

**THE FIRST REPORT OF THE
NATIONAL CANCER REGISTRY
CANCER INCIDENCE IN MALAYSIA
2002**

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National Cancer Registry



Ministry of Health Malaysia

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FOREWORD

Cancer is a growing health problem in the country. A milestone in the healthcare system of Malaysia has been achieved with the publication of this first report of the National Cancer Registry, which provides data that is much needed not only by health planners to facilitate cancer control programmes, but also by a host of other users, including the public, industry and media. This scientific meeting will be the first of such meetings to share and discuss the findings of the National Cancer Registry (NCR).

I am glad that I had instructed the Clinical Research Centre (CRC) of the Ministry of Health in 2001 to reactivate the national cancer registry project. Since then, the CRC has been the designated collaborating unit to the NCR. Congratulations to the Clinical Research Centre for having successfully coordinated the establishment of the National Cancer Registry and running the Cancer Registry Unit (CRU) efficiently and effectively. I understand that the primary source data producers (SDP) for cancer registry in 2002 are Oncology, Pathology, Haematology and Palliative Care Services, both private and public, and they have contributed and cooperated admirably in providing the vital data required for the success of this National Cancer Registry.

I would like to thank all those involved in ensuring the success of the National Cancer Registry within such a short period of time. This is possible only by the combined effort of all individuals and institutions who have cooperated and worked together on this registry.

The first objective of the National Cancer Registry, which is the determination of the burden of cancer, has been met in this report. I hope that the other objectives will be addressed in the future, such as cancer risk factors, evaluation of cancer programmes, and facilitation of research on cancer.

While the Ministry of Health of Malaysia continues to support the National Cancer Registry, I would encourage and urge all other sectors, industries, professional and non-governmental organizations to join in the control of cancer in this country by contributing significantly towards the success of the National Cancer Registry.

Dato' Chua Jui Meng
Minister of Health of Malaysia

ACKNOWLEDGEMENTS

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We would like to especially thank the following:

The oncologists, pathologists, palliative care professionals, other members of the medical profession from the various government, university, non-government and private centres, upon whose commitment, hard work, and timely data submission this report ultimately depends.

Director of the National Registration Office (Jabatan Pendaftaran Negara), Deputy Director of the Information Documentation Systems (IDS) Unit of the MOH, the medical record departments of all participating hospitals for their continuing support.

The Ministry of Health, in particular, the Deputy Director General (Research and Technical Support) Dato' Dr. Mohd Ismail Merican, whose support was absolutely crucial to getting the NCR started by providing the seed money in the form of a research grant (Grant number: MRG2002-12) to fund the registry.

The Clinical Research Centre of the Ministry of Health, Malaysia for also funding the registry in part.

And of course not forgetting our supporters from the industry and other well-wishers:

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ABOUT THE NATIONAL CANCER REGISTRY

The National Cancer Registry (NCR) is a service supported by the Ministry of Health (MOH) to collect information about cancers in Malaysia. The information allows us to estimate the incidence of cancer, and to evaluate its risk factors, treatment and outcomes. Such information is useful for assisting the MOH, Non-Governmental Organizations, private providers and industry in program planning and evaluation, leading to cancer prevention and control.

The NCR receives data on cancer from 3 main sources:

1. The Ministry of Health hospital information system
2. The National Registration Department (Jabatan Pendaftaran Negara)
3. And most important of all, the individual doctors who provide cancer diagnostic services or who care for cancer patients, and voluntarily report data to the NCR.

The objectives of NCR are to:

1. Determine the disease burden attributable to cancer by quantifying the magnitude of cancer morbidity and mortality, and its geographic and temporal trends in Malaysia.
2. Identify subgroups in the population at high risk of cancer to whom cancer prevention effort should be targeted.
3. Identify potential risk factors involved in cancer.
4. Evaluate cancer treatment, control and prevention programme.
5. Stimulate and facilitate epidemiological research on cancer, eg generating hypotheses on cancer aetiology

SPONSORS OF THE NCR

Oncology, Haematology and Pathology services, MOH

Division of Disease Control, MOH

Medical Development Division, MOH

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EXPERT PANEL

For each major cancer site, the NCR has established an expert panel comprising members of the medical profession and allied health with expert knowledge in the area concerned.

The tasks of the Expert Panel are:

1. To undertake Quality Control of the reported data
2. To classify the reported tumor according to its behavior (benign, uncertain, precursor and malignant), site, histology and diagnostic basis (clinical, morphology, histology)
3. To undertake literature review in the area relevant to the panel
4. To interpret the results presented in the NCR report
5. To write the section of the NCR report relevant to the panel's expertise

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The Clinical Research Centre is the designated collaborating unit to the NCR. It provides the functional capacity to support the operations of the NCR.

The CRC is the clinical research arm of the Ministry of Health. Apart from the NCR, CRC currently also supports the National Renal Registry, National Cataract Surgery Registry, National Neonatal Registry, National Mental Health Registry and National HIV/AIDS Treatment Registry.

In recent years, CRC has emerged to become the preferred collaborating partner for medical professional groups to establish disease and treatment registries in the country. This is because CRC possesses sophisticated facility and equipment, state of the art technology, and most importantly the trained human resources such as registry managers, epidemiologists, statisticians, information technology professionals and other supporting staff skilled in registry operations. These resources are consolidated in the Disease and Treatment Registry Unit in the CRC. The unit specializes in assisting medical professionals to establish and operate their registries.

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ABBREVIATIONS

ASR	Age-standardized Incidence Rate
CR	Crude Incidence Rate
CRC	Clinical Research Centre
CRU	Cancer Registry Unit
CumR	Cumulative Risk
IACR	International Association of Cancer Registry
IARC	International Agency for Cancer Research
IC	Identification card
ICD	International Classification of Disease, WHO
ICD -10	International Classification of Diseases 10 th Edition
ICD-O	International Classification of Disease for Oncology, WHO
MOH	Ministry of Health, Malaysia
NCR	National Cancer Registry
QC	Quality control
SDP	Source Data Provider or Producer
SOP	Standard Operating Procedure
US	United States of America
WHO	World Health Organization

INTRODUCTION

This first report of the National Cancer Registry covers the period from 1st January 2002 to 31st December 2002. It describes the organization of the registry, methods employed in data collection, analysis and reporting and the results.

The cancer incidence data that is described in this report is based on Malaysians in Peninsular Malaysia using data from the vital statistics of Malaysia, 2002.

Classification of cancers in this first report is primarily topographical and not morphological. Subsequent reports will describe the morphological characteristics, which will then also include the paediatric tumours. The International Classification of Diseases for Oncology, 2nd Edition (ICD-O) for classification of cancers by primary site and morphology has been employed. Details of the Malaysian population are given in the appendices.

The publication of the first report has been a long overdue breakthrough that will effectively address the need for hard data on national cancer incidence. Future reports from the National Cancer Registry will meet other objectives such as cancer mortality, geographical and temporal trends in Malaysia, identifying subgroups at high risk of cancer, identifying potential risk factors involved in cancer, evaluating the outcomes and impact of cancer programmes, and stimulating research on cancer. In this report itself, several interesting observations already provide fertile ground for research and findings. For example, cancers of the breast and cervix being uniformly the most common cancers among all races have important implications on the role of wellness programmes such as breast self-examination, screening and early detection for this country. It is our sincere hope that this report will benefit individuals and institutions who need such information and thus justify their continued investment in this registry.

On behalf of the sponsors of the National Cancer Registry, we wish to express our appreciation to the Honorable Minister of Health whose initiative has led towards developing a fresh and innovative approach to the National Cancer Registry. We would like to acknowledge the support given by the Director-General of Health, all the Deputies Director-General and their divisions, participating centers from the Ministry of Health, universities, private sector, non-governmental organizations, expert panel members as well as industry and well-wishers.

We look forward to the continued support and collaboration from all parties that will enable the National Cancer Registry to develop and contribute significantly to the control of cancer in this country.

REPORT SUMMARY

The purpose of this summary report is to give an overall picture of the cancer situation in Malaysia and highlight the important findings of the National Cancer Registry.

1. Cancer burden

A total of 26,089 cancers were diagnosed among all residents in Peninsular Malaysia in the year 2002, comprising 11,815 males and 14,274 females. An estimated 10,656 cases were however not registered. In terms of risk, 1 in 5.5 Malaysians can be expected to get cancer in his/her lifetime. Taking into account unregistered cases, the risk would be 1 in 4 Malaysians.

The crude rate for males was 118.9 per 100,000 population and 148.4 per 100,000 population for females. The age standardised incidence rate for all cancers in the year 2002 was 168.8 per 100,000 males and 181.9 per 100,000 females.

Most frequent cancers in Malaysia

The most frequent cancers in men were cancers of the lung, nasopharynx, colon, leukaemias, rectum and prostate and the most frequent cancers in women were cancers of the breast, cervix, colon, ovary, leukaemias and lung.

Cancers with a relatively high age-standardized incidence rates compared with international figures included cancers of:

1. Cervix (overall incidence was higher than all developed countries; ASR of Chinese in Malaysia was higher than China, Hong Kong, most parts of Asia, superceded only by some Latin American and African countries)
2. Nasopharynx (second highest in males, but highest female rates in the world)
3. Larynx (Malaysian Indian males have the highest rate in Asia)
4. Mouth (second highest for males in the world, highest rates for females in the world)
5. Lymphatic leukemia (rates for males and females were higher than most parts of Asia)
6. Myeloid leukemia (rates for males and females among the highest in Asia).
7. Nose and nasal sinuses (highest female rate in the world)

2. Sex differences in cancer incidence

The overall female incidence of 148.4 per 100,000 population was higher than the male incidence of 118.9 per 100,000 population. The ratio of male to female incidence was 1 : 1.2 unlike other countries such as Singapore (1:0.97), United Kingdom, Norway (1:0.94) and Hong Kong (1:0.76).

The most common cancer among the males in year 2002 was cancer of the lung (13.9% of all male cancers). Among females, the commonest cancer in females was cancer of the breast (30.4%). Predominance of females to males in cancers of the thyroid and gall bladder was similar to other countries. Female preponderance was seen in all major ethnic groups in Malaysia. The crude incidences for cancer in male and female Malays were 84.4 and 102.1 per 100,000 population respectively, for Chinese 212.3 and 259.8 per 100,000 population respectively, and for the Indians 108.6 and 168.7 per 100,000 population respectively.

3. Ethnic variation in cancer incidence

Chinese have the highest lifetime risk for cancer, followed by Indians and Malays.

Race	Males	Females
Chinese	1:4	1:4
Indians	1:5	1:5
Malays	1:7	1:7

- Chinese women are at a risk of 1 in 14 of getting breast cancer in their lifetime.
Chinese men are at a lifetime risk of 1 in 20 of getting lung cancer and a lifetime risk of 1 in 42 of getting nasopharyngeal cancer.
Nasopharyngeal cancer was particularly common in Chinese.
- In Indians, the risk of cancers of the mouth, larynx, oesophagus and tongue was higher as compared to the other major ethnic groups.
- Malay subjects appeared generally to be at lower risk of cancer for all sites, except for thyroid cancer and lymphoma.
- Cervix cancer, a preventable cancer, was the second most frequent cancer in all major ethnic groups.

4. Variation in cancer incidence by age

The most frequent cancers in children were leukaemias, lymphomas, brain, eye, connective tissue and bones. In the economically productive age group of young adults, the common cancers were nasopharynx, leukaemias, lymphomas and lung in men, and breast, cervix, ovary and thyroid in women. In older subjects, the expected cancers like lung, prostate, colon and rectum were predominant in men, while cancers of the breast, cervix and colon and rectum occurred commonly in women.

Cancer incidence increased exponentially with age. The median age at diagnosis for cancer in Malaysia for males was 59 years and 52 years for females.

The crude rate by age groups by sex showed increasing incidence with age.

The crude rates for males aged 0 – 19 years was 20.9 per 100,000 population, 20-39 years was 37.3 per 100,000 population, 40-59 years was 212.1 per 100,000 population and 60 + years was 935.7 per 100,000 population.

The crude rates for females aged 0 – 19 years was 16.9 per 100,000 population, 20-39 years was 68.6 per 100,000 population, 40-59 years was 380.7 per 100,000 population and 60 + years was 671.4 per 100,000 population.

5. Individual cancers

5.1 Breast

Breast cancer was the commonest cancer in all ethnic groups and all age groups in females from the age of 20 years with an age specific incidence rate of 52.8 per 100,000 population. This disease accounted for 30.4% of newly diagnosed cancer cases in Malaysian women.

A woman in Malaysia has a 1 in 19 chance of getting breast cancer in her lifetime. Out of 100 women who are afflicted with cancer, 30 will be breast cancer patients.

The cumulative life time risk of developing breast cancer for a Chinese women, Indian women, and Malay women were 1 in 14, 1 in 15, and 1 in 24 respectively.

Breast cancer in Malaysia had an ASR higher than Singapore, Hong Kong and Shanghai. The ASR in South Australian (68.5), UK, England Wales (68.8), Los Angeles Non-Hispanic Whites (103.7) were higher than in Malaysia. Indians in Malaysia had a higher ASR than Indians in India (Bombay 28.2, Madras 23.5, Trivandrum 18.8).

5.2 Lung

Lung cancer was the most common cancer among males of all three major ethnic groups in Malaysia.

The lifetime risk of getting lung cancer for Chinese males was 1 in 20 and that for Malays and Indians was 1 in 40. Although lung cancer appeared to be under-reported, Indian males in Malaysia had a higher ASR compared to Indian males in Singapore, Bombay and Madras

5.3 Colon

Colon cancer ranked third among cancers reported in males and females, accounting for 7.8% and 5.6% in males and females respectively.

The ASR for males and females were 13.9 and 11.2 respectively. The incidence of colon cancer was highest in Chinese. Cumulative lifetime risk for Chinese males was 1 in 36, and 1 in 42 for Chinese females.

5.4 Rectum

Cancer of the rectum ranked fifth and eighth among cancers reported in males and females respectively. This disease accounted for 6.4% and 3.4% in males and females respectively.

In Malaysia, the Chinese had the highest incidence followed by Indians and Malays. In Malaysia, the cumulative lifetime risk for Chinese males was 1 in 48, for Indian males was 1 in 71, and for Malay males was 1 in 91.

5.5 Cervix

Cancer of cervix uteri was the second most common cancer among women with an ASR of 21.5 per 100,000 population, comprising 12.0% of total female cancers.

Chinese women had the highest ASR (33.6 per 100,000 population) followed by Indians (27.7 per 100,000 population) and Malays (12.6 per 100,000 population). The lifetime risk for getting cancer of cervix was 1: 28 for Chinese, 1:34 for Indians and 1:80 for Malays.

In comparison with western countries and other Asian countries, Malaysia had a higher incidence of cancer of cervix.

5.6 Nasopharynx

Malaysian Chinese females had the highest incidence of nasopharyngeal cancer in the world. Nasopharyngeal cancer featured higher in Chinese compared to other races in Malaysia.

The ASR for Chinese males in Malaysia (23.0) was the second highest in the world with a lifetime cumulative risk of 1 in 42. The ASR for Chinese females in Malaysia was 10.3, with a lifetime cumulative risk of 1 in 91.

5.7 Prostate

Prostate cancer was the sixth most frequent cancer in males and accounted for 5.7% of the total cancers in males with an ASR of 11.6 per 100,000 population.

The incidence in Malaysian Chinese (15.7) and Malaysian Indians (11.5) were higher than that of those in China (2.3) and India (7.9) respectively.

Chinese recorded the highest incidence, followed by Indians and Malays. The lifetime cumulative risk of prostate cancer was highest in Chinese (1 in 62) compared to Malays and Indians (1 in 83).

5.8 Ovary

Cancer of ovary was the fourth most common cancer among women. It constituted 5.0% of total female cancers with an ASR of 8.6 per 100,000 population.

Chinese women had the highest ASR (9.9 per 100,000 population) followed by Malays (8.1 per 100,000 population) and Indians (7.4 per 100,000 population).

The cumulative lifetime risk for getting cancer of ovary was 1:100 for Chinese, 1: 125 for Indians and 1:125 for Malays. It was the third commonest cancer diagnosed in Malay women.

5.9 Urinary bladder

Malaysian Chinese had the highest risk of developing bladder cancer among the ethnic groups as found in Singaporean Chinese.

Interestingly, the ASR for Chinese males in Malaysia (9.3) was higher than Chinese males in Singapore (7.7).

5.10 Corpus Uteri

Cancer of the corpus uteri was the seventh most common cancer among women. It constituted 3.6% of total female cancers with an ASR was 7.0 per 100,000 population.

The cumulative lifetime risk for getting cancer of the corpus uteri was 1 in 91 for Chinese, 1 in 100 for Indians and 1 in 167 for Malays.

5.11 Liver

Liver cancer ranked twelfth in men and eighteenth in women in Malaysia.

The cumulative lifetime risk for Chinese males was 1 in 111 compared to 1 in 167 for Malay and Indian males. Malaysian Chinese had the highest rates of liver cancer compared to Indians and Malays, this was also seen in Singaporean Chinese and in other communities with a Chinese population, for example, in San Francisco and Hawaii.

5.12 Thyroid

Females outnumbered males, with the highest incidence of thyroid cancer amongst the Malays.

In all males, the lifetime cumulative risk of thyroid cancer was 1 in 500. However, in Malay and Chinese females the risk was 1 in 200 as compared to Indian females in whom the risk was 1 in 333.

5.13 Oesophagus

Indians had the highest incidence of oesophageal cancer in both males and females in Malaysia. Cumulative lifetime risk for Indian males and females was 1 in 111, while Chinese males had a risk of 1 in 200, and Malays had a risk of 1 in 500.

The ASR in Malaysian Indian males (8.0) was similar to that of Indian males in India-Bombay (10.8) and Madras (10.5). However, the ASR of Chinese males and females in Malaysia (4.4 and 1.1 respectively) was markedly lower than that of Chinese in China-Shanghai 12.5 and 4.8 respectively).

5.14 Mouth

Mouth cancer ranked twenty-first among cancers in males and sixteenth in females. The incidence was highest among the Indians. The ASR for Indian females (19.8) is

markedly higher than the highest ASR for females in the Indian subcontinent (Bangalore 8.9). The cumulative lifetime risk for Indian females in Malaysia was 1 in 42.

5.15 Larynx

The incidence of cancer of the larynx among Indians was higher compared to Chinese and Malays in Malaysia. However, the ASR in Malaysian Indians was higher than that of Indian males in Singapore and rest of the Indians in India with an exception of males in Bombay (ASR 8.2).

The cumulative lifetime risk for Indian males was 1 in 91, while it was 1 in 167 for Chinese males and 1 in 250 for Malay males.

5.16 Tongue

Tongue cancer ranked nineteenth among cancers in males and twenty-fourth in females. This cancer was notably highest among the Indians.

The cumulative lifetime risk in Indian males and females were 1 in 143 and 1 in 167 respectively. Malay males and Chinese males had cumulative lifetime risks of 1 in 333 and 1 in 500 respectively.

5.17 Gall bladder

The ASR for cancer of the gall bladder in Malaysia was comparable to that of Singapore. There is a female preponderance, as was seen in Singapore, Shanghai (2.5 for males, 3.6 for females), South Australia (1.9 for males, and 3.1 for females).

5.18 Leukemias

Leukemias ranked fourth among cancers in males and fifth in females. There was a preponderance of males to females.

The age specific incidence curves for lymphatic leukaemia had bimodal peaks while that for myeloid leukaemia rose with age.

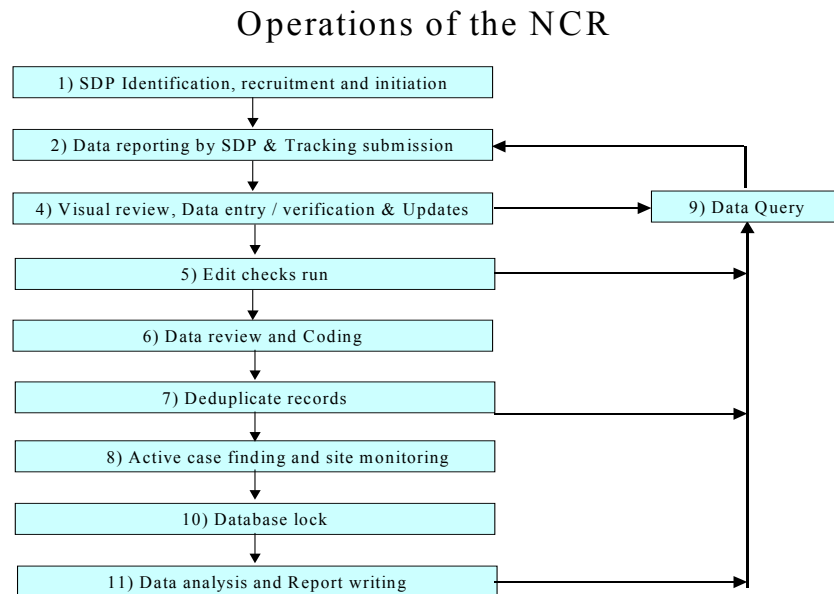
METHODS

The Cancer Registry Unit in CRC was established to provide the functional capacity to support the operations of the NCR.

To achieve the objectives of the NCR, the function of the CRU is to ensure:

1. The complete enumeration of all incident cases of cancer in the population
2. The validity of the data collected on these cases of cancer
3. Their correct and reproducible classification and coding
4. Their complete follow-up until migration out of the population or death.

These are accomplished by a series of tasks as shown in the figure below.



Selection, identification, recruitment and motivation of Source Data Provider

Ideally, any individual or institution that have access to cancer related information should become a Source Data Provider (SDP). However, that means almost every medical practitioner in the country. This ideal is clearly not achievable. In practice one must select SDP judiciously. This was based on consideration of data validity, the burden associated with identifying cases and the requirement for a wide case finding network that deliberately includes multiple source reporting so that a case will be reported by at least one of the sources. Based on these, the type of SDP targeted for recruitment by NCR was from the following disciplines: pathology, oncology, hematology, palliative care, and selected practices that manage specialized cancers such as breast, endocrine, and supplemented by data downloaded from routine hospital information system.

Once these SDPs were identified, no efforts were spared in persuading them to voluntarily participate in the NCR and to motivate them to continue reporting data. The influence of key opinion leaders and professional society, together with extensive marketing were employed using various media such as website, brochure, trade exhibition, face-to-face talks, meetings and organized events. Further, NCR ensure wide representation in its activity through appointment to its Advisory Committee and

through opportunity to participate in Expert Panel and NCR supported research activities.

Thus, the NCR was able to enlist almost all identified SDPs, except for one palliative care centre and one oncologist who died in the year 2002. This represents a 99.3% participation rate.

Data reporting by SDP

Participating SDPs report data on new cancer cases to the NCR on a monthly basis. The case definition was deliberately liberal. SDPs were instructed to report a case even when they have doubt about case eligibility. The eligibility and validity of the reported cases were subsequently sorted out by Expert Panels centrally.

To minimize the burden associated with data reporting, only 7 data items were required for each reported case. These are patient's name, identification number (old/new), age, sex, race (optional), topography (specimen/ site/organ involved), and morphology (cytology or histology).

Data submissions by SDPs were tracked by NCR computer system, which flag any late submission and automatically send a reminder. In this way, NCR was able to achieve almost complete data submission. All participating SDPs submitted all 12 months' data for the year 2002 except for one, which had submitted only 6 months' data.

Visual review, data entry/update and edit checks

Data received by the NCR were logged-in and manually reviewed to check for completeness and obvious errors or problems. Data without apparent problems were entered into the registry database. Edit checks were performed periodically to identify potential data errors, such as missing data, non-allowed values, out of range numeric values, inconsistent data and error with deduplication. Data queries that are resolved are then updated to the database.

Data review and coding

Cancer data are initially auto-encoded for topography by NCR computer. These were then verified by NCR medical reviewers. However, to maintain rigorous quality control (QC) of NCR data, the NCR has established for each cancer site an expert panel comprising members of the medical profession and allied health with expertise and knowledge in the relevant area. The tasks of the Expert Panel are to:

- Undertake final QC review of the reported data to ensure only meaningful and valid data are included in NCR report.
- Classify the reported tumor according to its behavior (benign, uncertain, precursor and malignant), site, histology and diagnostic basis (clinical, morphology, histology)

The NCR follows IARC/IACR recommendation and uses the ICD-O (now in its third edition) classification system for coding its cancer data. This system provides detailed codes for both topography and morphology, and has enjoyed wide international acceptance, which is important for comparability of results.

Data deduplication

The NCR, like other cancer registries, has adopted a multiple source reporting strategy to minimize under-registration and maximize data validity. The inevitable

problem arising of such a strategy is the multiple or duplicate recording of the same incident cancer case.

Duplicate records require the NCR to resolve 2 problems:

1. Deduplication: The identification of duplicates in order to exclude them from analysis. Manual and sophisticated record linkage technique are employed to accomplish this
2. Assigning one value for the variables when reported values conflict or is not consistent. This was undertaken by expert review of the data, with if necessary query at source to resolve inconsistencies. Otherwise, pre-determined rules were used for selecting a value.

Rules for deduplication

The rules below were used to determine duplicate records in the NCR data.

Order refers to strength of confidence (order 1 highest confidence) that a record is a duplicate of another.

Order	Rules
1	Exact match on IC number (old or new)
2	Exact match on name and “similar” IC
3	Phonetic match on name and “similar” IC
4	Phonetic match on name and “similar” age (± 3 years) and same major site code

Rules for assigning a value among duplicates

The rules below were used to assign a value to duplicate records when they were inconsistent with another.

Variable	Rules
Age	Use median age among duplicates
Sex	Assign the gender status of the majority records. If evenly split (for example, 1 male and 1 female for 2 duplicates), randomly assign one of either sex
Race	Assign the modal ethnic category. If there are 2 or more modes, assign by human reviewer, else assign Malay first, then Chinese, then Indian and lastly Others
State	Assign to Sabah or Sarawak if any duplicate from Sabah or Sarawak. If both present among duplicates, assign either Sabah or Sarawak randomly. The assumption underlying this rule is that since Peninsular Malaysia is better developed medically, a case is more likely to be referred from Sabah/Sarawak to Peninsular Malaysia than vice versa.
Diagnostic basis	Assign in the following order of priority: Histology, Morphology, Clinical
Cancer diagnosis	Assign the diagnosis that requires more information to make, in the following order of priority: <ul style="list-style-type: none"> • Records with specific site diagnosis • Records with non-specific "Other" category • Records with unknown primary site Remaining duplicates with conflicting specific site diagnoses will be reviewed by human expert and a diagnosis assigned accordingly.

Active case finding and site monitoring

In the beginning of year 2003 for a period of 3 months, the NCR undertook intensive case finding at 4 sites to round up all the unreported data and late notifications to ensure timely publication of year 2002 report. Site monitoring is indicated for specific under-performing SDP, which in the event was not necessary in view of very high data reporting rate.

Database lock

The final data set for analysis is locked prior to transfer for analysis

Rules for excluding records from database (deleted) or from analysis are as follows:

- Prevalent cases. SDPs are also instructed not to report prevalent cases
- Non-cancers
- Benign tumors or tumor of uncertain behavior
- Recurrent or residual tumor. Here we assume that tumor was diagnosed before year of reporting, and hence represents a prevalent case. This is conservative as tumor may well have recurred in the same year it was diagnosed.
- Tumor of uncertain diagnostic basis
- Expert Panel's decision to exclude a case, usually on ground of poor data quality or insufficient information to determine case status

Data Analysis

The statistical methods described below for the analysis of NCR cancer data follows standard practices [1]. Missing data on age and sex were imputed by "hot-decking". The hot deck imputation method implemented was the Approximate Bayesian Bootstrap Hotdeck. In this method, a sample was first obtained by bootstrap sampling from observations with complete data for the strata defined by cancer diagnosis and race, and donor lines are then selected again from this bootstrap sample again by bootstrap sampling.

Cancer incidence is defined as the number of cases first notified for a given population during a specified period.

The crude incidence rate (CR) is estimated as follows:

Incidence = $\frac{\text{Number of new cancer cases}}{\text{Population at risk}}$ in a period of time

$$CR = \frac{\sum_{i=1}^A r_i}{\sum_{i=1}^A n_i} \times 100000$$

where r_i is the number of cases which have occurred in the i th age class and n_i the person-years of observation in the i th age class during the same period of times as cases were counted.

The population at risk refers to Malaysia population as provided by Department of Statistics based on its projection. The period of interest is one calendar year (year 2002)

Age-standardized incidence (ASR) is required for meaningful comparison of 2 populations that differ in their age structure. For example, comparison of male and female, or one ethnic group and another, or one country and another.

The age-standardized incidence is calculated by the direct method, the reference population being the World Standard Population [2]

$$ASR = \frac{\sum_{i=1}^A a_i w_i}{\sum_{i=1}^A w_i}$$

where a_i is the age-specific rate in the i th age class and w_i is the weight from the Standard Population in the i th age class.

The Cumulative Risk (CumR) is the risk that an individual would have of developing the cancer in question during a certain age span if no other causes of death were in operation. This statistic is more readily understandable than age standardized rate as no arbitrary standard population is used. It can be considered as a directly age standardized rate with the same size of population in each age group. The CumR is estimated as follows:

The cumulative rate is estimated by the sum of over each year of age of the age-specific incidence, taken from birth to age 70+ for the 0-70+ rate.

$$\text{Cumulative rate} = \sum_{i=1}^A a_i t_i$$

where a_i is the age-specific incidence rate in the i th age class which is t_i years long.

The cumulative risk is estimated as follows:

$$\text{Cum. risk} = 100 \times [1 - \exp(-\text{cum. rate}/100)]$$

EVALUATION OF THE QUALITY OF NCR DATA

A credible cancer registry needs to assure and evaluate the quality of its data.

Data quality has 2 aspects:

1. High case ascertainment rate (completeness of enumeration or registration). This is the extent to which every incident cases of cancer is identified by the registry
2. High data validity. This is the extent to which the information recorded on the different variables is true or accurate

It is perhaps surprising that few if any cancer registries routinely include a systematic quality evaluation of the data in their reports. This is obviously necessary to alert readers to exercise caution in interpreting results where data quality is a problem. The sponsors of the NCR take exception with this practice. Hence we undertake an independent evaluation of the quality of the data that provide the basis for this report.

METHODS

In evaluating data quality, we followed standard practices [3]. Not all recommended methods were however applicable, the reasons are described below too.

This evaluation was confined to Peninsular Malaysia data, which were analyzed and presented in this report. Case ascertainment rates for Sabah and Sarawak were so obviously low and were therefore excluded from analysis as well as from this evaluation.

1. Completeness of ascertainment

The completeness of registration is determined by the design of the registry. Design features incorporated into NCR registration practice to ensure high completeness rate are:

1. Marketing techniques to ensure complete identification and enlistment of SDPs.
2. Simple reporting procedure with minimal data collection (only 7 data items per case)
3. Active case finding at SDP sites where data submission is late or judged to be insufficient from reporting trend.
4. Use of multiple source reporting

Methods used for evaluating completeness of registration were:

1. Number of sources or notifications per case. High number of notifications or sources per case suggests high completeness of case ascertainment.
2. Proportion of cases histologically verified (HV%). High HV% implies over-reliance on pathology and suggests failure to identify cancer from other sources, especially for certain cancers which are relatively inaccessible for biopsy or for which non-invasive diagnostic methods are available, such as liver, gallbladder, pancreas, kidney, lung and brain.
3. Capture-recapture methods. This method evaluates the completeness of case ascertainment by the degree of duplicate reporting from 2 or more independent data sources, such as between Pathology and Clinical sources.
4. Comparison of age specific incidence curve between countries. This is a particularly useful method for the NCR. Malaysia population is demographically similar to Singapore, though not identical (Singapore has a highly urbanized and more affluent population with greater proportion of Chinese and older people, and

hence would be expected to have higher incidence of cancers). Singapore also has a well-established registry of high quality as far as we can determine. Hence comparison of the age incidence curves from the 2 populations should show curves of similar shape though not necessarily overlapping to account for differences in incidence. Further, fall off in the rate of increase in incidence in older subjects suggests under-ascertainment in the older age groups

5. Childhood cancer. The incidence of childhood cancers is relatively constant compared to adults. These allow the under-ascertainment of cancers in the pediatric age range to be identified easily.

The following methods are not used and the reasons are given below:

1. Death certificate methods. This is not useful to NCR as death certification as a method of case ascertainment is not acceptable for a registry in its first year of operation. Clearly, we cannot assume all cases ascertained through death certificate only were diagnosed in the current year of reporting.
2. Restricted data sets. In this method, we compare notified cases with patients enrolled into trial, specialized registry, or other comprehensive case registers. NCR currently has no access to other independent data sources that may be used for this purpose.
3. Re-screening of cases or case-finding study. This is clearly a resource intensive method. However, it will be employed when NCR is better established
4. Mortality:Incidence ratio. This ratio compares the number of deaths attributed to a specific cancer and the number of incident cases in the same time period. This method is not useful to NCR because death certification data in Malaysia is too incomplete (only about 45% of deaths are medically certified) and has never been independently verified.
5. Stability of incidence rates over time. This method no doubt will be useful in future reports.

2. Validity of data

The validity of data is determined by the design of the registry. Design features incorporated into NCR registration practice to ensure high data validity are:

1. Targeting SDPs likely to provide highly valid data. These are Pathology, Oncology, Palliative care and Hematology
2. Use of multiple source reporting
3. Trained and dedicated personnel working to clear written procedure
4. Use of external Expert Panel to review and code data. This is clearly a very expensive procedure rarely used by any registries. The sponsors of the NCR were anxious to assure data quality through independent data review by experts. Members of the various Expert Panels are listed in this report.
5. Pre-programmed edit checks to identify out of range, non-allowed and inconsistent values.

Methods used for evaluating data validity were as follows:

1. Histological verification. High rate suggests high validity except for certain sites
2. Missing demographic data on age and sex and Unknown primary site

The following methods are not used and the reasons are given below:

1. Death certificate only (DCO). As the NCR does not use death certification to ascertain cancer cases, this method is not applicable. The validity of DCO is

highly suspect in Malaysia because of low rate of medical certification of causes of death, lack of independent verification of such data, and the required assumption that death occurs in the same year the case was diagnosed.

2. Reabstraction or Source data verification. This method compares registry record with source data by an independent observer (monitor). This is clearly a resource intensive procedure, which is widely used in clinical trial but not in cancer registry practice. This method is however useful when the NCR is better established.
3. Internal consistency method. This is a method for assuring data validity rather than for evaluating data quality. Edit checks were extensively employed in NCR data management practices.

RESULTS

Number of sources or notifications per case.

Overall, the NCR received 56732 cancer notifications in year 2002. Of these, 29839 were unique cancer cases. Thus, there were 1.9 notifications per case. For Peninsular Malaysia, there were 26089 cases out of 48984 notifications, giving a similar 1.9 notifications per case. These are very high notification rate by any standard [3].

Clearly, we can expect the number of notifications per case to vary by cancer site, as shown in Table Q1. Endocrine tumors and PSU had the lowest number of notifications per case at 1.1, while leukemias had the highest at 3.5 notifications per case

Capture-recapture methods.

