

# LARYNGEAL CANCER

**Table 7.1: Characteristics of the cohort**

|                               | Males  | Females |
|-------------------------------|--------|---------|
| First primary cancer          | 2,592  | 372     |
| Age at diagnosis              |        |         |
| Mean                          | 64.4   | 65.2    |
| <65 years                     | 1,347  | 181     |
| =>65 years                    | 1,245  | 191     |
| Total person-years            | 16,110 | 2,679   |
| Mean follow-up (years)        | 6.2    | 7.2     |
| Histological confirmation (%) | 97.2   | 94.9    |
| Squamous and transitional     | 94.6   | 90.6    |
| Adenocarcinoma                | 0.4    | 1.1     |
| Other specific carcinoma      | 0.3    | 0.3     |
| Unspecified carcinoma         | 1.4    | 1.9     |
| Sarcomas and soft tissue      | 0.2    | 0.8     |
| Other specified types         | 0.3    | 0.0     |
| No histological confirmation  | 2.8    | 5.1     |
| Second primary cancers        |        |         |
| Non-simultaneous              | 505    | 57      |
| Simultaneous                  | 30     | 2       |

**Table 7.2: Cumulative risk (%) of the most common second primary cancers**

|                  | Sex | Follow-up years |      |      |      |      |      |
|------------------|-----|-----------------|------|------|------|------|------|
|                  |     | 1               | 5    | 10   | 15   | 20   | 23   |
| All cancers      | M   | 2.4             | 10.2 | 17.9 | 22.1 | 26.0 | 26.5 |
| All cancers      | F   | 1.4             | 9.3  | 16.5 | 17.5 | 19.5 | 19.5 |
| Oral Cavity      | M   | 0.1             | 0.3  | 0.4  | 0.8  | 0.8  | 0.8  |
| Oral Cavity      | F   | 0.0             | 0.0  | 1.2  | 1.2  | 1.2  | 1.2  |
| Oesophagus       | M   | 0.1             | 0.3  | 0.5  | 0.7  | 0.7  | 0.7  |
| Oesophagus       | F   | 0.0             | 0.3  | 0.3  | 0.3  | 0.3  | 0.3  |
| Colon            | M   | 0.1             | 0.7  | 1.5  | 2.0  | 2.1  | 2.1  |
| Colon            | F   | 0.0             | 1.2  | 1.5  | 1.5  | 1.5  | 1.5  |
| Rectum           | M   | 0.0             | 0.6  | 1.2  | 1.4  | 2.3  | 2.3  |
| Pancreas         | M   | 0.2             | 0.5  | 0.6  | 0.8  | 1.0  | 1.0  |
| Pancreas         | F   | 0.0             | 0.3  | 0.3  | 0.3  | 0.3  | 0.3  |
| Lung             | M   | 0.8             | 3.1  | 5.8  | 7.0  | 8.3  | 8.6  |
| Lung             | F   | 0.3             | 3.2  | 4.9  | 6.0  | 6.7  | 6.7  |
| Melanoma         | M   | 0.1             | 0.2  | 0.6  | 0.7  | 0.9  | 0.9  |
| Melanoma         | F   | 0.0             | 0.7  | 0.7  | 0.7  | 0.7  | 0.7  |
| Prostate         | M   | 0.4             | 1.7  | 2.9  | 3.4  | 3.9  | 4.2  |
| Bladder          | M   | 0.2             | 0.6  | 0.9  | 1.0  | 1.0  | 1.0  |
| Ill defined prim | M   | 0.1             | 0.4  | 0.6  | 0.9  | 1.0  | 1.0  |
| Ill defined prim | F   | 0.0             | 0.3  | 1.1  | 1.1  | 1.1  | 1.1  |

All other cancers have 10-year cumulative risk of < 0.5% for both sexes.

## Common second cancers

From Table 7.2 the 10-year cumulative risk of contracting a second cancer following laryngeal cancer is seen to be similar for men and woman (both 1 in 6). Many of the common sites of second primary cancer following laryngeal cancer, such as oral cavity, oesophagus, lung and bladder, have strong associations with smoking.

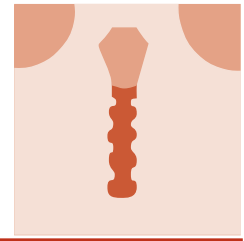
## Age-specific Incidence

The principal feature of Figure 7.1 is that the age incidence curves for the second primary cancers are orders of magnitude higher at early ages.

