

CANCER INCIDENCE IN THAILAND

Chapter
II

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Chapter II

1

CANCER INCIDENCE AND LEADING SITES

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Thailand is located in South-east Asia between latitudes 5: 37N and 20: 27N, and between longitudes 97: 22E and 105: 37E, with Laos and Cambodia to its east, the Gulf of Thailand and Malaysia to its south, and the Andaman Sea and Myanmar to its west. The total area is 513 155 square kilometers. The climate of the country as a whole is tropical and characterized by moonsoons. Thailand is divided into 76 provinces, within four geographical regions: the Northern, Northeastern, Southern and Central. The geographic area covered by the nine population based cancer registries are shown in Figure 2.1.1 and the estimated population

in each province by sex is shown in Table 2.1.1.

The detailed results from each of the nine registries are shown in the tables of Appendices A-J.

There are figure for the estimate population and two tables for each registry: for each sex, the number of cases registered in 1999 (1998-2000) are shown, by site, with summary rates (crude rate, cumulative rate, age-standardized rate (world standard), and the percentage of microscopically verified and death certificate only cases.

The age-standardized incidence rates (ASR) of cancer at all sites ranged from 74.7 per 100 000 (M) and 77.6 per 100 000 (F) in

Table 2.1.1 Land area and estimated population in 1999

| | Population density (person/km ²) | Land area (km ²) | Estimated population Male | Estimated population Female |
|---------------------|--|------------------------------|---------------------------|-----------------------------|
| Chiang Mai | 73.7 | 20107 | 734437 | 746668 |
| Lampang | 61.7 | 12534 | 386813 | 387060 |
| Nakhon Phanom | 122.7 | 5513 | 336694 | 339967 |
| Udon Thani | 116.4 | 11730 | 663172 | 701749 |
| Khon Kaen | 157.9 | 10885 | 855830 | 862884 |
| Rayong | 144.5 | 3552 | 257874 | 255532 |
| Bangkok | 3989.9 | 1569 | 2985978 | 3274111 |
| Prachuap Khiri Khan | 69.8 | 6368 | 221692 | 222780 |
| Songkhla | 167.3 | 7394 | 606918 | 630008 |

Table 2.1.2 Age-standardized incidence rates (ASR), all sites, 1998-2000

| | Male | | Female | |
|---------------------|-----------------|----------|-----------------|----------|
| | Cases 1998-2000 | ASR 1999 | Cases 1998-2000 | ASR 1999 |
| Chiang Mai | 3170 | 138.7 | 3760 | 152.5 |
| Lampang | 2042 | 160.7 | 2050 | 148.9 |
| Nakhon Phanom | 874 | 107.7 | 833 | 92.6 |
| Udon Thani | 3292 | 242.0 | 2815 | 158.4 |
| Khon Kaen | 3567 | 167.6 | 3281 | 129.7 |
| Rayong | 719 | 122.8 | 806 | 115.2 |
| Bangkok | 8466 | 117.4 | 10907 | 116.0 |
| Prachuap Khiri Khan | 415 | 74.7 | 514 | 77.6 |
| Songkhla | 1667 | 104.5 | 1822 | 98.9 |
| Thailand | 94746 | 127.7 | 101034 | 125.5 |

Prachuap Khiri Khan to 242.0 per 100 000 (M) and 158.4 per 100 000 (F) in Udon Thani (Table 2.1.2).

Figures 2.1.2 - 2.1.10 show the 10 leading cancers in each registry, in terms of the age-standardized incidence rates.

In Chiang Mai, lung cancer is the most important site in men and the second place in women. Cervix cancer is the leading cancer in women. The incidence of cervix cancer in women is the highest amongst the nine registries.

In Lampang, the profile of leading cancer in men is similar to that in Chiang Mai. Lung cancer in men is even higher than in Chiang Mai (ASR=53). Cervix cancer is the second common cancer in women, followed by breast cancer.

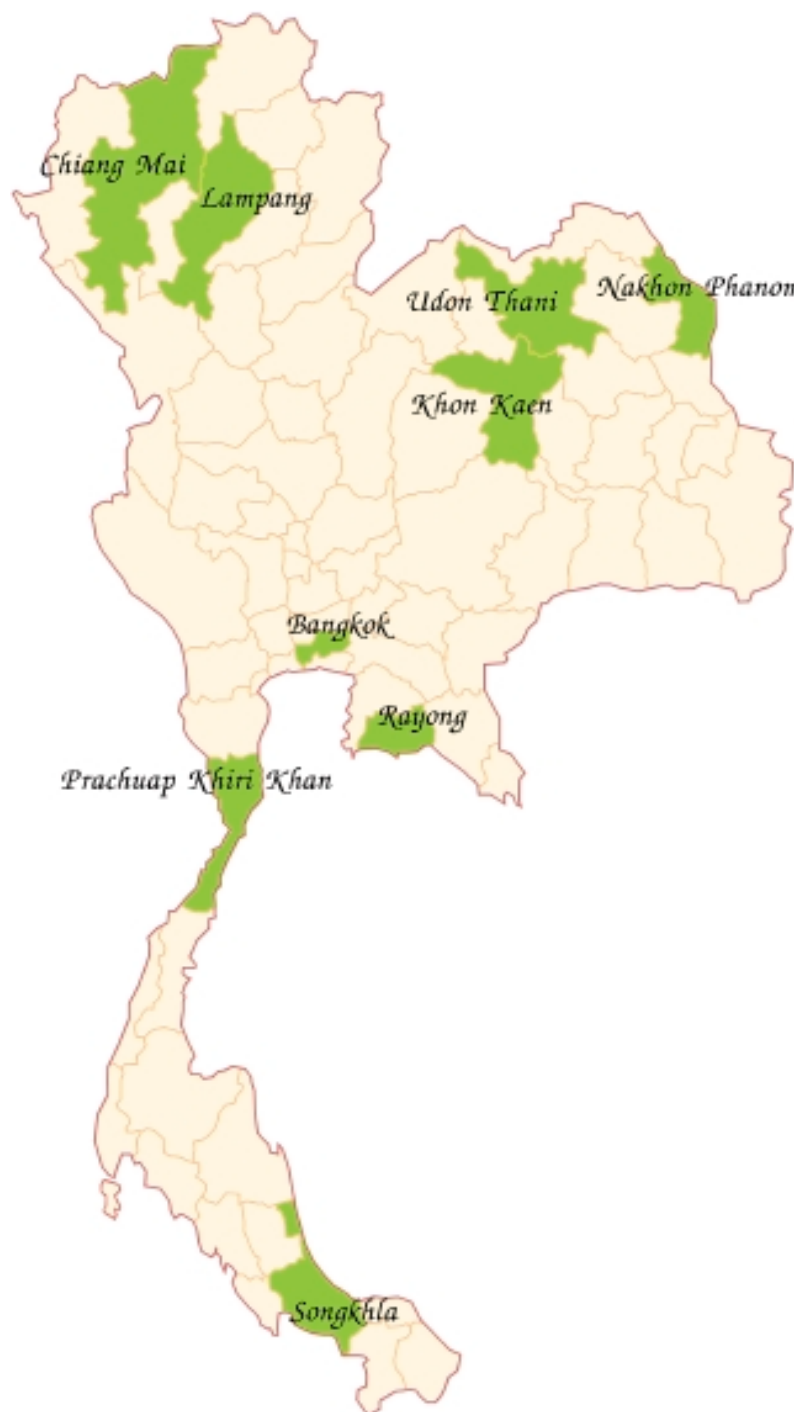
In the northeastern region: Nakhon Phanom, Udon Thani and Khon Kaen, the picture is dominated by liver cancer, by far the most common cancer in men (45-59% of all cancers) and women (24.2-32.4% of all cancers). Cervix cancer is second in frequency in women.