In using this method, we evaluate the duplicate notifications from 2 relatively independent sources, the Pathology and Clinical sources. The Clinical source is comprised of cases from Oncology, Palliative care and other clinical sources. Hematology is assumed to be both pathology and clinical sources. It is impossible to determine whether reported data from hospital information system are from pathology or clinical sources. This source contributed a net 3664 cases. The result is as shown below:

		Pathology sources	
		Present	Absent
Clinical sources	Present	6573	6596
	Absent	14271	Number missing= 14320-3664

Hence, there is an estimated 10656 cases in the population that are unregistered by the NCR, giving an estimated ascertainment rate of 71%. It should be noted that the 10656 missing cancer cases represent both undiagnosed cases in the population or advanced cases that were never referred for investigation or treatment (a common practice), as well as those diagnosed cases that were not registered by the NCR. The former (undiagnosed or un-investigated cases) will never ever be registered by the NCR by design and is likely to a majority of the missing cases. Nevertheless, these undiagnosed or un-investigated cases are likely to decline over time as medical development of the country progresses. Thus, the ascertainment rate of the NCR is likely to be in the range of 85-90% of all diagnosed cases.

Comparison of the age specific incidence curves between Malaysia and Singapore

The results are shown in Figure Q1. It is reassuring to note that in most cancer sites the age specific incidence curves (ASIC) were as expected [4]. For example, the bimodal age curve expected of lymphatic leukaemias, lymphomas, bones and brain cancers with an early peak in childhood and another peak in an older age group. For certain cancer such as nasopharynx, breast, cervix, corpus uteri and ovary, the unimodal curves that level off or even decline beyond certain age were observed. For the rest of the epithelial cancers, the exponentially rising curves were seen.

There were however a few notable exceptions. The ASIC for lung, liver, gallbladder, pancreas, stomach and colo-rectal cancers level off with increasing age when an exponentially rising curve is expected, clearly suggesting under-ascertainment of these cancers among the older subjects.

We may categorize the comparisons between the ASIC of NCR and Singapore registry [5] as follows:

A	Cancers showing similar age specific incidence curves (ASIC) suggesting similar case ascertainment rate between the 2 registries	Tongue Salivary gland Nasopharynx Oesophagus Larynx Skin/ Melanoma Female breast	Cervix Corpus uteri Prostate Urinary bladder Brain etc Thyroid Leukaemias Lymphomas
B	Fall-off in NCR curve compare with Singapore registry's data suggesting under-ascertainment by NCR	Stomach Colon Rectum Liver Gall bladder	Pancreas Lung Kidney etc Myeloma
C	Fall-off in Singapore registry's curve compare with NCR data suggesting under-ascertainment by Singapore registry	Mouth Nose and sinuses	Bone

From this evaluation, lung, liver, stomach, colon and rectum are the 5 important cancers that account for much of the under-ascertainment in the NCR data. We estimated the degree under-ascertainment based on extrapolation of their ASIC. The results are shown in the table below:

Site	Sex	NCR		Extrapolation		Number missing
		N	CR*	N	CR*	
Stomach	Male	487	4.9	530	5.3	43
	Female	357	3.7	532	5.5	175
Colon	Male	917	9.2	1038	10.4	121
	Female	805	8.4	818	8.5	13
Rectum	Male	760	7.7	1256	12.6	496
	Female	480	5.0	1042	10.8	562
Liver	Male	417	4.2	492	5.0	75
	Female	149	1.5	174	1.8	25
Lung	Male	1646	16.6	2243	22.6	597
	Female	610	6.3	1075	11.2	465
All sites		6628		9200		2572

* Crude incidence / 100,000 population

Incidence of childhood cancers.

The table below shows the incidence of cancers per 100,000 population in the pediatric age range ascertained by the NCR.

Age, years	Boys	Girls
0-4	23.8	17.9
5-9	18.0	15.2
10-14	18.3	14.1

Our reported incidence rates are within the expected range reported by other registries [3]. If anything, the incidence rates in our population are on the high side, suggesting the case ascertainment is likely to be complete in these age groups for NCR data.

Proportion of cases histologically verified (HV%).

The results are shown in Table Q2.

The HV% clearly varies with sites. In most sites, the NCR's HV% were comparable to those reported by North American, Western European and Australian/NZ registries; and mostly higher than Japanese and Other Asian registries. This is reassuring. However, for sites which are relatively inaccessible to biopsy or for which non-invasive diagnostic methods exist, such as lung, brain, liver, gallbladder and pancreas, our HV% is clearly higher than Other Asian registries, though still comparable to those reported by North American, Western European and Australian/NZ registries. This suggests we are under-ascertaining these cancers by over-relying on pathology

reporting. On the other hand, the Asian registries may be over-reliant on non-histology method. For example, the HV% for liver and pancreas cancers in Japanese and Other Asian registries were very low indeed.

Missing demographic data and Primary site uncertain (PSU)

The result is shown in the table below

Variable	No. (%) Missing
Race	0 (0%)
Sex	16 (0.05%)
Age	339 (1.1%)
Primary site uncertain (PSU)	881 (3%)

Missing data for the demographic variables clearly are very low. The PSU rate is well within the range reported by established cancer registries in the world.

CONCLUSION

Overall, the case ascertainment rate achieved by the NCR is in the range 85-90% of diagnosed cancers, and the validity of the data is comparable to those of established registries.

Evaluation of the quality of NCR data serves 2 purposes:

1. It identifies shortfall in the registry design and practices, and thereby provides an opportunity for improvement. Thus, we know from this evaluation that we have under-ascertained gastrointestinal cancers (Stomach, Colon, Rectum), and cancers for which imaging and/or biochemical diagnostic methods are available or at least widely used without tissue diagnosis (Liver, Gall bladder, Pancreas, Lung, Kidney and Myeloma). The NCR needs to target appropriate SDPs to improve the ascertainment of these tumors.
2. Since the data provide the basis for this report, it is only responsible that the NCR comes clean on where data problem exists and alert readers of its report accordingly. Thus, for Stomach, Colon, Rectum, Liver, Gall bladder, Pancreas, Lung, Kidney cancers and Myeloma, caution is definitely warranted in interpreting the incidence statistics presented in this report. In particular the reported incidence is lower than the true incidence in the Malaysian population, especially in older subjects beyond age 60 years.

Table Q1. Number of notifications per case by cancer sites

Cancer sites	Number of notifications per case	Cancer sites	Number of notifications per case
OTHER ENDOCRINE	1.1	PANCREAS	1.7
UNKNOWN PRIMARY SITES	1.1	STOMACH	1.7
SMALL INTESTINE	1.2	COLON	1.7
OTHER URINARY	1.2	TONGUE	1.8
CRANIAL NERVES etc	1.2	BONES etc	1.8
OTHER SKIN	1.3	GUM, MOUTH, OTHERS	1.9
PROSTATE GLAND	1.3	NASOPHARYNX	1.9
SINONASAL	1.4	LUNG	1.9
MALE BREAST	1.4	CORPUS UTERI	1.9
OTHER PHARYNX	1.4	LARYNX	1.9
SALIVARY GLANDS	1.4	PENIS/ OTHER MALE GENITAL	1.9
OTHER DIGESTIVE ORGANS	1.4	KIDNEY	1.9
TESTIS	1.4	RECTUM	1.9
ANUS	1.5	ESOPHAGUS	2.0
OTHER RE	1.5	FEMALE BREAST	2.0
GALLBLADDER etc	1.5	HYPOPHARYNX	2.0
LIVER	1.5	MYELOMAS	2.0
THYROID GLAND	1.5	CERVIX UTERI	2.0
VAGINA	1.5	OVARY	2.0
PLEURA	1.5	OROPHARYNX	2.0
THYMUS/HEART/MEDIA STINUM	1.6	VULVA	2.1
LIP	1.6	LYMPHOMAS	2.1
MELANOMAS	1.6	FALLOPIAN, LIGAMENT, ADNEXA	2.1
BRAIN	1.6	PLACENTA	2.5
CONNECTIVE TISSUES etc	1.6	EYE	2.9
URINARY BLADDER	1.6	LEUKAEMIAS	3.5

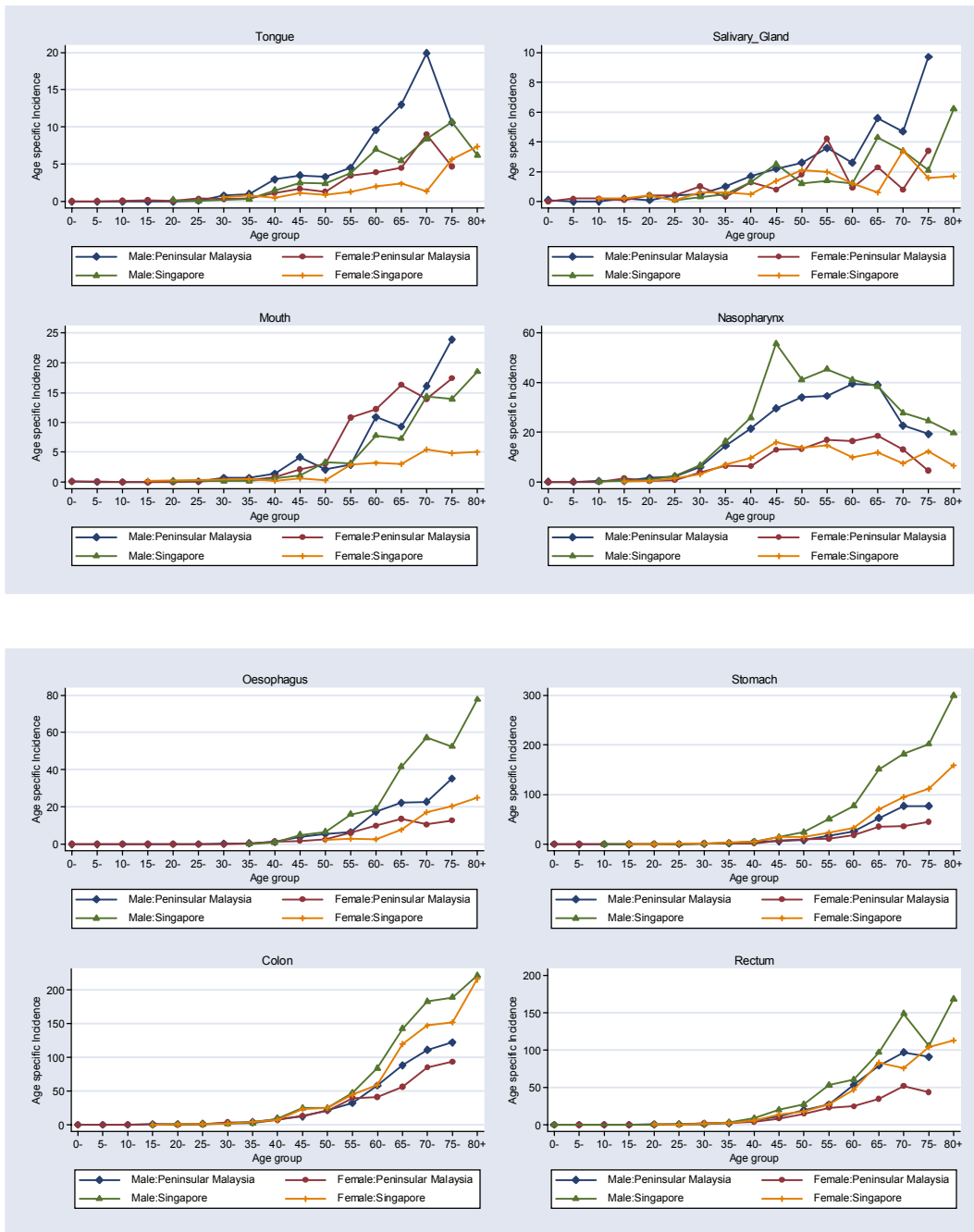
Table Q2. Percentage of cases registered with histological verification of diagnosis.
Comparison of N.America, Western Europe, Australia/NZ, Japan, Other Asia and
Malaysian NCR data

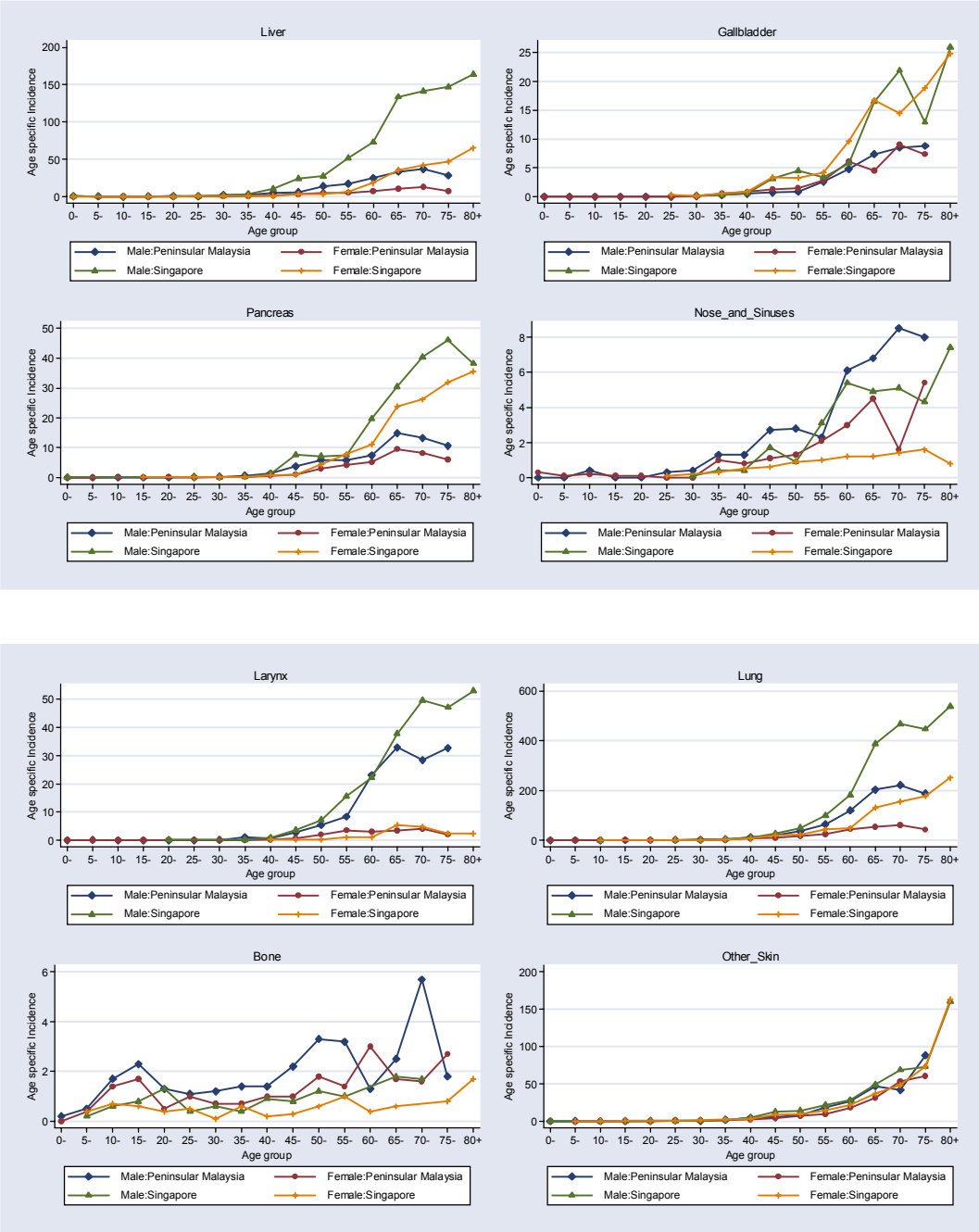
		North America	Western Europe	Australia/ NZ	Japan	Other Asia	Malaysia/ NCR
Lip	M	96.4	97.5	95.7	90.9	96.2	85.7
	F	95.0	97.5	95.5	90.0	90.0	92.0
Tongue	M	92.8	97.2	91.5	90.6	84.5	81.7
	F	93.4	95.5	92.0	90.0	80.5	84.3
Salivary gland	M	95.0	97.9	92.0	89.4	85.6	78.1
	F	92.7	95.9	91.3	89.5	86.4	94.3
Mouth	M	92.9	98.9	95.3	92.5	85.4	88.5
	F	94.5	97.8	94.2	89.8	80.8	91.0
Oropharynx	M	92.9	98.1	92.9	97.3	88.5	84.4
	F	94.8	98.3	91.4	90.6	86.3	96.3
Nasopharynx	M	91.8	95.9	92.2	90.9	83.8	81.5
	F	91.4	95.0	89.8	84.5	82.2	82.0
Hypopharynx	M	94.8	98.2	96.6	92.8	84.5	84.7
	F	95.0	97.4	96.2	89.9	85.0	73.9
Other Pharynx	M	84.8	95.6	86.9	67.9	62.5	84.4
	F	85.5	83.3	77.1	85.7	44.0	97.1
Oesophagus	M	89.9	92.5	88.2	76.5	57.7	85.0
	F	88.6	88.2	86.1	66.6	53.0	85.3
Stomach	M	90.1	94.3	86.9	80.3	61.5	88.5
	F	85.5	91.8	80.8	75.9	58.6	91.1
Small intestine	M	94.2	98.1	92.8	81.3	79.4	97.2
	F	93.7	95.2	90.5	76.4	78.0	98.1
Colon	M	91.9	93.7	89.6	76.0	78.2	83.1
	F	90.2	92.5	87.0	73.1	77.5	89.7
Rectum	M	94.2	96.5	93.7	79.9	83.7	85.1
	F	92.9	95.2	92.2	78.1	82.3	88.3
Liver	M	71.0	74.1	67.4	36.0	28.9	52.5
	F	66.6	75.3	68.6	29.7	26.8	53.3
Gallbladder	M	81.1	81.3	80.5	51.6	57.0	82.6
	F	82.6	82.0	78.4	49.4	63.4	85.5

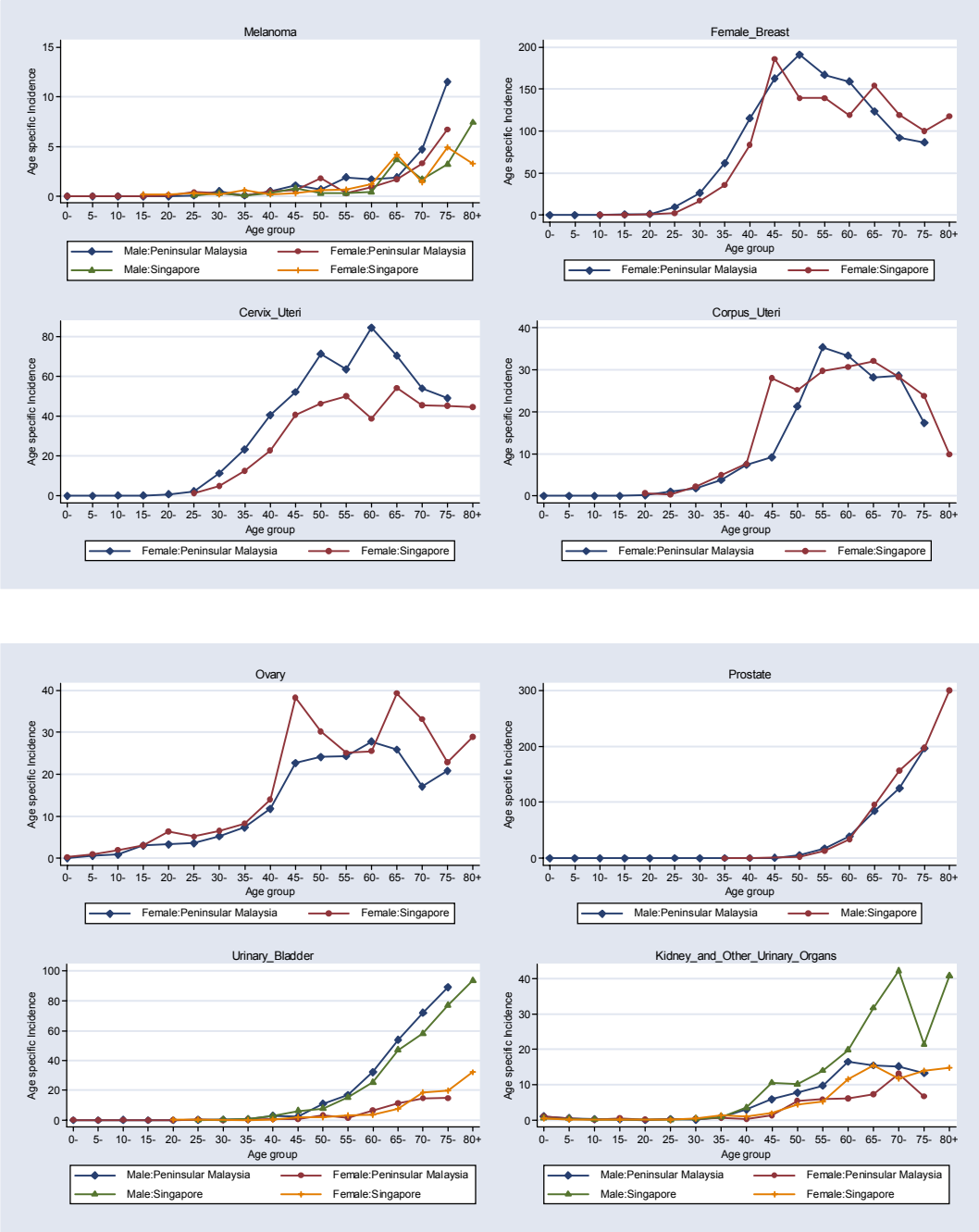
Pancreas	M	64.5	67.0	55.8	46.8	35.4	66.6
	F	61.5	64.9	52.9	39.9	35.5	70.5
Sinonasal	M	92.9	96.9	93.5	82.2	82.6	88.7
	F	92.6	96.1	93.3	83.3	81.9	85.9
Larynx	M	94.3	97.0	93.2	90.4	82.4	76.7
	F	93.5	94.9	93.6	79.4	75.2	77.2
Lung	M	82.8	89.2	78.9	67.0	53.8	62.0
	F	83.5	87.3	77.9	60.4	46.1	66.0
Pleura	M	90.3	96.0	89.8	81.3	72.1	100.0
	F	86.1	92.4	95.2	81.1	69.8	93.5
Bone	M	88.0	97.5	93.6	82.4	59.0	72.1
	F	87.1	92.8	92.7	81.3	55.1	79.5
Connective tissue	M	92.8	96.8	94.0	95.1	89.5	81.1
	F	91.7	97.5	93.9	94.1	87.9	84.3
Melanoma	M	96.2	99.4	97.7	87.1	95.0	89.1
	F	95.8	99.7	97.5	91.3	95.3	92.5
Other skin	M	89.8	99.6	95.6	94.7	93.8	96.4
	F	99.6	99.1	94.2	91.0	92.6	97.0
Female breast	M	0.0	0.0	0.0	0.0	0.0	0.0
	F	94.7	96.3	93.2	91.3	86.6	82.6
Cervix uteri	M	0.0	0.0	0.0	0.0	0.0	0.0
	F	94.1	98.3	95.3	94.5	84.2	87.8
Placenta	M	0.0	0.0	0.0	0.0	0.0	0.0
	F	82.9	100.0	91.8	77.8	76.1	55.5
Corpus uteri	M	0.0	0.0	0.0	0.0	0.0	0.0
	F	97.1	98.1	95.2	92.1	93.1	97.8
Ovary	M	0.0	0.0	0.0	0.0	0.0	0.0
	F	91.1	93.7	91.1	74.0	80.3	81.6
Other female genital	M	0.0	0.0	0.0	0.0	0.0	0.0
	F	93.0	92.6	93.5	86.5	86.9	100.0
Male breast	M	94.3	95.7	94.5	93.8	84.6	91.7
	F	0.0	0.0	0.0	0.0	0.0	0.0
Prostate	M	93.0	94.2	88.3	74.3	81.1	86.8
	F	0.0	0.0	0.0	0.0	0.0	0.0

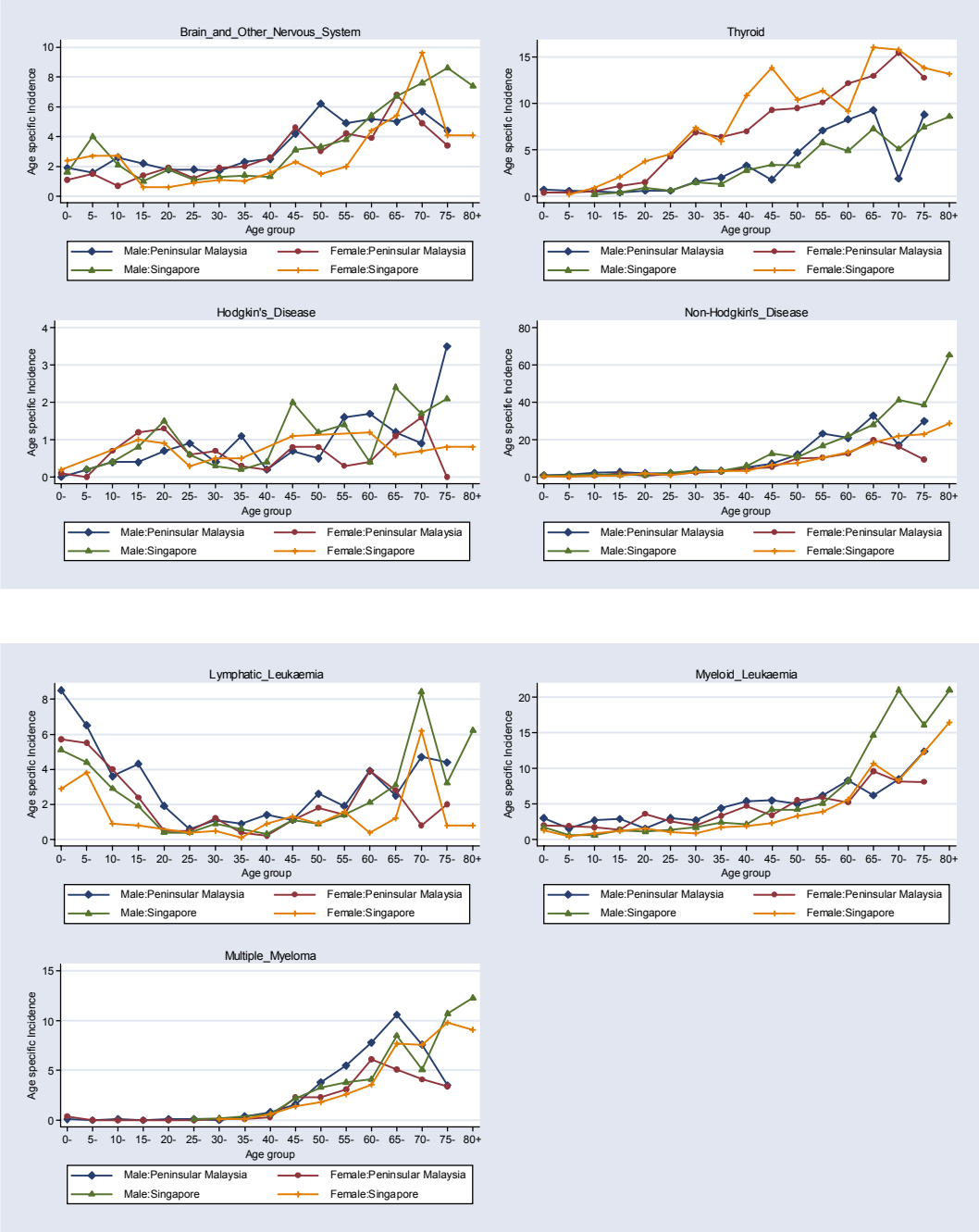
Testis	M	97.3	98.8	95.8	91.6	90.5	79.2
	F	0.0	0.0	0.0	0.0	0.0	0.0
Penis, etc	M	94.2	99.6	96.8	86.0	86.3	88.2
	F	0.0	0.0	0.0	0.0	0.0	0.0
Bladder	M	95.1	97.3	94.6	84.2	84.5	84.6
	F	93.6	96.1	92.1	76.4	80.6	89.6
Kidney etc	M	84.9	89.0	84.6	77.7	77.1	73.5
	F	82.5	88.0	84.4	71.7	77.0	72.2
Eye	M	74.8	92.8	91.6	90.2	79.4	57.6
	F	69.9	87.1	91.2	91.8	78.2	50.0
Brain, etc	M	79.7	79.5	76.5	67.1	61.5	73.0
	F	74.3	78.2	72.0	61.2	59.3	75.4
Thyroid	M	95.1	96.7	91.8	88.7	87.1	79.9
	F	96.2	96.7	95.1	91.3	88.7	86.6
Endocrine etc	M	75.2	89.6	79.9	77.9	67.1	96.7
	F	76.5	91.9	79.5	78.4	71.5	92.5
Non-Hodgkin	M	92.2	98.2	94.0	93.6	86.6	70.0
	F	92.0	97.7	93.2	93.6	87.6	76.2
Hodgkin's disease	M	94.4	98.3	94.7	97.6	93.5	76.2
	F	94.7	96.7	94.5	98.8	94.7	82.8
Myeloma	M	81.7	87.2	85.2	82.4	69.7	75.9
	F	79.0	83.4	82.9	78.9	66.9	66.6
Lymphoid leukaemia	M	78.8	93.6	91.1	88.7	85.2	67.8
	F	76.9	92.8	89.9	88.5	85.0	70.4
Myeloid leukaemia	M	86.3	93.8	91.3	86.1	82.9	78.6
	F	85.2	93.0	88.5	85.0	81.9	81.3
Monocytic leukaemia	M	82.6	95.9	86.8	89.6	90.4	100.0
	F	83.9	94.3	84.4	85.9	90.5	100.0
Other leukaemia	M	84.9	100.0	90.6	84.1	88.8	71.2
	F	81.1	97.7	88.7	78.4	88.9	75.3
All sites but skin	M	88.0	91.6	86.3	70.5	64.8	77.0
	F	88.9	92.2	87.6	73.0	71.6	83.0

Figure Q1: Comparison of the age specific incidence curves between Malaysia and Singapore









CHAPTER 1 Cancer Incidence in Malaysia 2002

1.1 Overall cancer incidence

A total of 26,089 cancers were diagnosed among all residents in Peninsular Malaysia in the year 2002, comprising 11,815 in males and 14,274 in females (Table 1.1.1). The corresponding figures for Sabah and Sarawak are also shown in Table 1.1.1. Clearly, there must be serious doubt about the completeness of cancer registration from this two East Malaysian States. Hence, they are omitted from further analysis in this report. The cancer incidence results presented in the rest of this report refer only to Peninsular Malaysia.

The cumulative risk of cancer in Peninsular Malaysia was 18%. That means 1 in 5.5 Malaysians can be expected to get cancer in their lifetime. Taking into account cancers not registered by the NCR, the risk would be higher with 1 in 4 Malaysians getting cancer in their lifetime.

Cancer occurred at all ages with a marked increase in males from 40 years and above and from 30 years in females. Compared to other Asian countries like Singapore and Hong Kong, the sharp rise in age-specific incidence appeared to be similar, with increase occurring at 40 years and above in males and 30 years and above in females. However in UK, England and Wales (1988-1990), the increase in incidence occurred at 50 years and above in males and from 60 years and above in females.

The comparison of age standardised incidence per 100,000 (ASR) of Malaysia was 168.8 for males and 181.9 for females as compared to Singapore (233.1 for males, 198.1 for females), Hong Kong (292.0 for males, 202.3 for females), United Kingdom, England and Wales (261.1 for males, 225.5 for females).

ASR in Malaysia was in between that of less developed countries (153.75) and more developed countries (300.97). Crude rate was also between that of less developed countries (113.86) and more developed countries (433.36) [7].

The top cancer in males was lung cancer, followed by nasopharyngeal cancer, colon cancer, leukemias, and rectal cancer (Figure 1.2.1a).

The most common cancers in females were breast cancer, cervical cancer, colon cancer, ovarian cancer, and leukemias (Figure 1.2.1b). In comparison with other Asian countries, Malaysia had a higher incidence of cancer of cervix, which ranked second among all female cancers, as compared to other developed countries in which cervix ranked much lower among female malignancies or even less common in Western countries. Even though lung cancer was in sixth place in females, caution has to be exercised in its interpretation because the registration of lung cancer is incomplete. (Refer section on Evaluation of the Quality of NCR data in this report for details.)

Table 1.1.1 Cancer Incidence per 100,000 population (CR) and Age-standardized Incidence (ASR), by sex, Malaysia 2002

	No.	%	CR	ASR	CumR
Sex			Peninsular		
Male	11815	45.3	118.9	168.8	17.9
Female	14274	54.7	148.4	181.9	18.3
Both sexes	26089	100.0	133.4	173.5	18.0
			Sabah		
Male	807	46.2	55.6	105.9	12.0
Female	941	53.8	69.3	127.0	13.6
Both sexes	1748	100.0	62.2	115.0	12.7
			Sarawak		
Male	940	47.0	85.3	116.8	13.0
Female	1062	53.0	99.8	125.3	13.0
Both sexes	2002	100.0	92.4	120.5	13.0

Table 1.1.2 : Cancer Incidence per 100,000 population (CR) by age and sex, Peninsular Malaysia 2002

Age, year	Male			Female		
	No.	%	CR	No.	%	CR
0-9	479	4.1	21.0	356	2.5	16.6
10-19	417	3.5	20.7	332	2.3	17.2
20-29	386	3.3	23.2	484	3.4	29.8
30-39	781	6.6	53.5	1608	11.3	113.0
40-49	1676	14.2	142.3	3454	24.2	304.3
50-59	2372	20.1	324.6	3481	24.4	507.0
60-69	3090	26.2	790.7	2678	18.8	656.9
70+	2614	22.1	1194.7	1881	13.2	692.8

Table 1.1.3: Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	<i>No.</i>	<i>%</i>	<i>CR</i>	<i>ASR</i>	<i>No.</i>	<i>%</i>	<i>CR</i>	<i>ASR</i>
Malay	4878	43.0	84.4	126.5	5830	42.4	102.1	133.6
Chinese	5518	48.7	212.3	235.0	6461	47.0	259.8	251.1
Indian	943	8.3	108.6	169.3	1465	10.6	168.7	216.4

Table 1.1.4: Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	22.6	21.7	23.5	49.2	117.4	259.6	553.5	771.7	13.8
	Chinese	19.4	21.8	30.6	75.6	200.0	430.5	1074.6	1846.5	23.5
	Indian	16.4	10.4	16.7	46.7	128.9	285.5	861.4	1325.0	18.4
Female	Malay	17.1	16.8	28.5	101.7	249.8	375.3	440.2	362.9	13.4
	Chinese	18.5	17.5	40.5	152.5	415.3	688.0	899.4	1096.6	24.4
	Indian	15.3	16.9	18.4	96.2	298.0	585.8	896.4	1092.4	21.7

Fig 1.2.1(a) Ten most frequent cancers in males, Peninsular Malaysia 2002

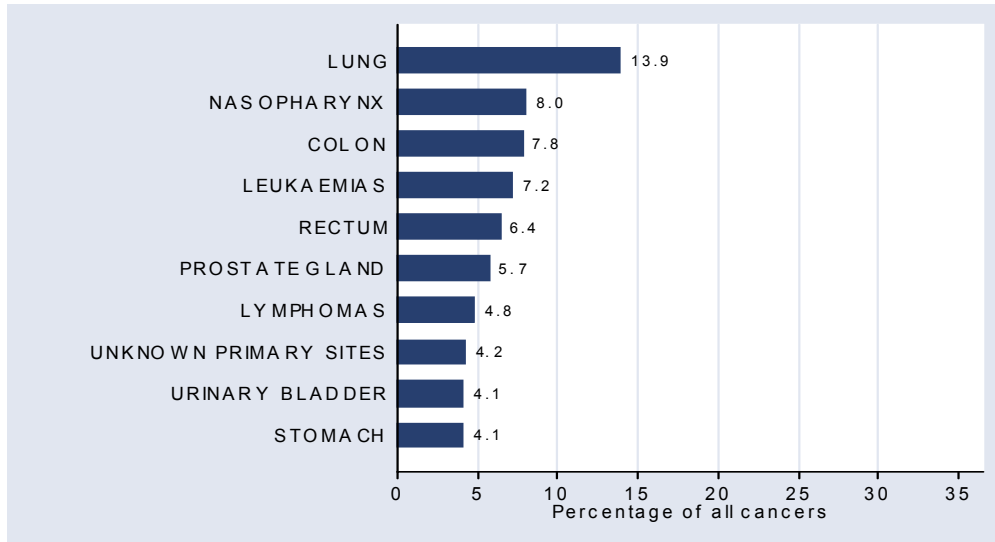
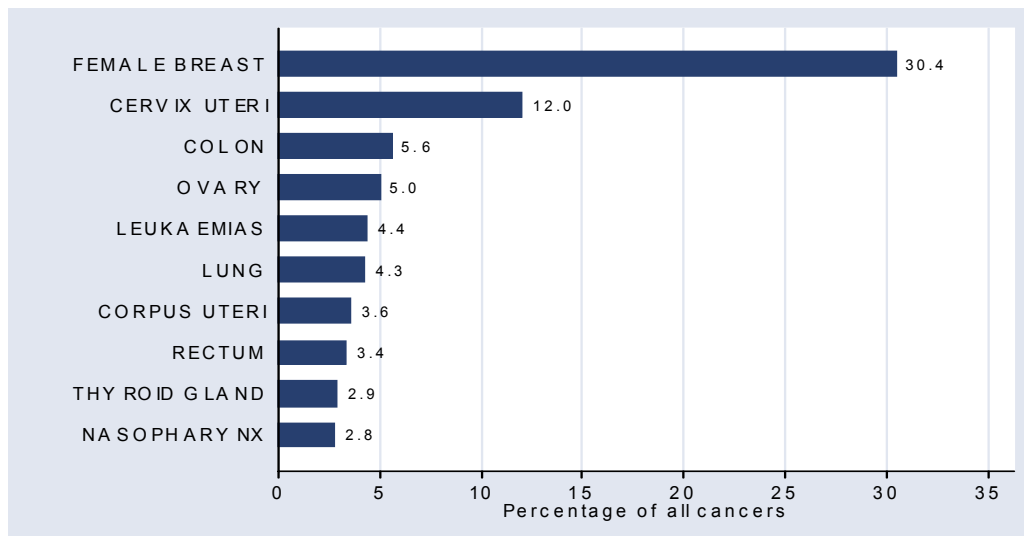


Fig 1.2.1 (b). Ten most frequent cancers in females, Peninsular Malaysia 2002



1.2 Cancer Incidence by site

A. Sex differences in cancer incidence by site

Overall incidence of cancer was higher in females than males in the ratio of 1:1.2 unlike other countries such as Singapore (ASR of males 226.0, ASR of females 195.0, M:F = 1:0.97), Norway (ASR of males 287.2, ASR of females 249.8, M:F = 1 : 0.94) and Hong Kong (ASR of males 302.2, ASR of females 216.6, M:F = 1:0.76). However, other countries do have a female preponderance for cancer incidence like India (ASR of females 104.6 versus males 99.0) and Pakistan (ASR of females 154.3 versus males 129.6) [7].