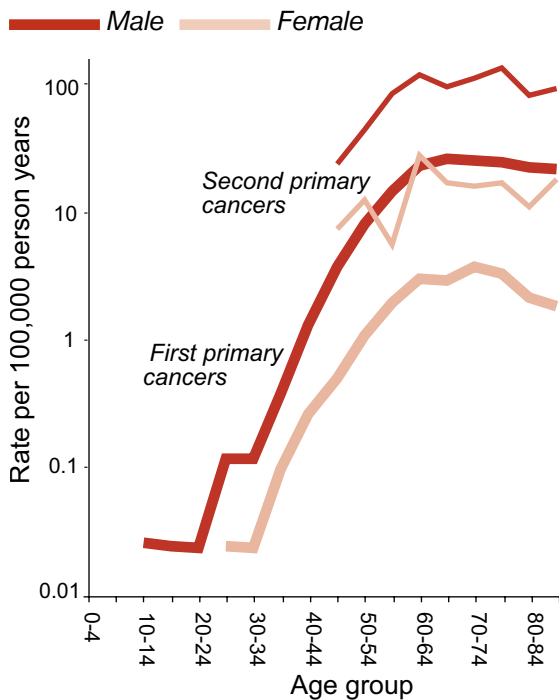
## Trends in the SIRs

The trends in Figure 7.2 show increased SIRs following a diagnosis of laryngeal cancer and that this decreases over years of follow-up.

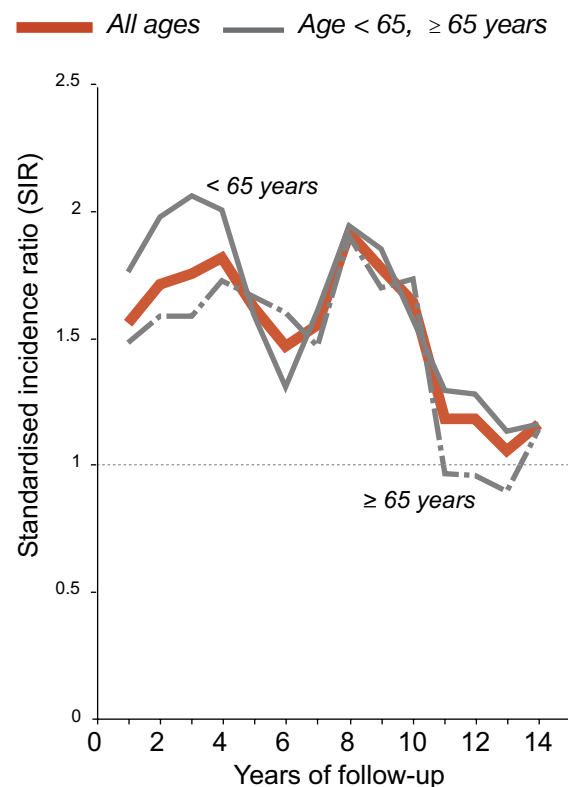
Trends in SIRs for specific cancer types by period of follow-up can be found in Table 7.4 (page 72) separately for men and women. Overall 23-year SIRs are given in Table 1.3 (pages 58-61). The significant overall 23-year SIRs are 1.57 for men and 1.68 for women. Statistically significant SIRs for men include; oral cavity 5.28, pharynx 3.52, oesophagus 2.63, rectum 1.97, colorectum 1.51, pancreas 2.71, lung 3.21 and bladder 1.77. The highest, statistically significant SIRs for women are; oral cavity 9.92, pharynx 20.27 and lung 6.27. There are no SIR significantly less than 1.00.



**Figure 7.1: Age-specific rates**



**Figure 7.2: Trends in the annual SIR for all second primary cancers**



### Trends in SIRs with age

In Figure 7.2 the general pattern of decreasing SIRs with increasing follow-up is observed for both age groups, with the under 65 year age group having only slightly higher SIRs than older people at any time during follow-up.

Estimates of overall 23-year SIRs by age group and sex are to be found in Table 7.4 (page 72). The age groups have similar risks of second primary cancer. The SIRs are 1.62 for men first diagnosed before 65 years of age compared with 1.53 for those diagnosed at an older age. The SIRs for women are 1.70 and 1.67 respectively (all SIRs are significantly greater than 1.00).