In Rayong, lung cancer is the most important cancer in men, followed by liver & bile duct cancer, esophagus cancer (ASR is highest in the nine registries). Cervix cancer is also very high incidence (ASR=28.5) and followed by breast cancer and lung cancer.

In Bangkok, lung cancer is the most important cancer of men, followed by cancers of the liver & bile duct, and then the colon & rectum. In women, breast cancer is the leading cancer, ahead of cervix cancer (in contrast to the other eight registries), and colon & rectum cancer is third in frequency.

In Prachuap Khiri Khan, lung cancer is the most common cancer

Figure 2.1.1 Thailand : regions and areas covered by the cancer registries



in men, followed by cancers of colon & rectum and liver & bile duct. Cervix cancer is the leading cancer in women, followed by breast cancer and colon & rectum cancer.

In Songkhla, the leading site in men is lung cancer, followed by cancers of colon & rectum, oral cavity and esophagus. In women, cervix and breast cancers predomi-

nate, with colon & rectum cancer in third place; liver & bile duct cancer is not even in the first ten cancers.

The National Estimates

The estimated numbers of new cancer cases in Thailand in the year 1999 was 31 582 in men and 33 678 in women. These correspond to age-standardized rates of 127.7 per 100 000 for men and 125.5 per 100 000 in women (Table 2.1.3).

The national estimates of the 10 leading cancers in men and women are shown as age-standardized rates in Figure 2.1.11 and as number of cases in Table 2.1.3.

Liver & bile duct cancer is the most common cancer in men (ASR=33.4), followed by lung cancer (ASR=20.6), colon & rectum cancer (ASR=8.8), and oral cancer (ASR=5.2). In women, cervix cancer is the most common (ASR=24.7), followed by breast cancer (ASR=20.5), liver & bile duct cancer (ASR=12.3) & lung cancer (ASR=9.3).

The very high incidence of liver cancer in the northeastern region means that liver & bile duct cancer is the major cancer of men in the whole country, with an estimated 8 298 new cases in 1999. Lung cancer is second in importance (4 947 new cases); taken together, these two sites are responsible for 41.9% of all cancers in men.

In women, cervix cancer is the most important (6 954 new cases), followed by breast cancer (5 854 new cases), liver & bile duct cancer (3 094 new cases) and lung cancer (2 344 new cases), these four sites being responsible for 54.2% of all cancers in women.

