submaxillaire klier, van parotis, zonder dissectie van nervus facialis
311754	311765	Totale of gedeeltelijke parotidectomie zonder dissectie van nervus facialis (geschrapt op 01/05/2009)
311791	311802	Wegnemen van parotis, met dissectie van nervus facialis
255533	255544	1/04/1985: Exeresis van submaxillaire klier van de parotis zonder dissectie van nervus facialis 1/05/2009: Wegname van een submandibulaire speekselklier
256174	256185	Exeresis van sublinguale klier
310575	310586	Exeresis van sublinguale klier
317111	317122	Exeresis van goedaardige intrabuccale tumors
310516	310520	Insnijden van abces van mondbodem

Head and Mouth Surgery

Table 237. Cancer of Salivary Glands: Nomenclature Codes for Head and Mouth Surgery

Outpatient	Inpatient	Dutch Description
220334	220345	Heelkundige bewerking wegens expansieve diepe tumoren of letsels aan het gelaat of lippen die brede resectie vergt, inclusief plastiek
220312	220323	Heelkundige bewerking wegens diepe tumoren of letsels aan het gelaat of lippen, exclusief huidletsels
256336	256340	Heelkundige bewerking wegens tumor van mondbodem
220150	220161	Heelkundige bewerking wegens goedaardige of kwaadaardige oppervlakkige tumors of niet traumatische letsels aan gelaat of lippen
256830	256841	Insnijden en draineren van adenophlegmone van buccale oorsprong
256852	256863	Insnijden en draineren van diepliggende halsphlegmone
220275	220286	5/06/1985: Exerese van onder de aponeurose gelegen expansieve tumoren uit de weke delen 1/05/2007: Exerese van een onder de aponeurose gelegen expansieve tumor uit de weke weefsels

Lymphadenectomy

Table 238. Cancer of Salivary Glands: Nomenclature Codes for Lymphadenectomy

Outpatient	Inpatient	Dutch Description
220356	220360	Exeresis van ganglion
258370	258381	Beperkte klieruitruiming van 2 of meerdere kliergroepen in de hals
258392	258403	Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren
258554	258565	Uitruiming van ganglia van een kliergroep in de hals
312572	312583	Beperkte klieruitruiming van 2 of meerder kliergroepen in de hals
312594	312605	Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren
312970	312981	Unilaterale uitruiming van één of twee kliergroepen in de hals
312605	312594	Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren
256815	256826	Exeresis van veretterde adenitis of van een halsklier
311835	311846	Exeresis van veretterde adenitis of van halsklier
256933	256944	Heelkundige bewerking wegens diepliggende halscyste of -tumor
311872	311883	Heelkundige bewerking wegens diepliggende halscyste of -tumor
258355	258366	Volledige excisie van een diep gelegen halstumor
312550	312561	Volledige excisie van een diep gelegen halstumor

Radiotherapy

See general nomenclature codes.

Chemotherapy

See general nomenclature codes.

4. Appendix D4 : Nomenclature Codes for Hypopharyngeal Cancer

4.1 Hypopharyngeal Cancer: Diagnostic Procedures

4.1.1 Tissue Examination

Histological Diagnosis

Table 239. Hypopharyngeal Cancer: Nomenclature Codes for Histological Diagnosis*

Outpatient	Inpatient	Dutch Description
		Biopsy
351035	351046	1/04/1985: Tracheoscopie, met of zonder afname voor biopsie 1/10/2008: Tracheo- en/of laryngoscopie, met of zonder afname voor biopsie
258075	258086	Microlaryngoscopie in suspensie (Kleinsasser) met of zonder afname voor biopsie
256594	256605	Bioptische afname van de larynx
472356	472360	Oesofagoscopie
472555	472566	Oesofagoscopie met wegnemen van tumors en/of coagulatie van letsels
472415	472426	Fibrogastroscopie en/of fibrobulboscopie
472570	472581	Fibrogastroscopie en/of fibrobulboscopie met wegnemen van tumors en/of coagulatie van letsels
473056	473060	Fibroduodenoscopie (2de en 3de duodenum)
473852	473863	Echo-endoscopie van de bovenste gastro-intestinale tractus

* Nomenclature codes for pathology were also included in the selection of codes for histological diagnosis. For the list of pathology codes, see general nomenclature codes.

Cytology

See general nomenclature codes.

4.1.2 Imaging

CT

Table 240. Hypopharyngeal Cancer: Nomenclature Codes for CT

Outpatient	Inpatient	Dutch Description
458813	458824	Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek
458533	458544	Verstrekkingen waarvoor de bekwaming van specialist voor röntgendiagnose (R) vereist is - Computergestuurde tomografieën : Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek - K.B. van 22 oktober 1992 - Pseudonomenclatuurcode ingeval de verstrekkingen verricht worden bij kinderen jonger dan 5 jaar, de betrekkelijke waarden (458813) worden verhoogd met 25% (geschrapt op 01/01/2006)
458673	458684	Computergestuurde tomografie van de schedel en/of van faciaal massief, met en/of zonder contrastmiddel, met registreren en clichés, minimum 10 coupes, voor het hele onderzoek

MRI

Table 241. Hypopharyngeal Cancer: Nomenclature Codes for MRI

Outpatient	Inpatient	Dutch Description
459410	459421	NMR-onderzoek van de hals of van de thorax of van het abdomen of van het bekken, minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager
459395	459406	NMR-onderzoek van het hoofd (schedel, hersenen, rotsbeen, hypofyse, sinussen,orbita(e) of kaakgewrichten), minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager

Larynx/Pharynx X-ray

Table 242. Hypopharyngeal Cancer: Nomenclature Codes for Larynx/Pharynx X-ray

Outpatient	Inpatient	Dutch Description
451076	451080	Radiografie van het slikmechanisme farynx-hypofarynx, met radioscopisch onderzoek met beeldversterker en televisie in gesloten keten, minimum zes clichés
451091	451102	Bijkomend honorarium ingeval verstrekking nr. 451076 - 451080 wordt aangevuld met magnetisch registreren van de beelden
451135	451146	Radiografie van de oesofagus met radioscopisch onderzoek met beeldversterker en televisie in gesloten keten, minimum zes clichés
452793	452804	Radiografie van de larynx, eventueel met de trachea, zonder contrastmiddel, minimum twee clichés
463794	463805	Radiografie van de larynx, eventueel met de trachea, zonder contrastmiddel, minimum twee clichés

Ultrasound Neck

Table 243. Hypopharyngeal Cancer : Nomenclature Codes for Ultrasound Neck

Outpatient	Inpatient	Dutch Description
460095	460106	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van de hals 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van de hals
469350	469361	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Van de hals

PET Scan

See general nomenclature codes.

Chest X-Ray

See general nomenclature codes.

Ultrasound Abdomen

Table 244. Hypopharyngeal Cancer : Nomenclature Codes for Ultrasound Abdomen

Outpatient	Inpatient	Dutch Description
459712	459723	Totaal abdominaal onderzoek (lever, galblaas, milt, pancreas, nieren of bijnieren, retroperitoneum) waarbij minstens acht verschillende sneden gedokumenteerd inclusief eventueel gebruik van dopplertechnieken
460213	460224	Totaal onderzoek waarbij meerdere bovenvermelde abdominale streken onderzocht worden en minstens acht verschillende sneden gedokumenteerd worden, uitgevoerd door een geneesheer-specialist voor röntgendiagnose. (geschrapt op 1/4/2003)
460154	460165	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen
469416	469420	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen - Van het abdomen : Lever en/of galblaas en/of galwegen

4.1.3 Screening

Respiratory Tract

Table 245. Hypopharyngeal Cancer : Nomenclature Codes for Respiratory Tract Screening

Outpatient	Inpatient	Dutch Description
471612	471623	Tracheoscopie met verwijderen van tumors en/of coagulatie van letsels
257294	257305	Bronchoscopie zonder afname voor biopsie en/of bronchoscopie met therapeutische aspiratie
471715	471726	Bronchoscopie zonder afname voor biopsie
257316	257320	Bronchoscopie met afname voor biopsie en/of verwijderen van tumors en/of coagulatie van letsels
471730	471741	Bronchoscopie met afname voor biopsie, en/of verwijderen van tumors, en/of coagulatie van letsels

Digestive Tract

Table 246. Hypopharyngeal Cancer: Nomenclature Codes for Digestive Tract Screening

Outpatient	Inpatient	Dutch Description
472356	472360	Oesofagoscopie
472555	472566	Oesofagoscopie met wegnemen van tumors en/of coagulatie van letsels
472415	472426	Fibrogastroscopie en/of fibrobulboscopie
472570	472581	Fibrogastroscopie en/of fibrobulboscopie met wegnemen van tumors en/of coagulatie van letsels
473056	473060	Fibroduodenoscopie (2e en 3e duodenum)
473852	473863	Echo-endoscopie van de bovenste gastro-intestinale tractus

4.1.4 Other Procedures

Lymph Node Biopsy

Table 247. Hypopharyngeal Cancer: Nomenclature Codes for Lymph Node Biopsy

Outpatient	Inpatient	Dutch Description
258311	258322	Excisie voor biopsie van een oppervlakkige halsklier
312513	312524	Excisie voor biopsie van een oppervlakkige halsklier
258333	258344	Excisie voor biopsie van een kleine diep gelegen halsklier
312535	312546	Excisie voor biopsie van een kleine diep gelegen halsklier
355692	355703	Punctie van hematopoeitisch orgaan, exclusief lever en milt

4.3 Hypopharyngeal Cancer: Therapeutic Procedures

4.3.1 Surgery

Major Surgery

Table 248. Hypopharyngeal Cancer: Nomenclature Codes for Major Surgery

Outpatient	Inpatient	Dutch Description
257191	257202	Pharyngectomie
259114	259125	Transmandibulaire buccofaryngectomie of glossopelvimandibulectomie
258856	258860	Transorale endoscopische faryngectomie
256771	256782	Volledige of gedeeltelijke horizontale laryngectomie of hemilaryngectomie
259033	259044	Resectie van een expansief letsel van de luchtwegen en/of van het bovenste gedeelte van het spijsverteringskanaal dat het sluiten van een huid- of slijmvliesdefect met een huidlap, een myocutane of een wandelende ent vereist
256756	256760	Chordectomie of laryngectomie van het frontolaterale type (partiele laryngectomie)
259011	259022	Reconstructieve subtotale laryngectomie met het oog op het behoud van de larynxfuncties
258871	258882	Transorale endoscopische horizontale (supraglottis) laryngectomie of hemilaryngectomie met inbegrip van arytenoid
228012	228023	Thoracale of thoraco-abdominale oesofagectomie of gastro-oesofagectomie in één operatietijd met herstellen van de continuïteit
228174	228185	Subtotale oesofagectomie tot op het niveau van de arcus aortae, met herstellen van de continuïteit
228233	228244	Thoracale of thoraco-abdominale oesofagectomie of gastro-oesofagectomie in één operatietijd met herstellen van de continuïteit en uitgebreid klierevidement

Lymphadenectomy

Table 249. Hypopharyngeal Cancer: Nomenclature Codes for Lymphadenectomy

Outpatient	Inpatient	Dutch Description
256815	256826	Exeresis van veretterde adenitis of van een halsklier
311835	311846	Exerese van veretterende adenitits of van een halsklier
256933	256944	Heelkundige bewerking wegens diepliggende halscyste of –tumor
311872	311883	Heelkundige bewerking wegens diepliggende halscyste of –tumor
258355	258366	Volledige excisie van een diep gelegen halstumor
312550	312561	Volledige excisie van een diep gelegen halstumor
258554	258565	1/10/1995: Uitruiming van ganglia van een kliergroep in de hals 1/05/2009: Unilaterale uitruiming van één of twee kliergroepen in de hals
312970	312981	Unilaterale uitruiming van één of twee kliergroepen in de hals
258370	258381	1/07/1986: Beperkte klieruitruiming van 2 of meerdere kliergroepen in de hals 1/05/2009: Unilaterale uitruiming van 3 kliergroepen in de hals met georiënteerd resectiespecimen
312572	312583	1/07/1986: Beperkte klieruitruiming van 2 of meerder kliergroepen in de hals 1/05/2009: Unilaterale uitruiming van 3 kliergroepen in de hals met georiënteerd resectiespecimen
258392	258403	1/07/1986: Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren 1/05/2009: Unilaterale uitruiming van 4 of meer kliergroepen in de hals met georiënteerd resectiespecimen
312605	312594	1/07/1986: Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren 1/05/2009: Unilaterale uitruiming van 4 of meer kliergroepen in de hals met georiënteerd resectiespecimen
312594	312605	1/07/1986: Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren 1/05/2009: Unilaterale uitruiming van 4 of meer kliergroepen in de hals met georiënteerd resectiespecimen

220356	220360	Exeresis van ganglion

4.3.2 Radiotherapy

See general nomenclature codes.