Interestingly, the female preponderance of cancer was uniformly reflected in each of the major ethnic groups (Table 1.1.3). The female to male preponderance reversed from age 60 years and above (Table 1.1.4).

The most common cancer among the males in Malaysia in 2002 was cancer of the lung (13.9% of all male cancers; cumulative lifetime risk of 1:29). Among females, the commonest cancer was cancer of the breast (30.4% of all female cancer; cumulative lifetime risk of 1:19) (Table 1.2.1)

Table 1.2.1: Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by site and sex, Peninsular Malaysia 2002

Male						Female					
Site	No.	%	CR	ASR	CumR	Site	No.	%	CR	ASR	CumR
LUNG	1646	13.9	16.6	25.9	3.4	FEMALE BREAST	4337	30.4	45.1	52.8	5.4
NASOPHARYNX	940	8.0	9.5	11.4	1.2	CERVIX UTERI	1715	12.0	17.8	21.5	2.3
COLON	917	7.8	9.2	13.9	1.7	COLON	805	5.6	8.4	11.2	1.3
LEUKAEMIAS	853	7.2	8.6	9.3	0.8	OVARY	707	5.0	7.4	8.6	0.9
RECTUM	760	6.4	7.7	11.7	1.5	LEUKAEMIAS	624	4.4	6.5	6.9	0.6
PROSTATE GLAND	671	5.7	6.8	11.6	1.4	LUNG	610	4.3	6.3	8.7	1.1
LYMPHOMAS	573	4.8	5.8	7.2	0.8	CORPUS UTERI	517	3.6	5.4	7.0	0.8
UNKNOWN PRIMARY SITES	500	4.2	5.0	7.1	0.8	RECTUM	480	3.4	5.0	6.7	0.8
STOMACH	487	4.1	4.9	7.6	1.0	THYROID GLAND	412	2.9	4.3	4.8	0.5
URINARY BLADDER	481	4.1	4.8	7.8	1.0	NASOPHARYNX	403	2.8	4.2	5.0	0.6
OTHER SKIN	467	4.0	4.7	7.2	0.8	LYMPHOMAS	384	2.7	4.0	4.7	0.5
LIVER	417	3.5	4.2	5.9	0.7	OTHER SKIN	381	2.7	4.0	5.4	0.7
LARYNX	250	2.1	2.5	4.0	0.5	UNKNOWN PRIMARY SITES	381	2.7	4.0	5.1	0.6
BRAIN	231	2.0	2.3	2.5	0.2	STOMACH	357	2.5	3.7	5.1	0.6
CONNECTIVE TISSUES etc	229	1.9	2.3	2.8	0.3	CONNECTIVE TISSUES etc	179	1.3	1.9	2.1	0.2
ESOPHAGUS	221	1.9	2.2	3.4	0.4	GUM, MOUTH, OTHERS	166	1.2	1.7	2.4	0.3

KIDNEY	220	1.9	2.2	3.0	0.3	BRAIN	160	1.1	1.7	1.8	0.2
THYROID GLAND	178	1.5	1.8	2.2	0.2	LIVER	149	1.0	1.5	2.0	0.2
TONGUE	156	1.3	1.6	2.2	0.3	ESOPHAGUS	129	0.9	1.3	1.9	0.2
PANCREAS	148	1.3	1.5	2.1	0.3	KIDNEY	115	0.8	1.2	1.5	0.2
GUM, MOUTH, OTHERS	147	1.2	1.5	2.2	0.2	URINARY BLADDER	110	0.8	1.1	1.6	0.2
BONES etc	146	1.2	1.5	1.6	0.1	BONES etc	94	0.7	1.0	1.0	0.1
TESTIS	119	1.0	1.2	1.3	0.1	PANCREAS	90	0.6	0.9	1.3	0.2
SINONASAL	103	0.9	1.0	1.4	0.2	TONGUE	78	0.5	0.8	1.0	0.1
MYELOMAS	101	0.9	1.0	1.5	0.2	GALLBLADDER etc	75	0.5	0.8	1.1	0.1
SALIVARY GLANDS	94	0.8	0.9	1.2	0.1	MYELOMAS	71	0.5	0.7	1.0	0.1
OROPHARYNX	72	0.6	0.7	1.1	0.1	SALIVARY GLANDS	63	0.4	0.7	0.7	0.1
SMALLER INTESTINE	66	0.6	0.7	0.9	0.1	SINONASAL	62	0.4	0.6	0.8	0.1
GALLBLADDER etc	64	0.5	0.6	1.0	0.1	OTHER DIGESTIVE ORGANS	59	0.4	0.6	0.8	0.1
EYE	58	0.5	0.6	0.7	0.1	EYE	57	0.4	0.6	0.6	0.0
MALE BREAST	56	0.5	0.6	0.7	0.1	SMALLER INTESTINE	46	0.3	0.5	0.6	0.1
HYPOPHARYNX	53	0.4	0.5	0.9	0.1	LARYNX	44	0.3	0.5	0.6	0.1
OTHER PHARYNX	52	0.4	0.5	0.7	0.1	VAGINA	41	0.3	0.4	0.6	0.1
OTHER DIGESTIVE ORGANS	51	0.4	0.5	0.7	0.1	MELANOMAS	40	0.3	0.4	0.5	0.0
MELANOMAS	49	0.4	0.5	0.7	0.1	CRANIAL NERVES etc	36	0.3	0.4	0.5	0.1

PENIS/ OTHER MALE GENITAL	38	0.3	0.4	0.6	0.1	VULVA	35	0.2	0.4	0.5	0.1
THYMUS/HEART/MEDI ASTINUM	37	0.3	0.4	0.5	0.0	ANUS	34	0.2	0.4	0.5	0.0
ANUS	36	0.3	0.4	0.5	0.1	OTHER PHARYNX	32	0.2	0.3	0.4	0.1
PLEURA	33	0.3	0.3	0.5	0.1	PLEURA	29	0.2	0.3	0.4	0.0
CRANIAL NERVES etc	27	0.2	0.3	0.3	0.0	OTHER ENDOCRINE	26	0.2	0.3	0.3	0.0
OTHER ENDOCRINE	26	0.2	0.3	0.3	0.0	OROPHARYNX	25	0.2	0.3	0.3	0.0
OTHER URINARY	21	0.2	0.2	0.3	0.0	OTHER URINARY	24	0.2	0.2	0.3	0.0
LIP	12	0.1	0.1	0.2	0.0	PLACENTA	23	0.2	0.2	0.2	0.0
OTHER RE	9	0.1	0.1	0.1	0.0	LIP	22	0.2	0.2	0.3	0.0
						HYPOPHARYNX	21	0.1	0.2	0.3	0.0
						THYMUS/HEART/MED IASTINUM	15	0.1	0.2	0.2	0.0
						FALLOPIAN, LIGAMENT, ADNEXA	7	0.0	0.1	0.1	0.0
						OTHER RE	4	0.0	0.0	0.0	0.0

B. Ethnic variation in cancer incidence by site

There was obvious variation in cancer incidence by site among the three major ethnic groups in Malaysia (Table 1.2.2 and Figures 1.2.2(a) and Figure 1.2.2(a)).

In males, the most cancer in all the major ethnic groups was lung cancer. The four next commonest cancers in Malays were leukemias, lymphomas, colon and rectum; in Chinese they were nasopharynx, colon, rectum and prostate; in Indians they were leukemias, rectum, prostate and stomach.

In females, the top two cancers were those of the breast and cervix in all the major ethnic groups. The next three commonest cancers in Malays were those of the ovary, leukemias and lung; in Chinese they were cancers of the colon, lung and nasopharynx; in Indians they were cancers of the mouth, ovary and corpus uteri.

Indians had the highest incidences for cancers of the mouth, tongue, larynx, oesophagus and bone.

Malays had the highest incidences for lymphoma and thyroid cancer.

Chinese had the highest incidences of most of the other cancers, especially cancers of the nasopharynx and cervix.

Table 1.2.2: Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by site ethnicity and sex, Peninsular Malaysia 2002

Malay Male						Malay Female					
Site	No.	%	CR	ASR	CumR	Site	No.	%	CR	ASR	CumR
LUNG	616	12.6	10.7	18.3	2.4	FEMALE BREAST	1888	32.4	33.1	41.9	4.2
LEUKAEMIAS	506	10.4	8.7	9.4	0.8	CERVIX UTERI	542	9.3	9.5	12.6	1.3
LYMPHOMAS	336	6.9	5.8	7.7	0.8	OVARY	369	6.3	6.5	8.1	0.8

COLON	318	6.5	5.5	8.9	1.1	LEUKAEMIAS	348	6.0	6.1	6.4	0.5
RECTUM	305	6.3	5.3	8.7	1.1	LUNG	241	4.1	4.2	6.3	0.8
PROSTATE GLAND	273	5.6	4.7	9.2	1.2	THYROID GLAND	240	4.1	4.2	5.2	0.5
NASOPHARYNX	241	4.9	4.2	5.6	0.6	COLON	230	3.9	4.0	5.9	0.7
URINARY BLADDER	231	4.7	4.0	7.1	0.9	LYMPHOMAS	206	3.5	3.6	4.5	0.5
UNKNOWN PRIMARY SITES	221	4.5	3.8	5.7	0.7	CORPUS UTERI	204	3.5	3.6	5.2	0.6
LIVER	186	3.8	3.2	4.8	0.6	RECTUM	186	3.2	3.3	4.8	0.6
OTHER SKIN	149	3.1	2.6	4.3	0.5	UNKNOWN PRIMARY SITES	159	2.7	2.8	4.0	0.5
CONNECTIVE TISSUES etc	138	2.8	2.4	2.9	0.3	OTHER SKIN	128	2.2	2.2	3.5	0.5
BRAIN	122	2.5	2.1	2.2	0.2	NASOPHARYNX	105	1.8	1.8	2.3	0.2
STOMACH	119	2.4	2.1	3.4	0.5	CONNECTIVE TISSUES etc	101	1.7	1.8	2.2	0.2
THYROID GLAND	101	2.1	1.7	2.3	0.2	BRAIN	82	1.4	1.4	1.5	0.1
LARYNX	90	1.8	1.6	2.8	0.4	STOMACH	79	1.4	1.4	2.1	0.3
BONES etc	85	1.7	1.5	1.6	0.1	LIVER	65	1.1	1.1	1.6	0.2
KIDNEY	83	1.7	1.4	2.0	0.2	ESOPHAGUS	58	1.0	1.0	1.7	0.2
TESTIS	65	1.3	1.1	1.2	0.1	BONES etc	54	0.9	0.9	1.0	0.1
ESOPHAGUS	65	1.3	1.1	2.0	0.2	KIDNEY	50	0.9	0.9	1.1	0.1
TONGUE	64	1.3	1.1	1.8	0.3	EYE	40	0.7	0.7	0.7	0.0

GUM, MOUTH, OTHERS	49	1.0	0.8	1.2	0.1	MYELOMAS	39	0.7	0.7	1.0	0.1
PANCREAS	48	1.0	0.8	1.3	0.1	URINARY BLADDER	34	0.6	0.6	0.9	0.1
MYELOMAS	47	1.0	0.8	1.3	0.2	GALLBLADDER etc	32	0.5	0.6	0.9	0.1
SINONASAL	41	0.8	0.7	1.1	0.1	GUM, MOUTH, OTHERS	30	0.5	0.5	0.8	0.1
SALIVARY GLANDS	41	0.8	0.7	0.9	0.1	PANCREAS	29	0.5	0.5	0.7	0.1
EYE	39	0.8	0.7	0.8	0.1	SINONASAL	26	0.4	0.5	0.6	0.1
SMALLER INTESTINE	31	0.6	0.5	0.8	0.1	TONGUE	25	0.4	0.4	0.6	0.1
MELANOMAS	27	0.6	0.5	0.7	0.1	SALIVARY GLANDS	20	0.3	0.4	0.4	0.0
OTHER PHARYNX	27	0.6	0.5	0.7	0.1	OTHER DIGESTIVE ORGANS	20	0.3	0.4	0.5	0.0
MALE BREAST	26	0.5	0.4	0.7	0.1	SMALLER INTESTINE	18	0.3	0.3	0.5	0.1
GALLBLADDER etc	23	0.5	0.4	0.6	0.1	CRANIAL NERVES etc	18	0.3	0.3	0.4	0.0
OTHER DIGESTIVE ORGANS	23	0.5	0.4	0.6	0.1	PLACENTA	16	0.3	0.3	0.3	0.0
OROPHARYNX	21	0.4	0.4	0.6	0.1	PLEURA	16	0.3	0.3	0.4	0.1
THYMUS/HEART/ MEDIASTINUM	20	0.4	0.3	0.4	0.0	MELANOMAS	15	0.3	0.3	0.3	0.0

ANUS	18	0.4	0.3	0.5	0.0	ANUS	14	0.2	0.2	0.3	0.0
PLEURA	16	0.3	0.3	0.5	0.1	VAGINA	14	0.2	0.2	0.4	0.0
HYPOPHARYNX	15	0.3	0.3	0.5	0.1	LARYNX	13	0.2	0.2	0.3	0.0
OTHER ENDOCRINE	14	0.3	0.2	0.2	0.0	VULVA	11	0.2	0.2	0.3	0.0
CRANIAL NERVES etc	12	0.2	0.2	0.2	0.0	OTHER PHARYNX	11	0.2	0.2	0.3	0.0
OTHER URINARY	7	0.1	0.1	0.2	0.0	OTHER URINARY	10	0.2	0.2	0.2	0.0
PENIS/ OTHER MALE GENITAL	7	0.1	0.1	0.2	0.0	LIP	9	0.2	0.2	0.2	0.0
LIP	6	0.1	0.1	0.2	0.0	HYPOPHARYNX	9	0.2	0.2	0.3	0.0
OTHER RE	6	0.1	0.1	0.1	0.0	OROPHARYNX	8	0.1	0.1	0.2	0.0
						OTHER ENDOCRINE	7	0.1	0.1	0.1	0.0
						THYMUS/HEART/ MEDIASTINUM	7	0.1	0.1	0.1	0.0
						OTHER RE	4	0.1	0.1	0.1	0.0

Chinese Male					
Site	No.	%	CR	ASR	CumR
LUNG	885	16.0	34.1	39.5	4.9
NASOPHARYNX	641	11.6	24.7	23.0	2.4
COLON	527	9.6	20.3	23.1	2.8
RECTUM	378	6.9	14.5	16.7	2.1
PROSTATE GLAND	325	5.9	12.5	15.7	1.6
STOMACH	293	5.3	11.3	13.5	1.6
LEUKAEMIAS	250	4.5	9.6	10.0	0.8
OTHER SKIN	232	4.2	8.9	10.4	1.0
UNKNOWN PRIMARY SITES	224	4.1	8.6	9.4	1.1
URINARY BLADDER	200	3.6	7.7	9.2	1.1
LIVER	191	3.5	7.3	8.0	0.9
LYMPHOMAS	172	3.1	6.6	6.8	0.7
LARYNX	106	1.9	4.1	4.7	0.6
KIDNEY	102	1.8	3.9	4.1	0.5
ESOPHAGUS	101	1.8	3.9	4.5	0.5
BRAIN	83	1.5	3.2	3.2	0.3
PANCREAS	82	1.5	3.2	3.4	0.5
CONNECTIVE TISSUES etc	70	1.3	2.7	2.9	0.3

Chinese Female					
Site	No.	%	CR	ASR	CumR
FEMALE BREAST	1874	29.0	75.4	70.1	7.1
CERVIX UTERI	887	13.7	35.7	33.6	3.6
COLON	510	7.9	20.5	20.5	2.4
LUNG	327	5.1	13.1	13.4	1.8
NASOPHARYNX	272	4.2	10.9	10.3	1.1
OVARY	258	4.0	10.4	9.9	1.0
CORPUS UTERI	243	3.8	9.8	9.6	1.1
RECTUM	241	3.7	9.7	9.7	1.3
STOMACH	226	3.5	9.1	9.1	1.1
OTHER SKIN	209	3.2	8.4	8.4	0.9
LEUKAEMIAS	202	3.1	8.1	8.3	0.7
UNKNOWN PRIMARY SITES	171	2.6	6.9	6.7	0.7
LYMPHOMAS	130	2.0	5.2	5.2	0.6
THYROID GLAND	116	1.8	4.7	4.4	0.5
LIVER	63	1.0	2.5	2.5	0.3
URINARY BLADDER	60	0.9	2.4	2.4	0.3
BRAIN	57	0.9	2.3	2.3	0.2
CONNECTIVE TISSUES etc	55	0.9	2.2	2.2	0.2

THYROID GLAND	60	1.1	2.3	2.3	0.2	KIDNEY	52	0.8	2.1	2.1	0.3
TONGUE	54	1.0	2.1	2.2	0.2	PANCREAS	49	0.8	2.0	2.0	0.3
SINONASAL	52	0.9	2.0	2.1	0.2	OTHER DIGESTIVE ORGANS	34	0.5	1.4	1.4	0.2
GUM, MOUTH, OTHERS	44	0.8	1.7	1.9	0.2	SALIVARY GLANDS	31	0.5	1.2	1.2	0.1
SALIVARY GLANDS	44	0.8	1.7	1.8	0.2	SINONASAL	29	0.4	1.2	1.1	0.1
BONES etc	43	0.8	1.7	1.6	0.1	GALLBLADDER etc	29	0.4	1.2	1.1	0.1
TESTIS	34	0.6	1.3	1.3	0.1	ESOPHAGUS	24	0.4	1.0	1.0	0.1
GALLBLADDER etc	34	0.6	1.3	1.6	0.2	BONES etc	23	0.4	0.9	0.9	0.1
OROPHARYNX	31	0.6	1.2	1.3	0.2	MYELOMAS	23	0.4	0.9	1.0	0.1
MYELOMAS	30	0.5	1.2	1.3	0.2	LARYNX	22	0.3	0.9	0.9	0.1
SMALLER INTESTINE	25	0.5	1.0	1.1	0.2	SMALLER INTESTINE	22	0.3	0.9	0.9	0.1
OTHER DIGESTIVE ORGANS	25	0.5	1.0	1.0	0.1	TONGUE	22	0.3	0.9	0.9	0.1
MALE BREAST	22	0.4	0.8	0.8	0.1	VAGINA	21	0.3	0.8	0.8	0.1
PENIS/ OTHER MALE GENITAL	21	0.4	0.8	0.9	0.1	GUM, MOUTH, OTHERS	20	0.3	0.8	0.8	0.1
HYPOPHARYNX	18	0.3	0.7	0.8	0.1	MELANOMAS	18	0.3	0.7	0.7	0.1
MELANOMAS	18	0.3	0.7	0.8	0.1	ANUS	17	0.3	0.7	0.6	0.1
PLEURA	14	0.3	0.5	0.6	0.1	OTHER ENDOCRINE	16	0.2	0.6	0.7	0.1
THYMUS/HEART/MEDIASTINUM	13	0.2	0.5	0.5	0.1	CRANIAL NERVES etc	15	0.2	0.6	0.6	0.1
ANUS	13	0.2	0.5	0.6	0.1	OTHER PHARYNX	13	0.2	0.5	0.5	0.1
OTHER URINARY	13	0.2	0.5	0.6	0.1	VULVA	13	0.2	0.5	0.5	0.1
OTHER PHARYNX	12	0.2	0.5	0.5	0.1	EYE	12	0.2	0.5	0.5	0.0

CRANIAL NERVES etc	11	0.2	0.4	0.4	0.0
EYE	11	0.2	0.4	0.5	0.0
OTHER ENDOCRINE	9	0.2	0.3	0.3	0.0
LIP	4	0.1	0.2	0.2	0.0
OTHER RE	1	0.0	0.0	0.0	0.0

OROPHARYNX	11	0.2	0.4	0.4	0.0
PLEURA	10	0.2	0.4	0.4	0.0
OTHER URINARY	10	0.2	0.4	0.4	0.0
THYMUS/HEART/MEDIASTINUM	8	0.1	0.3	0.3	0.0
PLACENTA	6	0.1	0.2	0.2	0.0
LIP	4	0.1	0.2	0.1	0.0
FALLOPIAN, LIGAMENT, ADNEXA	4	0.1	0.2	0.2	0.0
HYPOPHARYNX	2	0.0	0.1	0.1	0.0

Indian Male						Indian Female					
Site	No.	%	CR	ASR	CumR	Site	No.	%	CR	ASR	CumR
LUNG	101	10.7	11.6	19.1	2.5	FEMALE BREAST	450	30.7	51.8	61.7	6.5
LEUKAEMIAS	64	6.8	7.4	8.2	0.7	CERVIX UTERI	191	13.0	22.0	27.7	2.9
RECTUM	55	5.8	6.3	11.6	1.4	GUM, MOUTH, OTHERS	111	7.6	12.8	19.8	2.4
PROSTATE GLAND	51	5.4	5.9	11.5	1.2	OVARY	55	3.8	6.3	7.4	0.8
STOMACH	48	5.1	5.5	8.2	1.0	CORPUS UTERI	52	3.5	6.0	8.0	1.0
GUM, MOUTH, OTHERS	47	5.0	5.4	9.5	1.0	LEUKAEMIAS	51	3.5	5.9	6.4	0.5
COLON	46	4.9	5.3	8.3	1.0	COLON	47	3.2	5.4	7.9	1.0
ESOPHAGUS	46	4.9	5.3	8.0	0.9	STOMACH	46	3.1	5.3	7.4	0.8
LARYNX	42	4.5	4.8	8.7	1.1	ESOPHAGUS	41	2.8	4.7	6.7	0.9
LYMPHOMAS	42	4.5	4.8	6.8	0.8	RECTUM	35	2.4	4.0	5.2	0.6
OTHER SKIN	33	3.5	3.8	6.5	0.8	LYMPHOMAS	34	2.3	3.9	4.8	0.5
UNKNOWN PRIMARY SITES	32	3.4	3.7	5.5	0.6	UNKNOWN PRIMARY SITES	32	2.2	3.7	4.7	0.6
URINARY BLADDER	31	3.3	3.6	6.5	0.9	THYROID GLAND	31	2.1	3.6	3.8	0.3
TONGUE	29	3.1	3.3	5.3	0.7	TONGUE	29	2.0	3.3	5.0	0.6
LIVER	24	2.5	2.8	4.2	0.6	OTHER SKIN	27	1.8	3.1	4.7	0.5
NASOPHARYNX	23	2.4	2.6	4.0	0.5	LUNG	25	1.7	2.9	4.1	0.5

KIDNEY	21	2.2	2.4	3.2	0.3	CONNECTIVE TISSUES etc	16	1.1	1.8	2.2	0.3
MYELOMAS	19	2.0	2.2	3.5	0.5	BONES etc	15	1.0	1.7	2.3	0.2
OROPHARYNX	17	1.8	2.0	3.7	0.6	LIVER	15	1.0	1.7	2.3	0.3
BRAIN	17	1.8	2.0	2.2	0.2	BRAIN	14	1.0	1.6	1.8	0.2
HYPOPHARYNX	16	1.7	1.8	3.6	0.6	NASOPHARYNX	12	0.8	1.4	1.7	0.2
BONES etc	15	1.6	1.7	2.0	0.3	URINARY BLADDER	11	0.8	1.3	2.3	0.4
TESTIS	14	1.5	1.6	1.6	0.1	KIDNEY	11	0.8	1.3	1.5	0.1
PANCREAS	14	1.5	1.6	1.9	0.1	SALIVARY GLANDS	10	0.7	1.2	1.2	0.1
CONNECTIVE TISSUES etc	13	1.4	1.5	1.7	0.2	HYPOPHARYNX	10	0.7	1.2	1.5	0.1
THYROID GLAND	11	1.2	1.3	1.7	0.2	GALLBLADDER etc	10	0.7	1.2	1.5	0.2
PENIS/ OTHER MALE GENITAL	9	1.0	1.0	1.7	0.2	VULVA	8	0.5	0.9	1.5	0.2
EYE	7	0.7	0.8	1.0	0.1	LIP	7	0.5	0.8	1.1	0.1
OTHER PHARYNX	7	0.7	0.8	1.2	0.1	PANCREAS	7	0.5	0.8	1.0	0.1
SMALLER INTESTINE	7	0.7	0.8	1.2	0.2	LARYNX	6	0.4	0.7	1.0	0.1
SINONASAL	5	0.5	0.6	0.8	0.1	MYELOMAS	6	0.4	0.7	1.1	0.2
SALIVARY GLANDS	5	0.5	0.6	0.8	0.1	SINONASAL	6	0.4	0.7	1.0	0.1
GALLBLADDER etc	5	0.5	0.6	1.2	0.2	OROPHARYNX	6	0.4	0.7	1.0	0.1
ANUS	5	0.5	0.6	1.0	0.1	OTHER PHARYNX	5	0.3	0.6	0.8	0.1

MALE BREAST	5	0.5	0.6	0.6	0.1	OTHER DIGESTIVE ORGANS	5	0.3	0.6	0.8	0.1
CRANIAL NERVES etc	4	0.4	0.5	0.5	0.0	VAGINA	5	0.3	0.6	0.8	0.1
MELANOMAS	3	0.3	0.3	0.3	0.0	EYE	5	0.3	0.6	0.6	0.0
THYMUS/HEART/MEDIASTINUM	3	0.3	0.3	0.5	0.1	SMALLER INTESTINE	4	0.3	0.5	0.5	0.1
OTHER DIGESTIVE ORGANS	3	0.3	0.3	0.6	0.1	MELANOMAS	4	0.3	0.5	0.8	0.0
OTHER RE	1	0.1	0.1	0.1	0.0	PLEURA	3	0.2	0.3	0.4	0.0
OTHER URINARY	1	0.1	0.1	0.2	0.0	FALLOPIAN, LIGAMENT, ADNEXA	2	0.1	0.2	0.3	0.0
LIP	1	0.1	0.1	0.2	0.0	OTHER URINARY	2	0.1	0.2	0.2	0.0
PLEURA	1	0.1	0.1	0.3	0.1	ANUS	1	0.1	0.1	0.1	0.0
						CRANIAL NERVES etc	1	0.1	0.1	0.1	0.0
						OTHER ENDOCRINE	1	0.1	0.1	0.1	0.0

Figure 1.2.2(a): Ten most frequent cancers in males by ethnic groups, Peninsular Malaysia 2002

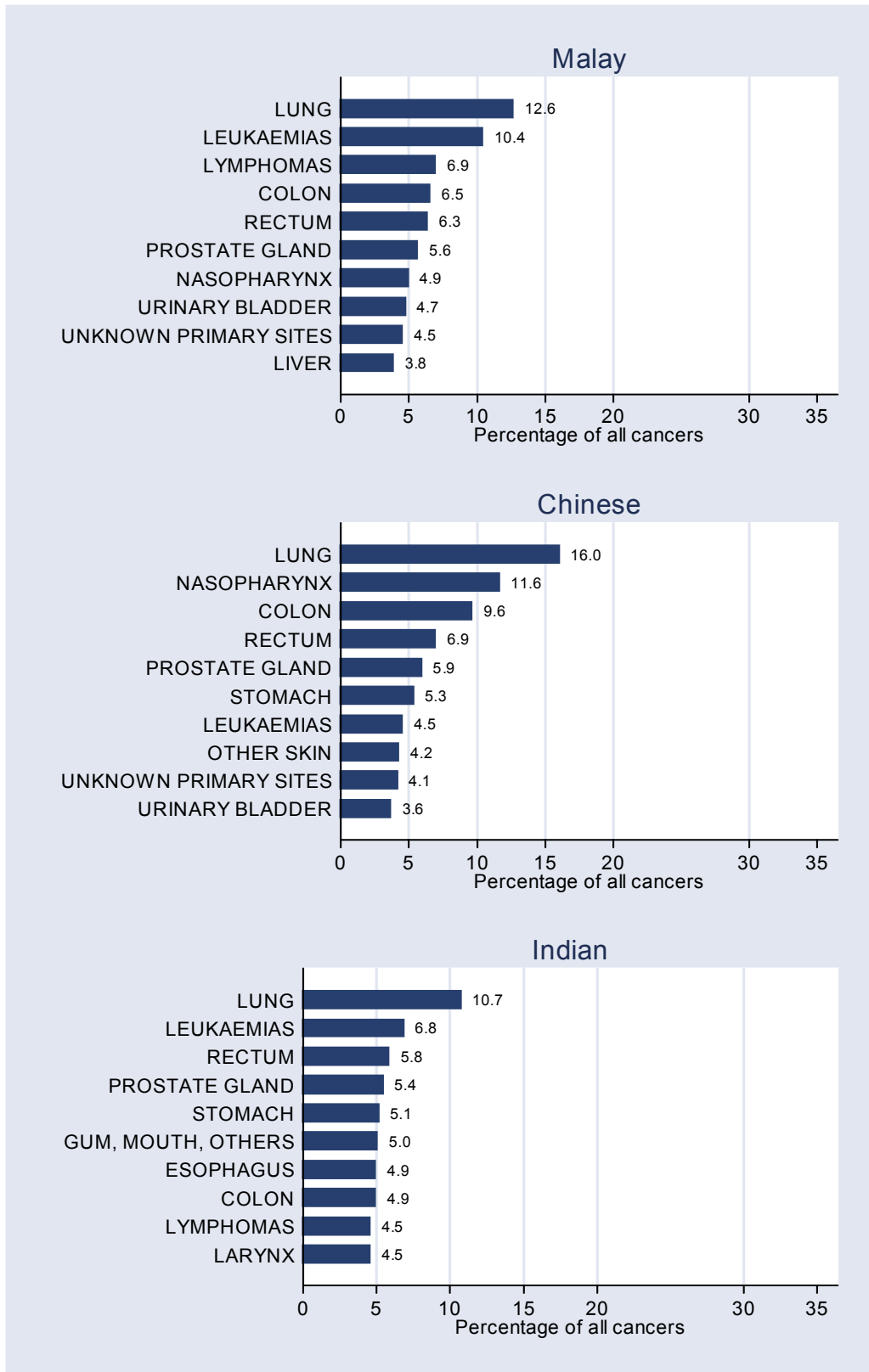
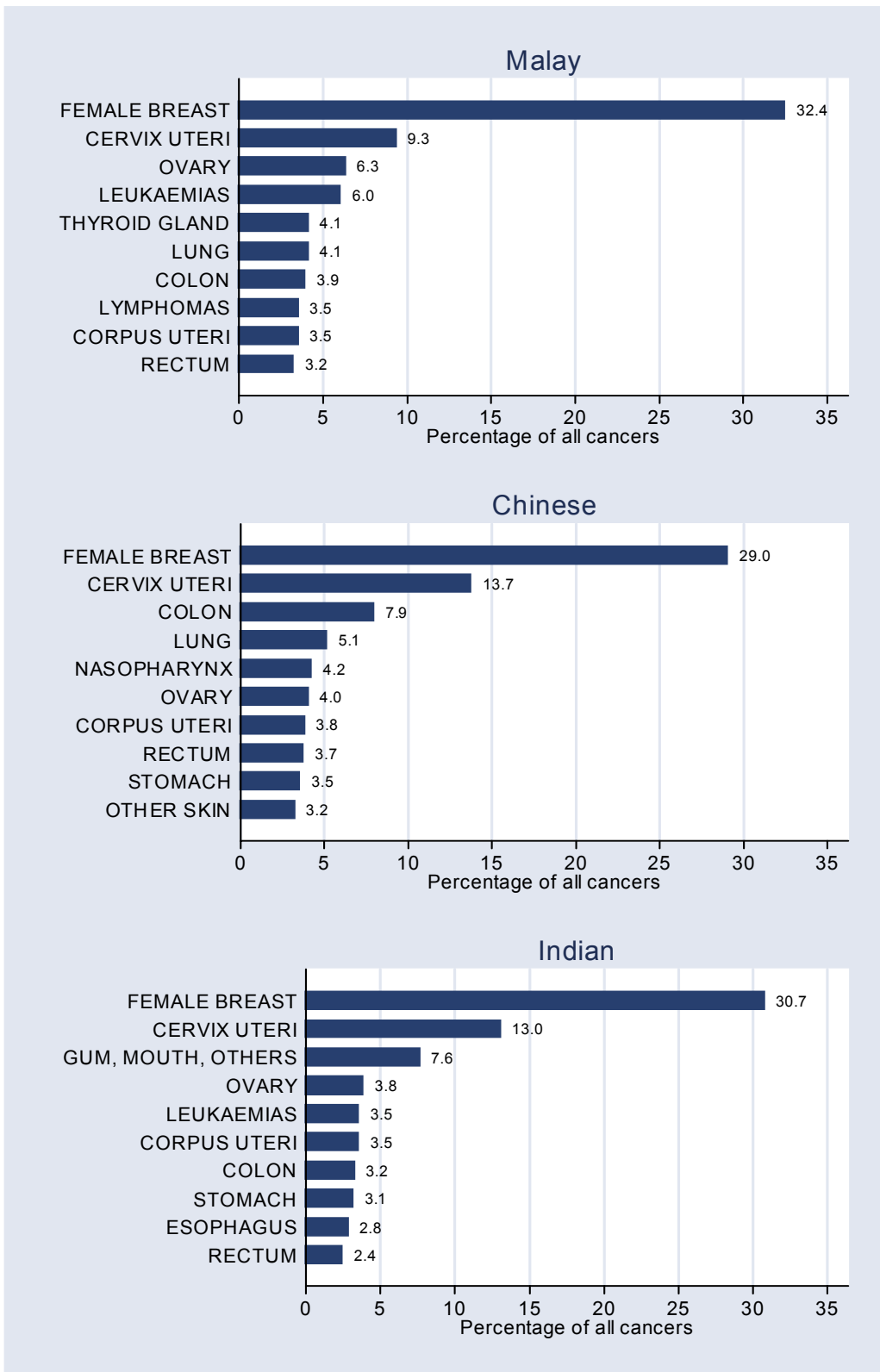


Figure 1.2.2(b): Ten most frequent cancers in females by ethnic groups, Peninsular Malaysia 2002



C. Age variation in cancer incidence by site

There was also very obvious variation in cancer incidence by site among the four broad age groups (Table 1.2.3 and Figures 1.2.3(a) and Figures 1.2.3(b)).

