

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 1). They play a major role in food intake and in articulation of sound and speech.



Figure 1. 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 2, 23 of them are excluded, resulting in 167 patients for whom results are presented in this chapter.

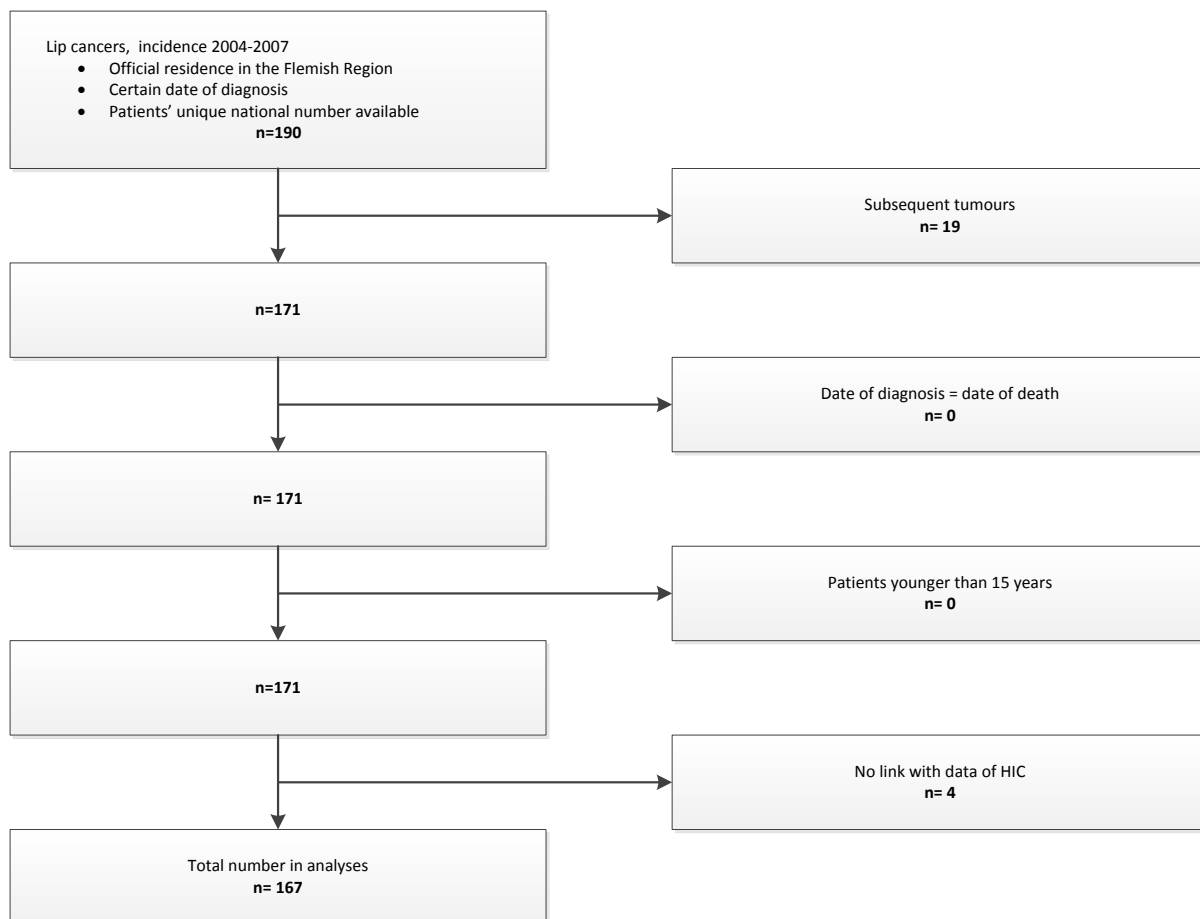


Figure 2. Selection of Lip Cancers (Flemish Region, 2004-2007)

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 1). 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 2).

Table 1. Lip Cancer: Incidence (Flemish Region, 2004-2007)

Incidence year	Males		Females		Total	
	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 2. 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 3. 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 3 . 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 3, 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 4), 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.