4.3.3 Chemotherapy

See general nomenclature codes.

5. Appendix D5: Nomenclature Codes for Laryngeal Cancer

5.1 Laryngeal Cancer: Diagnostic Procedures

5.1.1 Tissue Examination

Histological Diagnosis

Table 250. Laryngeal Cancer: Nomenclature Codes for Histological Diagnosis*

Outpatient	Inpatient	Dutch Description
Biopsy		
351035	351046	1/04/1985: Tracheoscopie, met of zonder afname voor biopsie 1/10/2008: Tracheo- en/of laryngoscopie, met of zonder afname voor biopsie
258075	258086	Microlaryngoscopie in suspensie (Kleinsasser) met of zonder afname voor biopsie
256594	256605	Bioptische afname van de larynx
258274	258285	Stroboscopisch onderzoek van de stembanden met een onbuigzaam optisch systeem of door fibroscopie, met of zonder registreren van de bewegingen met een camera en vidéorecorder

* Nomenclature codes for pathology were also included in the selection of codes for histological diagnosis. For the list of pathology codes, see general nomenclature codes.

Cytology

See general nomenclature codes.

5.1.2 Imaging

CT

Table 251. Laryngeal Cancer: Nomenclature Codes for CT

Outpatient	Inpatient	Dutch Description
458813	458824	Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek
458533	458544	Verstrekkingen waarvoor de bekwaming van specialist voor röntgendiagnose (R) vereist is - Computergestuurde tomografieën : Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek - K.B. van 22 oktober 1992 - Pseudonomenclatuurcode ingeval de verstrekkingen verricht worden bij kinderen jonger dan 5 jaar, de betrekkelijke waarden (458813) worden verhoogd met 25% (geschrapt op 01/01/2006)
458673	458684	Computergestuurde tomografie van de schedel en/of van faciaal massief, met en/of zonder contrastmiddel, met registreren en clichés, minimum 10 coupes, voor het hele onderzoek

MRI

Table 252. Laryngeal Cancer: Nomenclature Codes for MRI

Outpatient	Inpatient	Dutch Description
459410	459421	NMR-onderzoek van de hals of van de thorax of van het abdomen of van het bekken, minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager
459395	459406	NMR-onderzoek van het hoofd (schedel, hersenen, rotsbeen, hypofyse, sinussen,orbita(e) of kaakgewrichten), minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager

Ultrasound Neck

Table 253. Laryngeal Cancer : Nomenclature Codes for Ultrasound Neck

Outpatient	Inpatient	Dutch Description
460095	460106	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van de hals 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van de hals
469350	469361	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Van de hals

PET Scan

See general nomenclature codes.

Chest X-Ray

See general nomenclature codes.

Ultrasound Abdomen

Table 254. Laryngeal Cancer : Nomenclature Codes for Ultrasound Abdomen

Outpatient	Inpatient	Dutch Description
459712	459723	Totaal abdominaal onderzoek (lever, galblaas, milt, pancreas, nieren of bijnieren, retroperitoneum) waarbij minstens acht verschillende sneden gedokumenteerd inclusief eventueel gebruik van dopplertechnieken
460213	460224	Totaal onderzoek waarbij meerdere bovenvermelde abdominale streken onderzocht worden en minstens acht verschillende sneden gedokumenteerd worden, uitgevoerd door een geneesheer-specialist voor röntgendiagnose. (Geschrapt op 1/4/2003)
460154	460165	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen
469416	469420	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen - Van het abdomen : Lever en/of galblaas en/of galwegen

5.1.4 Screening

Respiratory Tract

Table 255. Laryngeal Cancer : Nomenclature Codes for Respiratory Tract Screening

Outpatient	Inpatient	Dutch Description
471612	471623	Tracheoscopie met verwijderen van tumors en/of coagulatie van letsels
257294	257305	Bronchoscopie zonder afname voor biopsie en/of bronchoscopie met therapeutische aspiratie
471715	471726	Bronchoscopie zonder afname voor biopsie
257316	257320	Bronchoscopie met afname voor biopsie en/of verwijderen van tumors en/of coagulatie van letsels
471730	471741	Bronchoscopie met afname voor biopsie, en/of verwijderen van tumors, en/of coagulatie van letsels

Digestive Tract

Table 256. Laryngeal Cancer: Nomenclature Codes for Digestive Tract Screening

Outpatient	Inpatient	Dutch Description
472356	472360	Oesofagoscopie
472555	472566	Oesofagoscopie met wegnemen van tumors en/of coagulatie van letsels
472415	472426	Fibrogastroscopie en/of fibrobulboscopie
472570	472581	Fibrogastroscopie en/of fibrobulboscopie met wegnemen van tumors en/of coagulatie van letsels
473056	473060	Fibroduodenoscopie (2e en 3e duodenum)
473852	473863	Echo-endoscopie van de bovenste gastro-intestinale tractus

5.1.5 Other Procedures

Lymph Node Biopsy

Table 257. Laryngeal Cancer: Nomenclature Codes for Lymph Node Biopsy

Outpatient	Inpatient	Dutch Description
258311	258322	Excisie voor biopsie van een oppervlakkige halsklier
312513	312524	Excisie voor biopsie van een oppervlakkige halsklier
258333	258344	Excisie voor biopsie van een kleine diep gelegen halsklier
312535	312546	Excisie voor biopsie van een kleine diep gelegen halsklier
355692	355703	Punctie van hematopoeitisch orgaan, exclusief lever en milt

5.2 Laryngeal Cancer: Therapeutic Procedures

5.2.1 Surgery

Major Surgery

Table 258. Laryngeal Cancer: Nomenclature Codes for Major Surgery

Outpatient	Inpatient	Dutch Description
256756	256760	Chordectomie of laryngectomie van het frontolaterale type (partiele laryngectomie)
256771	256782	Volledige of gedeeltelijke horizontale laryngectomie of hemilaryngectomie
259011	259022	Reconstructieve subtotale laryngectomie met het oog op het behoud van de larynxfuncties
259033	259044	Resectie van een expansief letsel van de luchtwegen en/of van het bovenste gedeelte van het spijsverteringskanaal dat het sluiten van een huid- of slijmvliesdefect met een huidlap, een myocutane of een wandelende ent vereist
258871	258882	Transorale endoscopische horizontale (supraglottis) laryngectomie of hemilaryngectomie met inbegrip van arytenoid

Minor Surgery

Table 259. Laryngeal Cancer: Nomenclature Codes for Minor Surgery

Outpatient	Inpatient	Dutch Description
258090	258101	Endoscopische heelkunde op de larynx : Cordectomie, cordopexie, arytenoïdectomie, arytenoïdopexie
258112	258123	Endoscopische heelkunde op de larynx : andere gevallen dan die omschreven in de verstrekking 258090 - 258101 of 258871-258882
257751	257762	Stripping van een of beide stembanden
353231	353242	Wegnemen of uitroeien, door om het even welk procédé (heelkundige behandeling, elektrocoagulatie), van allerhande oppervlakkige tumors van huid of slijmvliezen of van alle andere rechtstreeks bereikbare niet traumatische letsels, volledige behandeling
258893	258904	Endoscopische procedure voor intratumorale photodynamische behandeling of electroporatietherapie bij mucosatuomoren voor de volledige behandeling van het geheel der letsels
256616	256620	Galvanocauteriseren van de larynx
256631	256642	Exerese van larynxpapillomen
256653	256664	Exerese van larynxpoliepen
471612	471623	Tracheoscopie met verwijderen van tumors en/of coagulatie van letsels
355014	355025	Bijkomend honorarium dat mag worden aangerekend door de geneesheer-specialist die één van de volgende verstrekkingen verricht volgens de lasermethode met uitsluiting van de YAG : 431115 - 431126, 431211 - 431222, 431395 - 431406, 431432 - 431443, 431594 - 431605, 432294 - 432305, 432331 - 432342, 432530 - 432541, 432552 - 432563, 432574 - 432585, 432596 - 432600, 432633 - 432644, 432692 - 432703, 245512 - 245523, 245534 - 245545, 245556 - 245560, 246050 - 246061, 246072 - 246083, 246175 - 246186, 246573 - 246584, 246632 - 246643, 246654 - 246665, 248172 - 248183, 248194 - 248205, 248216 - 248220, 248231 - 248242, 248253 - 248264, 248275 - 248286, 248290 - 248301, 248312 - 248323, 255835 - 255846, 255872 - 255883, 255894 - 255905, 256653 - 256664, 257751 - 257762, 258090 - 258101, 258112 - 258123 en 312071 – 312082
355036	355040	Bijkomend honorarium dat mag worden aangerekend door de geneesheer-specialist die één van de

		volgende verstrekkingen verricht volgens de YAG-lasermethode : 230436 - 230440, 230473 - 230484 , 230495 - 230506, 230532 - 230543, 230716 - 230720, 230731 - 230742, 231011 - 231022, 231033 - 231044, 232514 - 232525, 232536 - 232540, 232551 - 232562, 232735 - 232746, 232772 - 232783, 232971 - 232982, 246772 - 246783, 248172 - 248183, 248194 - 248205, 248216 - 248220, 248231 - 248242, 248253 - 248264, 248275 - 248286, 248290 - 248301, 248312 - 248323, 257316 - 257320, 257456 - 257460, 431115 - 431126, 432412 - 432423, 432456 - 432460, 471612 - 471623, 471730 - 471741 en 473653 – 473664

Lymphadenectomy

Table 260. Laryngeal Cancer: Nomenclature Codes for Lymphadenectomy

Outpatient	Inpatient	Dutch Description
256815	256826	Exeresis van veretterde adenitis of van een halsklier
311835	311846	Exerese van veretterende adenitits of van een halsklier
256933	256944	Heelkundige bewerking wegens diepliggende halscyste of –tumor
311872	311883	Heelkundige bewerking wegens diepliggende halscyste of –tumor
258355	258366	Volledige excisie van een diep gelegen halstumor
312550	312561	Volledige excisie van een diep gelegen halstumor
258554	258565	1/10/1995: Uitruiming van ganglia van een kliergroep in de hals 1/05/2009: Unilaterale uitruiming van één of twee kliergroepen in de hals
312970	312981	Unilaterale uitruiming van één of twee kliergroepen in de hals
258370	258381	1/07/1986: Beperkte klieruitruiming van 2 of meerdere kliergroepen in de hals 1/05/2009: Unilaterale uitruiming van 3 kliergroepen in de hals met georiënteerd resectiespecimen
312572	312583	1/07/1986: Beperkte klieruitruiming van 2 of meerder kliergroepen in de hals 1/05/2009: Unilaterale uitruiming van 3 kliergroepen in de hals met georiënteerd resectiespecimen

258392	258403	1/07/1986: Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren 1/05/2009: Unilaterale uitruiming van 4 of meer kliergroepen in de hals met georiënteerd resectiespecimen
312594	312605	1/07/1986: Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren 1/05/2009: Unilaterale uitruiming van 4 of meer kliergroepen in de hals met georiënteerd resectiespecimen
312594	312605	1/07/1986: Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren 1/05/2009: Unilaterale uitruiming van 4 of meer kliergroepen in de hals met georiënteerd resectiespecimen
220356	220360	Exeresis van ganglion

5.2.2 Radiotherapy

See general nomenclature codes.

5.2.3 Chemotherapy

See general nomenclature codes.

6. Appendix D6: Nomenclature Codes for Oropharyngeal Cancer

6.1 Oropharyngeal Cancer: Diagnostic Procedures

6.1.1 Tissue Examination

Histological Diagnosis

Table 261. Oropharyngeal Cancer: Nomenclature Codes for Histological Diagnosis*

Outpatient	Inpatient	Dutch Description
Biopsy		
532011	532022	Afname en fixatie van een dermo-epidermaal bioptisch fragment, zonder hechten, met het oog op een pathologisch-anatomisch onderzoek
532114	532125	Afname en fixatie van een dermo-epidermaal bioptisch fragment, met hechten, met het oog op een pathologisch-anatomisch onderzoek
311953	311964	Tongbiopsie

* Nomenclature codes for pathology were also included in the selection of codes for histological diagnosis. For the list of pathology codes, see general nomenclature codes.

Cytology

See general nomenclature codes.