Figure 2.1.2 Leading cancers in Chiang Mai, 1998-2000

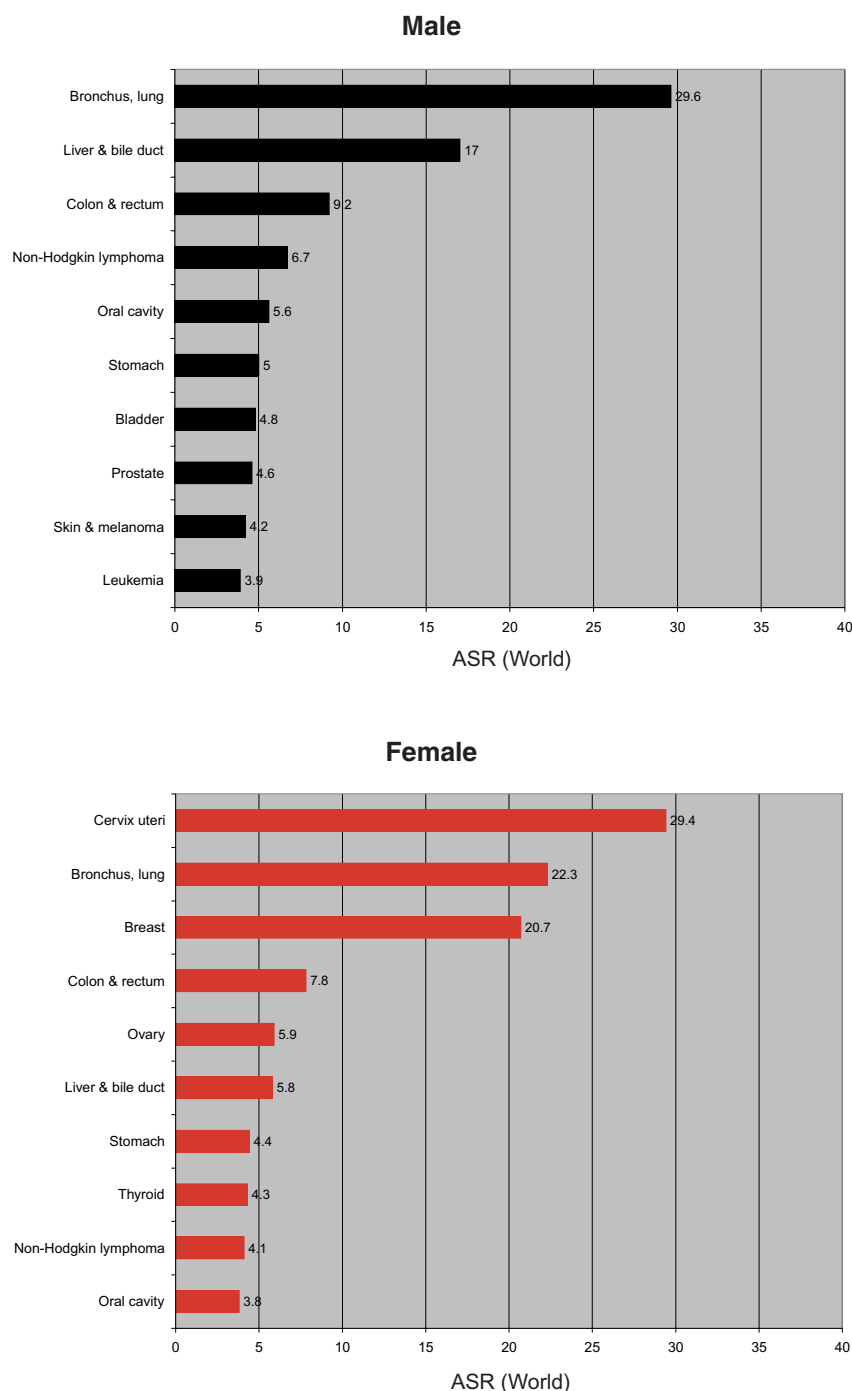


Figure 2.1.3 Leading cancers in Lamphang, 1998-2000

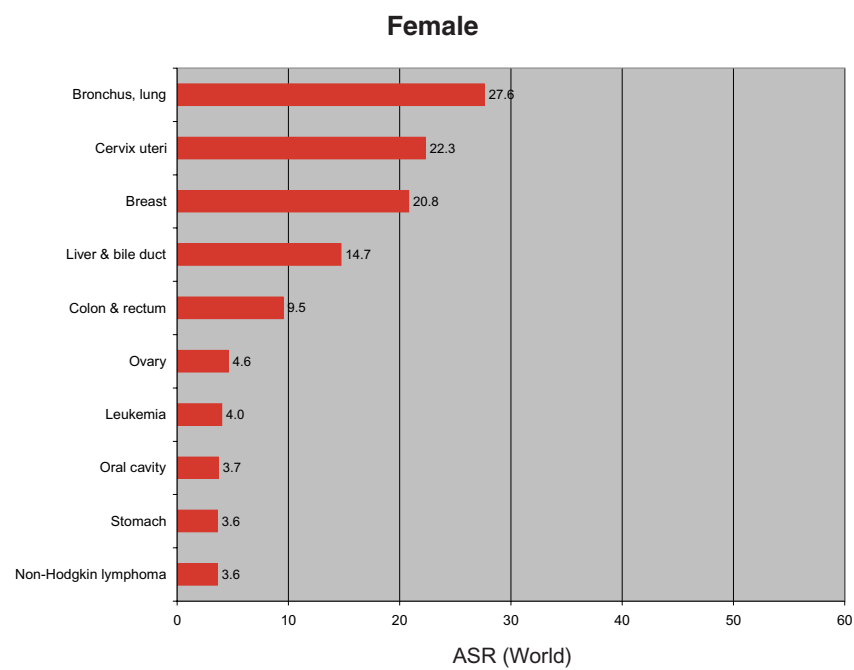
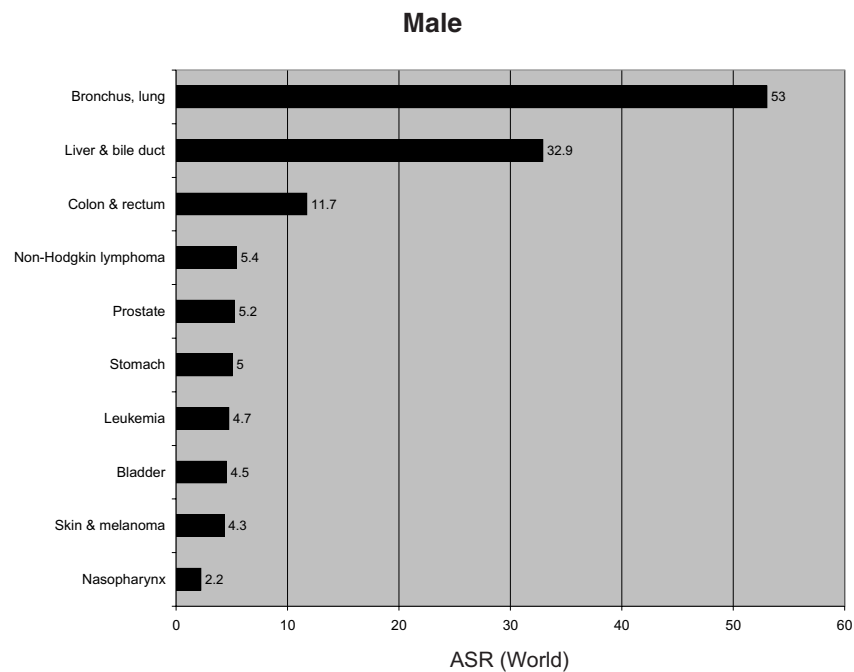