For the under 65 year age group the highest SIRs for men are oral cavity 6.10, pharynx 4.25, oesophagus 3.67, rectum 1.93, colorectal 1.64, lung 3.42, ALL 15.85 and other 2.06.

For women under age 65 the highest SIRs are oral cavity 20.9 and lung 9.24.

### Comments

The SIR for a second cancer following a diagnosis of laryngeal cancer is high (an increase of 17-18% versus 10-12% for all cancers). This is largely due to increased risks for other head and neck cancers and lung cancer.

The elevations in SIR for cancers of the oral cavity, pharynx, lung and oesophagus are most likely due to smoking, which is a strong risk factor for these cancers. Smoking is also a risk factor for pancreatic cancer and bladder cancer. For most of these cancers alcohol consumption is also a risk factor and would explain some of the excess risk.

It should be noted that the classification of multiple tumours within the upper respiratory tract is difficult with the distinction between direct spread, tumour recurrence and a new primary tumour not always clear. This may result in under- or over-recording of distinct primary tumours within this region.

# LUNG CANCER

**Table 8.1: Characteristics of the cohort**

|                               | Males  | Females |
|-------------------------------|--------|---------|
| First primary cancer          | 20,608 | 9,191   |
| Age at diagnosis              |        |         |
| Mean                          | 67.8   | 67.3    |
| <65 years                     | 7,662  | 3,610   |
| =>65 years                    | 12,946 | 5,581   |
| Total person-years            | 33,758 | 16,944  |
| Mean follow-up (years)        | 1.6    | 1.8     |
| Histological confirmation (%) | 86.5   | 85.0    |
| Squamous and transitional     | 31.1   | 17.1    |
| Adenocarcinoma                | 21.8   | 30.1    |
| Other specific carcinoma      | 16.3   | 20.9    |
| Unspecified carcinoma         | 17.0   | 16.5    |
| Other specified type          | 0.2    | 0.3     |
| No histological confirmation  | 13.6   | 15.1    |
| Second primary cancers        |        |         |
| Non-simultaneous              | 697    | 249     |
| Simultaneous                  | 189    | 59      |

**Table 8.2: Cumulative risk (%) of the most common second primary cancers**

|             | Sex | Follow-up years |     |     |     |     |     |
|-------------|-----|-----------------|-----|-----|-----|-----|-----|
|             |     | 1               | 5   | 10  | 15  | 20  | 23  |
| All cancers | M   | 1.1             | 2.4 | 3.4 | 3.9 | 4.2 | 4.3 |
| All cancers | F   | 0.8             | 2.0 | 2.9 | 3.3 | 3.7 | 4.1 |
| Prostate    | M   | 0.2             | 0.5 | 0.8 | 1.0 | 1.0 | 1.0 |

*All other cancers have 10-year cumulative risk of less than 0.5 % for both sexes.*

## Common second cancers

From Table 8.2 a man's 10-year cumulative risk of contracting a second cancer following lung cancer is seen to be higher than that for a woman (1 in 29 compared with 1 in 34). Prostate cancer is the only second primary cancer with a cumulative risk at 10 years of > 0.5%.

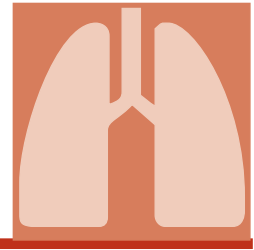
## Age-specific Incidence

The principal feature of Figure 8.1 is that the age incidence curves for the second primary cancers are orders of magnitude higher at all ages.

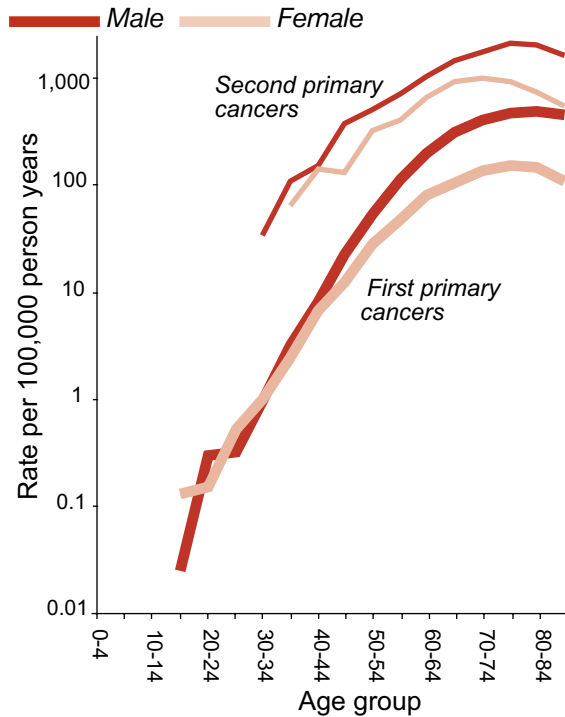
## Trends in the SIRs

The trends in Figure 8.2 show slightly increased SIRs following a diagnosis of lung cancer and that these risks increase from 2-8 years after diagnosis and decrease thereafter with increasing follow-up.