6.1.2 Imaging

CT

Table 262. Oropharyngeal Cancer: Nomenclature Codes for CT

Outpatient	Inpatient	Dutch Description
458813	458824	Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek
458533	458544	Verstrekkingen waarvoor de bekwaming van specialist voor röntgendiagnose (R) vereist is - Computergestuurde tomografieën : Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek - K.B. van 22 oktober 1992 - Pseudonomenclatuurcode ingeval de verstrekkingen verricht worden bij kinderen jonger dan 5 jaar, de betrekkelijke waarden (458813) worden verhoogd met 25% (geschrapt op 01/01/2006)
458673	458684	Computergestuurde tomografie van de schedel en/of van faciaal massief, met en/of zonder contrastmiddel, met registreren en clichés, minimum 10 coupes, voor het hele onderzoek

MRI

Table 263. Oropharyngeal Cancer: Nomenclature Codes for MRI

Outpatient	Inpatient	Dutch Description
459410	459421	NMR-onderzoek van de hals of van de thorax of van het abdomen of van het bekken, minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager
459395	459406	NMR-onderzoek van het hoofd (schedel, hersenen, rotsbeen, hypofyse, sinussen,orbita(e) of kaakgewrichten), minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager

Ultrasound Neck

Table 264. Oropharyngeal Cancer : Nomenclature Codes for Ultrasound Neck

Outpatient	Inpatient	Dutch Description
460095	460106	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van de hals 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van de hals
469350	469361	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Van de hals

PET Scan

See general nomenclature codes.

Chest X-Ray

See general nomenclature codes.

Ultrasound Abdomen

Table 265. Oropharyngeal Cancer : Nomenclature Codes for Ultrasound Abdomen

Outpatient	Inpatient	Dutch Description
459712	459723	Totaal abdominaal onderzoek (lever, galblaas, milt, pancreas, nieren of bijnieren, retroperitoneum) waarbij minstens acht verschillende sneden gedokumenteerd inclusief eventueel gebruik van dopplertechnieken
460213	460224	Totaal onderzoek waarbij meerdere bovenvermelde abdominale streken onderzocht worden en minstens acht verschillende sneden gedokumenteerd worden, uitgevoerd door een geneesheer-specialist voor röntgendiagnose. (Geschrapt op 1/4/2003)

460154	460165	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen
469416	469420	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen - Van het abdomen : Lever en/of galblaas en/of galwegen

6.1.3 Screening

Respiratory Tract

Table 266. Oropharyngeal Cancer : Nomenclature Codes for Respiratory Tract Screening

Outpatient	Inpatient	Dutch Description
256594	256605	Bioptische afname van de larynx
258075	258086	Microlaryngoscopie in suspensie (Kleinsasser) met of zonder afname voor biopsie
351035	351046	1/04/1985: Tracheoscopie, met of zonder afname voor biopsie 1/10/2008: Tracheo- en/of laryngoscopie, met of zonder afname voor biopsie
471612	471623	Tracheoscopie met verwijderen van tumors en/of coagulatie van letsels
258274	258285	Stroboscopisch onderzoek van de stembanden met een onbuigzaam optisch systeem of door fibroscopie, met of zonder registreren van de bewegingen met een camera en vidéorecorder
257294	257305	Bronchoscopie zonder afname voor biopsie en/of bronchoscopie met therapeutische aspiratie
257316	257320	Bronchoscopie met afname voor biopsie en/of verwijderen van tumors en/of coagulatie van letsel
471715	471726	Bronchoscopie zonder afname voor biopsie
471730	471741	Bronchoscopie met afname voor biopsie, en/of verwijderen van tumors, en/of coagulatie van letsels

471752	471763	Bronchoscopie met transcarinale punctie en eventuele radioscopische controle
471774	471785	Bronchoscopie met bronchoalveolair wassen (min 100ml)
471811	471822	Bronchoscopie met perifere pulmonaire afnamen voor biopsie (ofwel veelvuldige afnamen, minimum 5, ofwel geleide afname in geval van perifere tumor), inclusief de eventuele radioscopische controle
452793	452804	Radiografie van de larynx, eventueel met de trachea, zonder contrastmiddel, minimum twee clichés
463794	463805	Radiografie van de larynx, eventueel met de trachea, zonder contrastmiddel, minimum twee clichés

Digestive Tract

Table 267. Oropharyngeal Cancer: Nomenclature Codes for Digestive Tract Screening

Outpatient	Inpatient	Dutch Description
472356	472360	Oesofagoscopie
472555	472566	Oesofagoscopie met wegnemen van tumors en/of coagulatie van letsels
472415	472426	Fibrogastroscopie en/of fibrobulboscopie
472570	472581	Fibrogastroscopie en/of fibrobulboscopie met wegnemen van tumors en/of coagulatie van letsels
473056	473060	Fibroduodenoscopie (2e en 3e duodenum)

6.1.4 Other Procedures

Lymph Node Biopsy

Table 268. Oropharyngeal Cancer: Nomenclature Codes for Lymph Node Biopsy

Outpatient	Inpatient	Dutch Description
258311	258322	Excisie voor biopsie van een oppervlakkige halsklier
312513	312524	Excisie voor biopsie van een oppervlakkige halsklier
258333	258344	Excisie voor biopsie van een kleine diep gelegen halsklier
312535	312546	Excisie voor biopsie van een kleine diep gelegen halsklier
355692	355703	Punctie van hematopoeitisch orgaan, exclusief lever en milt

6.2 Oropharyngeal Cancer: Therapeutic Procedures

6.2.1 Surgery

Major Surgery

Table 269. Oropharyngeal Cancer: Nomenclature Codes for Major Surgery

Outpatient	Inpatient	Dutch Description
256535	256546	Amygdalectomie, met of zonder adenoïdectomie, bij volwassenen, d.w.z. degene die achttien jaar is of ouder
257191	257202	Faryngectomie
257390	257401	Amygdalectomie door dissectie
258576	258580	Uvuloplastie met of zonder amygdalectomie
258856	258860	Transorale endoscopische faryngectomie
259033	259044	Resectie van een expansief letsel van de luchtwegen en/of van het bovenste gedeelte van het spijsverteringskanaal dat het sluiten van een huid- of slijmvliesdefect met een huidlap, een myocutane of een wandelende ent vereist.
259114	259125	Transmandibulaire buccofaryngectomie of glossopelvimandibulectomie
310590	310601	Gedeeltelijke tongresectie buiten de traumatische letsels
256196	256200	Gedeeltelijke tongresectie buiten de traumatische letsels
256336	256340	Heelkundige bewerking wegens tumor van de mondbodem
312653	312664	Heelkundig verwijderen van een expansief diepliggend letsel dat een resectie van een deel van de schedelbasis noodzakelijk maakt
258451	258462	Heelkundig verwijderen van een expansief diepliggend letsel dat een resectie van een deel van de schedelbasis noodzakelijk maakt
256771	256782	Volledige of gedeeltelijke horizontale laryngectomie of hemilaryngectomie

Minor Surgery

Table 270. Oropharyngeal Cancer: Nomenclature Codes for Minor Surgery

Outpatient	Inpatient	Dutch Description
251731	251742	Verwijderen van een gezwel van de huid of de slijmvliezen of ander letsel rechtstreeks toegankelijk door excisie met plastie en/of greffe (plastische heelkunde)
251753	251764	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische heelkundige techniek met peroperatieve pathologische anatomie, zonder sluiten van de wonde
251775	251786	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische heelkundige techniek met peroperatieve pathologische anatomie, en met sluiten van de wonden, een eventuele ent en/of plastie inbegrepen
532630	532641	Ablatie of vernietiging door om het even welk procédé (heelkundig zonder hechting, elektrocoagulatie of andere methode) van een oppervlakkig goed- of kwaadaardig gezwel van de huid of van de slijmvliezen of van elk ander niet traumatisch, direct toegankelijk letsel
532652	532663	Verwijderen van een gezwel van de huid of de slijmvliezen of een ander direct toegankelijk letsel door excisie met hechting
532674	532685	Verwijderen van een gezwel van de huid of de slijmvliezen of een ander, direct toegankelijk letsel door excisie met plastie en/of greffe
532696	532700	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische of een analoge heelkundige techniek met peroperatoire pathologische anatomie ; zonder sluiten van de wonde
532711	532722	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische of een analoge heelkundige techniek met peroperatoire pathologische anatomie en met sluiten van de wonde, een eventuele greffe en/of plastie inbegrepen
532770	532781	Behandeling door fotodynamische therapie, gebruik makend van een fotosensibilisator en een lichtbron, van preneoplastische en neoplastische huid- en slijmvliesletsels
353194	353205	Cryotherapie wegens huid- of slijmvliesletsels, per zitting
353216	353220	Cryotherapie wegens huid- of slijmvliesletsels, volledige behandeling van acht en meer zittingen

353290	353301	Cryochirurgie, met vloeibare stikstof, van huidslijmvliestumors die de basale laag doorboren, onder controle door thermozuil
353231	353242	Wegnemen of uitroeien, door om het even welk procédé (heelkundige behandeling, elektrocoagulatie), van allerhande oppervlakkige tumors van huid of slijmvliezen of van alle andere rechtstreeks bereikbare niet traumatische letsels, volledige behandeling
258893	258904	Endoscopische procedure voor intratumorale photodynamische behandeling of electroporatietherapie bij mucosatuomoren voor de volledige behandeling van het geheel der letsels
256572	256583	Wegnemen van huigtumor
355014	355025	Bijkomend honorarium dat mag worden aangerekend door de geneesheer-specialist die één van de volgende verstrekkingen verricht volgens de lasermethode met uitsluiting van de YAG : 431115 - 431126, 431211 - 431222, 431395 - 431406, 431432 - 431443, 431594 - 431605, 432294 - 432305, 432331 - 432342, 432530 - 432541, 432552 - 432563, 432574 - 432585, 432596 - 432600, 432633 - 432644, 432692 - 432703, 245512 - 245523, 245534 - 245545, 245556 - 245560, 246050 - 246061, 246072 - 246083, 246175 - 246186, 246573 - 246584, 246632 - 246643, 246654 - 246665, 248172 - 248183, 248194 - 248205, 248216 - 248220, 248231 - 248242, 248253 - 248264, 248275 - 248286, 248290 - 248301, 248312 - 248323, 255835 - 255846, 255872 - 255883, 255894 - 255905, 256653 - 256664, 257751 - 257762, 258090 - 258101, 258112 - 258123 en 312071 – 312082
355036	355040	Bijkomend honorarium dat mag worden aangerekend door de geneesheer-specialist die één van de volgende verstrekkingen verricht volgens de YAG-lasermethode : 230436 - 230440, 230473 - 230484 , 230495 - 230506, 230532 - 230543, 230716 - 230720, 230731 - 230742, 231011 - 231022, 231033 - 231044, 232514 - 232525, 232536 - 232540, 232551 - 232562, 232735 - 232746, 232772 - 232783, 232971 - 232982, 246772 - 246783, 248172 - 248183, 248194 - 248205, 248216 - 248220, 248231 - 248242, 248253 - 248264, 248275 - 248286, 248290 - 248301, 248312 - 248323, 257316 - 257320, 257456 - 257460, 431115 - 431126, 432412 - 432423, 432456 - 432460, 471612 - 471623, 471730 - 471741 en 473653 – 473664

Lymphadenectomy

Table 271. Oropharyngeal Cancer: Nomenclature Codes for Lymphadenectomy

Outpatient	Inpatient	Dutch Description
256815	256826	Exeresis van veretterde adenitis of van een halsklier
311835	311846	Exerese van veretterende adenitits of van een halsklier
256933	256944	Heelkundige bewerking wegens diepliggende halscyste of –tumor
311872	311883	Heelkundige bewerking wegens diepliggende halscyste of –tumor
258355	258366	Volledige excisie van een diep gelegen halstumor
312550	312561	Volledige excisie van een diep gelegen halstumor
258554	258565	1/10/1995: Uitruiming van ganglia van een kliergroep in de hals
		1/05/2009: Unilaterale uitruiming van één of twee kliergroepen in de hals
312970	312981	Unilaterale uitruiming van één of twee kliergroepen in de hals
258370	258381	1/07/1986: Beperkte klieruitruiming van 2 of meerdere kliergroepen in de hals 1/05/2009: Unilaterale uitruiming van 3 kliergroepen in de hals met georiënteerd resectiespecimen
312572	312583	1/07/1986: Beperkte klieruitruiming van 2 of meerder kliergroepen in de hals 1/05/2009: Unilaterale uitruiming van 3 kliergroepen in de hals met georiënteerd resectiespecimen
258392	258403	1/07/1986: Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren 1/05/2009: Unilaterale uitruiming van 4 of meer kliergroepen in de hals met georiënteerd resectiespecimen
312605	312594	1/07/1986: Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren 1/05/2009: Unilaterale uitruiming van 4 of meer kliergroepen in de hals met georiënteerd resectiespecimen
312594	312605	1/07/1986: Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren 1/05/2009: Unilaterale uitruiming van 4 of meer kliergroepen in de hals met georiënteerd resectiespecimen

220356	220360	Exeresis van ganglion

6.2.2 Radiotherapy

See general nomenclature codes.

6.2.3 Chemotherapy

See general nomenclature codes.