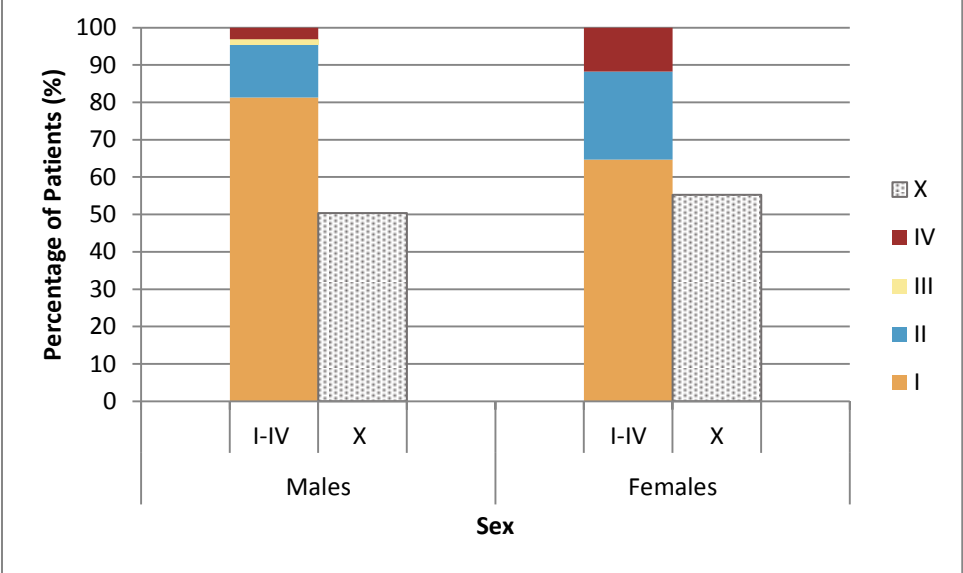


Figure 3. Lip cancer: Stage Distribution by Sex (Flemish Region, 2004-2007)

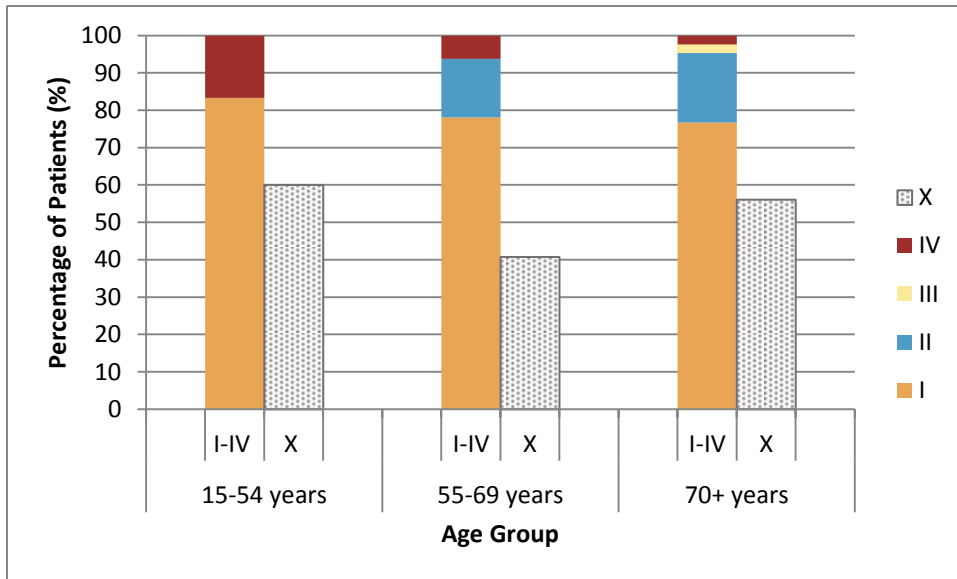


Figure 4. Lip Cancer: Stage Distribution by Age Group (Flemish Region, 2004-2007)

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 4.

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. 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 4. 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. This proportion is remarkably higher in 2007, where a MOC is charged for 40.9% of patients..