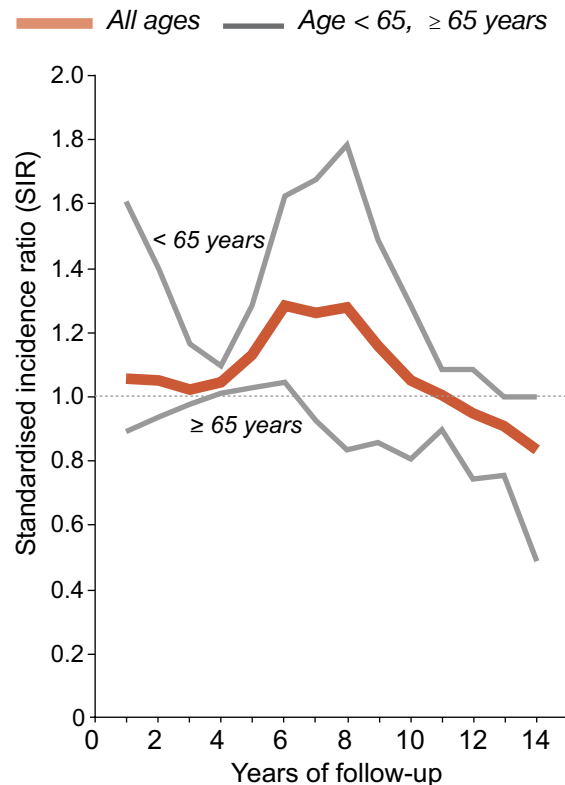
Trends in SIRs for specific cancer types by period of follow-up can be found in Table 8.4 (page 74) separately for men and women. Overall 23-year SIRs are given in Table 1.3 (pages 58-61). The overall 23-year SIRs are 0.98 for men and 1.23 for women. The highest, statistically significant SIRs for men are pharynx 2.81, oesophagus 2.54, oral cavity 2.50 and CLL 1.95. The highest, statistically significant SIRs for women are larynx 15.05, CML 6.05, pharynx 5.00, oral cavity 4.46, oesophagus 2.93, lung 2.41 and NHL 1.98. SIR significantly less than 1 are observed for colorectal cancer and mesothelioma for males and for melanoma and uterus for females.



**Figure 8.1: Age-specific rates**



**Figure 8.2: Trends in the annual SIR for all second primary cancers**



**Trends in SIRs with age**

In Figure 8.2 the pattern of SIRs with increasing follow-up differs between age groups, though the under 65 year age group has consistently higher SIRs than older people at any time during follow-up. In those aged under 65 years SIRs decreased for the first four years, then increased for the next five years before declining towards unity thereafter. For older cases SIRs increased, but were close to unity, until six years after diagnosis and then decreased over time.

Estimates of overall 23-year SIRs by age group and sex are to be found in Table 8.5 (page 75). The younger age group has a higher SIR than the older. The SIRs are 1.33 for men first diagnosed before 65 years of age compared with 0.84 for those diagnosed at an older age. The SIRs for women are 1.55 and 1.05 respectively.

For the under 65 year age group the highest SIRs for men are renal pelvis 5.45, oral cavity 4.25, pharynx 3.45, oesophagus 3.34, pancreas 2.38 and lung 1.77.

For women under age 65 the highest SIRs are larynx 31.04, CML 12.78 and NHL 2.83.

**Comments**

The risk of a second cancer following lung cancer is relatively low, as survival after diagnosis with lung cancer is poor. The mean follow-up time was 1.6 years for men and 1.8 years for women. Smoking is responsible for about 90% of lung cancer in Australia, and cancers for which risk is elevated following a diagnosis of lung cancer are mostly smoking related. The increased SIRs for leukaemia and lymphoma are based on small numbers.