7. Appendix D7: Nomenclature Codes for Oral Cavity Cancer

7.1 Oral Cavity Cancer: Diagnostic Procedures

7.1.1 Tissue Examination

Histological Diagnosis

Table 272. Oral Cavity Cancer: Nomenclature Codes for Histological Diagnosis

Outpatient	Inpatient	Dutch Description
Biopsy		
311953	311964	Tongbiopsie
532011	532022	Afname en fixatie van een dermo-epidermaal bioptisch fragment, zonder hechten, met het oog op een pathologisch-anatomisch onderzoek
532114	532125	Afname en fixatie van een dermo-epidermaal bioptisch fragment, met hechten, met het oog op een pathologisch-anatomisch onderzoek

* Nomenclature codes for pathology were also included in the selection of codes for histological diagnosis. For the list of pathology codes, see general nomenclature codes.

Cytology

See general nomenclature codes.

7.1.2 Imaging

CT

Table 273. Oral Cavity Cancer: Nomenclature Codes for CT

Outpatient	Inpatient	Dutch Description
458533	458544	Verstrekkingen waarvoor de bekwaming van specialist voor röntgendiagnose (R) vereist is - Computergestuurde tomografieën : Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek - K.B. van 22 oktober 1992 - Pseudonomenclatuurcode ingeval de verstrekkingen verricht worden bij kinderen jonger dan 5 jaar, de betrekkelijke waarden (458813) worden verhoogd met 25% (geschrapt op 01/01/2006)
458813	458824	Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek
458673	458684	Computergestuurde tomografie van de schedel en/of van faciaal massief, met en/of zonder contrastmiddel, met registreren en clichés, minimum 10 coupes, voor het hele onderzoek

MRI

Table 274. Oral Cavity Cancer: Nomenclature Codes for MRI

Outpatient	Inpatient	Dutch Description
459410	459421	NMR-onderzoek van de hals of van de thorax of van het abdomen of van het bekken, minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager
459395	459406	NMR-onderzoek van het hoofd (schedel, hersenen, rotsbeen, hypofyse, sinussen,orbita(e) of kaakgewrichten), minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager

Ultrasound Neck

Table 275. Oral Cavity Cancer: Nomenclature Codes for Ultrasound Neck

Outpatient	Inpatient	Dutch Description
460095	460106	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van de hals 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van de hals
469350	469361	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Van de hals

PET Scan

See general nomenclature codes.

Chest X-Ray

See general nomenclature codes.

Ultrasound Abdomen

Table 276. Oral Cavity Cancer: Nomenclature Codes for Ultrasound Abdomen

Outpatient	Inpatient	Dutch Description
459712	459723	Totaal abdominaal onderzoek (lever, galblaas, milt, pancreas, nieren of bijnieren, retroperitoneum) waarbij minstens acht verschillende sneden gedokumenteerd inclusief eventueel gebruik van dopplertechnieken
460213	460224	Totaal onderzoek waarbij meerdere bovenvermelde abdominale streken onderzocht worden en minstens acht verschillende sneden gedokumenteerd worden, uitgevoerd door een geneesheer-specialist voor röntgendiagnose (geschrapt op 1/4/2003)
460154	460165	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen
469416	469420	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen - Van het abdomen : Lever en/of galblaas en/of galwegen

7.1.4 Screening

Respiratory Tract

Table 277. Oral Cavity Cancer: Nomenclature Codes for Respiratory Tract Screening

Outpatient	Inpatient	Dutch Description
256594	256605	Bioptische afname van de larynx
258075	258086	Microlaryngoscopie in suspensie (Kleinsasser) met of zonder afname voor biopsie
351035	351046	1/04/1985: Tracheoscopie, met of zonder afname voor biopsie 1/10/2008: Tracheo- en/of laryngoscopie, met of zonder afname voor biopsie
471612	471623	Tracheoscopie met verwijderen van tumors en/of coagulatie van letsels
258274	258285	Stroboscopisch onderzoek van de stembanden met een onbuigzaam optisch systeem of door fibroscopie, met of zonder registreren van de bewegingen met een camera en vidéorecorder
257294	257305	Bronchoscopie zonder afname voor biopsie en/of bronchoscopie met therapeutische aspiratie
257316	257320	Bronchoscopie met afname voor biopsie en/of verwijderen van tumors en/of coagulatie van letsel
471715	471726	Bronchoscopie zonder afname voor biopsie
471730	471741	Bronchoscopie met afname voor biopsie, en/of verwijderen van tumors, en/of coagulatie van letsels
471752	471763	Bronchoscopie met transcarinale punctie en eventuele radioscopische controle
471774	471785	Bronchoscopie met bronchoalveolair wassen (min 100ml)
471811	471822	Bronchoscopie met perifere pulmonaire afnamen voor biopsie (ofwel veelvuldige afnamen, minimum 5, ofwel geleide afname in geval van perifere tumor), inclusief de eventuele radioscopische controle
452793	452804	Radiografie van de larynx, eventueel met de trachea, zonder contrastmiddel, minimum twee clichés
463794	463805	Radiografie van de larynx, eventueel met de trachea, zonder contrastmiddel, minimum twee clichés

Digestive Tract

Table 278. Oral Cavity Cancer: Nomenclature Codes for Digestive Tract Screening

Outpatient	Inpatient	Dutch Description
472356	472360	Oesofagoscopie
472555	472566	Oesofagoscopie met wegnemen van tumors en/of coagulatie van letsels
472415	472423	Fibrogastroscopie en/of fibrobulboscopie
472570	472581	Fibrogastroscopie en/of fibrobulboscopie met wegnemen van tumors en/of coagulatie van letsels
473056	473060	Fibroduodenoscopie (2de en 3de duodenum)

7.1.5 Other Procedures

Lymph Node Biopsy

Table 279. Oral Cavity Cancer: Nomenclature Codes for Lymph Node Biopsy

Outpatient	Inpatient	Dutch Description
258311	258322	Excisie voor biopsie van een oppervlakkige halsklier
258333	258344	Excisie voor biopsie van een diep gelegen halsklier
312513	312524	Excisie voor biopsie van een oppervlakkige halsklier
312535	312546	Excisie voor biopsie van een diep gelegen halsklier
355692	355703	punctie van hematopoeitisch orgaan, exclusief lever en milt

7.2 Oral Cavity Cancer: Therapeutical Procedures

7.2.1 Surgery

Major Surgery

Table 280. Oral Cavity Cancer: Nomenclature Codes for Major Surgery

Outpatient	Inpatient	Dutch Description
256115	256126	Heelkundige bewerking wegens tumor van de tandkasrand
256130	256141	Heelkundige bewerking wegens paradentale cysten
256196	256200	Gedeeltelijke tongresectie buiten de traumatische letsels
310590	310601	Gedeeltelijke tongresectie buiten de traumatische letsels
256336	256340	Heelkundige bewerking wegens tumor van mondbodem
258451	258462	Heelkundig verwijderen van een expansief diepliggend letsel dat een resectie van een deel van de schedelbasis noodzakelijk maakt
312653	312664	Heelkundig verwijderen van een expansief diepliggend letsel dat een resectie van een deel van de schedelbasis noodzakelijk maakt
259033	259044	Resectie van een expansief letsel van de luchtwegen en/of van het bovenste gedeelte van het spijsverteringskanaal dat het sluiten van een huid- of slijmvliesdefect met een huidlap, een myocutane of een wandelende ent vereist
259114	259125	Transmandibulaire buccofaryngectomie of glossopelvimandibulectomie
311010	311021	Gedeeltelijke resectie zonder discontinuïteit van onderkaakbeen
311032	311043	Gedeeltelijke resectie met discontinuïteit van onderkaakbeen of resectie van kinstreek
311091	311102	Volledige resectie van onderkaakbeen
311150	311161	Subtotale maxillectomie met resectie van de alveolaire kam en het verhemelte
311172	311183	Totale maxillectomie met inbegrip van de oogkasbodem en/of processi ptergyoidei
311312	311323	1/04/1985: Ingreep wegens tumor op alveolodentale rand 1/05/2009: Heelkundige ingreep wegens tumor op de tandkasrand
312690	312701	1/07/1986: Subtotale maxillectomie met resectie van de alveolaire kam en het verhemelte met huidgreffe, in eenzelfde operatietijd 1/05/2009: Subtotale maxillectomie met resectie van de alveolaire kam en het verhemelte
312712	312723	1/07/1986: Totale maxillectomie met inbegrip van de oogkasbodem en/of processi ptergygoidei met huidgreffe, in eenzelfde operatietijd

		1/05/2009: Totale maxillectomie met inbegrip van de oogkasbodem en/of processi pterygoidei van het sfenoid
256572	256583	Wegnemen van huigtumor
258576	258580	Uvuloplastie met of zonder amygdalectomie

Minor Surgery

Table 281. Oral Cavity Cancer: Nomenclature Codes for Minor Surgery

Outpatient	Inpatient	Dutch Description
258893	258904	Endoscopisch procedure voor intratumorale photodynamische behandeling of electroporatietherapie bij mucosatumoren voor de volledige behandeling van het geheel der letsels
256174	256185	Exeresis van sublinguale klier
310575	310586	Exeresis van sublinguale klier
310951	310962	Trepanatie van kaakbeen wegens cystische tumor of ostitis
311135	311146	Trepanatie van bovenkaakbeen wegens tumor, ostitis, sequesters of voor opzoeken van vreemde lichamen
317111	317122	Exeresis van goedaardige intrabuccale tumors
251731	251742	Verwijderen van een gezwel van de huid of de slijmvliezen of ander letsel rechtstreeks toegankelijk door excisie met plastie en/of greffe
251753	251764	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische heelkundige techniek met peroperatieve pathologische anatomie, zonder sluiten van de wonde
251775	251786	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische heelkundige techniek met peroperatieve pathologische anatomie, en met sluiten van de wonden, een eventuele ent en/of plastie inbegrepen
353231	353242	Wegnemen of uitroeien, door om het even welk procédé (heelkundige behandeling, elektrocoagulatie), van allerhande oppervlakkige tumors van huid of slijmvliezen of van alle andere rechtstreeks bereikbare niet traumatische letsels, volledige behandeling
353290	353301	Cryochirurgie, met vloeibare stikstof, van huidslijmvliestumors die de basale laag doorboren, onder controle door thermozuil

Lymphadenectomy

Table 282. Oral Cavity Cancer: Nomenclature Codes for Lymphadenectomy

Outpatient	Inpatient	Dutch Description
256815	256826	Exeresis van veretterde adenitis of van een halsklier
311835	311846	Exerese van veretterende adenitits of van een halsklier
256933	256944	Heelkundige bewerking wegens diepliggende halscyste of –tumor
311872	311883	Heelkundige bewerking wegens diepliggende halscyste of –tumor
258355	258366	Volledige excisie van een diep gelegen halstumor
312550	312561	volledige excisie van een diep gelegen halstumor
258554	258565	1/10/1995: Uitruiming van ganglia van een kliergroep in de hals 1/05/2009: Unilaterale uitruiming van één of twee kliergroepen in de hals
312970	312981	Unilaterale uitruiming van één of twee kliergroepen in de hals
258370	258381	1/07/1986: Beperkte klieruitruiming van 2 of meerdere kliergroepen in de hals 1/05/2009: Unilaterale uitruiming van 3 kliergroepen in de hals met georiënteerd resectiespecimen
312572	312583	1/07/1986: Beperkte klieruitruiming van 2 of meerder kliergroepen in de hals 1/05/2009: Unilaterale uitruiming van 3 kliergroepen in de hals met georiënteerd resectiespecimen
258392	258403	1/07/1986: Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren 1/05/2009: Unilaterale uitruiming van 4 of meer kliergroepen in de hals met georiënteerd resectiespecimen
312605	312594	1/07/1986: Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren 1/05/2009: Unilaterale uitruiming van 4 of meer kliergroepen in de hals met georiënteerd resectiespecimen
312594	312605	1/07/1986: Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren

		1/05/2009: Unilaterale uitruiming van 4 of meer kliergroepen in de hals met georiënteerd Resectiespecimen
220356	220360	Exeresis van ganglion

7.2.2 Radiotherapy

See general nomenclature codes.

7.2.3 Chemotherapy

See general nomenclature codes.

8. Appendix D8: Nomenclature Codes for Lip Cancer

8.1 Lip Cancer: Diagnostic Procedures

8.1.1 Tissue Examination

Histological Diagnosis

Table 283. Nomenclature Codes for Histological Diagnosis*

Outpatient	Inpatient	Dutch Description
		Biopsy
532011	532022	Afname en fixatie van een dermo-epidermaal bioptisch fragment, zonder hechten, met het oog op een pathologisch-anatomisch onderzoek
532114	532125	Afname en fixatie van een dermo-epidermaal bioptisch fragment, met hechten, met het oog op een pathologisch-anatomisch onderzoek

* Nomenclature codes for pathology were also included in the selection of codes for histological diagnosis. For the list of pathology codes, see general nomenclature codes.

Cytology

See general nomenclature codes.