In the youngest age group of 0 – 14 years, leukaemias comprised nearly half of all cases reported in both sexes. The second most common tumours in this age group were those of the brain and eye in males and females respectively.

In the 15 – 49 year age group, nasopharyngeal cancer followed by leukemias were the most common cancers seen in males while cancers of the breast and cervix were the top two malignancies in females.

In the men aged between 50 and 69 years, the most common cancers were lung and colon cancers. In women aged between 50 and 69 years, the most common cancers were breast and cervix cancers, although the crude rates were 4 to 5 times those of women in the 15 to 49 year age groups.

In the 70+ year age group, the most common cancers in males were those of the lung and prostate, while cancers of the breast and colon were the two most common cancers in females.

Table 1.2.3: Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by site age and sex, Peninsular Malaysia 2002

Male, Age 0-14				Female, Age 0-14			
Site	No.	%	CR	Site	No.	%	CR
LEUKAEMIAS	323	48.4	9.7	LEUKAEMIAS	239	48.3	7.7
BRAIN	62	9.3	1.9	EYE	41	8.3	1.3
LYMPHOMAS	56	8.4	1.7	BRAIN	31	6.3	1.0
CONNECTIVE TISSUES etc	40	6.0	1.2	LYMPHOMAS	26	5.3	0.8
BONES etc	25	3.7	0.8	CONNECTIVE TISSUES etc	23	4.6	0.7
KIDNEY	22	3.3	0.7	KIDNEY	20	4.0	0.6
TESTIS	20	3.0	0.6	BONES etc	18	3.6	0.6
THYROID GLAND	19	2.8	0.6	OVARY	15	3.0	0.5
EYE	18	2.7	0.5	THYROID GLAND	13	2.6	0.4
UNKNOWN PRIMARY SITES	18	2.7	0.5	LIVER	10	2.0	0.3
LIVER	11	1.6	0.3	OTHER ENDOCRINE	6	1.2	0.2
OTHER ENDOCRINE	6	0.9	0.2	SINONASAL	6	1.2	0.2
NASOPHARYNX	6	0.9	0.2	MYELOMAS	4	0.8	0.1
CRANIAL NERVES etc	5	0.7	0.2	SALIVARY GLANDS	4	0.8	0.1
SMALLER INTESTINE	4	0.6	0.1	UNKNOWN PRIMARY SITES	4	0.8	0.1
OTHER RE	4	0.6	0.1	LUNG	3	0.6	0.1
SINONASAL	4	0.6	0.1	CRANIAL NERVES etc	3	0.6	0.1
OTHER SKIN	3	0.4	0.1	COLON	3	0.6	0.1

LUNG	3	0.4	0.1	PANCREAS	2	0.4	0.1
STOMACH	3	0.4	0.1	RECTUM	2	0.4	0.1
THYMUS/HEART/MEDIASTINUM	2	0.3	0.1	ESOPHAGUS	2	0.4	0.1
COLON	2	0.3	0.1	NASOPHARYNX	2	0.4	0.1
MYELOMAS	2	0.3	0.1	OTHER SKIN	2	0.4	0.1
URINARY BLADDER	1	0.1	0.0	GUM, MOUTH, OTHERS	2	0.4	0.1
LARYNX	1	0.1	0.0	OTHER RE	2	0.4	0.1
OTHER PHARYNX	1	0.1	0.0	URINARY BLADDER	2	0.4	0.1
PENIS/ OTHER MALE GENITAL	1	0.1	0.0	THYMUS/HEART/MEDIASTINUM	2	0.4	0.1
ESOPHAGUS	1	0.1	0.0	OTHER PHARYNX	1	0.2	0.0
OROPHARYNX	1	0.1	0.0	FEMALE BREAST	1	0.2	0.0
ANUS	1	0.1	0.0	OTHER DIGESTIVE ORGANS	1	0.2	0.0
SALIVARY GLANDS	1	0.1	0.0	PLEURA	1	0.2	0.0
RECTUM	1	0.1	0.0	SMALLER INTESTINE	1	0.2	0.0
GUM, MOUTH, OTHERS	1	0.1	0.0	TONGUE	1	0.2	0.0
				CERVIX UTERI	1	0.2	0.0
				VAGINA	1	0.2	0.0

Male, Age 15-49			
Site	No.	%	CR
NASOPHARYNX	483	15.7	9.1
LEUKAEMIAS	332	10.8	6.3
LUNG	244	7.9	4.6
LYMPHOMAS	216	7.0	4.1
COLON	194	6.3	3.7
RECTUM	136	4.4	2.6
UNKNOWN PRIMARY SITES	134	4.4	2.5
LIVER	111	3.6	2.1
BRAIN	105	3.4	2.0
CONNECTIVE TISSUES etc	101	3.3	1.9
OTHER SKIN	89	2.9	1.7
STOMACH	86	2.8	1.6
BONES etc	82	2.7	1.6
TESTIS	75	2.4	1.4
THYROID GLAND	71	2.3	1.3
KIDNEY	60	2.0	1.1
TONGUE	52	1.7	1.0
GUM, MOUTH, OTHERS	44	1.4	0.8
URINARY BLADDER	43	1.4	0.8

Female, Age 15-49			
Site	No.	%	CR
FEMALE BREAST	2267	39.5	44.2
CERVIX UTERI	789	13.7	15.4
OVARY	364	6.3	7.1
THYROID GLAND	243	4.2	4.7
LEUKAEMIAS	228	4.0	4.4
NASOPHARYNX	205	3.6	4.0
LYMPHOMAS	178	3.1	3.5
COLON	168	2.9	3.3
CORPUS UTERI	142	2.5	2.8
LUNG	132	2.3	2.6
UNKNOWN PRIMARY SITES	117	2.0	2.3
RECTUM	105	1.8	2.0
CONNECTIVE TISSUES etc	92	1.6	1.8
BRAIN	90	1.6	1.8
STOMACH	72	1.3	1.4
OTHER SKIN	69	1.2	1.3
BONES etc	49	0.9	1.0
LIVER	40	0.7	0.8
SALIVARY GLANDS	28	0.5	0.5

SALIVARY GLANDS	40	1.3	0.8	TONGUE	27	0.5	0.5
PANCREAS	38	1.2	0.7	GUM, MOUTH, OTHERS	21	0.4	0.4
SINONASAL	37	1.2	0.7	SINONASAL	20	0.3	0.4
ESOPHAGUS	36	1.2	0.7	ESOPHAGUS	20	0.3	0.4
LARYNX	27	0.9	0.5	KIDNEY	20	0.3	0.4
EYE	21	0.7	0.4	OTHER DIGESTIVE ORGANS	19	0.3	0.4
SMALLER INTESTINE	21	0.7	0.4	PLACENTA	18	0.3	0.4
MYELOMAS	19	0.6	0.4	GALLBLADDER etc	17	0.3	0.3
OTHER PHARYNX	18	0.6	0.3	MYELOMAS	16	0.3	0.3
THYMUS/HEART/MEDIASTINUM	18	0.6	0.3	CRANIAL NERVES etc	16	0.3	0.3
OTHER ENDOCRINE	18	0.6	0.3	PANCREAS	16	0.3	0.3
MALE BREAST	16	0.5	0.3	SMALLER INTESTINE	15	0.3	0.3
MELANOMAS	15	0.5	0.3	URINARY BLADDER	15	0.3	0.3
CRANIAL NERVES etc	14	0.5	0.3	OTHER ENDOCRINE	14	0.2	0.3
PROSTATE GLAND	13	0.4	0.2	VAGINA	14	0.2	0.3
OTHER DIGESTIVE ORGANS	11	0.4	0.2	MELANOMAS	13	0.2	0.3
OROPHARYNX	10	0.3	0.2	VULVA	10	0.2	0.2
GALLBLADDER etc	10	0.3	0.2	OTHER PHARYNX	9	0.2	0.2
ANUS	7	0.2	0.1	THYMUS/HEART/MEDIASTINUM	8	0.1	0.2
PENIS/ OTHER MALE GENITAL	6	0.2	0.1	PLEURA	8	0.1	0.2
HYPOPHARYNX	5	0.2	0.1	OTHER URINARY	7	0.1	0.1

PLEURA	5	0.2	0.1
OTHER RE	3	0.1	0.1
LIP	3	0.1	0.1
OTHER URINARY	2	0.1	0.0

LIP	7	0.1	0.1
EYE	7	0.1	0.1
OROPHARYNX	6	0.1	0.1
ANUS	5	0.1	0.1
LARYNX	5	0.1	0.1
HYPOPHARYNX	4	0.1	0.1
FALLOPIAN, LIGAMENT, ADNEXA	2	0.0	0.0
OTHER RE	2	0.0	0.0

Male, Age 50-69				Female, Age 50-69			
Site	No.	%	CR	Site	No.	%	CR
LUNG	953	17.4	85.0	FEMALE BREAST	1827	29.7	167.0
COLON	466	8.5	41.6	CERVIX UTERI	786	12.8	71.8
RECTUM	417	7.6	37.2	COLON	391	6.3	35.7
NASOPHARYNX	405	7.4	36.1	LUNG	336	5.5	30.7
PROSTATE GLAND	304	5.6	27.1	CORPUS UTERI	314	5.1	28.7
URINARY BLADDER	260	4.8	23.2	OVARY	276	4.5	25.2
LYMPHOMAS	242	4.4	21.6	RECTUM	244	4.0	22.3
UNKNOWN PRIMARY SITES	238	4.4	21.2	UNKNOWN PRIMARY SITES	185	3.0	16.9
OTHER SKIN	231	4.2	20.6	STOMACH	174	2.8	15.9
STOMACH	230	4.2	20.5	NASOPHARYNX	173	2.8	15.8
LIVER	224	4.1	20.0	OTHER SKIN	155	2.5	14.2
LARYNX	155	2.8	13.8	LYMPHOMAS	143	2.3	13.1
LEUKAEMIAS	143	2.6	12.8	THYROID GLAND	118	1.9	10.8
ESOPHAGUS	120	2.2	10.7	LEUKAEMIAS	115	1.9	10.5
KIDNEY	112	2.1	10.0	GUM, MOUTH, OTHERS	100	1.6	9.1
PANCREAS	84	1.5	7.5	ESOPHAGUS	75	1.2	6.9
THYROID GLAND	76	1.4	6.8	LIVER	72	1.2	6.6
TONGUE	71	1.3	6.3	KIDNEY	59	1.0	5.4
MYELOMAS	68	1.2	6.1	URINARY BLADDER	53	0.9	4.8

CONNECTIVE TISSUES etc	63	1.2	5.6	PANCREAS	53	0.9	4.8
GUM, MOUTH, OTHERS	58	1.1	5.2	CONNECTIVE TISSUES etc	51	0.8	4.7
BRAIN	54	1.0	4.8	MYELOMAS	41	0.7	3.7
SINONASAL	44	0.8	3.9	GALLBLADDER etc	36	0.6	3.3
SALIVARY GLANDS	37	0.7	3.3	TONGUE	32	0.5	2.9
OROPHARYNX	35	0.6	3.1	BRAIN	31	0.5	2.8
GALLBLADDER etc	35	0.6	3.1	LARYNX	31	0.5	2.8
HYPOPHARYNX	34	0.6	3.0	OTHER DIGESTIVE ORGANS	28	0.5	2.6
MALE BREAST	34	0.6	3.0	SINONASAL	26	0.4	2.4
SMALLER INTESTINE	31	0.6	2.8	SALIVARY GLANDS	25	0.4	2.3
BONES etc	31	0.6	2.8	SMALLER INTESTINE	24	0.4	2.2
OTHER DIGESTIVE ORGANS	27	0.5	2.4	BONES etc	21	0.3	1.9
OTHER PHARYNX	26	0.5	2.3	VAGINA	18	0.3	1.6
PENIS/ OTHER MALE GENITAL	23	0.4	2.1	CRANIAL NERVES etc	14	0.2	1.3
PLEURA	20	0.4	1.8	ANUS	14	0.2	1.3
ANUS	19	0.3	1.7	OROPHARYNX	14	0.2	1.3
MELANOMAS	16	0.3	1.4	MELANOMAS	13	0.2	1.2
TESTIS	16	0.3	1.4	OTHER PHARYNX	13	0.2	1.2
THYMUS/HEART/MEDIASTINUM	14	0.3	1.2	HYPOPHARYNX	12	0.2	1.1
OTHER URINARY	14	0.3	1.2	PLEURA	12	0.2	1.1
EYE	14	0.3	1.2	VULVA	12	0.2	1.1

LIP	7	0.1	0.6	LIP	10	0.2	0.9
CRANIAL NERVES etc	7	0.1	0.6	OTHER URINARY	7	0.1	0.6
OTHER ENDOCRINE	2	0.0	0.2	EYE	6	0.1	0.5
OTHER RE	2	0.0	0.2	OTHER ENDOCRINE	6	0.1	0.5
				FALLOPIAN, LIGAMENT, ADNEXA	5	0.1	0.5
				THYMUS/HEART/MEDIASTINUM	4	0.1	0.4
				PLACENTA	4	0.1	0.4

Male, Age 70+				Female, Age 70+			
Site	No.	%	CR	Site	No.	%	CR
LUNG	446	17.1	203.8	COLON	243	12.9	89.5
PROSTATE GLAND	354	13.5	161.8	FEMALE BREAST	242	12.9	89.1
COLON	255	9.8	116.5	OTHER SKIN	155	8.2	57.1
RECTUM	206	7.9	94.1	CERVIX UTERI	139	7.4	51.2
URINARY BLADDER	177	6.8	80.9	LUNG	139	7.4	51.2
STOMACH	168	6.4	76.8	RECTUM	129	6.9	47.5
OTHER SKIN	144	5.5	65.8	STOMACH	111	5.9	40.9
UNKNOWN PRIMARY SITES	110	4.2	50.3	UNKNOWN PRIMARY SITES	75	4.0	27.6
LIVER	71	2.7	32.4	CORPUS UTERI	61	3.2	22.5
LARYNX	67	2.6	30.6	OVARY	52	2.8	19.2
ESOPHAGUS	64	2.4	29.3	GUM, MOUTH, OTHERS	43	2.3	15.8
LYMPHOMAS	59	2.3	27.0	LEUKAEMIAS	42	2.2	15.5
LEUKAEMIAS	55	2.1	25.1	URINARY BLADDER	40	2.1	14.7
NASOPHARYNX	46	1.8	21.0	THYROID GLAND	38	2.0	14.0
GUM, MOUTH, OTHERS	44	1.7	20.1	LYMPHOMAS	37	2.0	13.6
TONGUE	33	1.3	15.1	ESOPHAGUS	32	1.7	11.8
KIDNEY	26	1.0	11.9	LIVER	27	1.4	9.9
OROPHARYNX	26	1.0	11.9	NASOPHARYNX	23	1.2	8.5
PANCREAS	26	1.0	11.9	GALLBLADDER etc	22	1.2	8.1
CONNECTIVE TISSUES etc	25	1.0	11.4	PANCREAS	19	1.0	7.0
GALLBLADDER etc	19	0.7	8.7	TONGUE	18	1.0	6.6

MELANOMAS	18	0.7	8.2	KIDNEY	16	0.9	5.9
SINONASAL	18	0.7	8.2	ANUS	15	0.8	5.5
SALIVARY GLANDS	16	0.6	7.3	MELANOMAS	14	0.7	5.2
HYPOPHARYNX	14	0.5	6.4	CONNECTIVE TISSUES etc	13	0.7	4.8
OTHER DIGESTIVE ORGANS	13	0.5	5.9	VULVA	13	0.7	4.8
THYROID GLAND	12	0.5	5.5	OTHER DIGESTIVE ORGANS	11	0.6	4.1
MYELOMAS	12	0.5	5.5	SINONASAL	10	0.5	3.7
SMALLER INTESTINE	10	0.4	4.6	OTHER URINARY	10	0.5	3.7
BRAIN	10	0.4	4.6	MYELOMAS	10	0.5	3.7
ANUS	9	0.3	4.1	OTHER PHARYNX	9	0.5	3.3
PENIS/ OTHER MALE GENITAL	8	0.3	3.7	BRAIN	8	0.4	2.9
BONES etc	8	0.3	3.7	PLEURA	8	0.4	2.9
PLEURA	8	0.3	3.7	VAGINA	8	0.4	2.9
TESTIS	8	0.3	3.7	LARYNX	8	0.4	2.9
OTHER PHARYNX	7	0.3	3.2	SALIVARY GLANDS	6	0.3	2.2
MALE BREAST	6	0.2	2.7	SMALLER INTESTINE	6	0.3	2.2
OTHER URINARY	5	0.2	2.3	BONES etc	6	0.3	2.2
EYE	5	0.2	2.3	LIP	5	0.3	1.8
THYMUS/HEART/MEDIASTINUM	3	0.1	1.4	HYPOPHARYNX	5	0.3	1.8
LIP	2	0.1	0.9	OROPHARYNX	5	0.3	1.8
CRANIAL NERVES etc	1	0.0	0.5	CRANIAL NERVES etc	3	0.2	1.1
				EYE	3	0.2	1.1
				PLACENTA	1	0.1	0.4
				THYMUS/HEART/MEDIASTINUM	1	0.1	0.4

Figure 1.2.3(a): Ten most frequent cancers in males by age groups, Peninsular Malaysia 2002

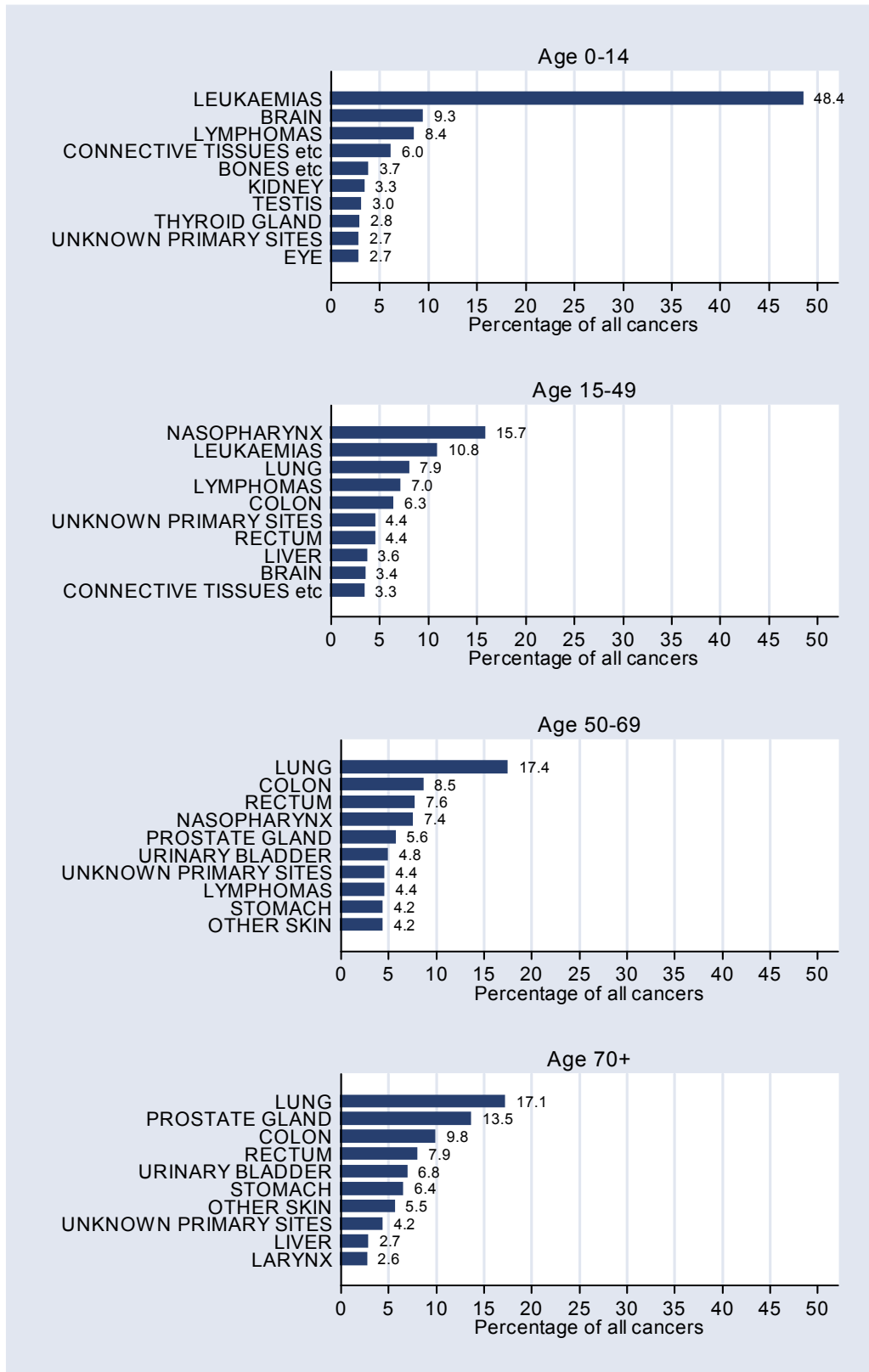
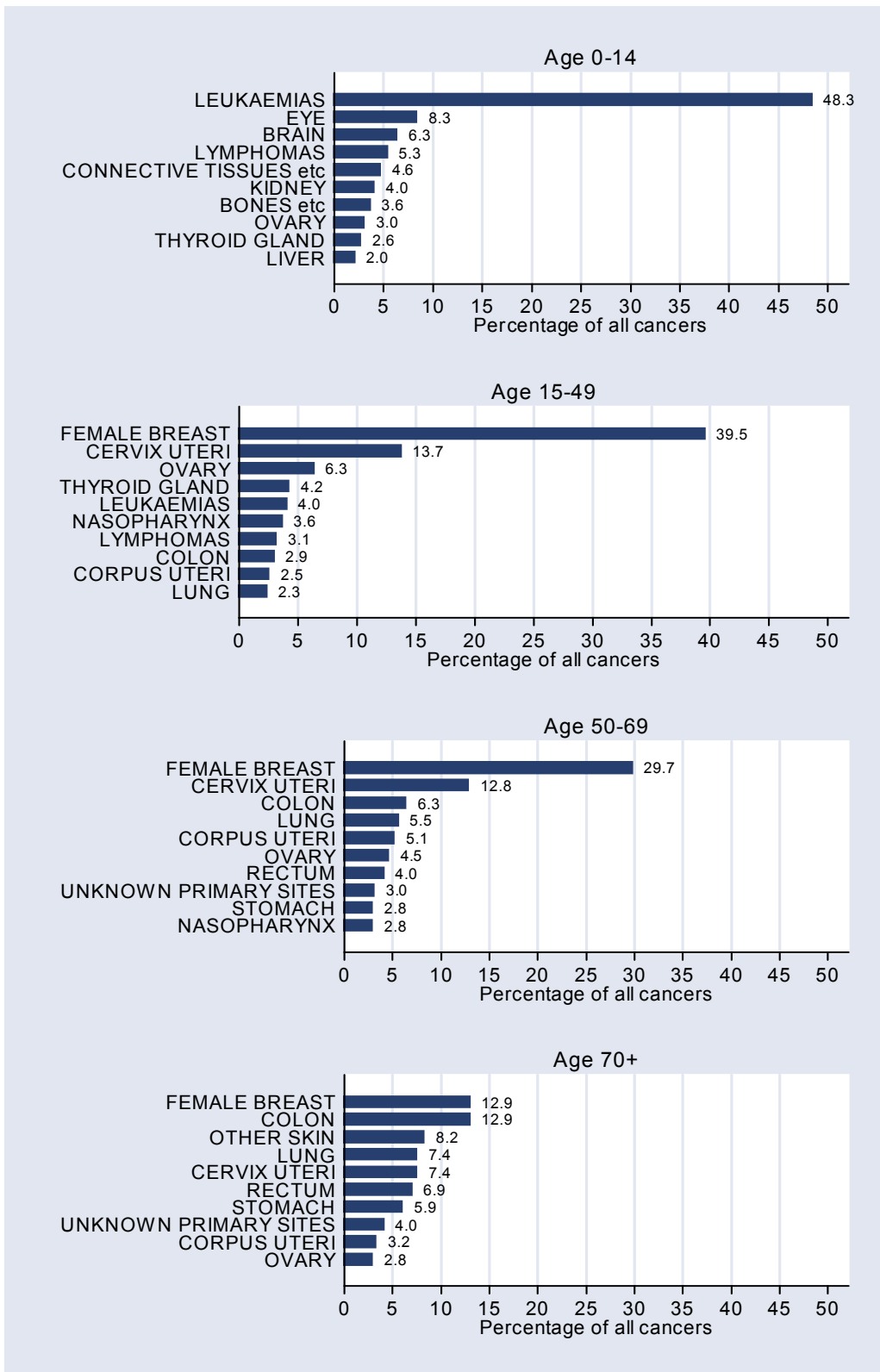


Figure 1.2.3(b): Ten most frequent cancers in females age groups, Peninsular Malaysia 2002



CHAPTER 2 Selected cancer sites 2002

2.1 TONGUE

Tongue cancer ranked nineteenth among cancers in males and twenty-fourth in females. This cancer was notably highest among the Indians. In the Malays and Chinese, the ASR was much higher in the males than in the females. In the Indians, the ASR was almost similar for the males and females. The ASR for female Indians (5.0) was surprisingly higher compared with Indian females in Trivandrum (1.8) and Madras (1.9). However the ASR of the Indian males in Malaysia (2.2) were comparable to those in India. Further studies are warranted into the risk factors for tongue cancer.

Table 2.1.1: Tongue Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	156	66.7	1.6	2.2
Female	78	33.3	0.8	1.0
Both	234	100.0	1.2	1.6

Table 2.1.2: Tongue Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	Male			Female		
	No.	%	CR	No.	%	CR
0-9	0	0.0	0.0	0	0.0	0.0
10-19	0	0.0	0.0	3	3.8	0.2
20-29	1	0.6	0.1	4	5.1	0.2
30-39	13	8.3	0.9	5	6.4	0.4
40-49	38	24.4	3.2	16	20.5	1.4
50-59	28	17.9	3.8	15	19.2	2.2
60-69	43	27.6	11.0	17	21.8	4.2
70+	33	21.2	15.1	18	23.1	6.6

Figure 2.1.1: Tongue Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

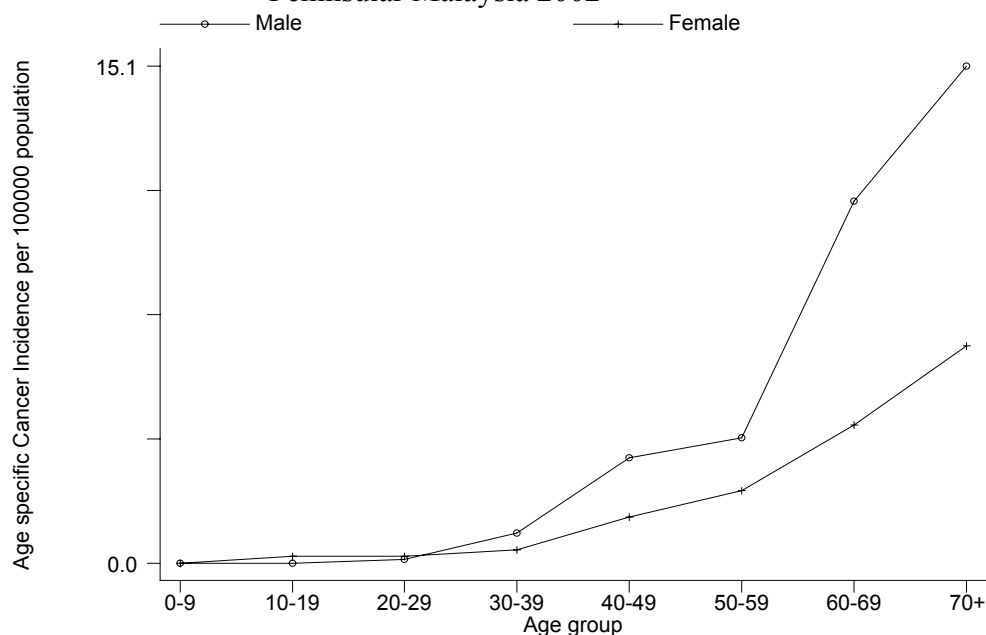


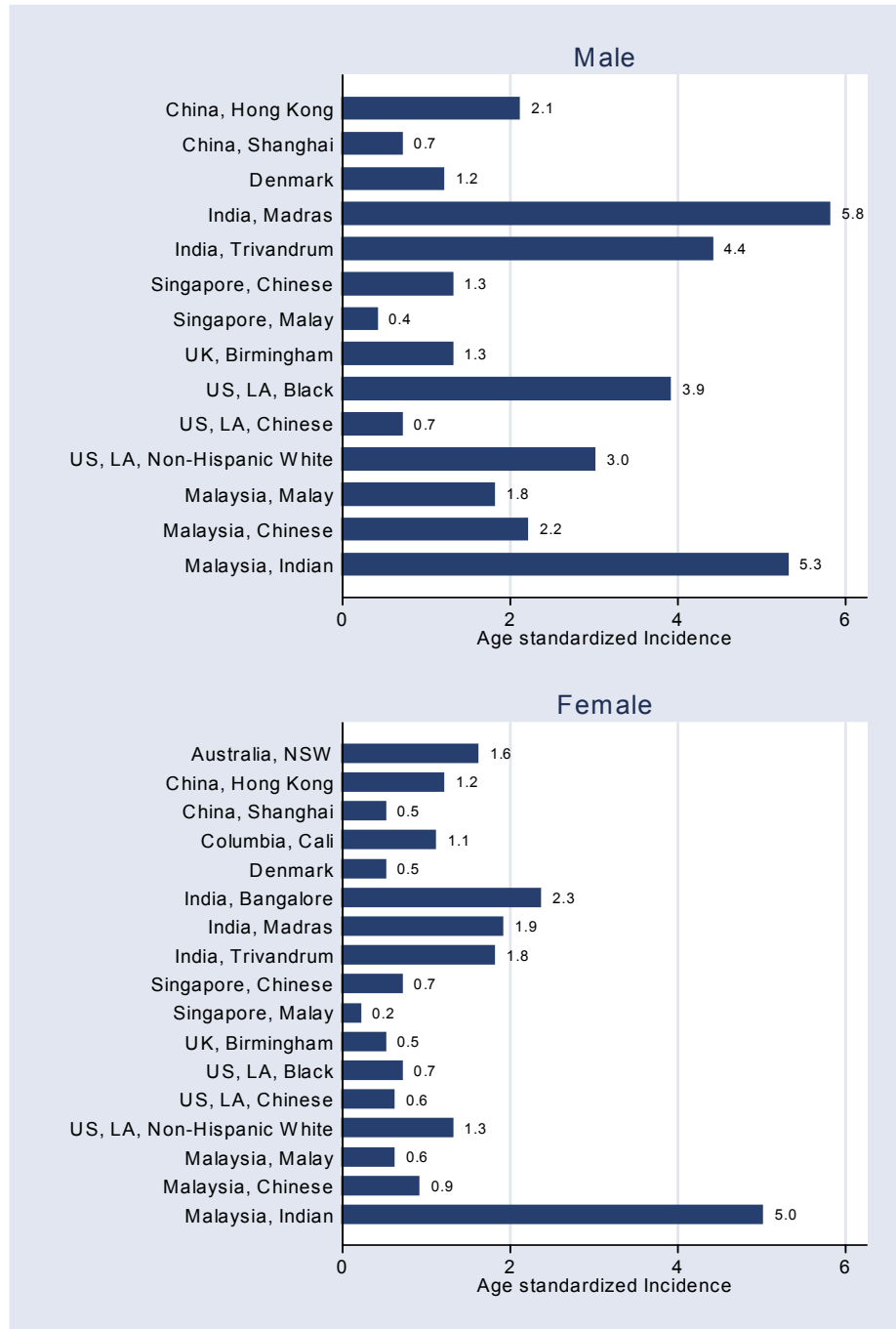
Table 2.1.3: Tongue Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	64	43.5	1.1	1.8	25	32.9	0.4	0.6
Chinese	54	36.7	2.1	2.2	22	28.9	0.9	0.9
Indian	29	19.7	3.3	5.3	29	38.2	3.3	5.0

Table 2.1.4: Tongue Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumRate
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	0.0	0.0	0.0	0.9	2.6	2.1	8.2	14.6	0.3
	Chinese	0.0	0.0	0.2	0.8	2.7	6.1	9.2	13.1	0.2
	Indian	0.0	0.0	0.0	0.7	7.8	4.6	36.3	31.3	0.7
Female	Malay	0.0	0.2	0.1	0.5	0.8	1.4	2.4	1.4	0.1
	Chinese	0.0	0.0	0.5	0.0	1.4	1.3	3.4	6.9	0.1
	Indian	0.0	0.0	0.7	0.0	4.3	10.8	19.6	48.9	0.6

Figure 2.1.2: Tongue International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.2 SALIVARY GLAND

Salivary gland cancer was not common. This cancer was more common in the Chinese where the ASR for both males and females were higher than in the Malays and Indians.

Compared with data from other countries as seen in Fig. 2.2.2, the incidence in Malaysian Chinese appeared to be higher.