Table 5. Lip Cancer: Frequency of Multidisciplinary Oncological Consult (Flemish Region, 2004-2007)

Incidence year	MOC	
	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).

An overview of the different treatment schemes is given in Table 6.

The majority of the patients underwent surgery within six months after incidence (90.4%; Table 6). 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 6. Lip Cancer: Overview of Treatment Schemes (Flemish Region, 2004-2007)

Treatment Scheme	n	%
Surgery	151	90.4
Adjuvant radiotherapy	17	10.2
<i>Brachytherapy</i>	10	6.0
<i>External radiation therapy</i>	6	3.6
<i>Both brachy- and external radiation therapy</i>	1	0.6
Adjuvant chemoradiotherapy	1	0.6
<i>External radiation therapy</i>	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 7).

Table 7. Lip Cancer: Observed and Relative Survival (Flemish Region, 2004-2007)

N at risk	Observed Survival (%)					Relative Survival (%)				
	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 8. 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 9).

Table 9. 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 5.

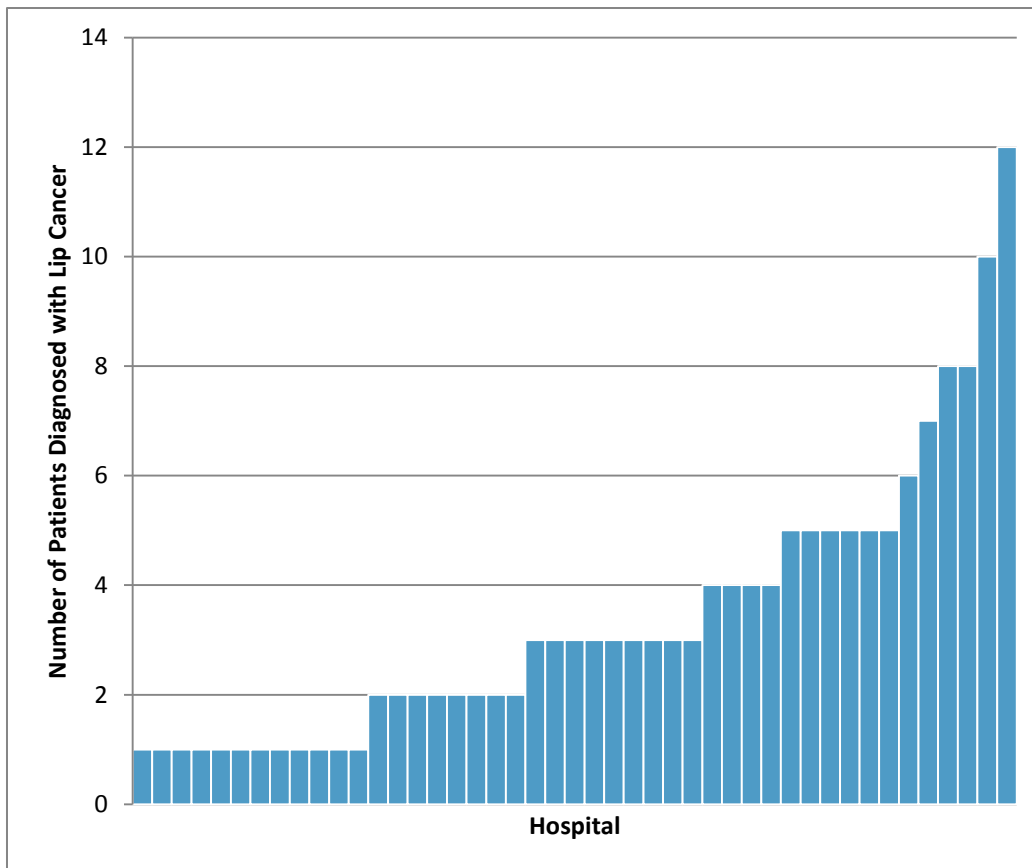


Figure 5. Lip Cancer: Distribution of Patients by Hospital (Flemish Hospitals, 2004-2007)

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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