8.1.2 Imaging

CT

Table 284. Lip Cancer: Nomenclature Codes for CT

Outpatient	Inpatient	Dutch Description
458673	458684	Computergestuurde tomografie van de schedel met en/of zonder contrastmiddel, met registreren en clichés, minimum 10 coupes, voor het hele onderzoek
458813	458824	Computergestuurde tomografie van de weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek
459631	459642	Computergestuurde tomografie van de hals, de thorax en het abdomen, met of zonder contrastmiddel, met registreren en clichés, minimum 30 coupes voor het hele onderzoek
458533	458544	Verstrekkingen waarvoor de bekwaming van specialist voor röntgendiagnose (R) vereist is - Computergestuurde tomografieën : Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek - K.B. van 22 oktober 1992 - Pseudonomenclatuurcode ingeval de verstrekkingen verricht worden bij kinderen jonger dan 5 jaar, de betrekkelijke waarden (458824) worden verhoogd met 25% (geschrapt op 01/01/2006)

MRI

Table 285. Lip Cancer: Nomenclature Codes for MRI

Outpatient	Inpatient	Dutch Description
459410	459421	NMR-onderzoek van de hals of van de thorax of van het abdomen of van het bekken, minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager
459395	459406	NMR-onderzoek van het hoofd (schedel, hersenen, rotsbeen, hypofyse, sinussen,orbita(e) of kaakgewrichten), minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager

Ultrasound Neck

Table 286. Lip Cancer: Nomenclature Codes for Ultrasound Neck

Outpatient	Inpatient	Dutch Description
460095	460106	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van de hals 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van de hals
469350	469361	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Van de hals

PET Scan

See general nomenclature codes.

Chest X-Ray

See general nomenclature codes.

8.2 Lip Cancer: Therapeutic Procedures

8.2.1 Surgery

(Plastic) Surgery

Table 287. Lip Cancer: Nomenclature Codes for (Plastic) Surgery

Outpatient	Inpatient	Dutch Description
220150	220161	Heelkundige bewerking wegens goedaardige of kwaadaardige oppervlakkige tumors of niet traumatische letsels aan gelaat of lippen
220312	220323	Heelkundige bewerking wegens diepe tumoren of letsels aan het gelaat of lippen, exclusief huidletsels

220334	220345	Heelkundige bewerking wegens expansieve diepe tumoren of letsels aan het gelaat of lippen die brede resectie vergt, inclusief plastiek
251731	251742	Verwijderen van een gezwel van de huid of de slijmvliezen of ander letsel rechtstreeks toegankelijk door excisie met plastie en/of greffe
251753	251764	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische heelkundige techniek met peroperatieve pathologische anatomie, zonder sluiten van de wonde
251775	251786	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische heelkundige techniek met peroperatieve pathologische anatomie, en met sluiten van de wonden, een eventuele ent en/of plastie inbegrepen
353194	353205	1/04/1985: Cryotherapie wegens huid- of slijmvliesletsels, per verrichting 1/04/2003: Cryotherapie wegens huid- of slijmvliesletsels, per zitting
353231	353242	Wegnemen of uitroeien, door om het even welk procédé (heelkundige behandeling, elektrocoagulatie), van allerhande oppervlakkige tumors van huid of slijmvliezen of van alle andere rechtstreeks bereikbare niet traumatische letsels, volledige behandeling
355036	355040	Bijkomend honorarium dat mag worden aangerekend door de geneesheer-specialist die één van de volgende verstrekkingen verricht volgens de YAG-lasermethode : 230436 - 230440, 230473 - 230484 , 230495 - 230506, 230532 - 230543, 230716 - 230720, 230731 - 230742, 231011 - 231022, 231033 - 231044, 232514 - 232525, 232536 - 232540, 232551 - 232562, 232735 - 232746, 232772 - 232783, 232971 - 232982, 246772 - 246783, 248172 - 248183, 248194 - 248205, 248216 - 248220, 248231 - 248242, 248253 - 248264, 248275 - 248286, 248290 - 248301, 248312 - 248323, 257316 - 257320, 257456 - 257460, 431115 - 431126, 432412 - 432423, 432456 - 432460, 471612 - 471623, 471730 - 471741 en 473653 - 473664
532630	532641	Ablatie of vernietiging door om het even welk procédé (heelkundig zonder hechting, elektrocoagulatie of andere methode) van een oppervlakkig goed- of kwaadaardig gezwel van de huid of van de slijmvliezen of van elk ander niet traumatisch, direct toegankelijk letsel
532652	532663	Verwijderen van een gezwel van de huid of de slijmvliezen of een ander direct toegankelijk letsel door excisie met hechting
532674	532685	Verwijderen van een gezwel van de huid of de slijmvliezen of een ander, direct toegankelijk letsel door excisie met plastie en/of greffe

532696	532700	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische of een analoge heelkundige techniek met peroperatoire pathologische anatomie ; zonder sluiten van de wonde
532711	532722	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische of een analoge heelkundige techniek met peroperatoire pathologische anatomie en met sluiten van de wonde, een eventuele greffe en/of plastie inbegrepen
250176	250180	1/04/1985: Gesteelde huidlapplastiek, hoofdbewerking 1/04/2003: Huid- of fascio-cutane flap, hoofdbewerking
250191	250202	1/04/1985: Gesteelde huidlapplastiek, navolgende bewerkingen 1/04/2003 : Huid- of fascio-cutane flap, bijkomende bewerking, per tijd
250213	250224	1/04/1985: Gesteelde huidlapplastiek, in één bewerking over een oppervlakte groter dan een vierkant van 10 cm zijde 1/04/2003: Huid- of fascio cutane flap, in één bewerking over een oppervlakte gelijk of groter dan 100 cm²
251856	251860	1/04/1985: Spierlap, hoofdbewerking of enige bewerking
		1/04/2003: Spierlap, hoofdbewerking
251893	251904	Spierhuidlap
312874	312885	Gesteelde huid- of mucosalapplastie, hoofdbewerking

Lymphadenectomy

Table 288. Lip Cancer: Nomenclature Codes for Lymphadenectomy

Outpatient	Inpatient	Dutch Description
220356	220360	Exeresis van ganglion
258370	258381	Beperkte klieruitruiming van 2 of meerdere kliergroepen in de hals
258392	258403	Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren
258554	258565	Uitruiming van ganglia van een kliergroep in de hals
312572	312583	Beperkte klieruitruiming van 2 of meerder kliergroepen in de hals

312594	312605	Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren
312970	312981	Unilaterale uitruiming van één of twee kliergroepen in de hals
312605	312594	Volledige halsklieruitruiming van een gebied afgelijnd door : bovenaan het mastoïd en de onderkaak, onderaan de clavicula, achteraan de M. Trapezius en vooraan de pretracheale spieren
256815	256826	Exeresis van veretterde adenitis of van een halsklier
311835	311846	Exeresis van veretterde adenitis of van halsklier
258311	258322	Excisie voor biopsie van een oppervlakkige halsklier
258333	258344	Excisie voor biopsie van een diep gelegen halsklier
312513	312524	Excisie voor biopsie van een oppervlakkige halsklier
312535	312546	Excisie voor biopsie van een kleine diep gelegen halsklier

8.2.2 Radiotherapy

See general nomenclature codes.

8.2.3 Chemotherapy

See general nomenclature codes.

9. Appendix D9: Nomenclature Codes for Anal Canal Cancer

9.1 Anal Canal Cancer: Diagnostic Procedures

9.1.1 Tissue Examination

Histological Diagnosis

Table 289. Anal Canal Cancer: Nomenclature Codes for Histological Diagnosis*

Outpatient	Inpatient	Dutch Description
Biopsy		
244436	244440	Heelkundige resectie van aarsfistel in of boven de sfincter, al dan niet gecombineerd met de behandeling door de tresmethode, in één of meer operatietijden
244451	244462	Operatieve behandeling van aarsfistel onder de sfincter
244473	244484	Fissurectomie met sfincterotomie
244495	244506	Resectie van aarskloof met sfincterotomie en neerhalen van het slijmvlies
244510	244521	Resectie van aarskloof
244635	244646	Uitsnijden van een aarsabces, onder algemene anesthesie
532011	532022	Afname en fixatie van een dermo-epidermaal bioptisch fragment, zonder hechten, met het oog op een pathologisch-anatomisch onderzoek
532114	532125	Afname en fixatie van een dermo-epidermaal bioptisch fragment, met hechten, met het oog op een pathologisch-anatomisch onderzoek

* Nomenclature codes for pathology were also included in the selection of codes for histological diagnosis. For the list of pathology codes, see general nomenclature codes.

Cytology

See general nomenclature codes.

9.1.2 Endoscopic Examination

Anorectal Endosonography

Table 290. Anal Canal Cancer: Nomenclature Codes for Anorectal Endosonography

Outpatient	Inpatient	Dutch Description
479896	473900	Anorectale echo-endoscopie

Recto(sigmoido)scopy

Table 291. Anal Canal Cancer: Nomenclature Codes for Recto(sigmoido)scopy

Outpatient	Inpatient	Dutch Description
		Rectosigmoidoscopy
472452	472463	1/04/1997: Rectosigmoidoscopie 1/07/2003: Rectosigmoidoscopie uitgevoerd met een flexibele endoscoop
		Rectoscopy
472511	572522	Rectoscopie

Colonoscopy

Table 292. Anal Canal Cancer: Nomenclature Codes for Colonoscopy

Outpatient	Inpatient	Dutch Description
473130	473141	Colonoscopie links, d.w.z tot de linkerhoek van het colon
473174	473185	Volledige colonoscopie, d.w.z tot de rechterhoek van het colon of de ileocoecale klep

9.1.3 Imaging

Ultrasound Transrectal/Pelvis/Abdomen

Table 293. Anal Canal Cancer: Nomenclature Codes for Ultrasound Transrectal/Pelvis/Abdomen

Outpatient	Inpatient	Dutch Description
459712	459723	Totaal abdominaal onderzoek (lever, galblaas, milt, pancreas, nieren of bijnieren, retroperitoneum) waarbij minstens acht verschillende sneden gedokumenteerd inclusief eventueel gebruik van dopplertechnieken
460154	460165	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het abdomen : Lever en/of galblaas, en/of galwegen
459793	459804	Echografie van minstens twee verschillende anatomische regio's : schedelinhoud (transfontanellair), thorax, borsten, lever-galblaas, pancreas-milt, nieren-blaas, retroperitoneum, grote abdominale vaten, mannelijk of vrouwelijk bekken
469173	469184	Totaal abdominaal onderzoek (lever, galblaas, milt, pancreas, nieren of bijnieren, retroperitoneum) waarbij minstens acht verschillende sneden gedokumenteerd
469416	469420	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen - Van het abdomen : Lever en/of galblaas en/of galwegen
460235	460246	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het mannelijk bekken 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het mannelijk bekken

469475	469486	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Van het mannelijk bekken
460250	460261	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het vrouwelijk bekken 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het vrouwelijk bekken
460493	460504	1/04/1997: Bidimensionele transrectale echografie met protocol en documenten 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Transrectale echografie
469571	469582	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Transrectale echografie

CT

Table 294. Anal Canal Cancer: Nomenclature Codes for CT

Outpatient	Inpatient	Dutch Description
458533	458544	Verstrekkingen waarvoor de bekwaming van specialist voor röntgendiagnose (R) vereist is - Computergestuurde tomografieën : Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek - K.B. van 22 oktober 1992 - Pseudonomenclatuurcode ingeval de verstrekkingen verricht worden bij kinderen jonger dan 5 jaar, de betrekkelijke waarden (458813) worden verhoogd met 25% (Geschrapt op 1/01/2006)
458813	458824	Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek

MRI

Table 295. Anal Canal Cancer: Nomenclature Codes for MRI

Outpatient	Inpatient	Dutch Description
459410	459421	NMR-onderzoek van de hals of van de thorax of van het abdomen of van het bekken, minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager

PET Scan

See general nomenclature codes.

Chest X-Ray

See general nomenclature codes.