Table 2.2.1: Salivary Gland Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	94	59.9	0.9	1.2
Female	63	40.1	0.7	0.7
Both	157	100.0	0.8	1.0

Table 2.2.2: Salivary Gland Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male			Female		
		%	CR	No.	%	CR	
0-9	1	1.1	0.0	2	3.2	0.1	
10-19	2	2.1	0.1	3	4.8	0.2	
20-29	4	4.3	0.2	6	9.5	0.4	
30-39	11	11.7	0.8	9	14.3	0.6	
40-49	23	24.5	2.0	12	19.0	1.1	
50-59	22	23.4	3.0	19	30.2	2.8	
60-69	15	16.0	3.8	6	9.5	1.5	
70+	16	17.0	7.3	6	9.5	2.2	

Figure 2.2.1: Salivary Gland Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

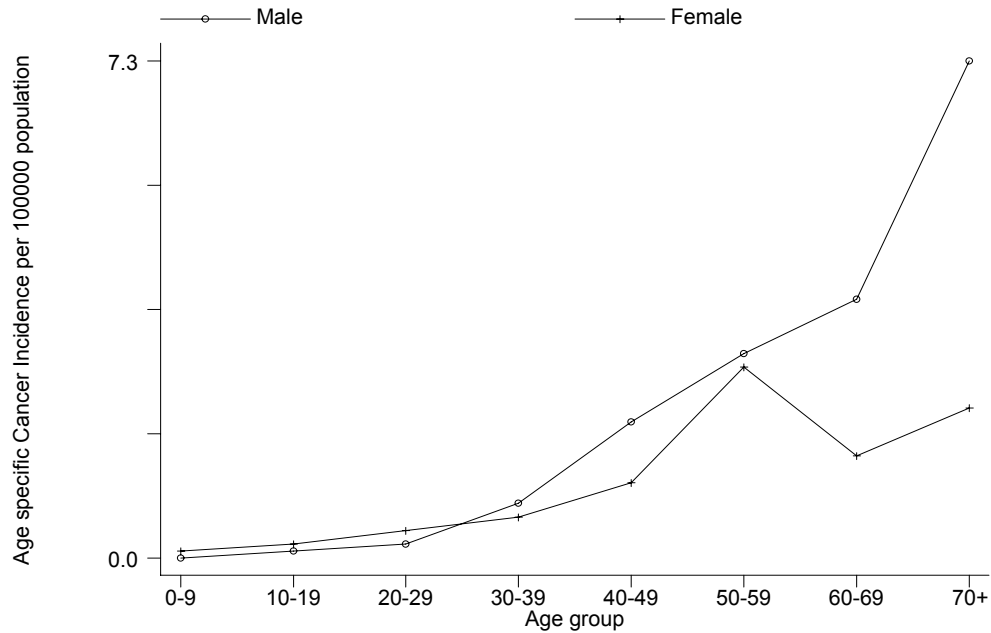


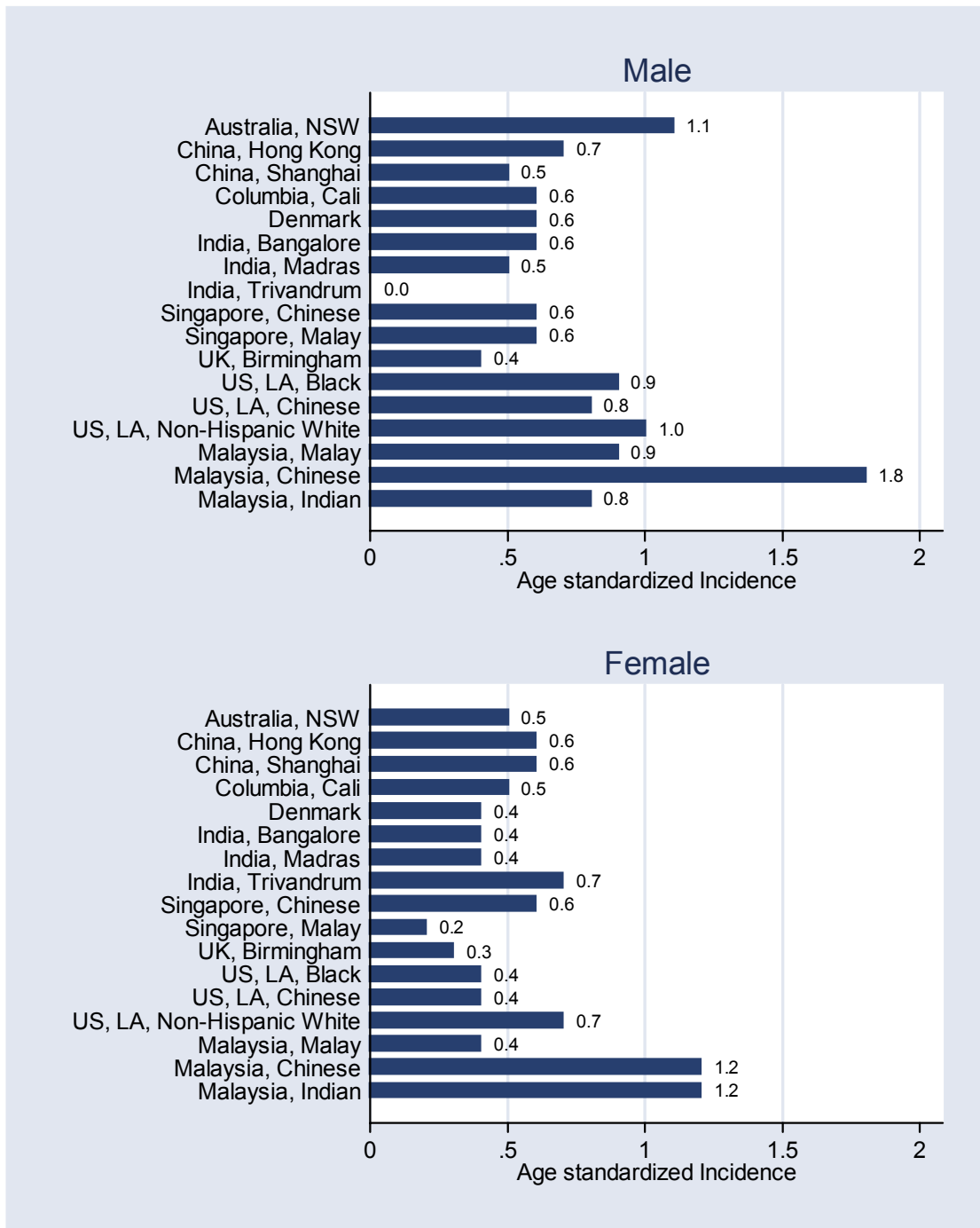
Table 2.2.3: Salivary Gland Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	No.	Male			Female			
		%	CR	ASR	No.	%	CR	ASR
Malay	41	45.6	0.7	0.9	20	32.8	0.4	0.4
Chinese	44	48.9	1.7	1.8	31	50.8	1.2	1.2
Indian	5	5.6	0.6	0.8	10	16.4	1.2	1.2

Table 2.2.4: Salivary Gland Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	0.0	0.2	0.3	0.5	2.3	2.4	1.0	6.0	0.1
	Chinese	0.0	0.0	0.2	1.0	2.2	4.6	7.3	10.5	0.2
	Indian	0.5	0.0	0.0	0.7	0.9	0.0	3.3	6.3	0.1
Female	Malay	0.1	0.2	0.3	0.3	0.5	1.4	0.5	0.7	0.0
	Chinese	0.0	0.0	0.8	1.3	1.1	4.6	3.4	3.0	0.1
	Indian	0.0	0.0	0.0	1.4	4.3	3.1	0.0	5.4	0.1

Figure 2.2.2: Salivary Gland International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.3 MOUTH

Mouth cancer ranked twenty-first among cancers in males and sixteenth in females. The incidence was highest among the Indians. ASR of Indian males in Malaysia (9.5) was lower than the ASR of Indian males in Trivandrum (10.8) and males in parts of France (Bas-Rhin 12.4). However the ASR for Indian females (19.8) was markedly higher than the highest ASR for females in the Indian subcontinent (Bangalore 8.9). The cumulative lifetime risk for Indian females in Malaysia was 1 in 42.

These findings require further research.

Table 2.3.1: Mouth Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	147	47.0	1.5	2.2
Female	166	53.0	1.7	2.4
Both	313	100.0	1.6	2.3

Table 2.3.2: Mouth Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	Male			Female		
	No.	%	CR	No.	%	CR
0-9	1	0.7	0.0	2	1.2	0.1
10-19	0	0.0	0.0	0	0.0	0.0
20-29	2	1.4	0.1	1	0.6	0.1
30-39	10	6.8	0.7	4	2.4	0.3
40-49	32	21.8	2.7	16	9.6	1.4
50-59	18	12.2	2.5	43	25.9	6.3
60-69	40	27.2	10.2	57	34.3	14.0
70+	44	29.9	20.1	43	25.9	15.8

Figure 2.3.1: Mouth Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

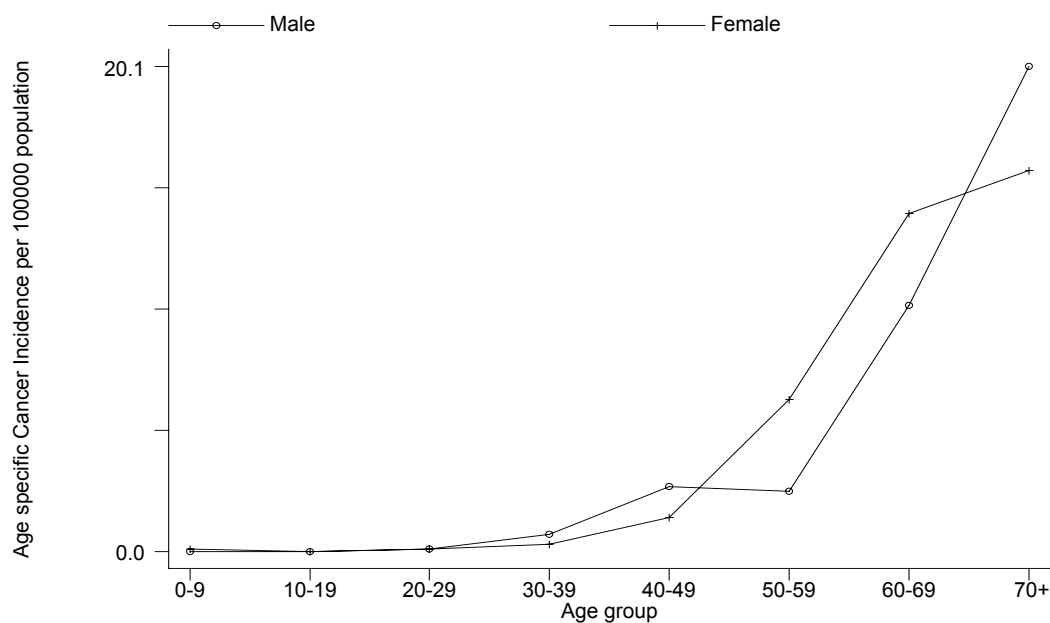


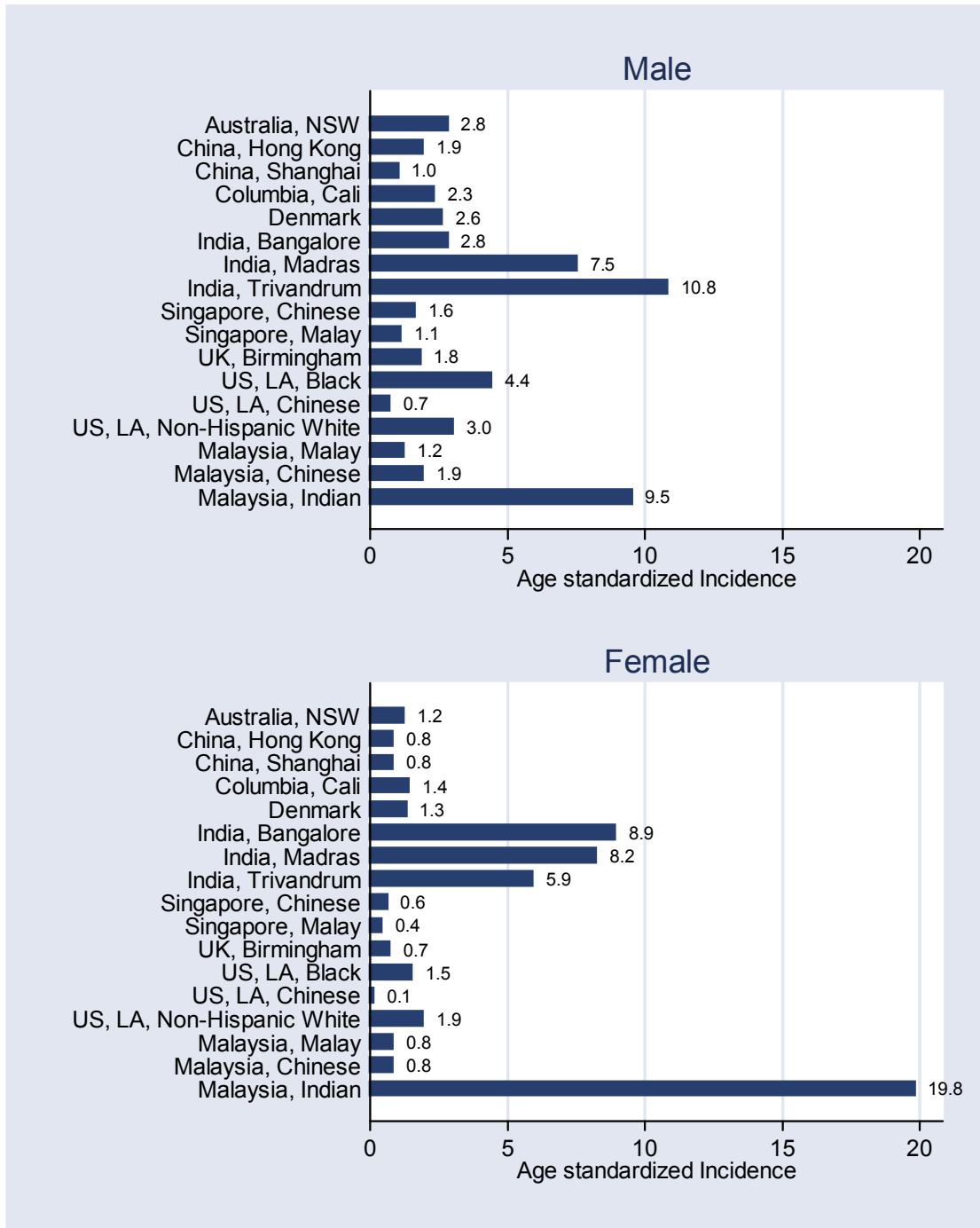
Table 2.3.3: Mouth Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	49	35.0	0.8	1.2	30	18.6	0.5	0.8
Chinese	44	31.4	1.7	1.9	20	12.4	0.8	0.8
Indian	47	33.6	5.4	9.5	111	68.9	12.8	19.8

Table 2.3.4: Mouth Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	0.1	0.0	0.2	1.1	2.8	0.3	4.1	10.3	0.1
	Chinese	0.0	0.0	0.0	0.3	1.6	3.0	11.9	14.4	0.2
	Indian	0.0	0.0	0.0	0.7	6.9	9.3	36.3	131.3	1.0
Female	Malay	0.1	0.0	0.0	0.1	0.7	1.4	5.2	5.7	0.1
	Chinese	0.2	0.0	0.3	0.3	0.0	1.7	4.0	6.9	0.1
	Indian	0.0	0.0	0.0	1.4	8.5	47.9	112.0	152.2	2.4

Figure 2.3.2: Mouth International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.4 NASOPHARYNX

Nasopharyngeal cancer ranked second and constituted 8% of all cancers for males in Malaysia. For females, this cancer ranked tenth which was 2.8% of all cancers diagnosed in Malaysian females. The ratio of males to females was 2.3 : 1.

Among the ethnic groups in Malaysia, nasopharyngeal cancer was far more common in Chinese. The ASR for Chinese males in Malaysia (23.0) was the second highest in the world, behind Hong Kong (24.3). The ASR for Chinese females in Malaysia (10.3) is the highest in the world, as it has outranked the females in Hong Kong (9.5). ASR in Malaysian Indian males (4.0) was higher than in Madras (0.9) and Singapore (0.5). These findings warrant further study.

Table 2.4.1: Nasopharynx Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	940	70.0	9.5	11.4
Female	403	30.0	4.2	5.0
Both	1343	100.0	6.9	8.2

Table 2.4.2: Nasopharynx Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male			Female		
		%	CR	No.	%	CR	
0-9	2	0.2	0.1	1	0.2	0.0	
10-19	8	0.9	0.4	15	3.7	0.8	
20-29	33	3.5	2.0	10	2.5	0.6	
30-39	148	15.7	10.1	74	18.4	5.2	
40-49	298	31.7	25.3	107	26.6	9.4	
50-59	251	26.7	34.4	102	25.3	14.9	
60-69	154	16.4	39.4	71	17.6	17.4	
70+	46	4.9	21.0	23	5.7	8.5	

Figure 2.4.1: Nasopharynx Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

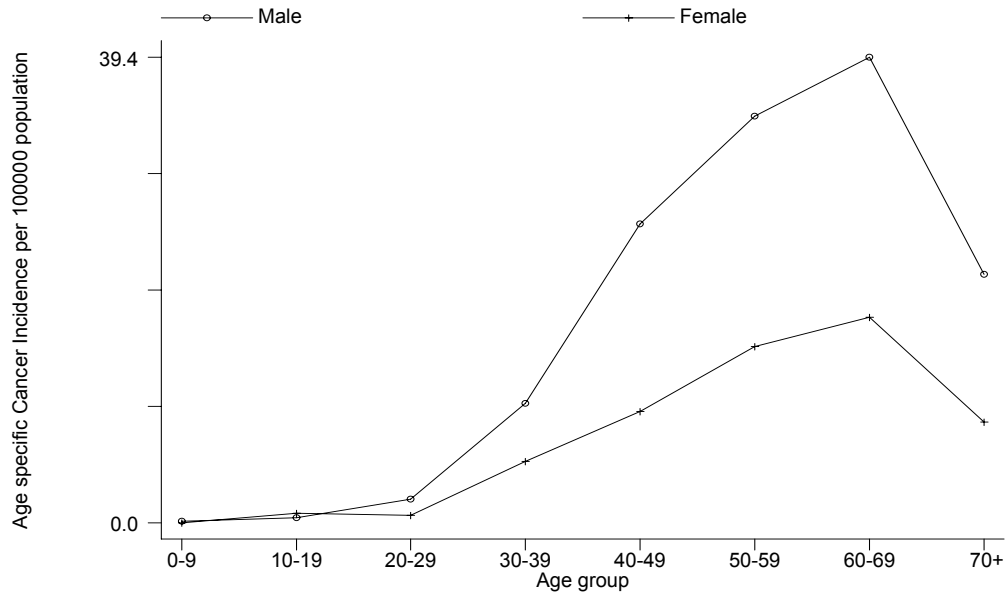


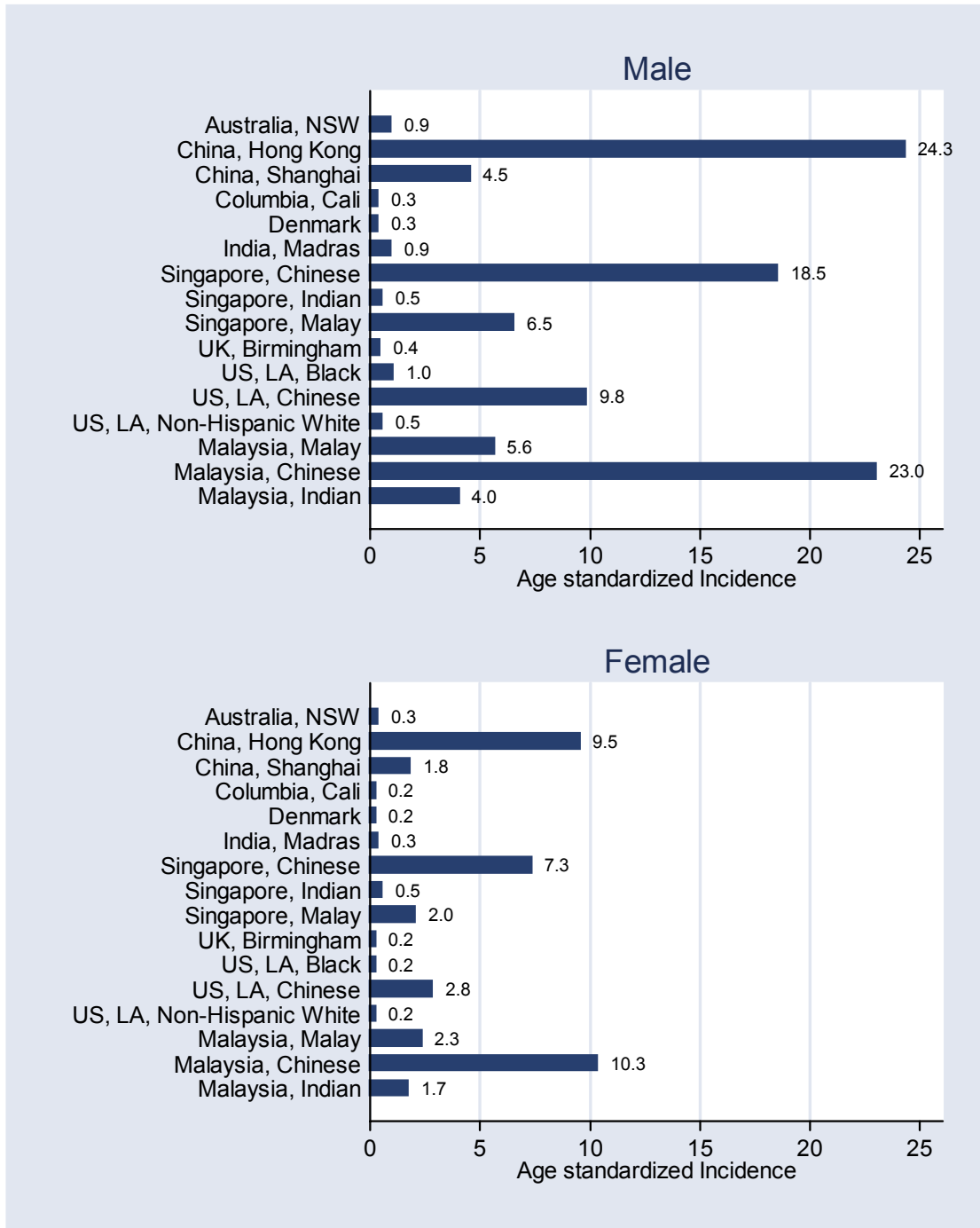
Table 2.4.3: Nasopharynx Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	241	26.6	4.2	5.6	105	27.0	1.8	2.3
Chinese	641	70.8	24.7	23.0	272	69.9	10.9	10.3
Indian	23	2.5	2.6	4.0	12	3.1	1.4	1.7

Table 2.4.4: Nasopharynx Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	0.0	0.5	1.9	3.9	13.2	16.1	17.3	12.0	0.6
	Chinese	0.4	0.4	2.9	27.8	54.6	69.7	68.0	36.7	2.4
	Indian	0.0	0.0	0.7	0.7	4.3	7.7	26.4	18.8	0.5
Female	Malay	0.0	0.9	0.3	2.7	4.4	6.4	7.1	3.5	0.2
	Chinese	0.2	0.0	1.8	12.5	21.2	31.0	32.9	17.7	1.1
	Indian	0.0	1.2	0.0	0.7	2.6	3.1	11.2	0.0	0.2

Figure 2.4.2: Nasopharynx International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.5 OESOPHAGUS

In Malaysia, oesophageal cancer ranked sixteenth and nineteenth among the cancers reported in males and females respectively. This disease comprised 1.9% and 0.9% of cancers reported in males and females respectively.

Among Chinese the male to female ratio was 4:1, compared to Malays (3.4:1) and Indians in whom the ratio approached 1:1.

The age specific incidence curve rose with age especially after 50 years. The age specific incidence curve for females suggested under-reporting in the older age group.

Indians had the highest incidence of oesophageal cancer in both males and females in Malaysia. This racial distribution was different when compared to Singapore where Chinese had the highest incidence among males but Indians predominated among females. ASR for males in Singapore (5.8) was higher than the ASR for males in Malaysia (3.4); the differences between ASR for females were less marked (1.4 and 1.9 respectively).

The ASR in Malaysian Indian males (8.0) was similar to that of Indian males in India-Madras (10.5). However, the ASR of Chinese males and females in Malaysia (4.4 and 1.1 respectively) was markedly lower than that of Chinese in China-Shanghai (12.5 and 4.8 respectively).

Table 2.5.1: Oesophagus Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	221	63.1	2.2	3.4
Female	129	36.9	1.3	1.9
Both	350	100.0	1.8	2.6

Table 2.5.2: Oesophagus Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	Male			Female		
	No.	%	CR	No.	%	CR
0-9	0	0.0	0.0	1	0.8	0.0
10-19	1	0.5	0.0	1	0.8	0.1
20-29	2	0.9	0.1	1	0.8	0.1
30-39	5	2.3	0.3	2	1.6	0.1
40-49	29	13.1	2.5	17	13.2	1.5
50-59	44	19.9	6.0	28	21.7	4.1
60-69	76	34.4	19.4	47	36.4	11.5
70+	64	29.0	29.3	32	24.8	11.8

Figure 2.5.1: Oesophagus Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

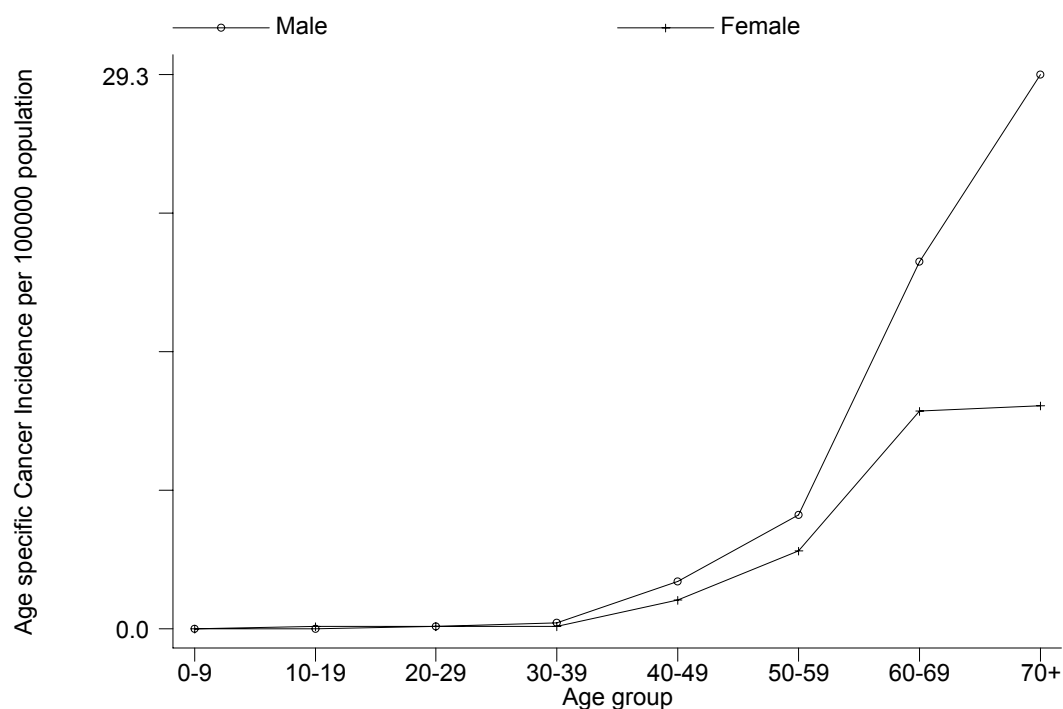


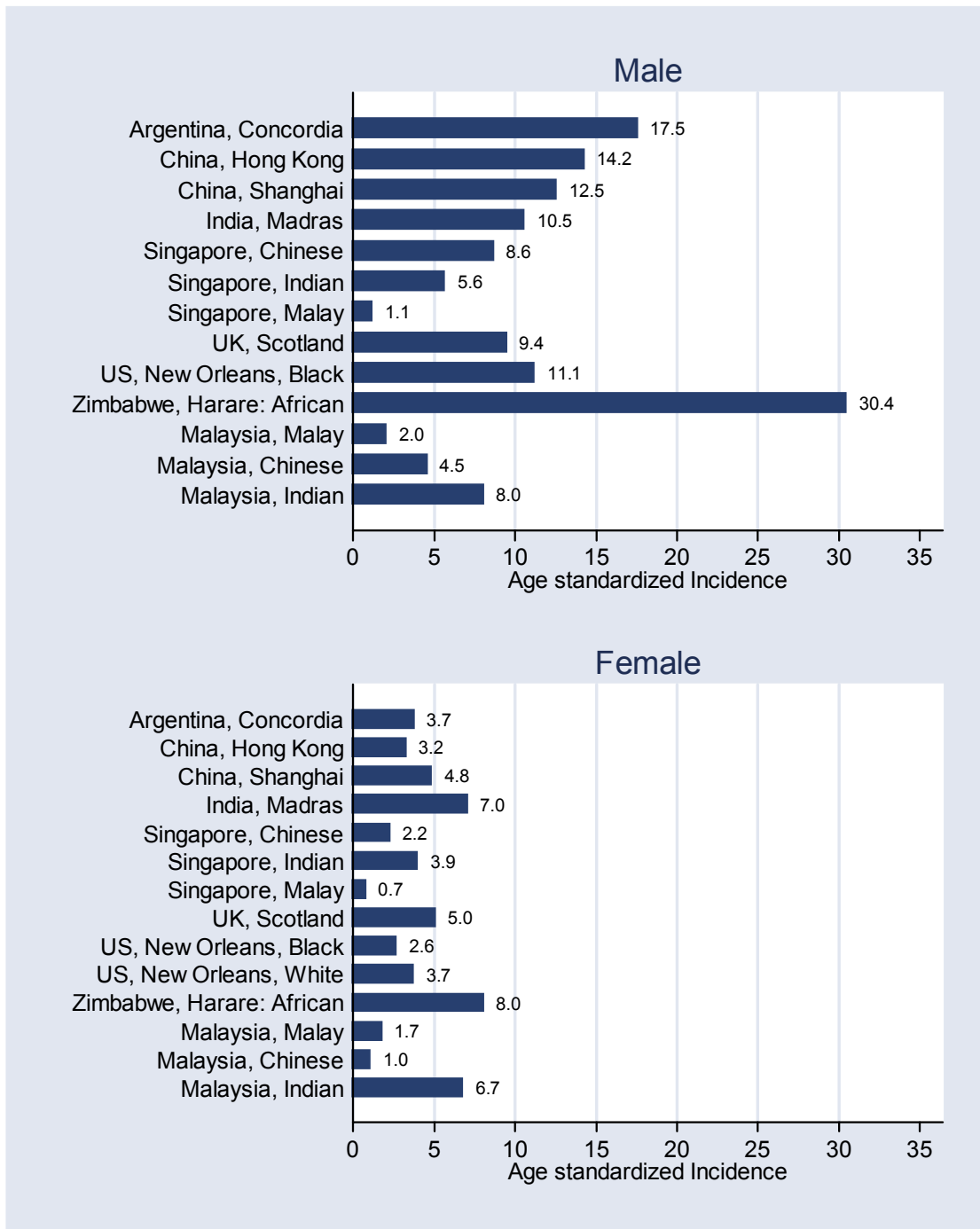
Table 2.5.3: Oesophagus Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	65	30.7	1.1	2.0	58	47.2	1.0	1.7
Chinese	101	47.6	3.9	4.5	24	19.5	1.0	1.0
Indian	46	21.7	5.3	8.0	41	33.3	4.7	6.7

Table 2.5.4: Oesophagus Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	0.0	0.1	0.1	0.4	0.7	2.7	12.2	18.9	0.2
	Chinese	0.0	0.0	0.2	0.3	2.7	8.4	23.1	42.0	0.5
	Indian	0.0	0.0	0.0	0.7	11.2	15.4	42.9	56.2	0.9
Female	Malay	0.1	0.1	0.1	0.0	0.7	3.0	13.7	7.8	0.2
	Chinese	0.0	0.0	0.0	0.3	0.9	0.8	6.0	8.9	0.1
	Indian	0.0	0.0	0.0	0.7	7.7	20.1	16.8	65.2	0.9

Figure 2.5.2: Oesophagus International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.6 STOMACH

Stomach cancer ranked as the ninth most common cancer in Malaysian males and fourteenth among Malaysian females. This disease comprised 4.1% and 2.5% of all cancers reported in males and females respectively.

In Malaysia, Chinese were at highest risk, followed by Indians and Malays in both sexes. The ASR for males and females in Malaysia (7.6 and 5.1 respectively) were lower than the ASR for males and females in Singapore ((21.0 and 11.3 respectively). Comparison of the age-specific incidence curve with that of a demographically similar population (Singapore) suggested that there was under-registration of cases especially in the age group above 60 years.

Stomach cancer incidence started to increase after 40 years of age. The rates in males were about 1.5 times higher than in females. Chinese had the highest rates, more than 4 times that of Malays who had the lowest rates. Indians had rates about 3 times that of Malays. However among Indians, the men had an incidence rate only 10% more than women.

We caution the reader that for this cancer, the registration of cases was incomplete. In other words, the incidence statistic reported here are lower than the true incidence in the population. Refer to section on evaluation of quality of NCR data.