Figure 2.1.4 Leading cancers in Nakhon Phanom, 1998-2000

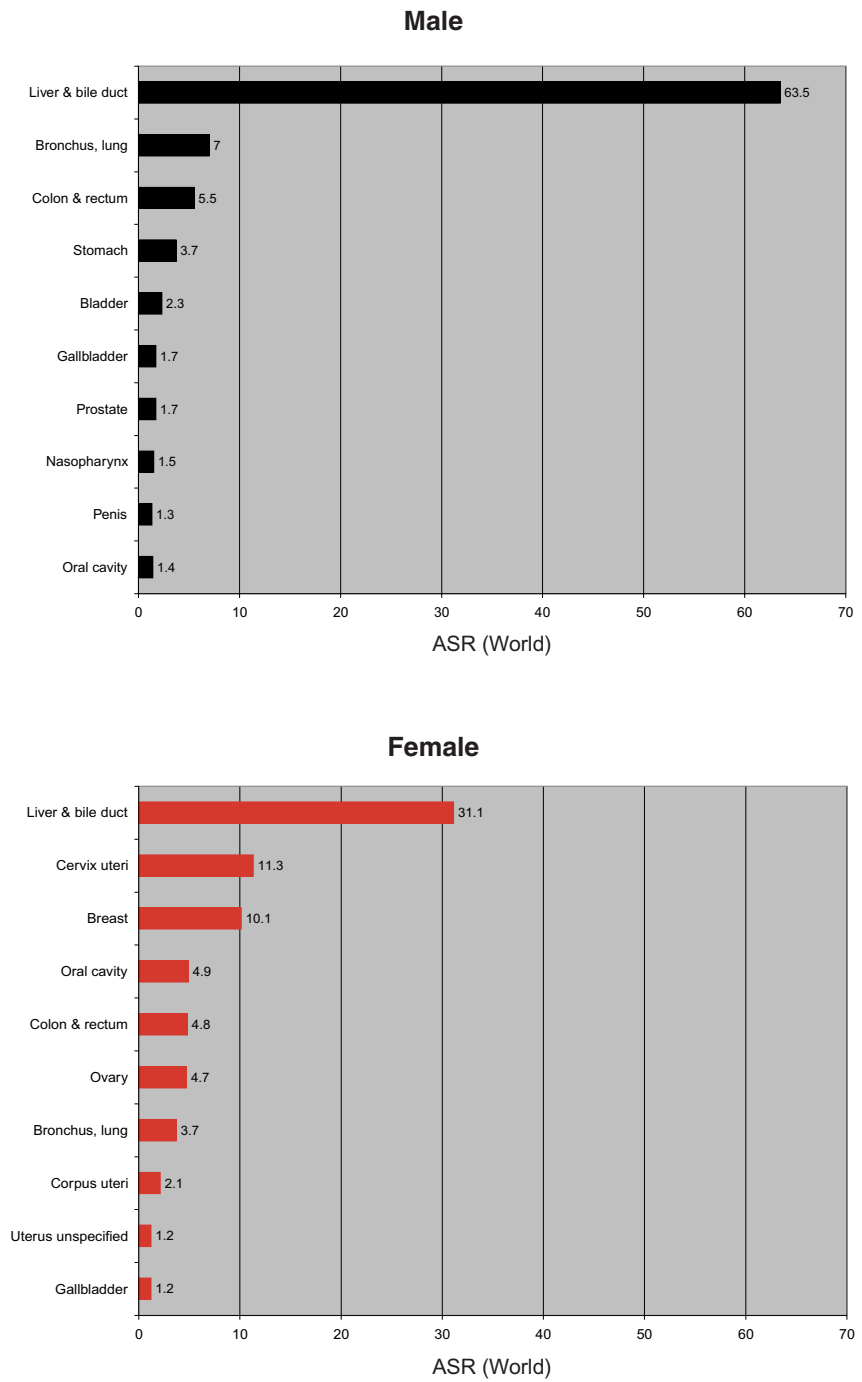


Figure 2.1.5 Leading cancers in Udon Thani, 1998-2000

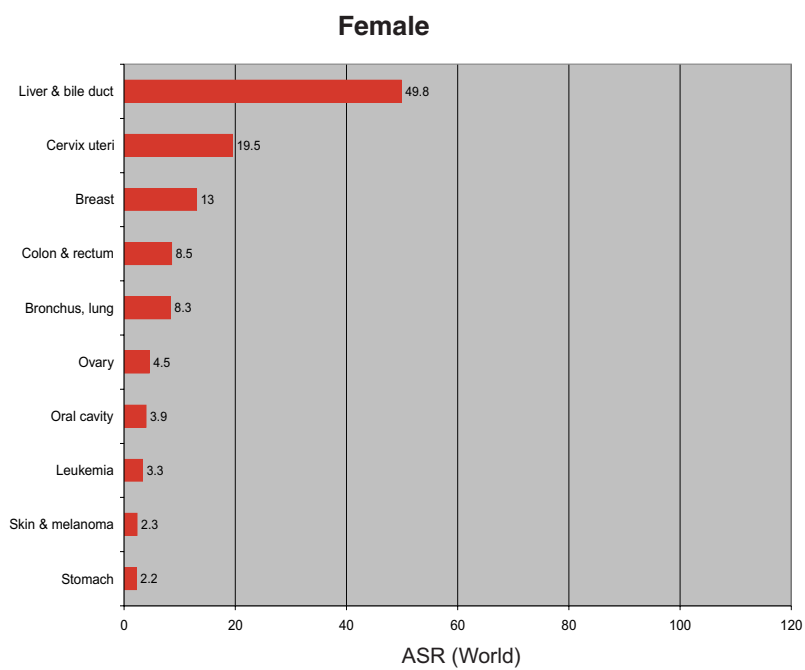
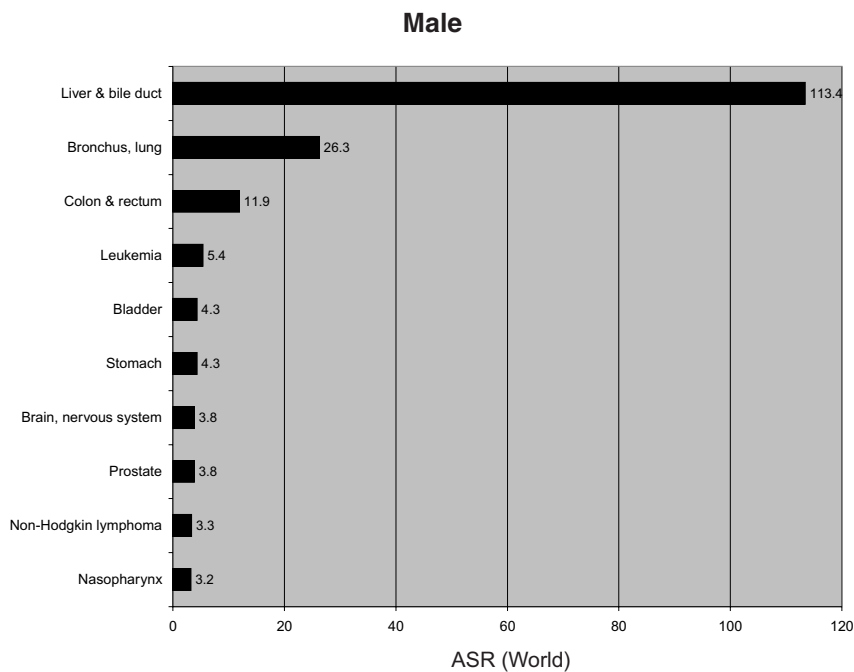