9.2 Anal Canal Cancer: Therapeutic Procedures

9.2.1 Surgery

Major Surgery

Table 296. Anal Canal Cancer: Nomenclature Codes for Major Surgery

Outpatient	Inpatient	Dutch Description
244016	244020	Ingreep type Miles
244075	244086	Perineale amputatie van het rectum
244392	244403	Refectie van de sfincter ani wegens incontinentie (oude scheur of heringreep), buiten de verlossing
243014	243025	Totale proctocolectomie of totale colectomie met rectale mucosectomie en modelleren van een ileumreservoir met of zonder proximale ileostomie (geschapt op 1/05/2007)
243036	243040	1/04/1985: Totale colectomie

		1/05/2007: Totale colectomie met ileostomie of ileorectale anastomose
243051	243062	5/06/1985: Hemicolectomie rechts of links, segmentaire colectomie met herstel van de continuïteit 1/05/2007: Hemicolectomie rechts of links of segmentaire colonresectie of sigmoïdresectie of partïele rectumresectie met herstel van de continuïteit
243073	243084	Segmentaire colectomie met dubbele colostomie
244031	244042	1/04/1985: Rectumresectie met behoud van de sfincter ani 1/05/2007: Anterior rectumresectie met behoud van de sfincter en colo-anale anastomose (type TME)
243051	243062	5/06/1985: Hemicolectomie rechts of links, segmentaire colectomie met herstel van de continuïteit 1/05/2007: Hemicolectomie rechts of links of segmentaire colonresectie of sigmoïdresectie of partïele rectumresectie met herstel van de continuïteit
244311	244322	1/04/1985: Resectie, langs natuurlijke weg, van een tumor villosus uit het rectum (een dubbel van het anatomopathologisch onderzoek moet ter beschikking van de adviserend geneesheer worden gehouden) 1/05/2007: Resectie, langs natuurlijke weg, van een tumor villosus uit rectum
244031	244042	1/04/1985: Rectumresectie met behoud van de sfincter ani 1/05/2007: Anterior rectumresectie met behoud van de sfincter en colo-anale anastomose (type TME)
244053	244064	Operatie van Hartmann
243110	243121	1/04/1985: Herstel van de coloncontinuïteit door "end to end" anastomose (na ingreep van het type Hartmann, ileorectostomie na colectomie) 1/05/2007: Herstel van de coloncontinuïteit door 'end-to-end' anastomose (na Hartmannoperatie)
244753	244764	1/08/1988: Restauratieve protocolectomie of colectomie met constructie van een ileumreservoir, aanleggen van een ileo-anale anastomose en een tijdelijke proximale ileostomie 1/05/2007: Restauratieve proctocolectomie of colectomie met constructie van een ileumreservoir, aanleggen van een ileo-anale anastomose met of zonder een tijdelijke proximale ileostomie
244414	244425	Recente (niet verloskundige) perineumscheur die sutuur van rectum, sfincter en hefspieren vergt

Minor Surgery

Table 297. Anal Canal Cancer: Nomenclature Codes for Minor Surgery

Outpatient	Inpatient	Dutch Description
244613	244624	Radicale behandeling van dermale vegetaties
244355	244366	Verwijderen van goedaardige tumors of van poliepen van het rectum, inclusief de rectoscopie, per zitting
244370	244381	Verwijderen van goedaardige tumors of van poliepen van het sigmoideum langs endoscopische weg, per zitting
532630	532641	Ablatie of vernietiging door om het even welk procédé (heelkundig zonder hechting, elektrocoagulatie of andere methode) van een oppervlakkig goed- of kwaadaardig gezwel van de huid of van de slijmvliezen of van elk ander niet traumatisch, direct toegankelijk letsel
532652	532663	Verwijderen van een gezwel van de huid of de slijmvliezen of een ander direct toegankelijk letsel door excisie met hechting
532674	532685	Verwijderen van een gezwel van de huid of de slijmvliezen of een ander, direct toegankelijk letsel door excisie met plastie en/of greffe
532696	532700	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische of een analoge heelkundige techniek met peroperatoire pathologische anatomie ; zonder sluiten van de wonde
532711	532722	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische of een analoge heelkundige techniek met peroperatoire pathologische anatomie en met sluiten van de wonde, een eventuele greffe en/of plastie inbegrepen

Lymphadenectomy

Table 298. Anal Canal Cancer: Nomenclature Codes for Lymphadenectomy

Outpatient	Inpatient	Dutch Description
240450	240461	1/04/1985: Eenzijdige uitruiming van liesganglia 1/04/2003: Eenzijdige uitruiming van liesganglia en/of van de iliacale streek of van de obturator 1/05/2007: Eenzijdige uitruiming van liesganglia en/of van de iliacale streek of de obturator
240472	240483	1/04/1985: Tweezijdige uitruiming van liesganglia 1/04/2003: Tweezijdige uitruiming van liesganglia en/of van de iliacale streek of van de obturator 1/05/2007: Tweezijdige uitruiming van liesganglia en/of van de iliacale streek of de obturator
240494	240505	1/10/1995: Eenzijdige uitruiming van ganglia van de iliacale streek en/of van de obturator 1/05/2007: Laparoscopische eenzijdige uitruiming van ganglia van de iliacale streek en/of van de obturator
240516	240520	1/10/1995: Tweezijdige uitruiming van ganglia van de iliacale streek en/of van de obturator 1/05/2007: Laparoscopische tweezijdige uitruiming van ganglia van de iliacale streek en/of van de obturator
220356	220360	Exeresis van ganglion

9.2.2 Radiotherapy

See general nomenclature codes.

9.2.3 Chemotherapy

See general nomenclature codes.

10. Appendix D10: Nomenclature Codes for Vulvar Cancer

10.1 Vulvar Cancer: Diagnostic Procedures

10.1.1 Tissue Examination

Histological Diagnosis

Table 299. Vulvar Cancer: Nomenclature Codes for Histological Diagnosis*

Outpatient	Inpatient	Dutch Description
Biopsy		
432110	432121	Afname met tang van een fragment van de hals en/of elektrocoagulatie
432132	432143	Afname van fragment van het endometrium met het oog op een anatomopathologisch onderzoek
532011	532022	Afname en fixatie van een dermo-epidermaal bioptisch fragment, zonder hechten, met het oog op een pathologisch-anatomisch onderzoek
532114	532125	Afname en fixatie van een dermo-epidermaal bioptisch fragment, met hechten, met het oog op een pathologisch-anatomisch onderzoek

* Nomenclature codes for pathology were also included in the selection of codes for histological diagnosis. For the list of pathology codes, see general nomenclature codes.

Cytology

See general nomenclature codes.

10.1.2 Imaging

Colposcopy

Table 300. Vulvar Cancer: Nomenclature Codes for Colposcopy

Outpatient	Inpatient	Dutch Description
431955	431966	Microscopische colposcopie

Pelvic Ultrasound

Table 301. Vulvar Cancer: Nomenclature Codes for Pelvic Ultrasound

Outpatient	Inpatient	Dutch Description
459793	459804	Echografie van minstens twee verschillende anatomische regio's : schedelinhoud (transfontanellair), thorax, borsten, lever-galblaas, pancreas-milt, nieren-blaas, retroperitoneum, grote abdominale vaten, mannelijk of vrouwelijk bekken
460250	460261	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het vrouwelijk bekken 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het vrouwelijk bekken
469490	469501	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Van het vrouwelijk bekken

Vaginal Ultrasound

Table 302. Vulvar Cancer: Nomenclature Codes for Vaginal Ultrasound

Outpatient	Inpatient	Dutch Description
459793	459804	Echografie van minstens twee verschillende anatomische regio's : schedelinhoud (transfontanellair), thorax, borsten, lever-galblaas, pancreas-milt, nieren-blaas, retroperitoneum, grote abdominale vaten, mannelijk of vrouwelijk bekken
460250	460261	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het vrouwelijk bekken 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het vrouwelijk bekken
469490	469501	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Van het vrouwelijk bekken

Cytoscopy

Table 303. Vulvar Cancer: Nomenclature Codes for Cytoscopy

Outpatient	Inpatient	Dutch Description
431152	431163	Cystoscopie, met of zonder afname voor biopsie bij de vrouw
260293	260304	Cystoscopie, met uretercatheterisme
260330	260341	Cystoscopie, met of zonder afname voor biopsie, bij de vrouw

Rectoscopy

Table 304. Vulvar Cancer: Nomenclature Codes for Rectoscopy

Outpatient	Inpatient	Dutch Description
472452	472463	Rectosigmoïdoscopie of coloscopie links
472511	472522	Rectoscopie
473896	473900	Anorectale echo-endoscopie

CT

Table 305. Vulvar Cancer: Nomenclature Codes for CT

Outpatient	Inpatient	Dutch Description
459616	459620	Computergestuurde tomografie van de thorax en het abdomen, met of zonder contrastmiddel, met registreren en clichés, minimum 30 coupes voor het hele onderzoek
458533	458544	Verstrekkingen waarvoor de bekwaming van specialist voor röntgendiagnose (R) vereist is - Computergestuurde tomografieën : Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek - K.B. van 22 oktober 1992 - Pseudonomenclatuurcode ingeval de verstrekkingen verricht worden bij kinderen jonger dan 5 jaar, de betrekkelijke waarden (458813) worden verhoogd met 25% (Schrapping op 1/01/2006)
458813	458824	1/11/1992: Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek 1/10/2010: Computergestuurde tomografie van de hals (weke delen) met of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek

Chest X-ray

See general nomenclature codes.

MRI

Table 306. Vulvar Cancer : Nomenclature Codes for MRI

Outpatient	Inpatient	Dutch Description
459410	459421	NMR-onderzoek van de hals of van de thorax of van het abdomen of van het bekken, minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager

PET Scan

See general nomenclature codes.

10.2 Vulvar Cancer: Therapeutic Procedures

10.2.1 Surgery

Major Surgery

Table 307. Vulvar Cancer: Nomenclature Codes for Major Surgery

Outpatient	Inpatient	Dutch Description
432191	432202	Resectie van kleine schaamlip
432213	432224	Resectie van de twee kleine schaamlippen
431675	431686	Vulvotomie ter vergroting met tenotomie der hefspieren, buiten verloskundig maneuver, exclusief episiotomie
431690	431701	Eenzijdige vulvectomie
431712	431723	Totale vulvectomie
431734	431745	Totale vulvectomie met uitruiming van ganglia (Schrapping op 1/04/2003)
431756	431760	Vagina- en vulvaplastiek

Minor Surgery

Table 308. Vulvar Cancer: Nomenclature Codes for Minor Surgery

Outpatient	Inpatient	Dutch Description
355036	355040	Bijkomend honorarium dat mag worden aangerekend door de geneesheer-specialist die één van de volgende verstrekkingen verricht volgens de YAG-lasermethode : 230436 - 230440, 230473 - 230484 , 230495 - 230506, 230532 - 230543, 230716 - 230720, 230731 - 230742, 231011 - 231022, 231033 - 231044, 232514 - 232525, 232536 - 232540, 232551 - 232562, 232735 - 232746, 232772 - 232783, 232971 - 232982, 246772 - 246783, 248172 - 248183, 248194 - 248205, 248216 - 248220, 248231 - 248242, 248253 - 248264, 248275 - 248286, 248290 - 248301, 248312 - 248323, 257316 - 257320, 257456 - 257460, 431115 - 431126, 432412 - 432423, 432456 - 432460, 471612 - 471623, 471730 - 471741 en 473653 - 473664
355014	355025	1/04/1997: Bijkomend honorarium dat mag worden aangerekend door de geneesheer-specialist die één van de volgende verstrekkingen verricht volgens de lasermethode met uitsluiting van de YAG : 431115 - 431126, 431395 - 431406, 431432 - 431443, 431594 - 431605, 431211 - 431222, 432294 - 432305, 432331 - 432342, 245512 - 245523, 245534 - 245545, 245556 - 245560, 246050 - 246061, 246072 - 246083, 246175 - 246186, 246573 - 246584, 246632 - 246643, 246654 - 246665, 248172 - 248183, 248194 - 248205, 248216 - 248220, 248231 - 248242, 248253 - 248264, 248275 - 248286, 248290 - 248301, 248312 - 248323, 255835 - 255846, 255872 - 255883, 255894 - 255905, 312071 - 312082, 256653 - 256664, 257751 - 257762, 258090 - 258101 en 258112 - 258123 1/08/2003: Bijkomend honorarium dat mag worden aangerekend door de geneesheer-specialist die één van de volgende verstrekkingen verricht volgens de lasermethode met uitsluiting van de YAG : 431115 - 431126, 431211 - 431222, 431395 - 431406, 431432 - 431443, 431594 - 431605, 432294 - 432305, 432331 - 432342, 432530 - 432541, 432552 - 432563, 432574 - 432585, 432596 - 432600, 432633 - 432644, 432692 - 432703, 245512 - 245523, 245534 - 245545, 245556 - 245560, 246050 - 246061, 246072 - 246083, 246175 - 246186, 246573 - 246584, 246632 - 246643, 246654 - 246665, 248172 - 248183, 248194 - 248205, 248216 - 248220, 248231 - 248242, 248253 - 248264, 248275 - 248286, 248290 - 248301, 248312 - 248323, 255835 - 255846, 255872 - 255883, 255894 - 255905, 256653 - 256664, 257751 - 257762, 258090 - 258101, 258112 - 258123 en 312071 - 312082