Table 2.6.1: Stomach Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	487	57.7	4.9	7.6
Female	357	42.3	3.7	5.1
Both	844	100.0	4.3	6.3

Table 2.6.2: Stomach Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male		Female		
		%	CR	No.	%	CR
0-9	1	0.2	0.0	0	0.0	0.0
10-19	2	0.4	0.1	1	0.3	0.1
20-29	4	0.8	0.2	3	0.8	0.2
30-39	23	4.7	1.6	20	5.6	1.4
40-49	59	12.1	5.0	48	13.4	4.2
50-59	86	17.7	11.8	69	19.3	10.0
60-69	144	29.6	36.8	105	29.4	25.8
70+	168	34.5	76.8	111	31.1	40.9

Figure 2.6.1: Stomach Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

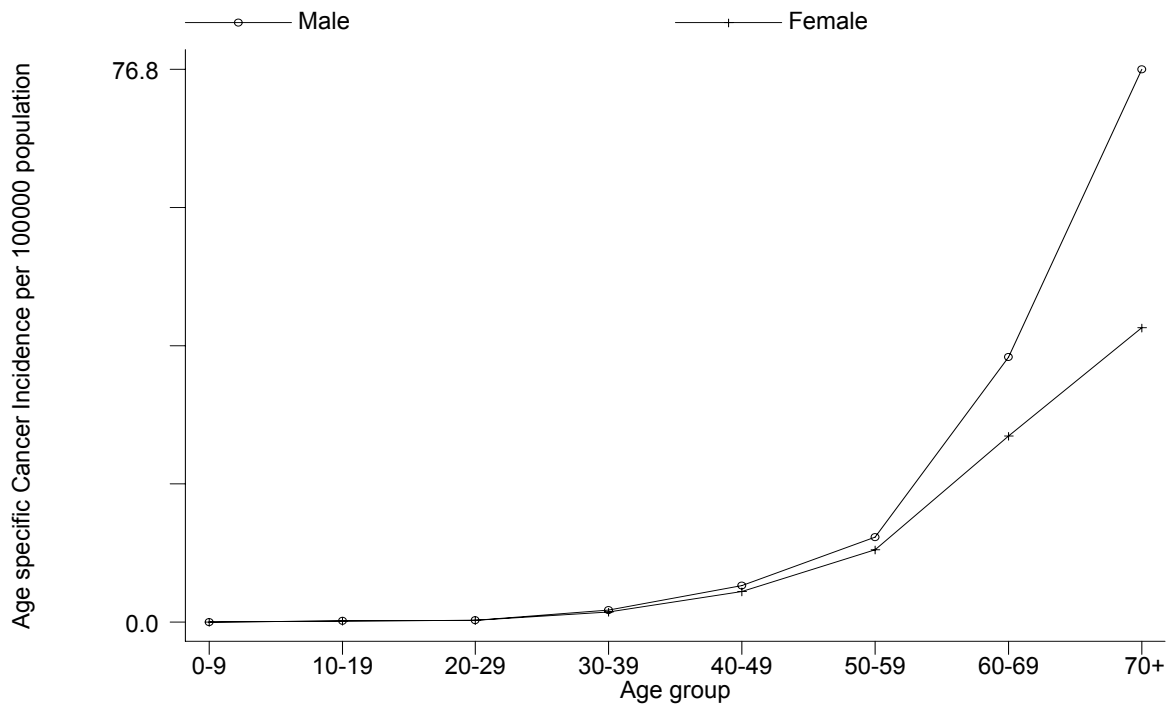


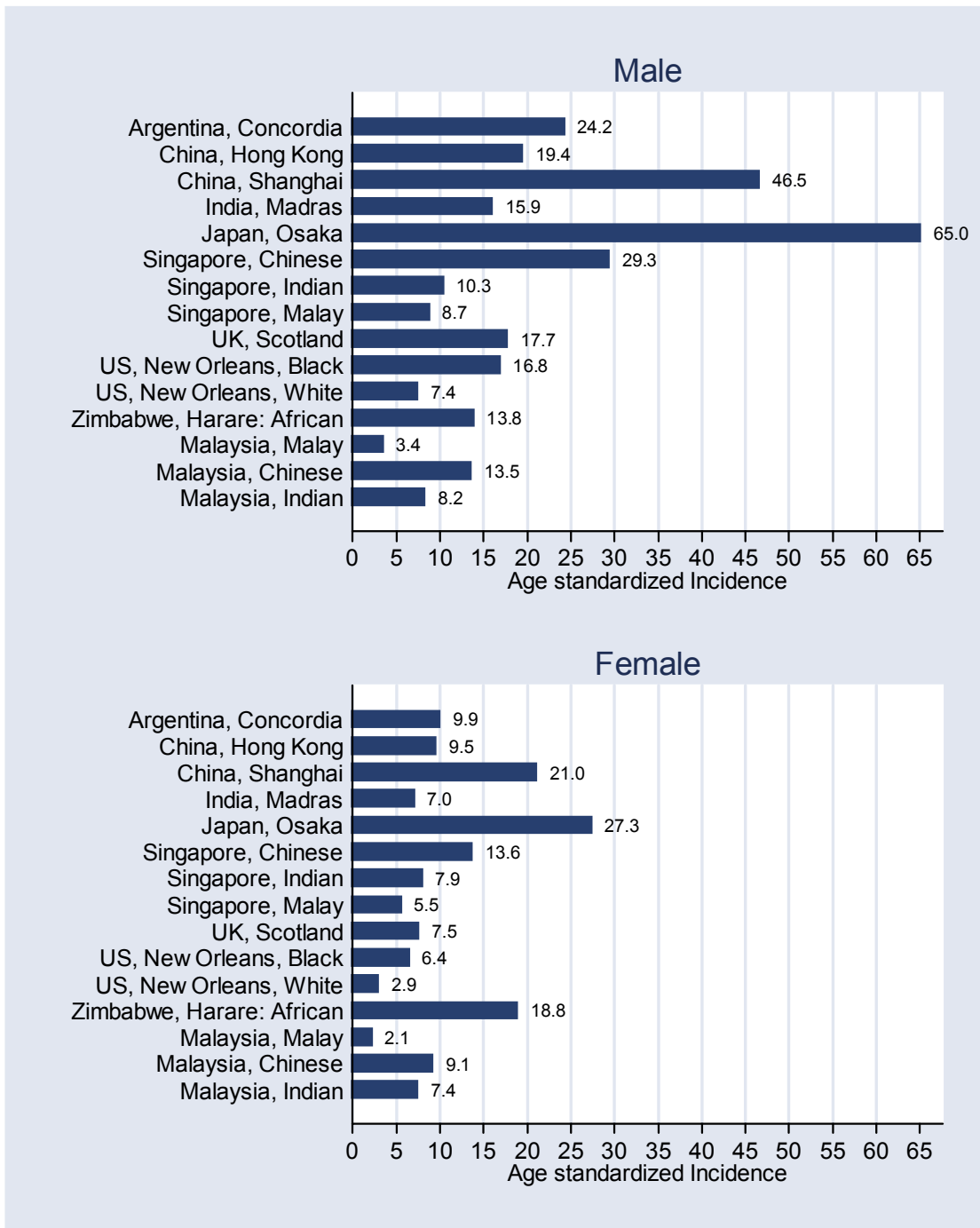
Table 2.6.3: Stomach Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	119	25.9	2.1	3.4	79	22.5	1.4	2.1
Chinese	293	63.7	11.3	13.5	226	64.4	9.1	9.1
Indian	48	10.4	5.5	8.2	46	13.1	5.3	7.4

Table 2.6.4: Stomach Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	CumRe
Male	Malay	0.0	0.1	0.2	1.2	3.6	7.0	15.3	24.9	0.5
	Chinese	0.2	0.0	0.2	1.5	6.3	16.7	63.4	160.1	1.6
	Indian	0.0	0.0	0.0	2.2	8.7	21.6	39.6	56.2	1.0
Female	Malay	0.0	0.1	0.1	0.7	3.3	3.0	11.8	11.3	0.3
	Chinese	0.0	0.0	0.5	2.6	6.6	17.2	42.3	85.7	1.1
	Indian	0.0	0.0	0.0	3.6	3.4	23.2	39.2	43.5	0.8

Figure 2.6.2: Stomach International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.7 COLON

Colon cancer ranked third among cancers reported in males and females, accounting for 7.8% and 5.6% in males and females respectively. The ASR for males and females were lower in Malaysia (13.9 and 11.2 respectively) compared to Singapore (20.9 and 17.9 respectively). As in Singapore, the incidence of colon cancer was highest in Chinese. Chinese in Malaysia had more than 2.5 times the incidence of colon cancer compared with Malays and Indians. Cumulative lifetime risk for Chinese males was 1 in 36, and 1 in 42 for Chinese females. Indians and Malays appeared to have almost similar rates especially among the males.

The difference in incidence between the sexes in colon cancer was age related. Below the age of 60 years, the disease occurred almost equally among males and females. Thereafter the frequency in males rose more rapidly. The incidence of colon cancer increased exponentially with age.

We caution the reader that for this cancer, the registration of cases was incomplete. In other words, the incidence statistic reported here are lower than the true incidence in the population. Refer to section on evaluation of quality of NCR data.

Table 2.7.1: Colon Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	917	53.3	9.2	13.9
Female	805	46.7	8.4	11.2
Both	1722	100.0	8.8	12.5

Table 2.7.2: Colon Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male			Female		
		%	CR	No.	%	CR	
0-9	2	0.2	0.1	1	0.1	0.0	
10-19	7	0.8	0.3	7	0.9	0.4	
20-29	18	2.0	1.1	9	1.1	0.6	
30-39	50	5.5	3.4	43	5.3	3.0	
40-49	119	13.0	10.1	111	13.8	9.8	
50-59	191	20.8	26.1	197	24.5	28.7	
60-69	275	30.0	70.4	194	24.1	47.6	
70+	255	27.8	116.5	243	30.2	89.5	

Figure 2.7.1: Colon Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

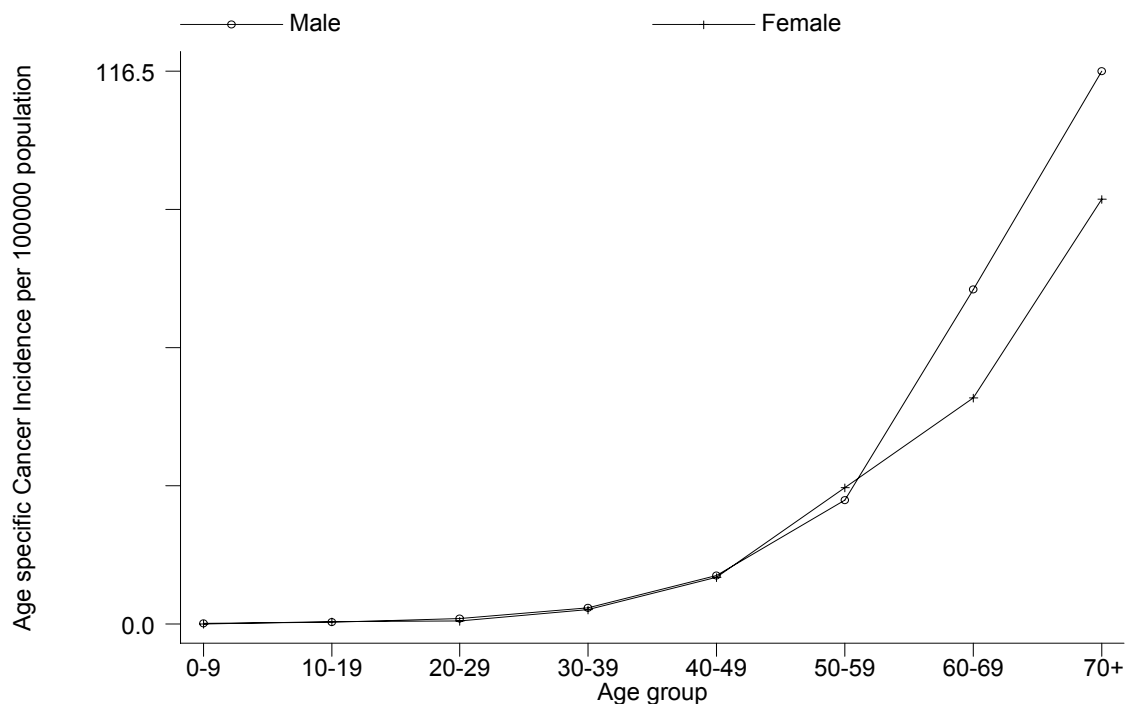


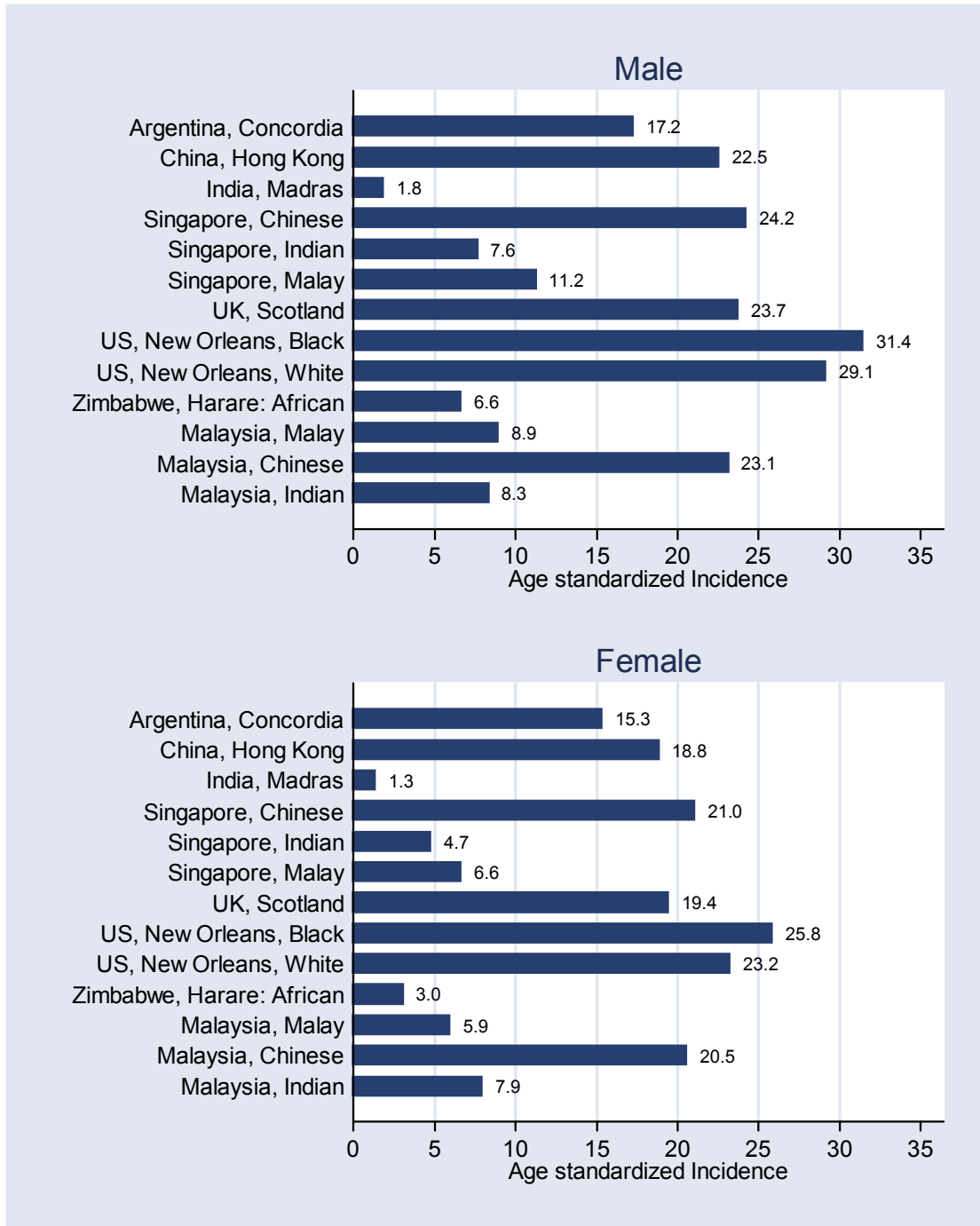
Table 2.7.3: Colon Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	318	35.7	5.5	8.9	230	29.2	4.0	5.9
Chinese	527	59.1	20.3	23.1	510	64.8	20.5	20.5
Indian	46	5.2	5.3	8.3	47	6.0	5.4	7.9

Table 2.7.4: Colon Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	0.1	0.4	0.8	2.8	8.0	21.0	43.3	60.9	1.1
	Chinese	0.0	0.4	2.7	5.8	15.3	36.9	112.3	220.5	2.8
	Indian	0.0	0.0	0.0	1.5	7.8	18.5	49.5	50.0	1.0
Female	Malay	0.0	0.2	0.5	2.1	8.7	16.6	22.1	33.3	0.7
	Chinese	0.2	0.7	0.5	5.4	13.4	51.1	91.9	174.4	2.4
	Indian	0.0	1.2	1.3	2.2	4.3	17.0	22.4	87.0	1.0

Figure 2.7.2: Colon International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.8 RECTUM

Cancer of the rectum ranked fifth and eighth among cancers reported in males and females respectively. This disease accounted for 6.4% and 3.4% in males and females respectively. In Malaysia, the Chinese had the highest incidence followed by the Indians and then the Malays, whereas in Singapore, the least affected group were the Indians. In Malaysia, the cumulative lifetime risk for Chinese males was 1 in 48, for Indian males is 1 in 71, and for Malay males is 1 in 91.

The ASR for males and females were lower in Malaysia (11.7 and 6.7 respectively) compared to Singapore (16.6 and 11.5 respectively). Interestingly, the incidence of rectal cancer in Chinese males and females in Malaysia (16.5 and 9.9 respectively) was higher than in Hong Kong (12.6, 9.2), Shanghai (9.3,7.3), and higher than Chinese males in Los Angeles (8.3) and San Francisco (12.7). Similarly, the Indian males and females in Malaysia (12.1 and 5.3 respectively) had a higher ASR than Madras (3.8 and 2.8 respectively) and Trivandrum (3.0 and 2.3 respectively). These findings warrant further investigation.

The difference in incidence between the sexes in rectal cancers was age related. Below the age of 60 years, the disease occurred almost equally among males and females. Thereafter the frequency in males rose more rapidly. The incidence of rectal cancer increased exponentially with age.

We caution the reader that for this cancer, the registration of cases was incomplete. In other words, the incidence statistic reported here are lower than the true incidence in the population. Refer to section on evaluation of quality of NCR data.

Table 2.8.1: Rectum Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	760	61.3	7.7	11.7
Female	480	38.7	5.0	6.7
Both	1240	100.0	6.3	9.1

Table 2.8.2: Rectum Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male		Female		
		%	CR	No.	%	CR
0-9	0	0.0	0.0	1	0.2	0.0
10-19	1	0.1	0.0	1	0.2	0.1
20-29	12	1.6	0.7	4	0.8	0.2
30-39	24	3.2	1.6	32	6.7	2.2
40-49	100	13.2	8.5	69	14.4	6.1
50-59	167	22.0	22.9	125	26.0	18.2
60-69	250	32.9	64.0	119	24.8	29.2
70+	206	27.1	94.1	129	26.9	47.5

Figure 2.8.1: Rectum Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

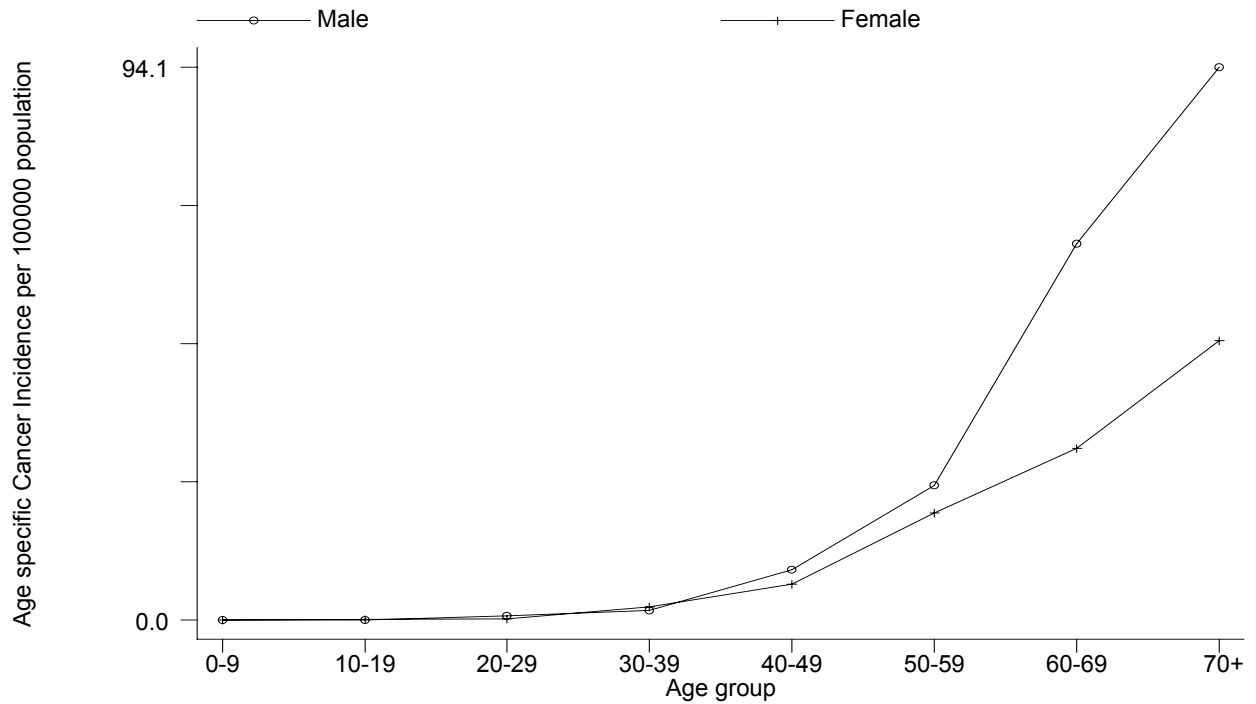


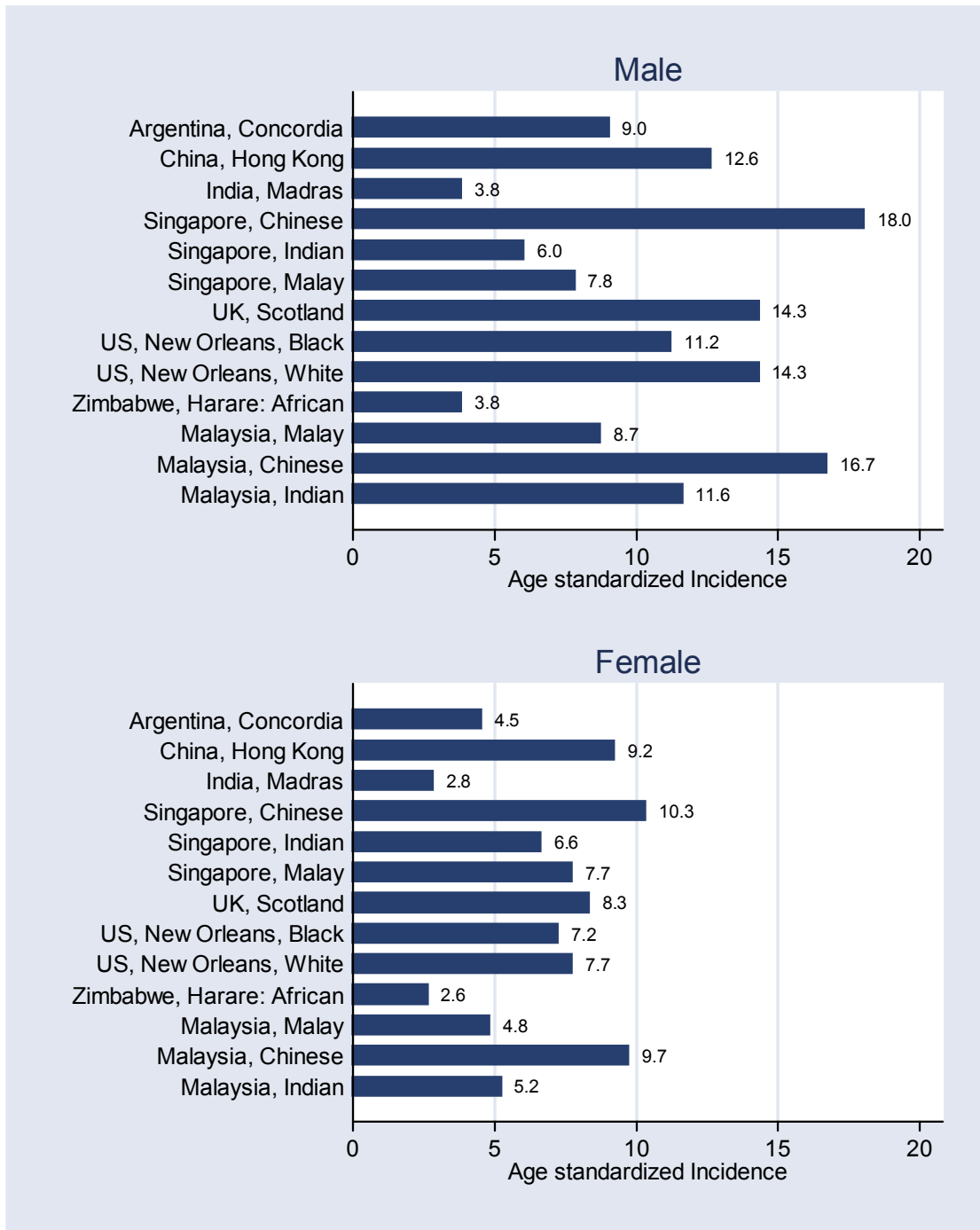
Table 2.8.3: Rectum Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	305	41.3	5.3	8.7	186	40.3	3.3	4.8
Chinese	378	51.2	14.5	16.7	241	52.2	9.7	9.7
Indian	55	7.5	6.3	11.6	35	7.6	4.0	5.2

Table 2.8.4: Rectum Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	0.0	0.1	0.9	1.7	7.9	21.5	43.8	59.2	1.1
	Chinese	0.0	0.0	1.0	1.8	11.2	28.9	89.2	150.9	2.1
	Indian	0.0	0.0	0.0	2.2	3.5	7.7	79.2	118.8	1.4
Female	Malay	0.0	0.1	0.1	2.0	6.2	13.6	22.1	24.8	0.6
	Chinese	0.2	0.0	0.3	3.3	6.0	25.1	38.9	85.7	1.3
	Indian	0.0	0.0	1.3	1.4	5.1	21.6	16.8	27.2	0.6

Figure 2.8.2: Rectum International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.9 LIVER

Five hundred and sixty-six patients with liver cancers were reported to the NCR in 2002, with men more commonly affected in the ratio of 2.8 : 1. Liver cancer ranked twelfth in men and eighteenth in women in Malaysia. Chinese in Malaysia had higher rates compared to Indians and Malays, which is also seen in Singapore and in other communities with a Chinese population, for example, in San Francisco and Hawaii.

There was evidence that there was under-registration of liver cancers in all age groups based on comparison of the age-specific incidence curve with that of Singapore. The ASR of all ethnic groups was lower than their counterparts in Singapore by a factor of 1.2 to 2.7. Lack of histological confirmation could have contributed to the under-reporting in this registry.

Looking at other regions, the incidence in Malaysia was much rarer than in Hiroshima (45.5 in males, 11.4 in females), Thailand Khon Kaen (97.4 in males, 39.0 in females) and China, Hong Kong (36.9 in males, 9.2 in females).

We caution the reader that for this cancer, the registration of cases was incomplete. In other words, the incidence statistic reported here are lower than the true incidence in the population. Refer to section on evaluation of quality of NCR data.

Table 2.9.1: Liver Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	417	73.7	4.2	5.9
Female	149	26.3	1.5	2.0
Both	566	100.0	2.9	3.9

Table 2.9.2: Liver Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male			Female		
		%	CR	No.	%	CR	
0-9	11	2.6	0.5	8	5.4	0.4	
10-19	3	0.7	0.1	4	2.7	0.2	
20-29	8	1.9	0.5	5	3.4	0.3	
30-39	36	8.6	2.5	8	5.4	0.6	
40-49	64	15.3	5.4	25	16.8	2.2	
50-59	113	27.1	15.5	36	24.2	5.2	
60-69	111	26.6	28.4	36	24.2	8.8	
70+	71	17.0	32.4	27	18.1	9.9	

Figure 2.9.1: Liver Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

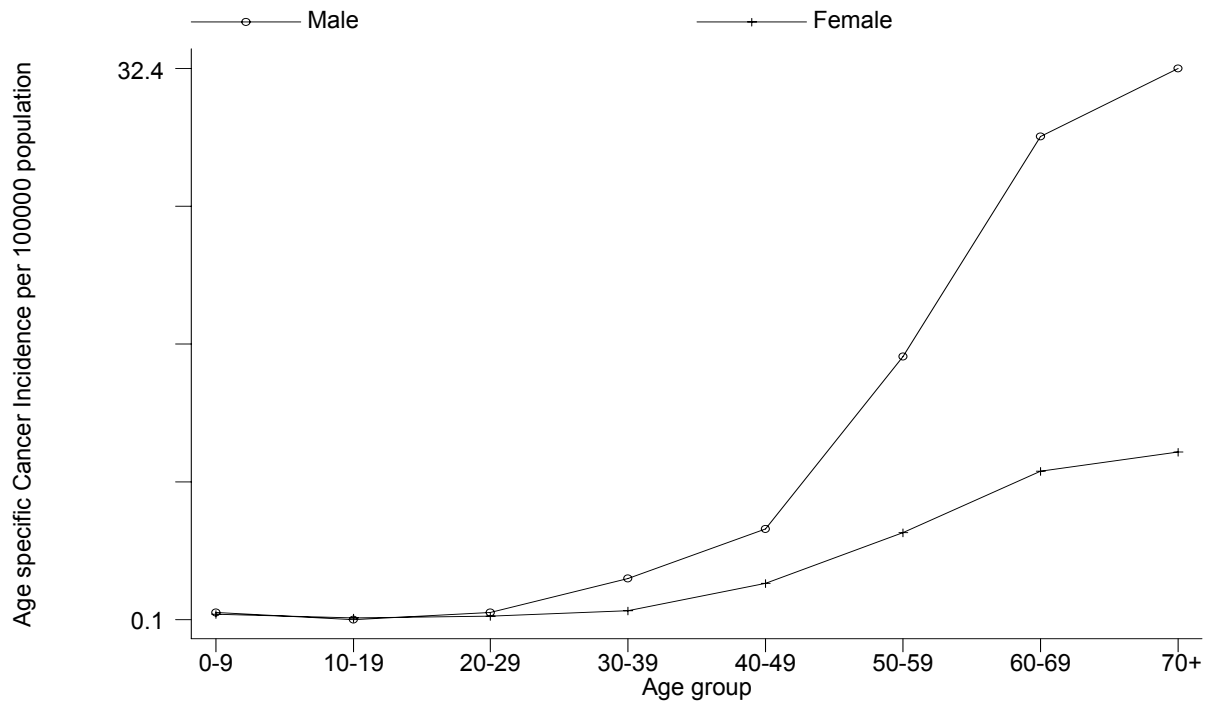


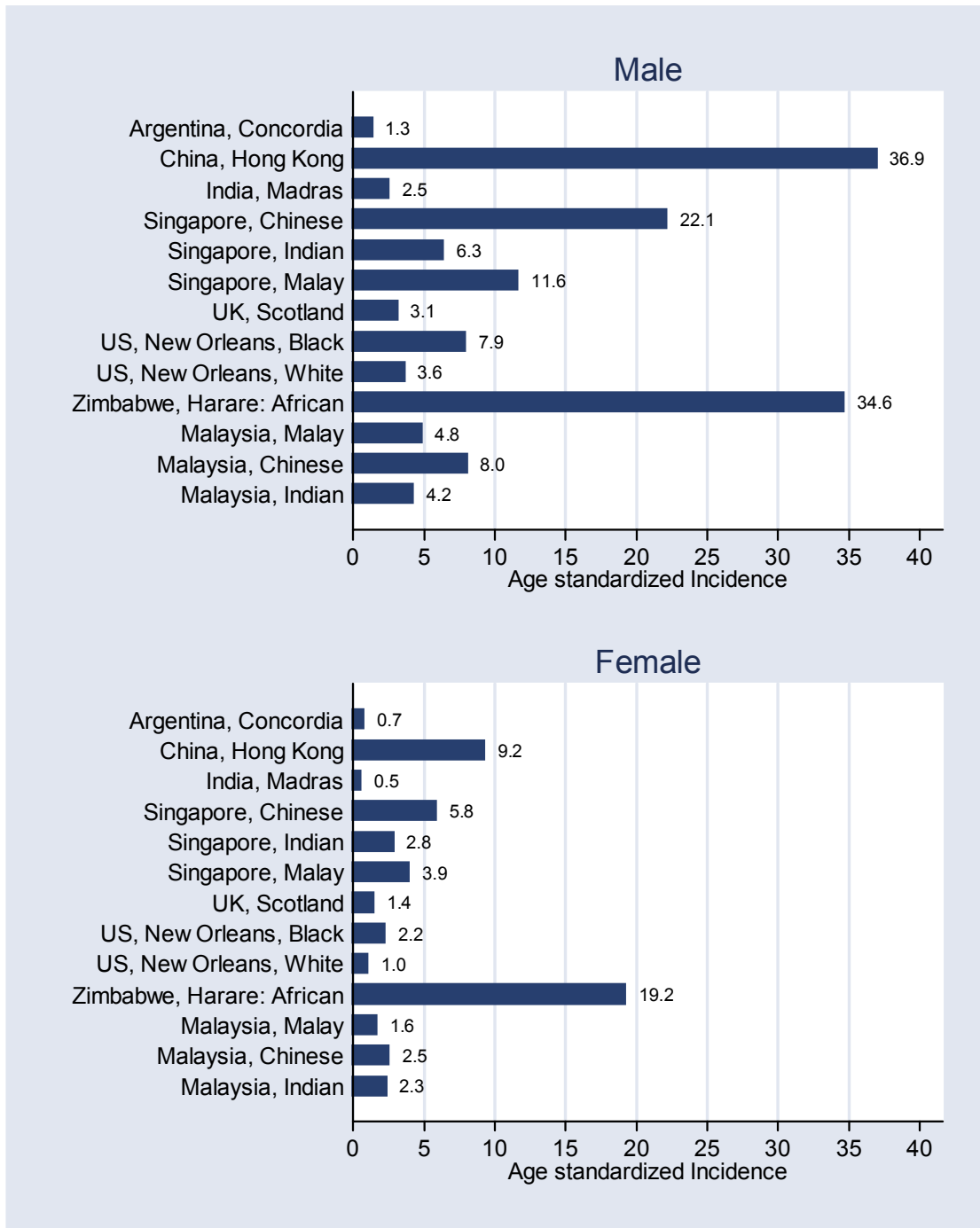
Table 2.9.3: Liver Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	No.	Male			Female			
		%	CR	ASR	No.	%	CR	ASR
Malay	186	46.4	3.2	4.8	65	45.5	1.1	1.6
Chinese	191	47.6	7.3	8.0	63	44.1	2.5	2.5
Indian	24	6.0	2.8	4.2	15	10.5	1.7	2.3

Table 2.9.4: Liver Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	CumR
Male	Malay	0.4	0.1	0.4	3.2	5.1	14.2	22.4	19.7	0.6
	Chinese	0.6	0.4	0.2	2.3	8.2	17.9	39.0	52.5	0.9
	Indian	1.1	0.0	2.0	0.0	1.7	10.8	9.9	43.8	0.6
Female	Malay	0.4	0.2	0.4	0.4	1.8	4.4	6.1	7.1	0.2
	Chinese	0.5	0.5	0.3	1.0	2.9	5.9	10.7	13.8	0.3
	Indian	0.0	0.0	0.0	0.7	3.4	4.6	14.0	10.9	0.3

Figure 2.9.2: Liver International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.10 GALLBLADDER, etc

Biliary tract cancers were uncommon.

The ASR in Malaysia (1.0) was comparable to that of Singapore but lower than in Thailand and Hiroshima. This was among the cancers in which there was a female preponderance, as was seen in Singapore, Shanghai (2.5 for males, 3.6 for females), South Australia (1.9 for males, and 3.1 for females).

We caution the reader that for this cancer, the registration of cases was incomplete. In other words, the incidence statistic reported here are lower than the true incidence in the population. Refer to section on evaluation of quality of NCR data.