Figure 2.1.6 Leading cancers in Khon Kaen, 1998-2000

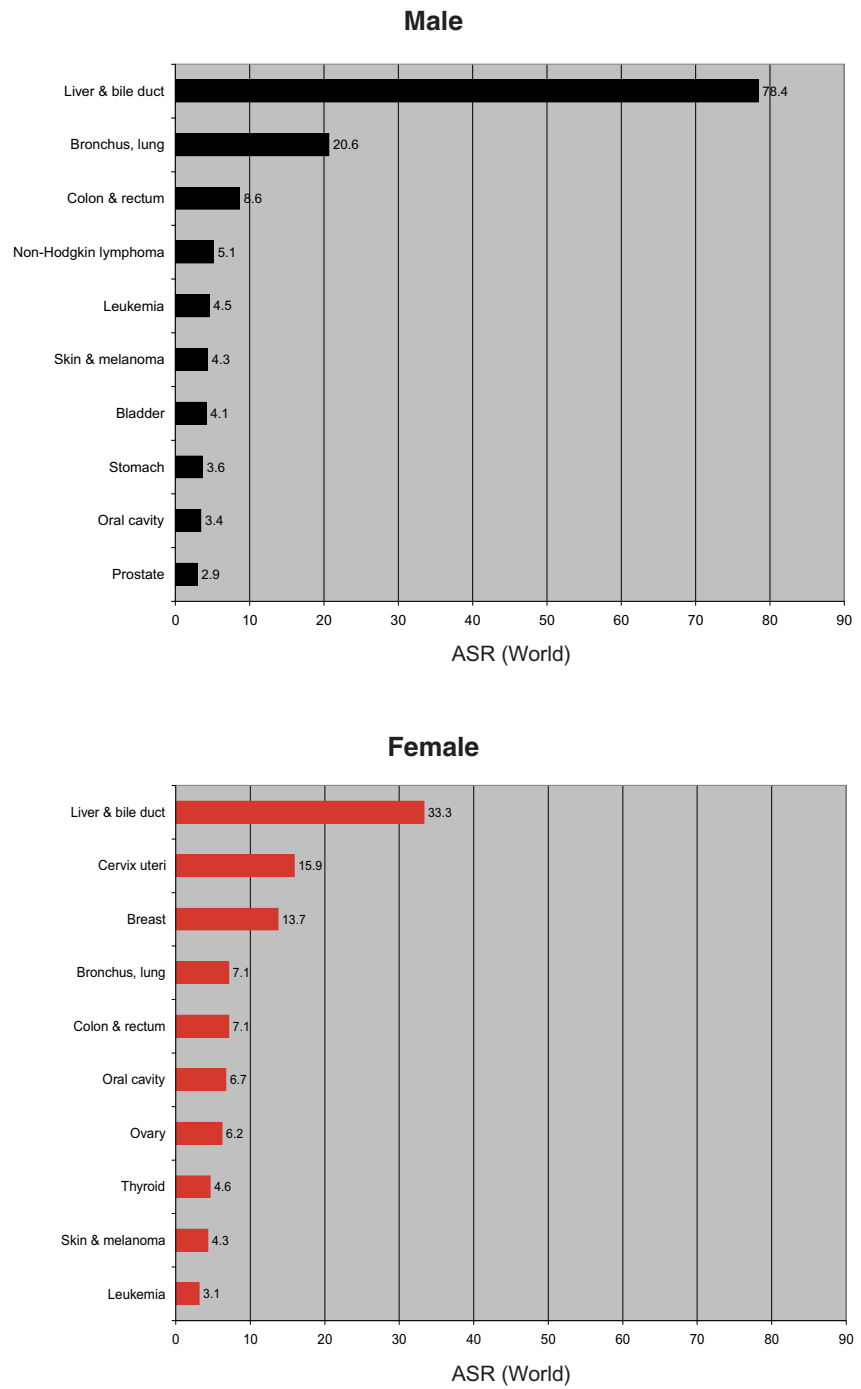


Figure 2.1.7 Leading cancers in Bangkok, 1998-2000

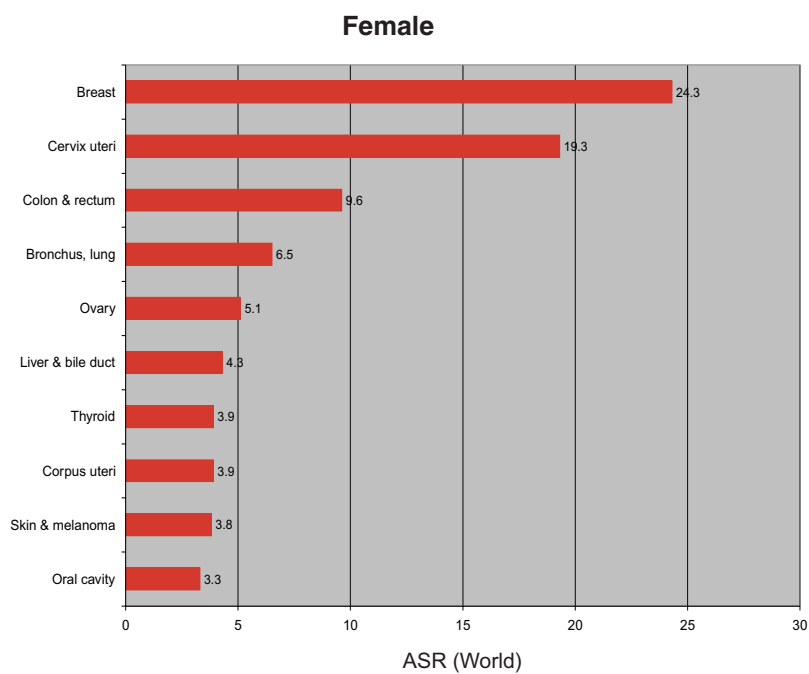
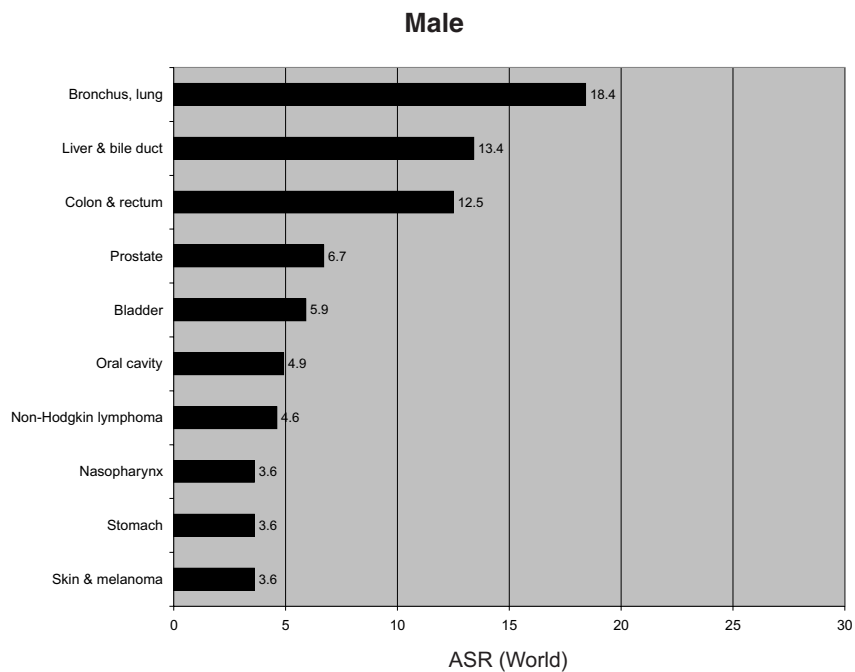