		1/10/2008: Bijkomend honorarium dat mag worden aangerekend door de geneesheer-specialist die één van de volgende verstrekkingen verricht volgens de lasermethode met uitsluiting van de YAG : 431115 - 431126, 431211 - 431222, 431395 - 431406, 431432 - 431443, 431594 - 431605, 432294 - 432305, 432530 - 432541, 432552 - 432563, 432574 - 432585, 432596 - 432600, 432633 - 432644, 432692 - 432703, 245512 - 245523, 245534 - 245545, 245556 - 245560, 246050 - 246061, 246072 - 246083, 246175 - 246186, 246573 - 246584, 246632 - 246643, 246654 - 246665, 248172 - 248183, 248194 - 248205, 248216 - 248220, 248231 - 248242, 248253 - 248264, 248275 - 248286, 248290 - 248301, 248312 - 248323, 255835 - 255846, 256653 - 256664, 257751 - 257762, 258090 - 258101, 258112 - 258123 en 312071 - 312082
353231	353242	Wegnemen of uitroeien, door om het even welk procédé (heelkundige behandeling, elektrocoagulatie), van allerhande oppervlakkige tumors van huid of slijmvliezen of van alle andere rechtstreeks bereikbare niet traumatische letsels, volledige behandeling
432110	432121	Afname met tang van een fragment van de hals en/of elektrocoagulatie
353194	353205	1/04/1985: Cryotherapie wegens huid- of slijmvliesletsels, per verrichting 1/04/2003: Cryotherapie wegens huid- of slijmvliesletsels, per zitting
353216	353220	1/04/1985: Cryotherapie wegens huid- of slijmvliesletsels, volledige behandeling van acht em meer verrichtingen 1/04/2003: Cryotherapie wegens huid- of slijmvliesletsels, volledige behandeling van acht en meer zittingen
532593	532604	Afschaven of dermabrasio door heelkundige procédé van een oppervlak van het lichaam (minder dan één vijfde van de lichaamsoppervlakte) of van een deel van het gelaat wegens misvormd litteken of wegens een premaligne letsel, met uitsluiting van scheikundige technieken
532630	532641	Ablatie of vernietiging door om het even welk procédé (heelkundig zonder hechting, elektrocoagulatie of andere methode) van een oppervlakkig goed- of kwaadaardig gezwel van de huid of van de slijmvliezen of van elk ander niet traumatisch, direct toegankelijk letsel
532652	532663	Verwijderen van een gezwel van de huid of de slijmvliezen of een ander direct toegankelijk letsel door excisie met hechting
532674	532685	Verwijderen van een gezwel van de huid of de slijmvliezen of een ander, direct toegankelijk letsel door excisie met plastie en/of greffe

532696	532700	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische of een analoge heelkundige techniek met peroperatoire pathologische anatomie ; zonder sluiten van de wonde
532711	532722	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische of een analoge heelkundige techniek met peroperatoire pathologische anatomie en met sluiten van de wonde, een eventuele greffe en/of plastie inbegrepen
532770	532781	Behandeling door fotodynamische therapie, gebruik makend van een fotosensibilisator en een lichtbron, van preneoplastische en neoplastische huid- en slijmvliesletsels
113072	113083	Hechten van vulva of van vagina wegens trauma buiten verloskundig maneuver
113094	113105	Uitsnijden van dermale vegetaties, volledige behandeling
220275	220286	5/06/1985: Exerese van onder de aponeurose gelegen expansieve tumoren uit de weke delen 1/05/2007: Exerese van een onder de aponeurose gelegen expansieve tumor uit de weke weefsels
251775	251786	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische heelkundige techniek met peroperatieve pathologische anatomie, en met sluiten van de wonden, een eventuele ent en/of plastie inbegrepen
220113	220124	Volledige heelkundige behandeling van dermale vegetaties
244613	244624	Radicale behandeling van dermale vegetaties
431771	431782	Heelkundige bewerking wegens vaginacyste

Lymphadenectomy

Table 309. Vulvar Cancer: Nomenclature Codes for Lymphadenectomy

Outpatient	Inpatient	Dutch Description
240450	240461	1/04/1985: Eenzijdige uitruiming van liesganglia 1/04/2003: Eenzijdige uitruiming van liesganglia en/of van de iliacale streek of de obturator 1/05/2007: Eenzijdige uitruiming van liesganglia en/of van de iliacale streek of van de obturator
240472	240483	1/04/1985: Tweezijdige uitruiming van liesganglia
		1/04/2003: Tweezijdige uitruiming van liesganglia en/of van de iliacale streek of de obturator 1/05/2007: Tweezijdige uitruiming van liesganglia en/of van de iliacale streek of van de obturator
240494	240505	1/10/1995: Eenzijdige uitruiming van ganglia van de iliacale streek en/of van de obturator 1/05/2007: Laparoscopische eenzijdige uitruiming van ganglia van de iliacale streek en/of van de obturator
240516	240520	1/10/1995: Tweezijdige uitruiming van ganglia van de iliacale streek en/of van de obturator 1/05/2007: Laparoscopische tweezijdige uitruiming van ganglia van de iliacale streek en/of van de obturator
220356	220360	Exeresis van ganglion

10.2.2 Radiotherapy

See general nomenclature codes.

10.2.3 Chemotherapy

See general nomenclature codes.

11. Appendix D11: Nomenclature Codes for Vaginal Cancer

11.1 Vaginal Cancer: Diagnostic Procedures

11.1.1 Tissue Examination

Histological Diagnosis

Table 310. Vaginal Cancer: Nomenclature Codes for Histological Diagnosis*

Outpatient	Inpatient	Dutch Description
432110	432121	Afname met tang van een fragment van de hals en/of elektrocoagulatie
432132	432143	Afname van fragment van het endometrium met het oog op een anatomopathologisch onderzoek
532011	532022	Afname en fixatie van een dermo-epidermaal bioptisch fragment, zonder hechten, met het oog op een pathologisch-anatomisch onderzoek
532114	532125	Afname en fixatie van een dermo-epidermaal bioptisch fragment, met hechten, met het oog op een pathologisch-anatomisch onderzoek

* Nomenclature codes for pathology were also included in the selection of codes for histological diagnosis. For the list of pathology codes, see general nomenclature codes.

Cytology

Table 311. Vaginal Cancer: Nomenclature Codes for Cytology

Outpatient	Inpatient	Dutch Description
588416	588420	Honorarium voor het cytopathologisch onderzoek voor het opzoeken van neoplastische cellen (zowel na uitstrijken en/of insluiten), van afnamen niet gespecificeerd in de verstrekkingen 588350 - 588361 en 588394 - 588405, ongeacht het aantal uitstrijkpreparaten en/of insluiten per afname
588350	588361	1/07/1999: Honorarium voor het cytopathologisch onderzoek voor het opzoeken van neoplastische cellen op cervicovaginale afnamen, ongeacht het aantal uitstrijkpreparaten en ongeacht het aantal verschillende cervicovaginale afnamen 1/07/2009: Honorarium voor het preventief cytopathologisch onderzoek voor het opsporen van neoplastische cellen op cervicovaginale afnamen, ongeacht het aantal uitstrijkpreparaten en ongeacht het aantal verschillende cervicovaginale afnamen

Smear

Table 312. Vaginal Cancer: Nomenclature Codes for Smear

Outpatient	Inpatient	Dutch Description
114030	114041	2/04/1988: Nemen van cervicaal en vaginaal uitstrijkpreparaat met het oog op een cytopathologisch onderzoek 1/07/2009: Nemen van een cervicaal en vaginaal uitstrijkpreparaat met het oog op een cytopathologisch onderzoek, uitgevoerd voor het opsporen van neoplastische cellen
149612	149623	1/08/1988: Nemen van cervicaal en vaginaal uitstrijkpreparaat met het oog op een cytopathologisch onderzoek uitgevoerd door een geneesheer-specialist 1/07/2009: Nemen van een cervicaal en vaginaal uitstrijkpreparaat met het oog op een cytopathologisch onderzoek uitgevoerd door een geneesheer-specialist voor het opsporen van neoplastische cellen

11.1.2 Imaging

Colposcopy

Table 313. Vaginal Cancer: Nomenclature Codes for Colposcopy

Outpatient	Inpatient	Dutch Description
431955	431966	Microscopische colposcopie

Pelvic Ultrasound

Table 314. Vaginal Cancer: Nomenclature Codes for Pelvic Ultrasound

Outpatient	Inpatient	Dutch Description
459793	459804	Echografie van minstens twee verschillende anatomische regio's : schedelinhoud (transfontanellair), thorax, borsten, lever-galblaas, pancreas-milt, nieren-blaas, retroperitoneum, grote abdominale vaten, mannelijk of vrouwelijk bekken
460250	460261	1/11/1994: Echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het vrouwelijk bekken 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens, ongeacht het aantal echogrammen : Van het vrouwelijk bekken
469490	469501	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Van het vrouwelijk bekken

Vaginal Ultrasound

Table 315. Vaginal Cancer: Nomenclature Codes for Vaginal Ultrasound

Outpatient	Inpatient	Dutch Description
460832	460843	1/04/1997: Bidimensionele transvaginale echografie met protocol en documenten 1/04/2003: Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Transvaginale echografie
469593	469604	Bidimensionele echografie met geschreven protocol en iconografische drager die ontstaat na digitale beeldverwerking van de gegevens ongeacht het aantal echogrammen : Transvaginale echografie

Cytoscopy

Table 316. Vaginal Cancer: Nomenclature Codes for Cytoscopy

Outpatient	Inpatient	Dutch Description
431152	431163	Cystoscopie, met of zonder afname voor biopsie bij de vrouw
260293	260304	Cystoscopie, met uretercatheterisme
260330	260341	Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en zonder contrastmiddel, met registreren en clichés, minimum 30 coupes, voor het hele onderzoek

Rectoscopy

Table 317. Vaginal Cancer: Nomenclature Codes for Rectoscopy

Outpatient	Inpatient	Dutch Description
472452	472463	1/04/1997: Rectosigmoidoscopie 1/07/2003: Rectosigmoidoscopie uitgevoerd met een flexibele endoscoop
472511	472522	Rectoscopie
473896	473900	Anorectale echo-endoscopie

CT

Table 318. Vaginal Cancer: Nomenclature Codes for CT

Outpatient	Inpatient	Dutch Description
459572	459583	Computergestuurde tomografie van het abdomen, met of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek
459616	459620	Computergestuurde tomografie van de thorax en het abdomen, met of zonder contrastmiddel, met registreren en clichés, minimum 30 coupes voor het hele onderzoek
459631	459642	Computergestuurde tomografie van de hals, de thorax en het abdomen, met of zonder contrastmiddel, met registreren en clichés, minimum 30 coupes voor het hele onderzoek
458533	458544	Verstrekkingen waarvoor de bekwaming van specialist voor röntgendiagnose (R) vereist is - Computergestuurde tomografieën : Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek - K.B. van 22 oktober 1992 - Pseudonomenclatuurcode ingeval de verstrekkingen verricht worden bij kinderen jonger dan 5 jaar, de betrekkelijke waarden (458813) worden verhoogd met 25%
458813	458824	Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek

Chest X-ray

See general nomenclature codes.

MRI

Table 319. Vaginal Cancer: Nomenclature Codes for MRI

Outpatient	Inpatient	Dutch Description
459410	459421	NMR-onderzoek van de hals of van de thorax of van het abdomen of van het bekken, minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager

PET Scan

See general nomenclature codes.