Table 2.10.1: Gallbladder Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	64	46.0	0.6	1.0
Female	75	54.0	0.8	1.1
Both	139	100.0	0.7	1.0

Table 2.10.2: Gallbladder Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male		Female		
		%	CR	No.	%	CR
0-9	0	0.0	0.0	0	0.0	0.0
10-19	0	0.0	0.0	0	0.0	0.0
20-29	0	0.0	0.0	0	0.0	0.0
30-39	3	4.7	0.2	5	6.7	0.4
40-49	7	10.9	0.6	12	16.0	1.1
50-59	12	18.8	1.6	14	18.7	2.0
60-69	23	35.9	5.9	22	29.3	5.4
70+	19	29.7	8.7	22	29.3	8.1

Figure 2.10.1: Gallbladder Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

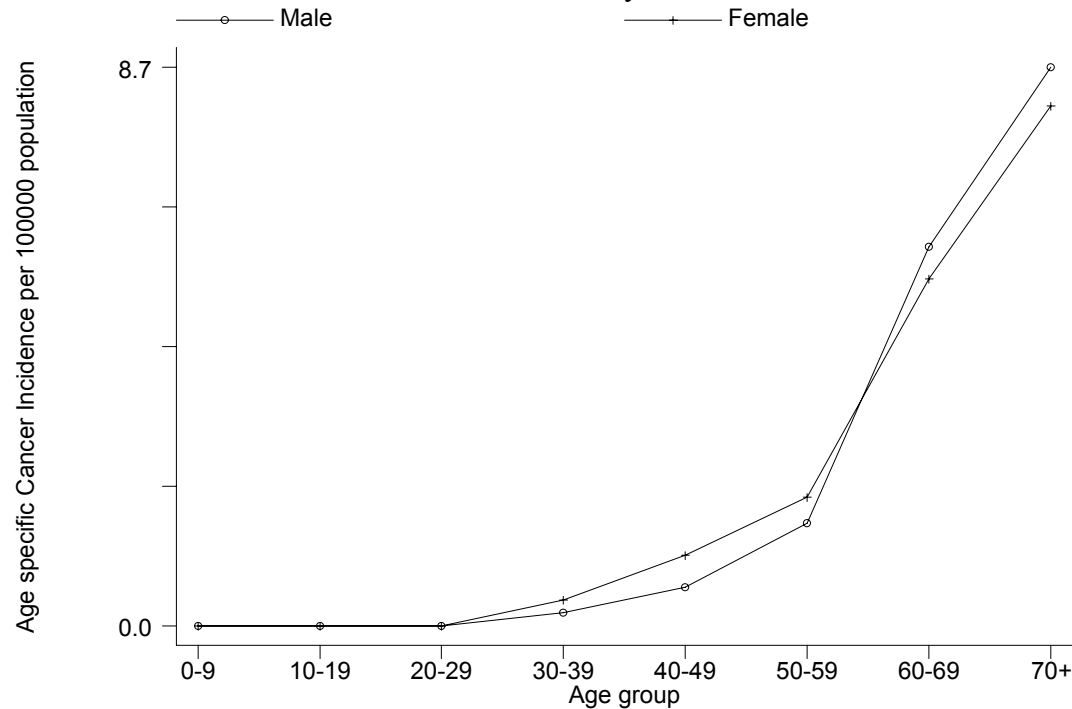


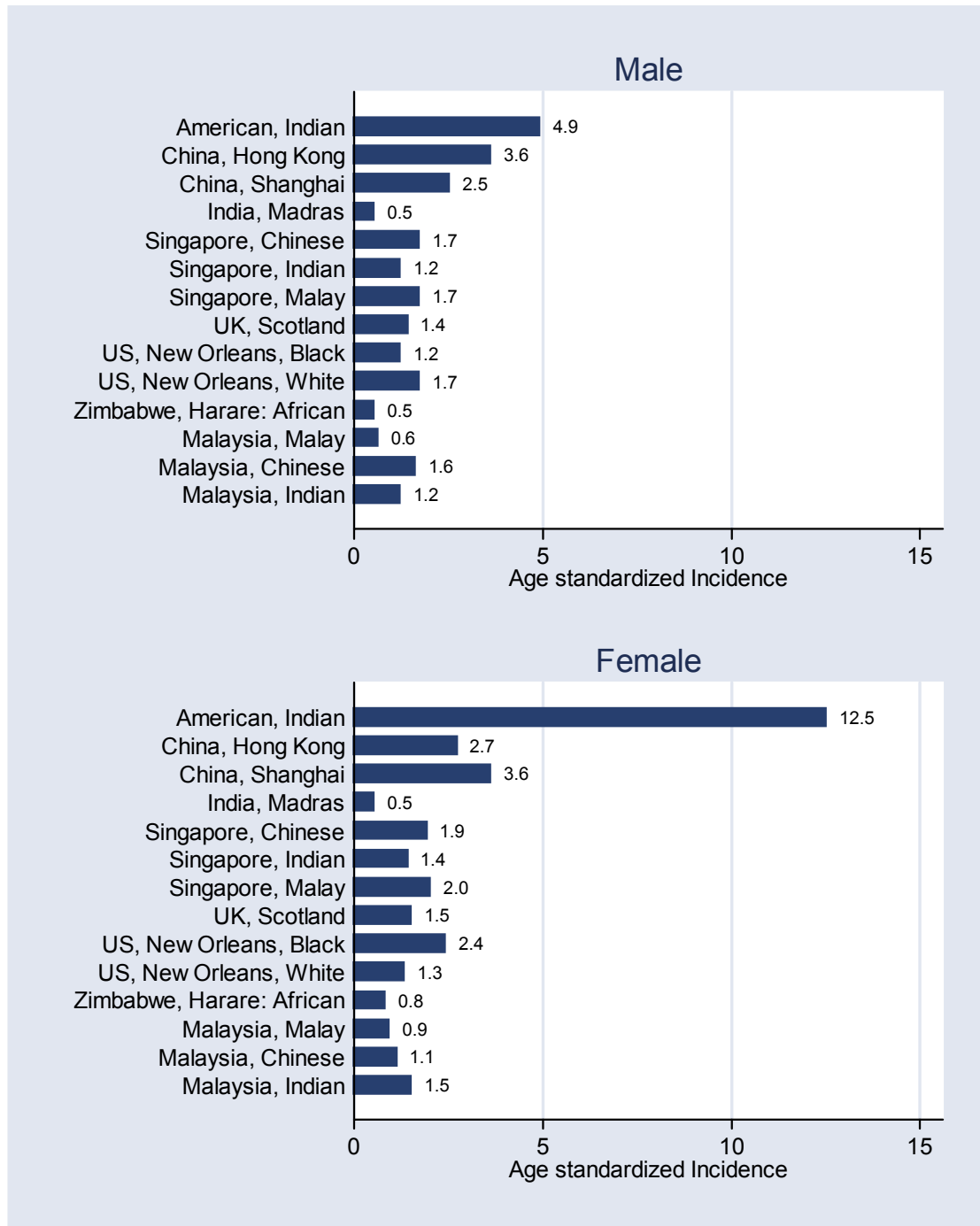
Table 2.10.3: Gallbladder Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	23	37.1	0.4	0.6	32	45.1	0.6	0.9
Chinese	34	54.8	1.3	1.6	29	40.8	1.2	1.1
Indian	5	8.1	0.6	1.2	10	14.1	1.2	1.5

Table 2.10.4: Gallbladder Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	CUMR
Male	Malay	0.0	0.0	0.0	0.4	0.7	2.4	2.5	1.7	0.1
	Chinese	0.0	0.0	0.0	0.0	0.8	0.8	9.2	19.7	0.2
	Indian	0.0	0.0	0.0	0.0	0.0	0.0	13.2	6.3	0.2
Female	Malay	0.0	0.0	0.0	0.3	1.1	1.1	5.2	5.7	0.1
	Chinese	0.0	0.0	0.0	0.0	0.9	3.4	3.4	12.8	0.1
	Indian	0.0	0.0	0.0	1.4	1.7	1.5	11.2	5.4	0.2

Figure 2.10.2: Gallbladder International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.11 PANCREAS

Pancreatic cancer constituted only 0.9% of total cancers reported to NCR in year 2002.

The cancer was more common in males than females, with a ratio of 1.6:1.

The incidence among the Malaysian Chinese was higher than in Indians and Malays.

We caution the reader that for this cancer, the registration of cases was incomplete. In other words, the incidence statistic reported here are lower than the true incidence in the population. Refer to section on evaluation of quality of NCR data.

Table 2.11.1: Pancreas Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	148	62.2	1.5	2.1
Female	90	37.8	0.9	1.3
Both	238	100.0	1.2	1.7

Table 2.11.2: Pancreas Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	Male			Female		
	No.	%	CR	No.	%	CR
0-9	0	0.0	0.0	0	0.0	0.0
10-19	0	0.0	0.0	3	3.3	0.2
20-29	1	0.7	0.1	2	2.2	0.1
30-39	7	4.7	0.5	3	3.3	0.2
40-49	30	20.3	2.5	10	11.1	0.9
50-59	43	29.1	5.9	24	26.7	3.5
60-69	41	27.7	10.5	29	32.2	7.1
70+	26	17.6	11.9	19	21.1	7.0

Figure 2.11.1: Pancreas Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

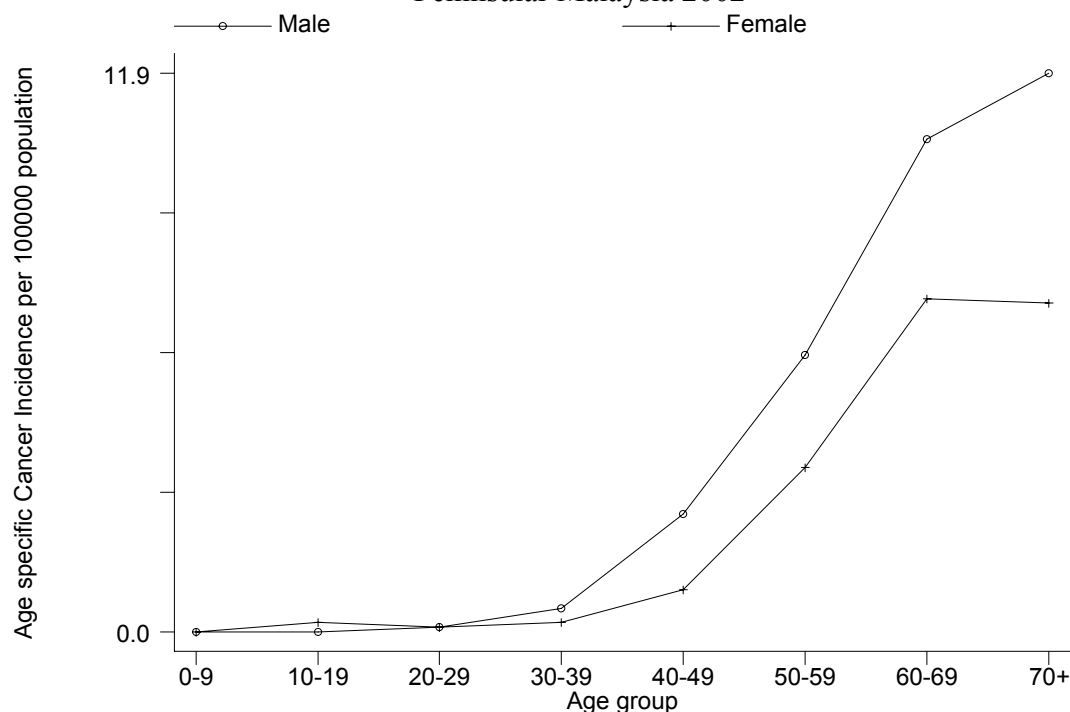


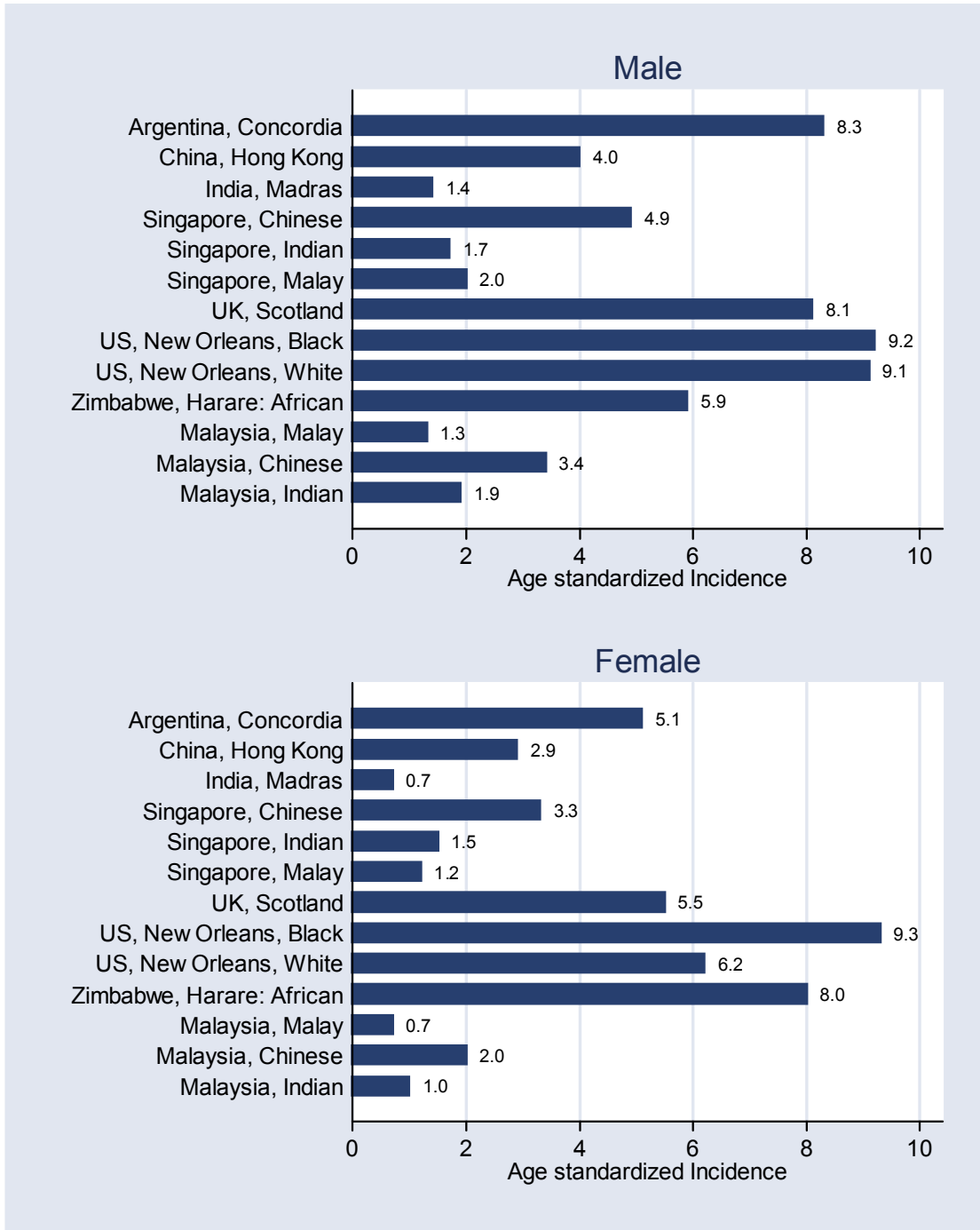
Table 2.11.3: Pancreas Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	No.	Male			Female			
		%	CR	ASR	No.	%	CR	ASR
Malay	48	33.3	0.8	1.3	29	34.1	0.5	0.7
Chinese	82	56.9	3.2	3.4	49	57.6	2.0	2.0
Indian	14	9.7	1.6	1.9	7	8.2	0.8	1.0

Table 2.11.4: Pancreas Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	0.0	0.0	0.1	0.1	1.8	4.8	3.1	9.4	0.1
	Chinese	0.0	0.0	0.0	0.8	3.8	8.0	22.5	13.1	0.5
	Indian	0.0	0.0	0.0	2.2	4.3	4.6	3.3	12.5	0.1
Female	Malay	0.0	0.2	0.2	0.0	0.8	1.7	4.2	2.8	0.1
	Chinese	0.0	0.0	0.0	0.5	0.9	5.9	11.4	12.8	0.3
	Indian	0.0	0.0	0.0	0.7	1.7	3.1	2.8	5.4	0.1

Figure 2.11.2: Pancreas International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.12 NOSE and SINUSES

Cancers of the nose and paranasal sinuses represented 165 (0.6%) of the total reported cancers in Peninsular Malaysia. It affected 1 in 500 Chinese males and one in a thousand for the other race and ethnic groups in their life time. It was more common in males than in females. The male ASR (1.4) was relatively comparable with the incidence in other countries, especially in Columbia Cali (1.1), Hawaii (1.0) and Singapore Chinese male (0.9). The Chinese had a higher incidence compared to the other ethnic groups. In fact, Chinese males in Malaysia (ASR 2.1) had the highest incidence in the world, apart from Zimbabwe, Harare:European 1990-1992 (ASR 3.1) in which only 3 males was noted in their series.

Table 2.12.1: Nose and Sinuses Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	103	62.4	1.0	1.4
Female	62	37.6	0.6	0.8
Both	165	100.0	0.8	1.1

Table 2.12.2: Nose and Sinuses Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	Male			Female		
	No.	%	CR	No.	%	CR
0-9	0	0.0	0.0	4	6.5	0.2
10-19	4	3.9	0.2	3	4.8	0.2
20-29	2	1.9	0.1	1	1.6	0.1
30-39	12	11.7	0.8	7	11.3	0.5
40-49	23	22.3	2.0	11	17.7	1.0
50-59	19	18.4	2.6	11	17.7	1.6
60-69	25	24.3	6.4	15	24.2	3.7
70+	18	17.5	8.2	10	16.1	3.7

Figure 2.12.1: Nose and Sinuses Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

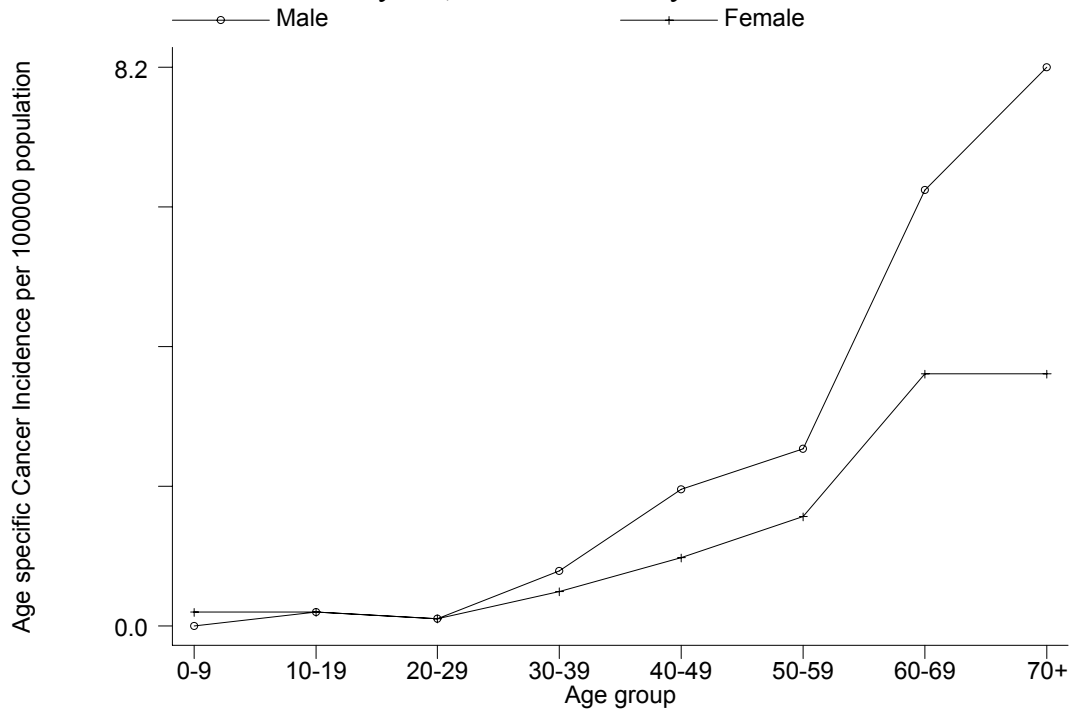


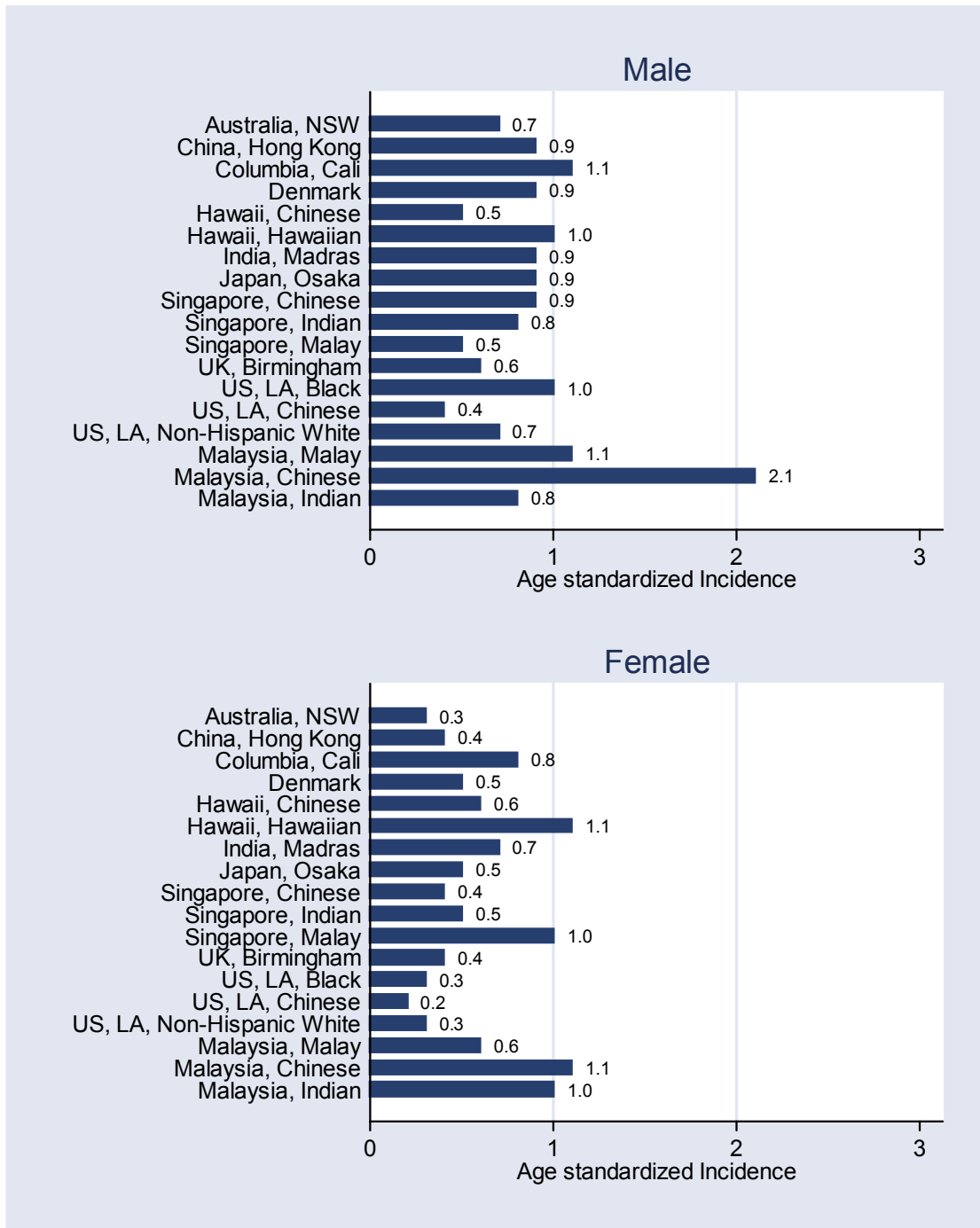
Table 2.12.3: Nose and Sinuses Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	No.	%	Male		No.	%	Female	
			CR	ASR			CR	ASR
Malay	41	41.8	0.7	1.1	26	42.6	0.5	0.6
Chinese	52	53.1	2.0	2.1	29	47.5	1.2	1.1
Indian	5	5.1	0.6	0.8	6	9.8	0.7	1.0

Table 2.12.4: Nose and Sinuses Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	CumR
Male	Malay	0.0	0.2	0.2	0.9	0.8	1.6	5.1	6.9	0.1
	Chinese	0.0	0.2	0.0	0.5	4.9	3.8	8.6	10.5	0.2
	Indian	0.0	0.0	0.0	1.5	0.0	1.5	3.3	6.3	0.1
Female	Malay	0.1	0.2	0.1	0.1	1.3	1.4	2.4	2.1	0.1
	Chinese	0.7	0.2	0.0	1.0	0.9	2.1	4.0	6.9	0.1
	Indian	0.0	0.0	0.0	0.7	0.0	1.5	11.2	0.0	0.1

Figure 2.12.2: Nose and Sinuses International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.13 LARYNX

Cancer of the larynx represented 294 (1.1%) of all cancer cases reported in Peninsular Malaysia in 2002. The incidence among Indians was higher compared to Chinese and Malays in Malaysia. The ASR in Malaysian Indian males (8.7) was higher than the incidence in the Indian males in Singapore (4.3) and India with an exception of Bombay Indian males which had a similar ASR (8.2). In contrast, there does not appear to be much differences in ASR among the females in Malaysia, Singapore or India.

There was a marked increase in age specific incidence after age of 50 years.

This is one of the cancers in which Indian males and females have the highest incidence among the major ethnic groups, whereas it was most common among Singapore Chinese males.

Table 2.13.1: Larynx Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	250	85.0	2.5	4.0
Female	44	15.0	0.5	0.6
Both	294	100.0	1.5	2.3

Table 2.13.2: Larynx Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male		Female		
		%	CR	No.	%	CR
0-9	1	0.4	0.0	0	0.0	0.0
10-19	0	0.0	0.0	0	0.0	0.0
20-29	0	0.0	0.0	1	2.3	0.1
30-39	8	3.2	0.5	0	0.0	0.0
40-49	19	7.6	1.6	4	9.1	0.4
50-59	49	19.6	6.7	18	40.9	2.6
60-69	106	42.4	27.1	13	29.5	3.2
70+	67	26.8	30.6	8	18.2	2.9

Figure 2.13.1: Larynx Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

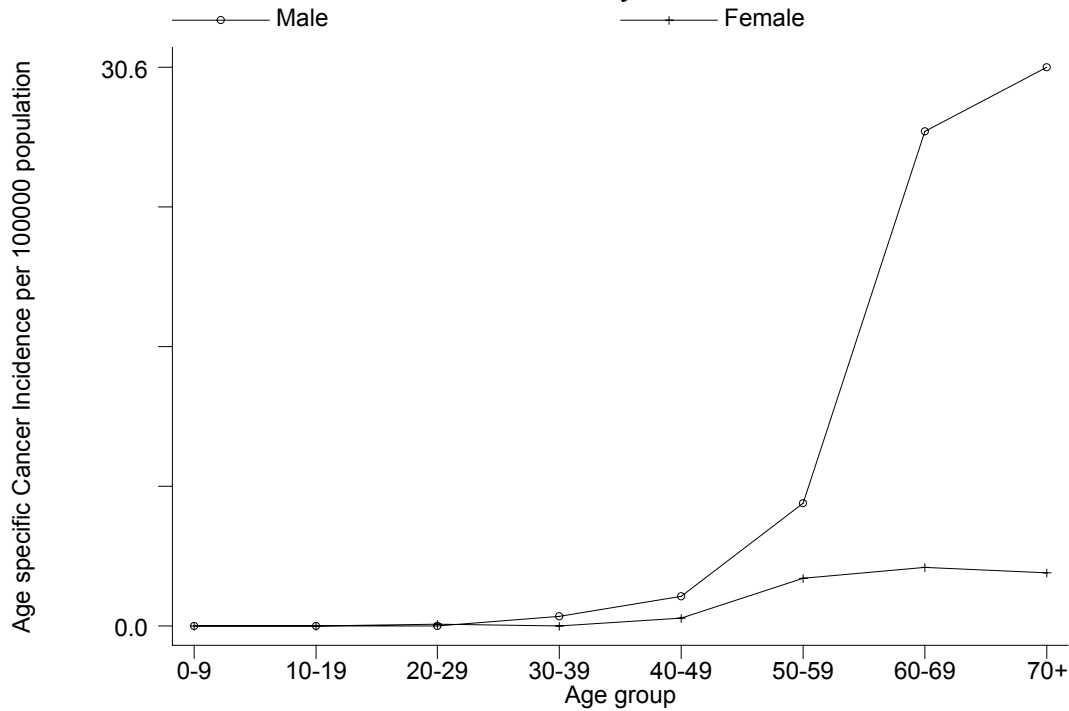


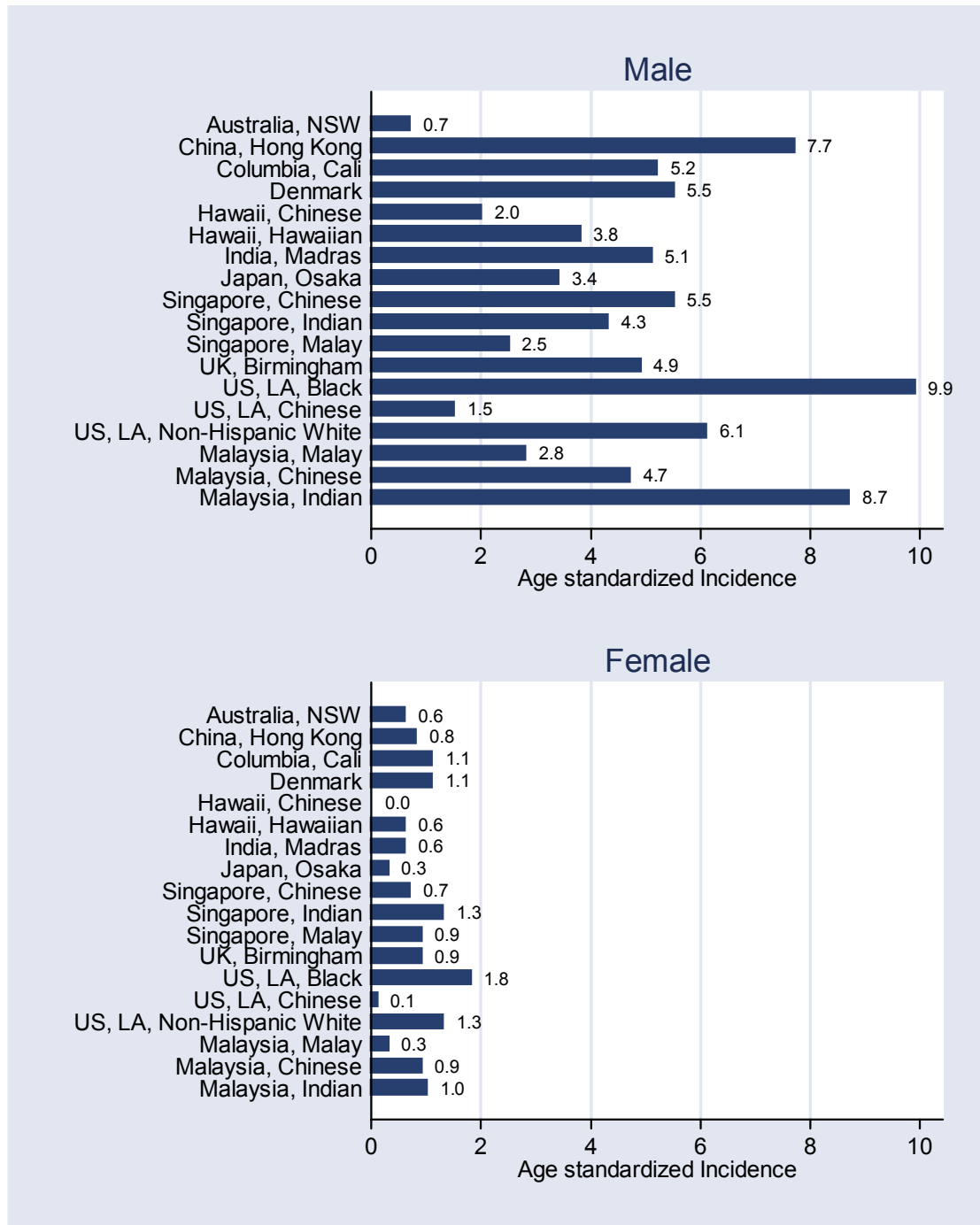
Table 2.13.3: Larynx Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	90	37.8	1.6	2.8	13	31.7	0.2	0.3
Chinese	106	44.5	4.1	4.7	22	53.7	0.9	0.9
Indian	42	17.6	4.8	8.7	6	14.6	0.7	1.0

Table 2.13.4: Larynx Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	0.1	0.0	0.0	0.5	1.0	4.8	17.8	22.3	0.4
	Chinese	0.0	0.0	0.0	0.3	2.7	8.0	33.0	31.5	0.6
	Indian	0.0	0.0	0.0	1.5	1.7	12.3	59.4	75.0	1.1
Female	Malay	0.0	0.0	0.1	0.0	0.3	1.4	0.9	2.1	0.0
	Chinese	0.0	0.0	0.0	0.0	0.6	3.8	4.7	3.9	0.1
	Indian	0.0	0.0	0.0	0.0	0.0	4.6	5.6	5.4	0.1

Figure 2.13.2: **Larynx** International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.14 LUNG

Two thousand two hundred and fifty-six cases of lung cancer were reported to the National Cancer Registry comprising 8.6% of the total reported cases in 2002. The male:female ratio in terms of incidence for Peninsular Malaysia was 2.7: 1. The predominance of male to female was similarly seen in other countries.

Rates of lung cancer rose progressively with age for both males and females. There was a rise in incidence of lung cancer after the age of 40 years for both sexes. From age of 60 years, there was a divergence of the respective sexes. This could be due to under-reporting in the older age group.

The incidence of lung cancer among the Chinese was much higher than the other ethnic groups. The age-standardized incidence rate (ASR), for Chinese is more than twice that of Malays and Indians for both sexes. The lifetime risk for Chinese males was 1 in 20 and that for Malays and Indians was 1 in 40.

Compared to Singapore males (ASR 47.1), the ASR in Malaysian males was only 25.9. Similarly, ASR of Singapore females (17.9) was nearly double that of Malaysian females (ASR 8.7). However, the ASR of the Indian males in Malaysia (19.1) was higher than in Singapore Indian males (14.3), Bombay (14.5) and Madras (12.6).

We caution the reader that for this cancer, the registration of cases was incomplete. In other words, the incidence statistic reported here are lower than the true incidence in the population. Refer to section on evaluation of quality of NCR data.