Figure 2.1.8 Leading cancers in Rayong, 1998-2000

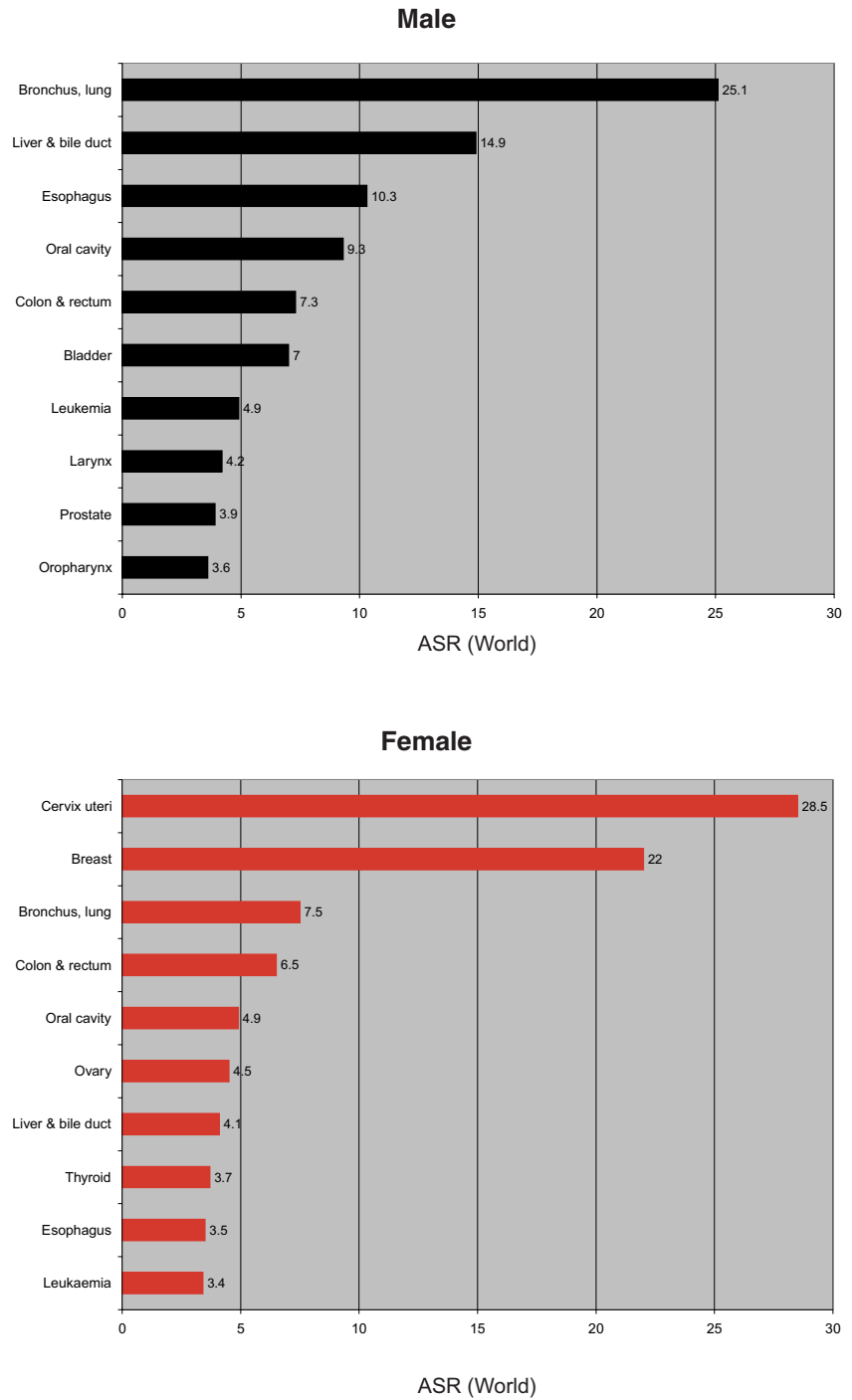


Figure 2.1.9 Leading cancers in Prachuap Khiri Khan, 1998-2000

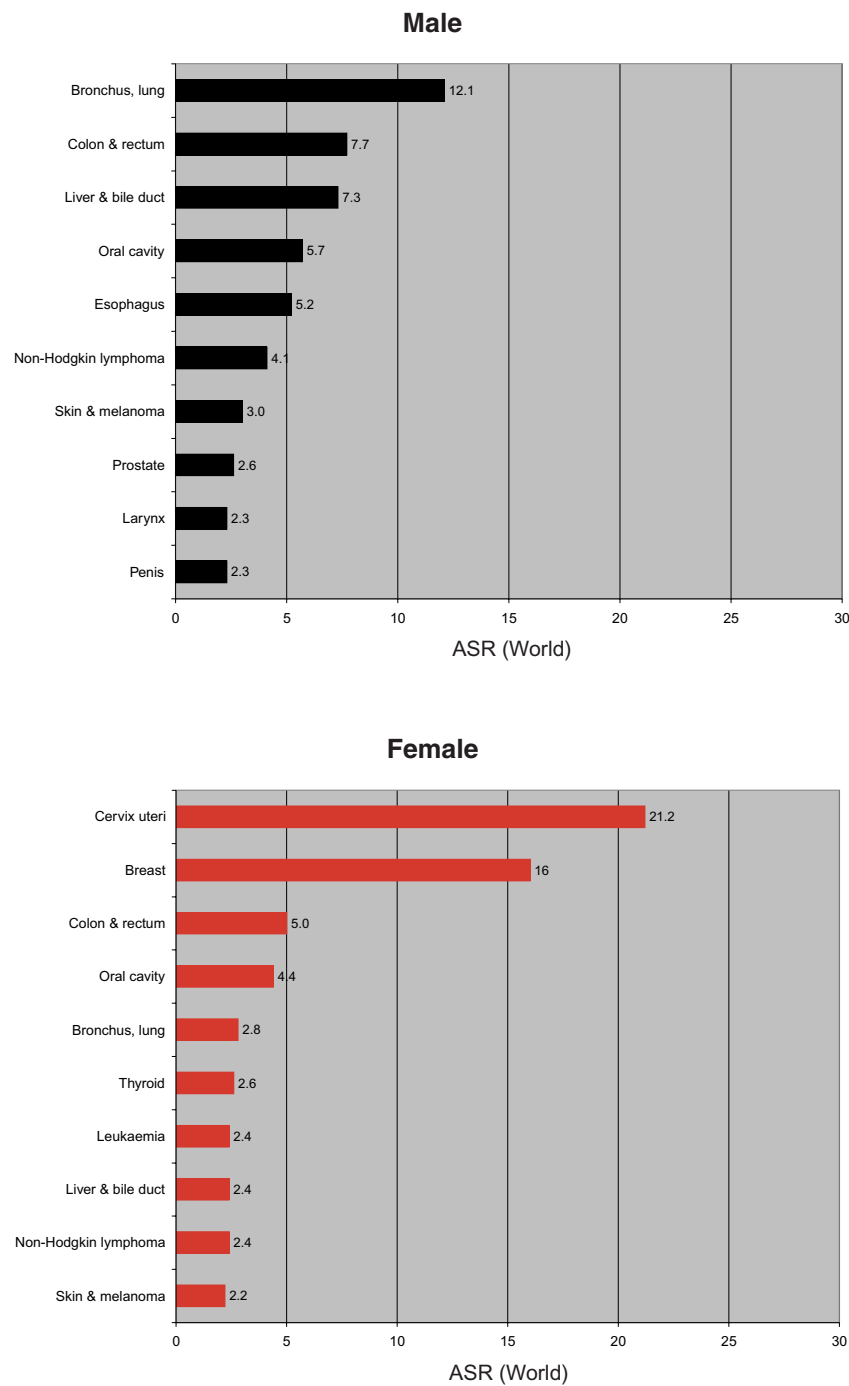