11.2 Vaginal Cancer: Therapeutic Procedures

11.2.1 Surgery

Major Surgery

Table 320. Vaginal Cancer: Nomenclature Codes for Major Surgery

Outpatient	Inpatient	Dutch Description
431690	431701	Eenzijdige vulvectomie
431712	431723	Totale vulvectomie
431734	431745	Totale vulvectomie met uitruiming van ganglia (geschrapt op 1/04/2003)
431756	431760	Vagina- en vulvaplastiek
431771	431782	Heelkundige bewerking wegens vaginacyste
149052	149063	Intracervicale polypectomie
431270	431281	Totale hysterectomie, langs abdominale weg
431292	431303	Subtotale hysterectomie
431314	431325	Totale hysterectomie, langs vaginale weg, inclusief de colporrafie vooraan en/of de eventuele colpoperineorrafie achteraan
431336	431340	Totale uitgebreide hysterectomie (Wertheim)
431351	431362	Totale uitgebreide hysterectomie met lymphadenectomie in het bekken
431491	431502	Amputatie van baarmoederhals en plastiek met vaginale lappen (Sturmdorf)
432736	432740	Totale hysterectomie langs laparoscopische weg, met anatomopathologische bevestiging
432655	432666	Subtotale hysterectomie met pathologisch-anatomische bevestiging
432670	432681	Vaginale hysterectomie door laparoscopie, inclusief de vaginale bewerking met pathologisch-anatomische bevestiging

Minor Surgery

Table 321. Vaginal Cancer : Nomenclature Codes for Minor Surgery

Outpatient	Inpatient	Dutch Description
355036	355040	Bijkomend honorarium dat mag worden aangerekend door de geneesheer-specialist die één van de volgende verstrekkingen verricht volgens de YAG-lasermethode : 230436 - 230440, 230473 - 230484 , 230495 - 230506, 230532 - 230543, 230716 - 230720, 230731 - 230742, 231011 - 231022, 231033 - 231044, 232514 - 232525, 232536 - 232540, 232551 - 232562, 232735 - 232746, 232772 - 232783, 232971 - 232982, 246772 - 246783, 248172 - 248183, 248194 - 248205, 248216 - 248220, 248231 - 248242, 248253 - 248264, 248275 - 248286, 248290 - 248301, 248312 - 248323, 257316 - 257320, 257456 - 257460, 431115 - 431126, 432412 - 432423, 432456 - 432460, 471612 - 471623, 471730 - 471741 en 473653 - 473664
355014	355025	1/04/1997: Bijkomend honorarium dat mag worden aangerekend door de geneesheer-specialist die één van de volgende verstrekkingen verricht volgens de lasermethode met uitsluiting van de YAG : 431115 - 431126, 431395 - 431406, 431432 - 431443, 431594 - 431605, 431211 - 431222, 432294 - 432305, 432331 - 432342, 245512 - 245523, 245534 - 245545, 245556 - 245560, 246050 - 246061, 246072 - 246083, 246175 - 246186, 246573 - 246584, 246632 - 246643, 246654 - 246665, 248172 - 248183, 248194 - 248205, 248216 - 248220, 248231 - 248242, 248253 - 248264, 248275 - 248286, 248290 - 248301, 248312 - 248323, 255835 - 255846, 255872 - 255883, 255894 - 255905, 312071 - 312082, 256653 - 256664, 257751 - 257762, 258090 - 258101 en 258112 - 258123 1/08/2003: Bijkomend honorarium dat mag worden aangerekend door de geneesheer-specialist die één van de volgende verstrekkingen verricht volgens de lasermethode met uitsluiting van de YAG : 431115 - 431126, 431211 - 431222, 431395 - 431406, 431432 - 431443, 431594 - 431605, 432294 - 432305, 432331 - 432342, 432530 - 432541, 432552 - 432563, 432574 - 432585, 432596 - 432600, 432633 - 432644, 432692 - 432703, 245512 - 245523, 245534 - 245545, 245556 - 245560, 246050 - 246061, 246072 - 246083, 246175 - 246186, 246573 - 246584, 246632 - 246643, 246654 - 246665, 248172 - 248183, 248194 - 248205, 248216 - 248220, 248231 - 248242, 248253 - 248264, 248275 - 248286, 248290 - 248301, 248312 - 248323, 255835 - 255846, 255872 - 255883, 255894 - 255905, 256653 - 256664, 257751 - 257762, 258090 - 258101, 258112 - 258123 en 312071 - 312082

		1/10/2008: Bijkomend honorarium dat mag worden aangerekend door de geneesheer-specialist die één van de volgende verstrekkingen verricht volgens de lasermethode met uitsluiting van de YAG : 431115 - 431126, 431211 - 431222, 431395 - 431406, 431432 - 431443, 431594 - 431605, 432294 - 432305, 432530 - 432541, 432552 - 432563, 432574 - 432585, 432596 - 432600, 432633 - 432644, 432692 - 432703, 245512 - 245523, 245534 - 245545, 245556 - 245560, 246050 - 246061, 246072 - 246083, 246175 - 246186, 246573 - 246584, 246632 - 246643, 246654 - 246665, 248172 - 248183, 248194 - 248205, 248216 - 248220, 248231 - 248242, 248253 - 248264, 248275 - 248286, 248290 - 248301, 248312 - 248323, 255835 - 255846, 256653 - 256664, 257751 - 257762, 258090 - 258101, 258112 - 258123 en 312071 - 312082
353231	353242	Wegnemen of uitroeien, door om het even welk procédé (heelkundige behandeling, elektrocoagulatie), van allerhande oppervlakkige tumors van huid of slijmvliezen of van alle andere rechtstreeks bereikbare niet traumatische letsels, volledige behandeling
432110	432121	Afname met tang van een fragment van de hals en/of elektrocoagulatie
353194	353205	1/04/1985: Cryotherapie wegens huid- of slijmvliesletsels, per verrichting 1/04/2003: Cryotherapie wegens huid- of slijmvliesletsels, per zitting
353216	353220	1/04/1985: Cryotherapie wegens huid- of slijmvliesletsels, volledige behandeling van acht em meer verrichtingen 1/04/2003: Cryotherapie wegens huid- of slijmvliesletsels, volledige behandeling van acht en meer zittingen
532630	532641	Ablatie of vernietiging door om het even welk procédé (heelkundig zonder hechting, elektrocoagulatie of andere methode) van een oppervlakkig goed- of kwaadaardig gezwel van de huid of van de slijmvliezen of van elk ander niet traumatisch, direct toegankelijk letsel
532652	532663	Verwijderen van een gezwel van de huid of de slijmvliezen of een ander direct toegankelijk letsel door excisie met hechting
532674	532685	Verwijderen van een gezwel van de huid of de slijmvliezen of een ander, direct toegankelijk letsel door excisie met plastie en/of greffe
532696	532700	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische of een analoge heelkundige techniek met peroperatoire pathologische anatomie ; zonder sluiten van de wonde

532711	532722	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische of een analoge heelkundige techniek met peroperatoire pathologische anatomie en met sluiten van de wonde, een eventuele greffe en/of plastie inbegrepen
113072	113083	Hechten van vulva of van vagina wegens trauma buiten verloskundig maneuver
113094	113105	Uitsnijden van dermale vegetaties, volledige behandeling
220275	220286	5/06/1985: Exerese van onder de aponeurose gelegen expansieve tumoren uit de weke delen 1/05/2007: Exerese van een onder de aponeurose gelegen expansieve tumor uit de weke weefsels
251775	251786	Verwijderen van een kwaadaardig gezwel van de huid of de slijmvliezen volgens een micrografische heelkundige techniek met peroperatieve pathologische anatomie, en met sluiten van de wonden, een eventuele ent en/of plastie inbegrepen
220113	220124	Volledige heelkundige behandeling van dermale vegetaties
244613	244624	Radicale behandeling van dermale vegetaties

Lymphadenectomy

Table 322. Vaginal Cancer : Nomenclature Codes for Lymphadenectomy

Outpatient	Inpatient	Dutch Description
240450	240461	1/04/1985: Eenzijdige uitruiming van liesganglia 1/04/2003: Eenzijdige uitruiming van liesganglia en/of van de iliacale streek of de obturator 1/05/2007: Eenzijdige uitruiming van liesganglia en/of van de iliacale streek of van de obturator
240472	240483	1/04/1985: Tweezijdige uitruiming van liesganglia 1/04/2003: Tweezijdige uitruiming van liesganglia en/of van de iliacale streek of de obturator 1/05/2007: Tweezijdige uitruiming van liesganglia en/of van de iliacale streek of van de obturator
240494	240505	1/10/1995: Eenzijdige uitruiming van ganglia van de iliacale streek en/of van de obturator 1/05/2007: Laparoscopische eenzijdige uitruiming van ganglia van de iliacale streek en/of van de obturator
240516	240520	1/10/1995: Tweezijdige uitruiming van ganglia van de iliacale streek en/of van de obturator 1/05/2007: Laparoscopische tweezijdige uitruiming van ganglia van de iliacale streek en/of van de obturator
220356	220360	Exeresis van ganglion

11.2.2 Radiotherapy

See general nomenclature codes.

11.2.3 Chemotherapy

See general nomenclature codes.

12. Appendix D12: Nomenclature Codes for Mesothelioma

12.1 Mesothelioma: Diagnostic Procedures

12.1.1 Tissue Examination

Histological Diagnosis

Table 323. Mesothelioma: Nomenclature Codes for Histological Diagnosis*

Outpatient	Inpatient	Dutch Description
Biopsy		
355633	355644	Pleurabiopsie met naald
220091	220102	Bioptische afname volgens Daniels
471052	471063	Pleuroscopie, met of zonder afname voor biopsie
471074	471085	Pleuroscopie met sectie van vergroeiingen
355655	355666	Punctiebiopsie van een longletsel onder radiologische controle
471855	471866	Echo-endoscopie van de bronchi met punctie van extramuraal weefsel (disposable materiaal niet inbegrepen)

* Nomenclature codes for pathology were also included in the selection of codes for histological diagnosis. For the list of pathology codes, see general nomenclature codes.

Cytology

See general nomenclature codes.

12.1.2 Imaging

CT

Table 324. Mesothelioma: Nomenclature Codes for CT

Outpatient	Inpatient	Dutch Description
458813	458824	Computergestuurde tomografie van de hals (weke delen) of van de thorax of van het abdomen, met en/of zonder contrastmiddel, met registreren en clichés, minimum 15 coupes, voor het hele onderzoek

MRI

Table 325. Mesothelioma: Nomenclature Codes for MRI

Outpatient	Inpatient	Dutch Description
459410	459421	NMR-onderzoek van de hals of van de thorax of van het abdomen of van het bekken, minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager

Chest X-Ray

See general nomenclature codes.

PET Scan

See general nomenclature codes.

CT/MRI Skull

Table 326. Mesothelioma: Nomenclature Codes for CT/MRI Skull

Outpatient	Inpatient	Dutch Description
458673	458684	Computergestuurde tomografie van de schedel met en/of zonder contrastmiddel, met registreren en clichés, minimum 10 coupes, voor het hele onderzoek
459395	459406	NMR-onderzoek van het hoofd (schedel, hersenen, rotsbeen, hypofyse, sinussen,orbita(e) of kaakgewrichten), minstens drie sequenties, met of zonder contrast, met registratie op optische of elektromagnetische drager

12.1.3 Punction

Ascites or Pleural Punction

Table 327. Mesothelioma: Nomenclature Codes for Ascites or Pleural Punction

Outpatient	Inpatient	Dutch Description
355434	355445	Punctie bij ascites of borstvliesontsteking
355456	355460	Punctie voor evacuatie bij ascites of borstvliesontsteking, inclusief de eventuele inspuitingen en spoelingen

12.1.4 Surgical Staging

Mediastinoscopy

Table 328. Mesothelioma: Nomenclature Codes for Mediastionoscopy

Outpatient	Inpatient	Dutch Description
228152	228163	Mediastinoscopie

Explorative Thoracotomy

Table 329. Mesothelioma: Nomenclature Codes for Explorative Thoracotomy

Outpatient	Inpatient	Dutch Description
227452	227463	Exploratieve thoracotomie, inclusief long-of lymfknoopbiopsie

12.2 Mesothelioma: Therapeutic Procedures

12.2.1 Surgery

Pleural Resection

Table 330. Mesothelioma: Nomenclature Codes for Pleural Resection

Outpatient	Inpatient	Dutch Description
227334	227345	Exeresis van de pleura wegens chronische infectie of tumor, met of zonder thoracoplastiek, in één operatietijd

Pneumonectomy

Table 331. Mesothelioma: Nomenclature Codes for Pneumonectomy

Outpatient	Inpatient	Dutch Description
227194	227205	Pleuropneumonectomie, pleurolobectomie of costopleuropneumonectomie wegens chronische pleuritis
227216	227220	1/04/1985: Totale of gedeeltelijke longexeresis met thoracoplastiek
		1/05/2007: Uitgebreide totale of gedeeltelijke longexerese met klierevidement voor oncologische aandoening
227231	227242	Uitgebreide pneumonectomie met monoblok-exeresis van de mediastinale lymfknopen en intrapericardiaal onderbinden van de longvaten (geschrapt of 1/05/2007)
227253	227264	Totale of gedeeltelijke longexeresis

227570	227581	Heelkunde voor een- of tweezijdige vermindering van het longvolume, exclusief het viscerosynthesemateriaal

12.2.2 Supportive Surgical Treatment

Pleurodesis

Table 332. Mesothelioma: Nomenclature Codes for Pleurodesis

Outpatient	Inpatient	Dutch Description
227393	227404	Thoracotomie voor longsutuur of thoracotomie wegens spontane en recidiverende pneumothorax
227430	227441	Thoracotomie voor verwijderen bloedklonters
227496	227500	Pleurotomie (een of meer drains)
227533	227544	Longsutuur of behandeling van spontane en recidiverende pneumothorax
589234	589245	Percutaan inbrengen van catheters met het oog op evacuatie en drainage van een ophoping in een streek of in een diepliggend orgaan van de thorax, van het abdomen of van het bekken onder controle door medische beeldvorming inclusief de manipulaties en controles tijdens de behandeling en de gebruikte catheters, exclusief de farmaca, de contrastmiddelen en de tweewegdraineersonden

Thoracotomy

Table 333. Mesothelioma: Nomenclature Codes for Thoracotomy

Outpatient	Inpatient	Dutch Description
227371	227382	Thoracotomie met poging tot exeresis

12.2.3 Radiotherapy

See general nomenclature codes.

12.2.4 Chemotherapy

See general nomenclature codes.