Figure 2.1.10 Leading cancers in Songkhla, 1998-2000

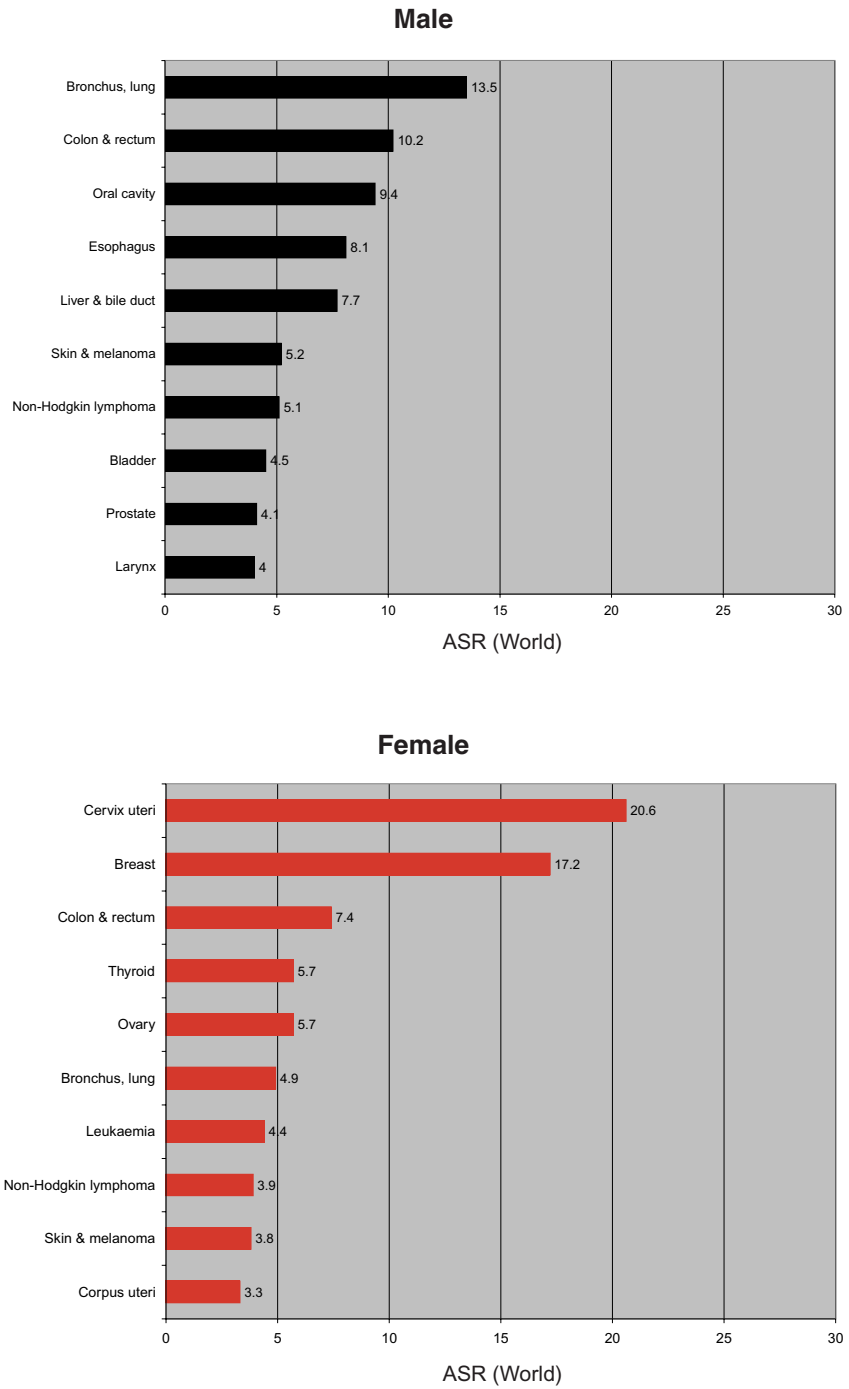


Figure 2.1.11 Leading cancers in Thailand (estimated), 1999

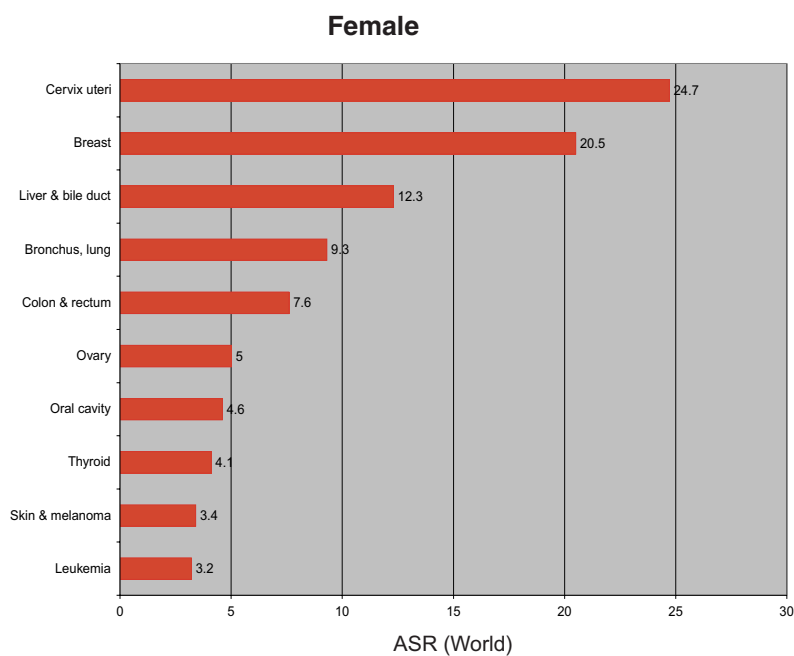
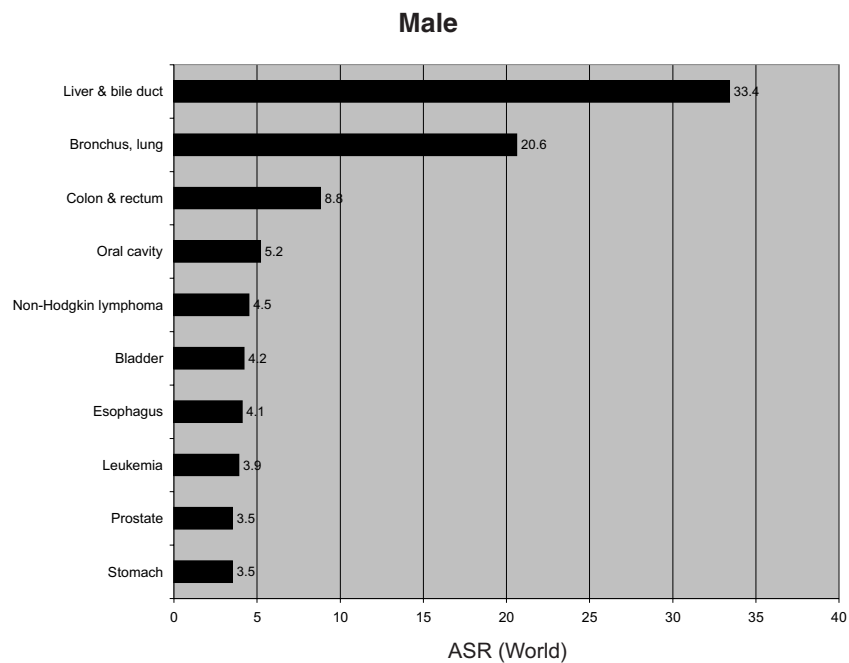


Table 2.1.3 Thailand (estimate) 1999

Annual Incidence per 100 000 by Age Group (years) - Male

| Site | Site Name | All Ages | Age Unk. | 0- | 5- | 10- | 15- | 20- | 25- | 30- | 35- | 40- | 45- | 50- | 55- | 60- | 65- | 70- | 75+ | Crude Rate | ASR (W) |
|-------------------|----------------------|---------------|----------|-------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|
| C00-C08 | Oral cavity | 1 275 | 0 | 0.2 | 0.1 | 0.0 | 0.2 | 0.3 | 0.6 | 0.5 | 1.6 | 4.4 | 5.8 | 8.3 | 12.1 | 20.9 | 23.9 | 43.0 | 53.1 | 5.2 | 4.8 |
| C15 | Esophagus | 970 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.4 | 0.2 | 1.2 | 4.0 | 7.0 | 17.5 | 16.7 | 27.1 | 32.2 | 28.1 | 4.1 | 3.6 |
| C16 | Stomach | 851 | 0 | 0.0 | 0.1 | 0.0 | 0.2 | 0.1 | 0.6 | 0.5 | 1.8 | 2.9 | 4.2 | 7.7 | 6.9 | 13.4 | 22.5 | 26.6 | 21.0 | 3.5 | 3.2 |
| C18; C19-C21 | Colon & rectum | 2 201 | 0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.9 | 1.2 | 3.7 | 4.6 | 6.7 | 11.9 | 16.4 | 22.7 | 32.9 | 50.1 | 62.8 | 61.8 | 8.8 | 8.3 |
| C22; C24 | Liver & bile duct | 8 298 | 0 | 0.2 | 0.4 | 0.2 | 0.4 | 0.6 | 2.3 | 6.8 | 16.9 | 27.8 | 50.6 | 86.9 | 103.2 | 156.3 | 180.4 | 183.5 | 156.7 | 33.4 | 31.2 |
| C33-C34 | Bronchus, lung | 4 947 | 0 | 0.1 | 0.0 | 0.1 | 0.2 | 0.6 | 2.9 | 3.5 | 5.2 | 8.8 | 21.2 | 35.5 | 58.6 | 100.9 | 133.1 | 162.1 | 129.1 | 20.6 | 18.6 |
| C61 | Prostate | 812 | 0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.3 | 0.5 | 1.6 | 4.4 | 7.8 | 19.6 | 43.7 | 71.62 | 3.5 | 3.1 |
| C67 | Bladder | 983 | 0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.2 | 0.6 | 0.6 | 1.0 | 3.5 | 4.7 | 8.7 | 19.0 | 22.7 | 38.5 | 48.9 | 4.2 | 3.7 |
| C82-C85; C96 | Non-Hodgkin lymphoma | 1 167 | 0 | 1.4 | 1.1 | 0.9 | 1.5 | 1.8 | 2.8 | 3.6 | 3.2 | 5.3 | 7.3 | 9.1 | 7.8 | 11.2 | 14.1 | 17.9 | 22.1 | 4.5 | 4.4 |
| C88; C90-C92; C95 | Leukemia | 1 116 | 0 | 6.4 | 3.6 | 2.8 | 2.3 | 2.0 | 2.1 | 2.4 | 3.7 | 3.4 | 3.5 | 6.6 | 6.5 | 8.5 | 13.3 | 12.3 | 11.2 | 4.5 | 4.2 |
| All sites | | 31 582 | 3 | 15.7 | 8.7 | 8.1 | 9.8 | 13.8 | 25.8 | 38.8 | 59.2 | 92.7 | 159.2 | 252.1 | 338 | 516.6 | 663.6 | 817.8 | 808.5 | 118.7 | 127.7 |

Annual Incidence per 100 000 by Age Group (years) - Female

| Site | Site Name | All Ages | Age Unk. | 0- | 5- | 10- | 15- | 20- | 25- | 30- | 35- | 40- | 45- | 50- | 55- | 60- | 65- | 70- | 75+ | Crude Rate | ASR (W) |
|-------------------|-------------------|---------------|-----------|-------------|------------|------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|--------------|--------------|
| C00-C08 | Oral cavity | 659 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 1.0 | 0.7 | 0.8 | 4.3 | 3.4 | 6.5 | 8.5 | 11.5 | 18.2 | 32.8 | 2.4 | 2.6 |
| C18-C20 | Colon & rectum | 1 962 | 0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.6 | 1.5 | 2.8 | 3.6 | 6.4 | 11.8 | 13.8 | 22.2 | 28.9 | 39.1 | 40.8 | 60.2 | 7.3 | 7.6 |
| C22; C24 | Liver & bile duct | 3 094 | 0 | 0.4 | 0.1 | 0.1 | 0.2 | 0.5 | 0.8 | 2.3 | 3.4 | 10.5 | 16.2 | 30.7 | 40.8 | 59.9 | 77.1 | 63.0 | 52.5 | 12.3 | 11.5 |
| C33-C34 | Bronchus, lung | 2 344 | 0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.9 | 1.4 | 2.0 | 2.7 | 5.8 | 10.5 | 17.2 | 29.0 | 46.0 | 56.9 | 55.2 | 59.8 | 9.3 | 8.7 |
| C43; C44 | Skin & melanoma | 779 | 0 | 0.0 | 0.1 | 0.1 | 0.3 | 0.2 | 0.3 | 0.9 | 1.2 | 2.9 | 3.1 | 2.4 | 4.7 | 13.8 | 18.3 | 23.6 | 45.0 | 3.2 | 3.4 |
| C50 | Breast | 5 854 | 0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.8 | 5.1 | 14.1 | 26.8 | 55.6 | 63.0 | 65.4 | 52.5 | 43.9 | 52.8 | 43.7 | 43.3 | 20.5 | 21.7 |
| C53 | Cervix uteri | 6 954 | 0 | 0.1 | 0.0 | 0.1 | 0.5 | 2.6 | 5.5 | 16.0 | 31.8 | 57.0 | 68.5 | 73.5 | 74.9 | 75.9 | 61.7 | 61.2 | 43.6 | 24.7 | 25.8 |
| C56 | Ovary | 1 384 | 0 | 0.4 | 0.4 | 0.3 | 2.1 | 2.0 | 3.0 | 3.6 | 5.0 | 6.3 | 17.4 | 11.7 | 13.5 | 17.0 | 9.3 | 7.7 | 6.3 | 5.0 | 5.1 |
| C73 | Thyroid | 1 187 | 0 | 0.0 | 0.3 | 0.2 | 2.0 | 3.2 | 3.7 | 6.3 | 6.4 | 6.5 | 8.7 | 7.8 | 7.6 | 8.9 | 4.7 | 11.8 | 9.4 | 4.0 | 4.0 |
| C88; C90-C92; C95 | Leukemia | 949 | 0 | 3.5 | 2.3 | 2.0 | 3.2 | 1.8 | 2.2 | 2.2 | 2.8 | 2.5 | 3.4 | 6.6 | 5.6 | 6.5 | 10.9 | 14.3 | 8.6 | 3.5 | 3.7 |
| All sites | | 33 678 | 17 | 11.6 | 5.5 | 5.8 | 14.0 | 20.5 | 35.3 | 65.4 | 104.3 | 185.0 | 249.4 | 292.6 | 344.2 | 428.5 | 472.1 | 514.5 | 556 | 124.9 | 125.5 |