Table 2.14.1: Lung Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	1646	73.0	16.6	25.9
Female	610	27.0	6.3	8.7
Both	2256	100.0	11.5	16.9

Table 2.14.2: Lung Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	Male			Female		
	No.	%	CR	No.	%	CR
0-9	2	0.1	0.1	2	0.3	0.1
10-19	8	0.5	0.4	3	0.5	0.2
20-29	14	0.9	0.8	4	0.7	0.2
30-39	43	2.6	2.9	34	5.6	2.4
40-49	180	10.9	15.3	92	15.1	8.1
50-59	351	21.3	48.0	138	22.6	20.1
60-69	602	36.6	154.0	198	32.5	48.6
70+	446	27.1	203.8	139	22.8	51.2

Figure 2.14.1: Lung Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

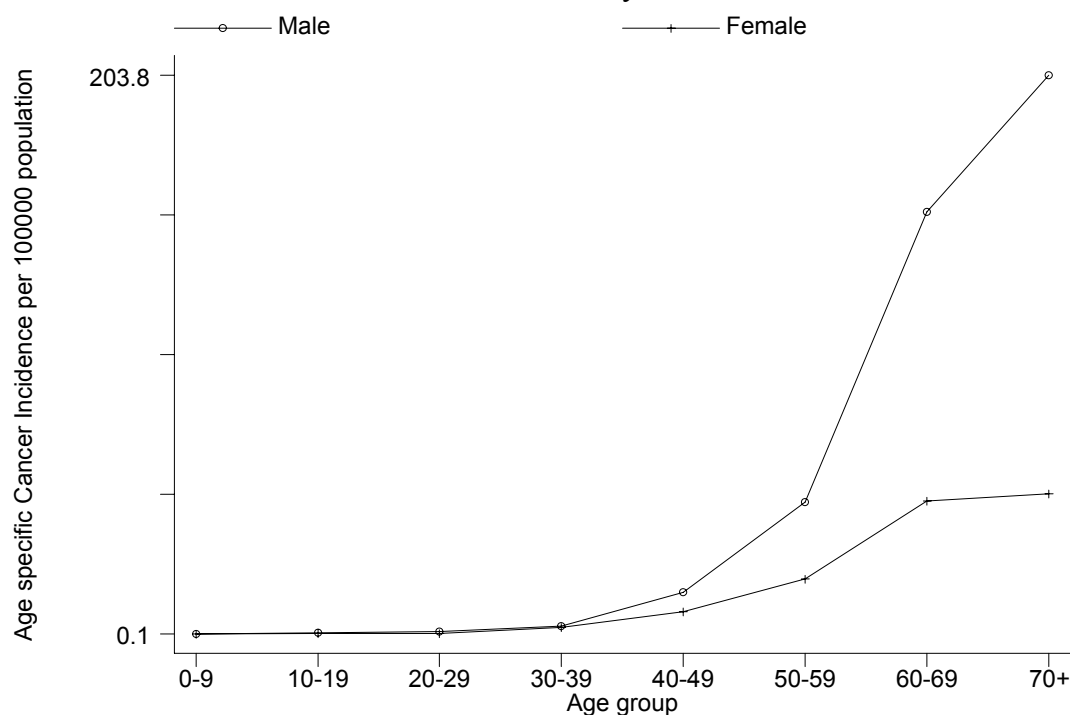


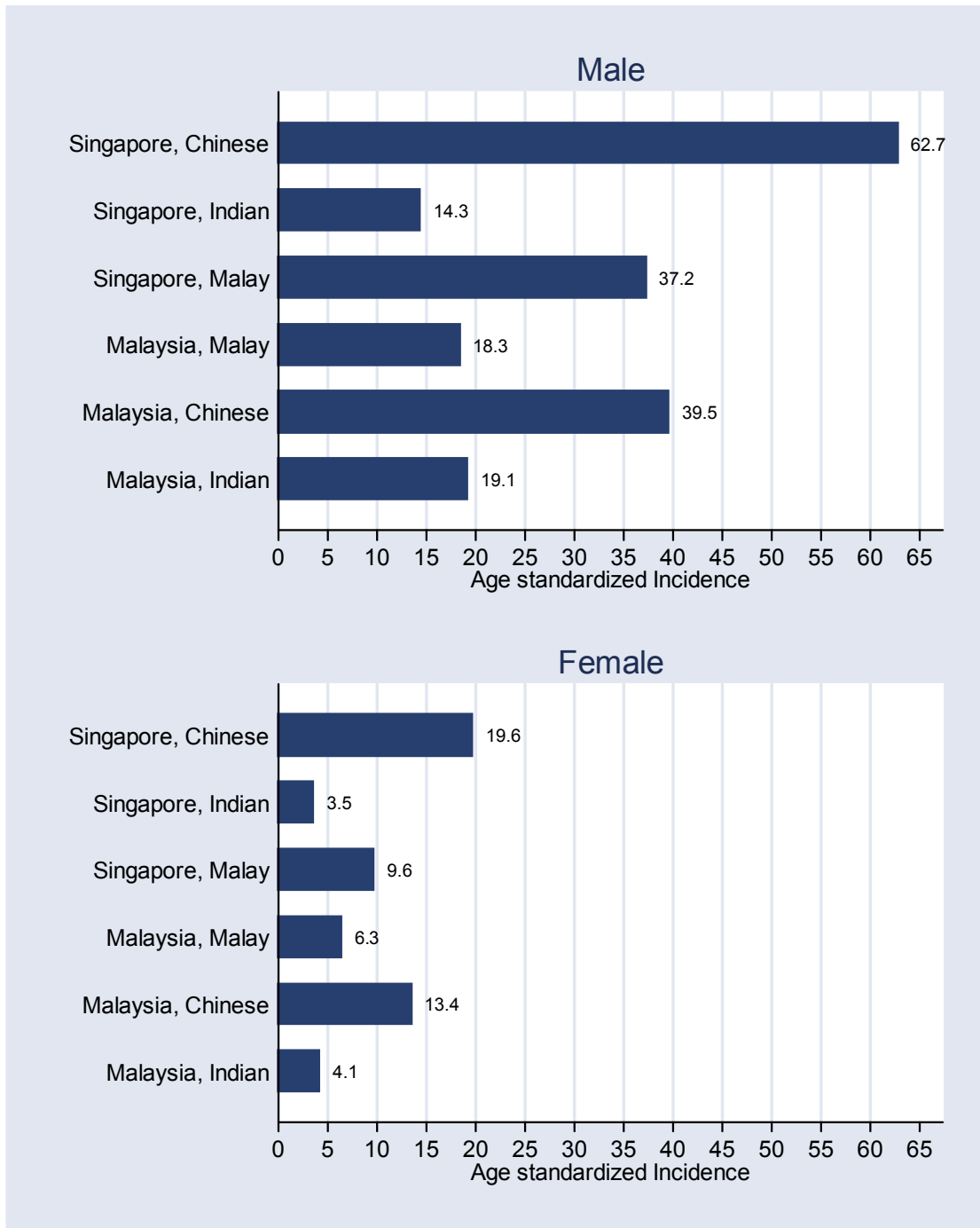
Table 2.14.3: Lung Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	No.	Male			Female			
		%	CR	ASR	No.	%	CR	ASR
Malay	616	38.5	10.7	18.3	241	40.6	4.2	6.3
Chinese	885	55.2	34.1	39.5	327	55.1	13.1	13.4
Indian	101	6.3	11.6	19.1	25	4.2	2.9	4.1

Table 2.14.4: Lung Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	CumR
Male	Malay	0.1	0.3	0.9	3.1	13.9	39.2	105.5	121.9	2.4
	Chinese	0.0	0.4	1.2	3.3	21.3	64.3	224.6	364.8	4.9
	Indian	0.0	1.2	0.0	3.7	12.1	35.5	122.1	125.0	2.5
Female	Malay	0.1	0.2	0.4	2.5	6.9	15.2	33.0	34.0	0.8
	Chinese	0.2	0.0	0.0	2.6	12.6	31.4	77.1	80.8	1.8
	Indian	0.0	0.6	0.0	2.9	1.7	7.7	16.8	38.0	0.5

Figure 2.14.2: Lung International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.15 BONE

Bone cancer was a relatively rare cancer representing only 0.9% (240 cases) of the total reported cancers in Peninsular Malaysia for the year 2002. This was reflected by the cumulative risk range of 0.1 to 0.2. Male to female ratio was 1.6 to 1. Bone cancers showed a bimodal age distribution in tandem with established patterns for bone cancer. The peak incidence for both sexes in the adolescent age group was similar (10-19 years), whereas in the adults the peak incidence occurred at different ages. A similar pattern was seen in the Singapore Cancer Registry. The male preponderance was also shown in the Singapore Cancer Registry 1993-1997. In Singapore, Malay males showed a higher ASR (0.8) than Chinese (0.6). In Malaysia the rate for Malay and Chinese males was both 1.6. The significance of these differences is not known. The Age Standardized Incidence (ASR) of Chinese males in Malaysia was higher than that of ethnic Malays and Indians of the same sex. However in females, Indians had the highest ASR. The highest ASR was seen in Indian females. However this may not be a true picture because of the small number of cases.

Table 2.15.1: **Bone** Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	146	60.8	1.5	1.6
Female	94	39.2	1.0	1.0
Both	240	100.0	1.2	1.3

Table 2.15.2: Bone Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male		Female		
		%	CR	No.	%	CR
0-9	7	4.8	0.3	4	4.3	0.2
10-19	40	27.4	2.0	30	31.9	1.6
20-29	20	13.7	1.2	12	12.8	0.7
30-39	19	13.0	1.3	10	10.6	0.7
40-49	21	14.4	1.8	11	11.7	1.0
50-59	24	16.4	3.3	11	11.7	1.6
60-69	7	4.8	1.8	10	10.6	2.5
70+	8	5.5	3.7	6	6.4	2.2

Figure 2.15.1: Bone Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

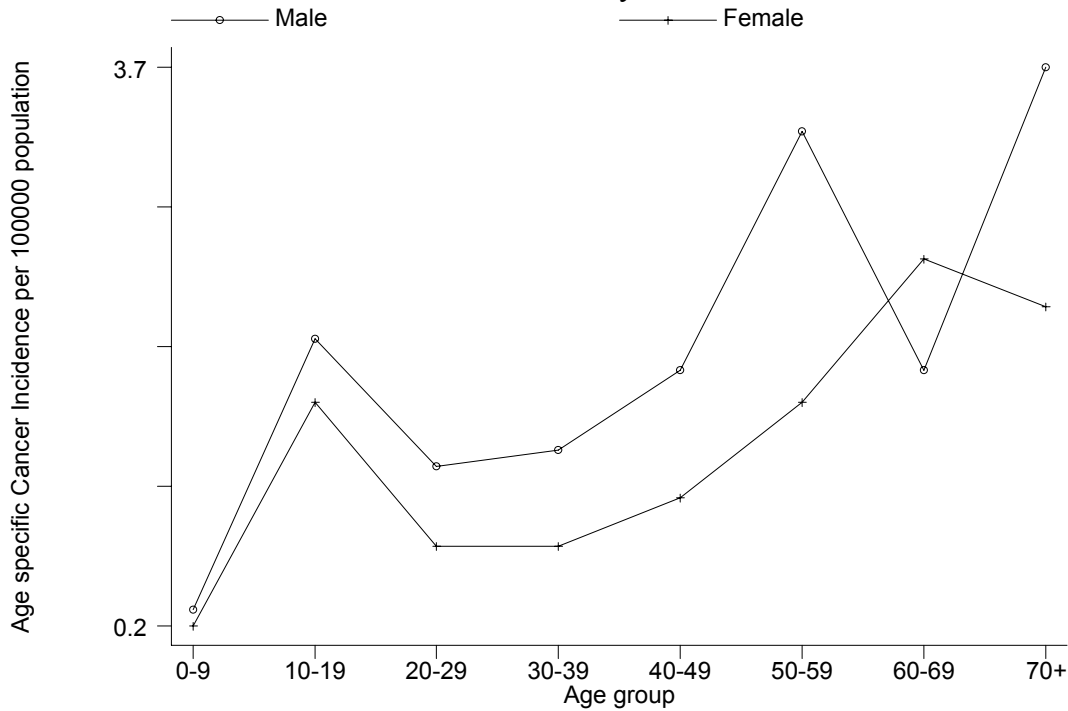


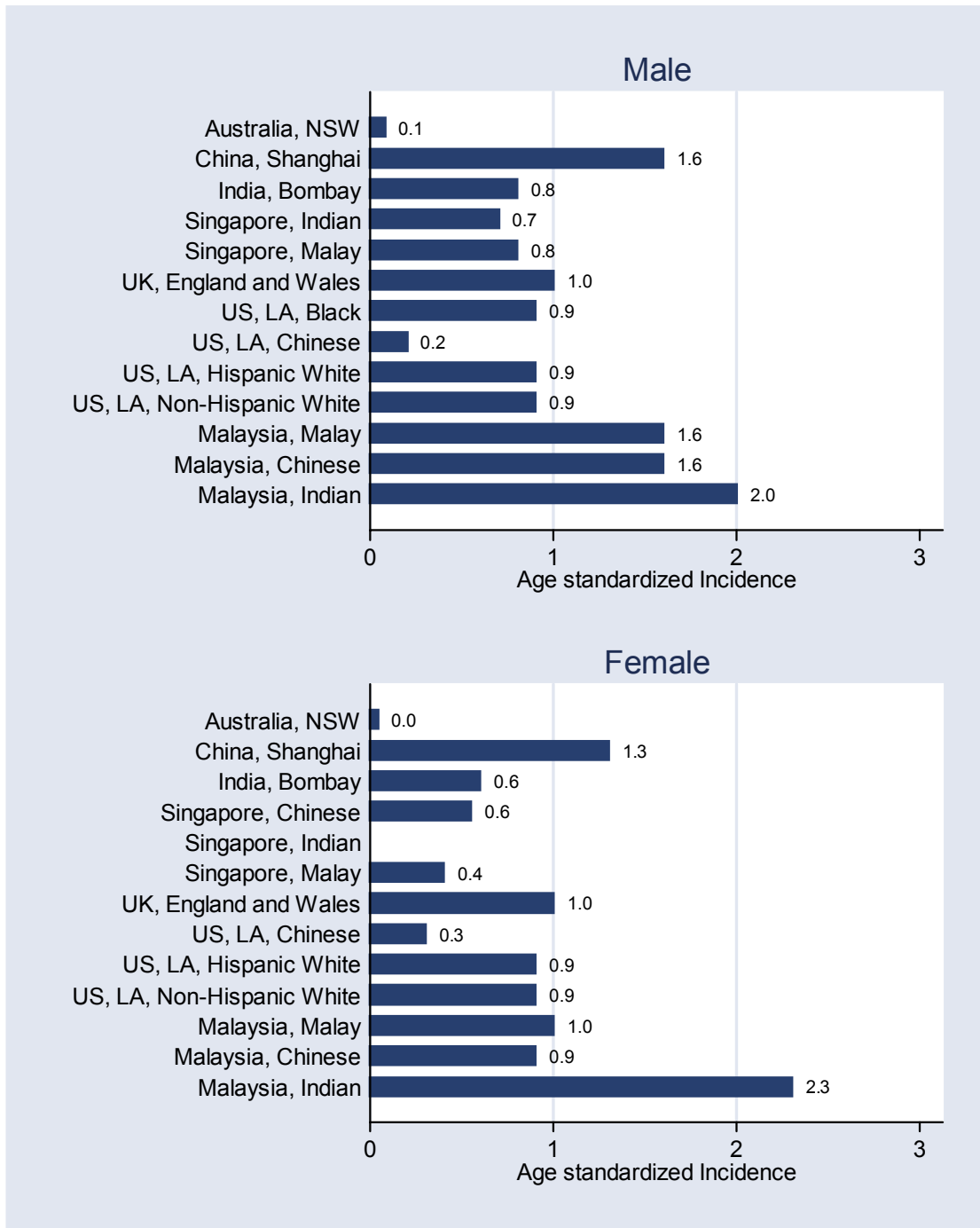
Table 2.15.3: Bone Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	85	59.4	1.5	1.6	54	58.7	0.9	1.0
Chinese	43	30.1	1.7	1.6	23	25.0	0.9	0.9
Indian	15	10.5	1.7	2.0	15	16.3	1.7	2.3

Table 2.15.4: Bone Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	0.3	2.3	1.2	1.5	1.8	3.0	2.0	1.7	0.1
	Chinese	0.4	1.3	1.7	1.5	2.2	3.0	1.3	5.2	0.1
	Indian	0.0	1.7	0.7	1.5	1.7	7.7	0.0	12.5	0.3
Female	Malay	0.2	1.5	0.9	0.8	1.1	1.7	0.9	2.1	0.1
	Chinese	0.2	2.1	0.5	0.5	0.6	1.3	2.0	1.0	0.1
	Indian	0.0	1.2	1.3	1.4	0.9	1.5	14.0	10.9	0.2

Figure 2.15.2: Bone International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.16 OTHER SKIN

Overall, skin cancers other than melanomas ranked eleventh and twelfth among cancers reported in males and females respectively.

The ASR (7.2) in Malaysian males was higher than that of China (Shanghai 1.7), Hong Kong (5.6) and India (Madras 1.7) but lower than in Western countries (UK, England and Wales 42.0). Comparing with Singapore, the ASR for Chinese (9.1), Indian (3.4), Malay (4.2) was less than the ASR for Malaysian Chinese (10.5), Indian (6.3) and Malays (4.3) respectively.

The lifetime risk of getting skin cancer other than melanoma was 1:100 for Chinese males, 1:111 for Chinese females, 1: 200 for Malay males and females, 1:125 for Indian males and 1:200 for Indian females. The incidence of skin cancers increased exponentially with age, with a sharp rise from the age of 50 years. Both these findings were similar to those found in the Singapore Registry.

Table 2.16.1: Other Skin Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	467	55.1	4.7	7.2
Female	381	44.9	4.0	5.4
Both	848	100.0	4.3	6.3

Table 2.16.2: Other Skin Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male		Female		
		%	CR	No.	%	CR
0-9	3	0.6	0.1	2	0.5	0.1
10-19	2	0.4	0.1	4	1.0	0.2
20-29	10	2.1	0.6	9	2.4	0.6
30-39	17	3.6	1.2	19	5.0	1.3
40-49	60	12.8	5.1	37	9.7	3.3
50-59	93	19.9	12.7	57	15.0	8.3
60-69	138	29.6	35.3	98	25.7	24.0
70+	144	30.8	65.8	155	40.7	57.1

Figure 2.16.1: Other Skin Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

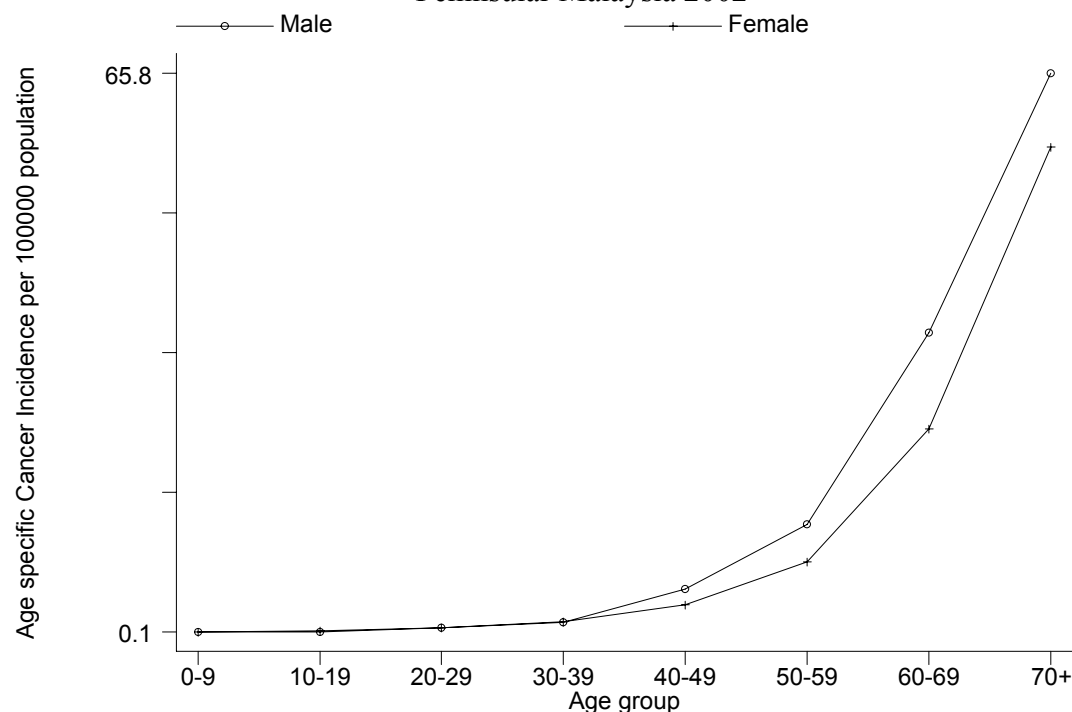


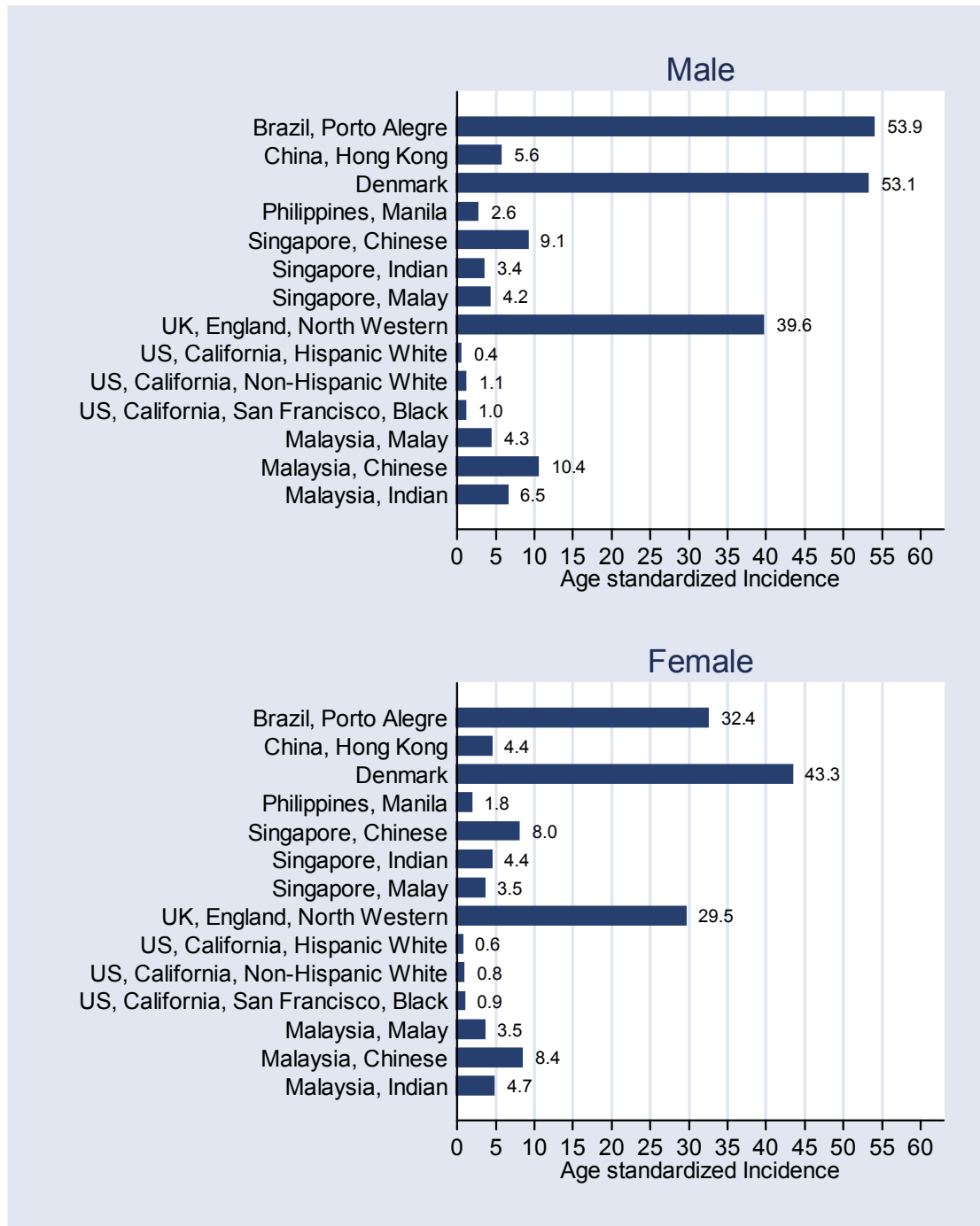
Table 2.16.3: Other Skin Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	149	36.0	2.6	4.3	128	35.2	2.2	3.5
Chinese	232	56.0	8.9	10.4	209	57.4	8.4	8.4
Indian	33	8.0	3.8	6.5	27	7.4	3.1	4.7

Table 2.16.4: Other Skin Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	CumR
Male	Malay	0.0	0.1	0.8	1.1	2.9	8.9	24.0	30.0	0.5
	Chinese	0.6	0.2	0.2	1.3	6.3	16.0	49.5	107.6	1.0
	Indian	0.0	0.0	0.0	2.2	3.5	7.7	23.1	87.5	0.8
Female	Malay	0.0	0.1	0.5	0.9	3.3	5.3	17.4	27.6	0.5
	Chinese	0.5	0.5	1.0	2.6	2.9	10.1	36.2	101.5	0.9
	Indian	0.0	0.6	0.0	0.0	3.4	10.8	14.0	54.3	0.5

Figure 2.16.2: Other Skin International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.17 MELANOMA

Cutaneous melanomas were infrequent and formed a small proportion of skin cancers in Malaysia. The ASR was similar to that of Singapore and other Asian countries.

Table 2.17.1: Melanoma Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	49	55.1	0.5	0.7
Female	40	44.9	0.4	0.5
Both	89	100.0	0.5	0.6

Table 2.17.2: Melanoma Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male			Female		
		%	CR	No.	%	CR	
0-9	0	0.0	0.0	0	0.0	0.0	
10-19	0	0.0	0.0	0	0.0	0.0	
20-29	1	2.0	0.1	4	10.0	0.2	
30-39	5	10.2	0.3	3	7.5	0.2	
40-49	9	18.4	0.8	6	15.0	0.5	
50-59	9	18.4	1.2	8	20.0	1.2	
60-69	7	14.3	1.8	5	12.5	1.2	
70+	18	36.7	8.2	14	35.0	5.2	

Figure 2.17.1: Melanoma Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

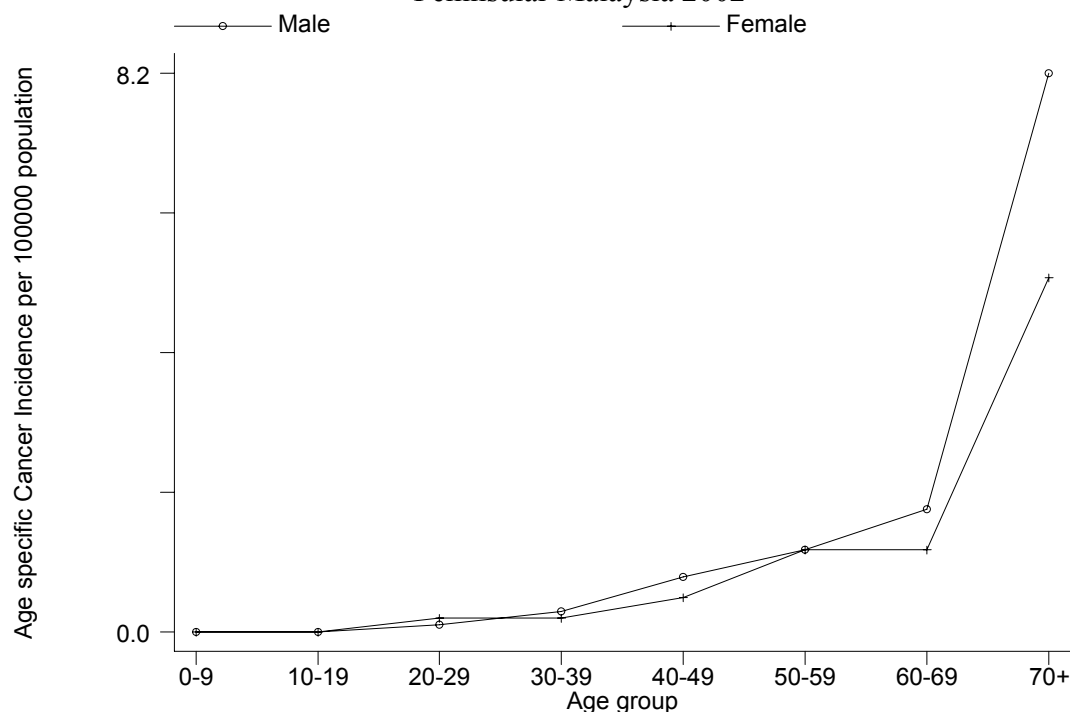


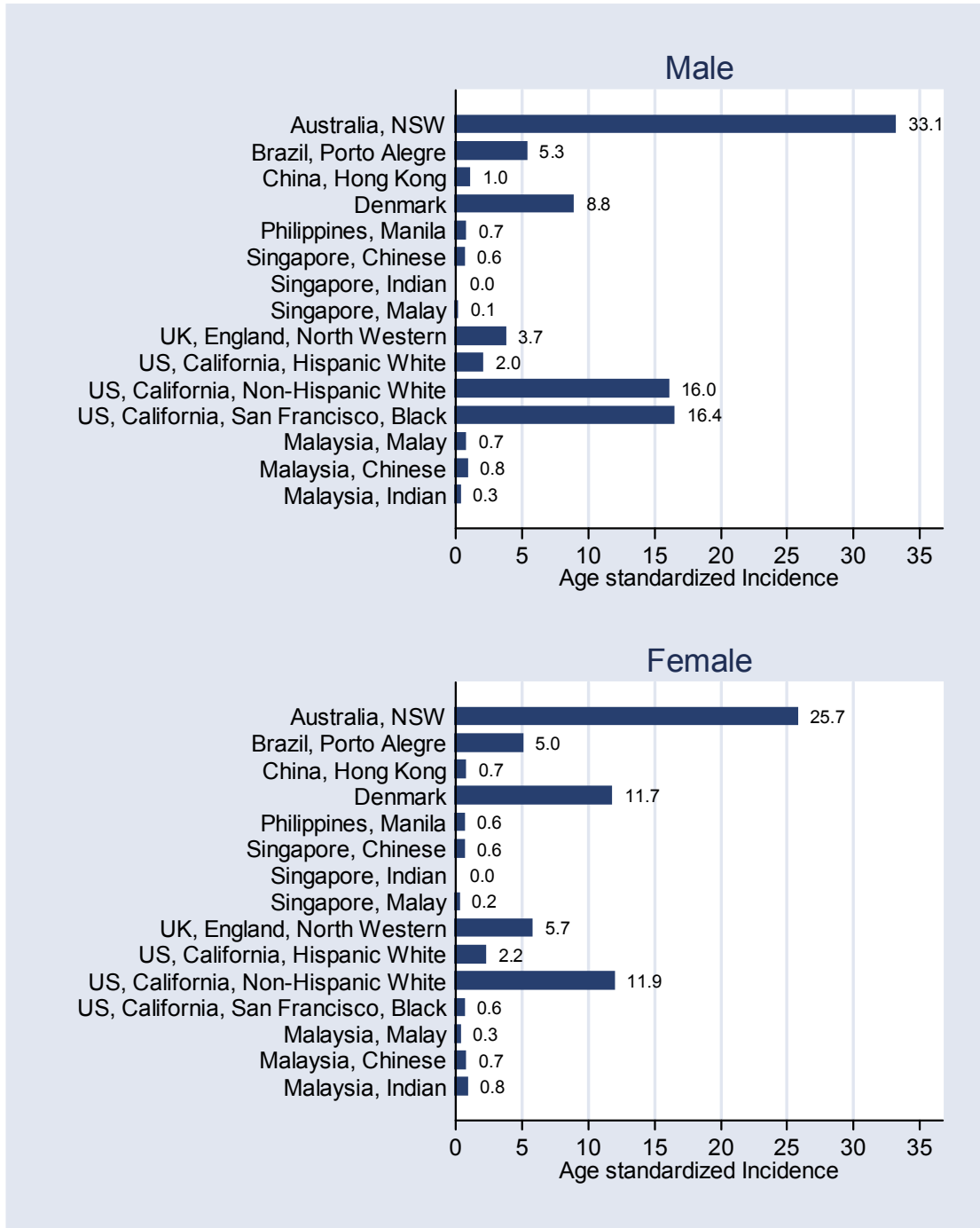
Table 2.17.3: Melanoma Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	27	56.3	0.5	0.7	15	40.5	0.3	0.3
Chinese	18	37.5	0.7	0.8	18	48.6	0.7	0.7
Indian	3	6.3	0.3	0.3	4	10.8	0.5	0.8

Table 2.17.4: Melanoma Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	0.0	0.0	0.0	0.4	1.0	1.3	1.0	9.4	0.1
	Chinese	0.0	0.0	0.2	0.3	0.0	1.5	3.3	9.2	0.1
	Indian	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0
Female	Malay	0.0	0.0	0.3	0.3	0.2	1.1	0.0	3.5	0.0
	Chinese	0.0	0.0	0.3	0.3	1.1	0.8	2.7	5.9	0.1
	Indian	0.0	0.0	0.0	0.0	0.0	1.5	0.0	16.3	0.0

Figure 2.17.2: Melanoma International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.18 FEMALE BREAST

In 2002, 4337 cases of female breast cancer were reported to the NCR, making it the most commonly diagnosed cancer in women accounting for 30.4% of newly diagnosed cases in Malaysian women. Breast cancer was the commonest cancer in all ethnic groups and all age groups in females from the age of 20 years. The overall crude rate was 45.1 per 100,000 with an ASR of 52.8 per 100,000. (Table 2.18.1) and a cumulative risk of 5.4. This means that a woman in Malaysia had a 1 in 19 chance of getting breast cancer in her lifetime.

The age pattern in 2002 showed a peak age specific incidence at the 50-59 age group for Malays and Chinese, but appeared to be higher in the Indians which peak at 60-69 years. Of the 4337 cases diagnosed in 2002, 52.3% were in women below 50 years old. (Table 2.18.2). In developed countries (eg UK, England, Wales, 68.8 and South Australia NSW, 66.6), where incidence rates are high, the age-specific incidence increases rapidly until the age of 50 years and after this the rate of increase slows dramatically but does not decline, as was seen in Singapore and Malaysia.

There was a significantly higher incidence in Chinese women with an ASR of 70.1 per 100,000 compared to the Malay women with an ASR of 41.9 per 100,000 and Indian women with an ASR of 61.7 per 100,000. (Table 2.18.3) The Chinese woman had a 1 in 14 chance of developing breast cancer compared to the Malay woman with a 1 in 24 chance and the Indian woman with a 1 in 15 chance of developing breast cancer in her lifetime. These findings warrant further research.

Table 2.18.1: Female Breast Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Female	4337	100.0	45.1	52.8

Table 2.18.2: Female Breast Age specific Cancer Incidence per 100,000 population (CR), Peninsular Malaysia 2002

Age, year	No.	Female	
		%	CR
0-9	1	0.0	0.0
10-19	8	0.2	0.4
20-29	83	1.9	5.1
30-39	619	14.3	43.5
40-49	1557	35.9	137.2
50-59	1242	28.6	180.9
60-69	585	13.5	143.5
70+	242	5.6	89.1

Figure 2.18.1: Female Breast Age specific Cancer Incidence per 100,000 population, Peninsular Malaysia 2002

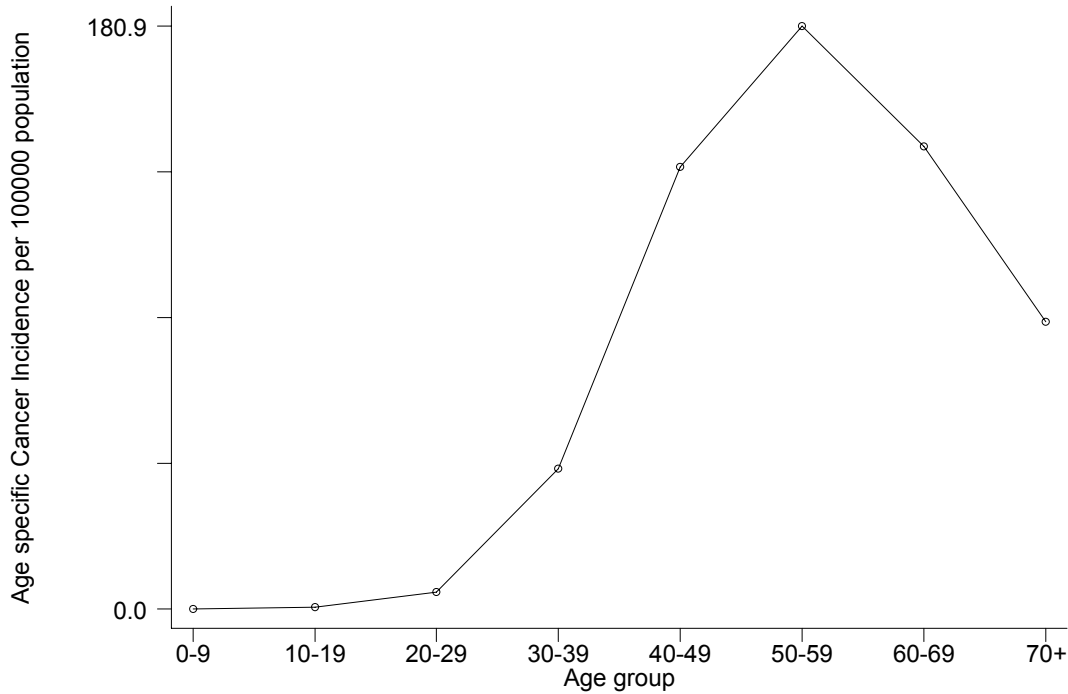


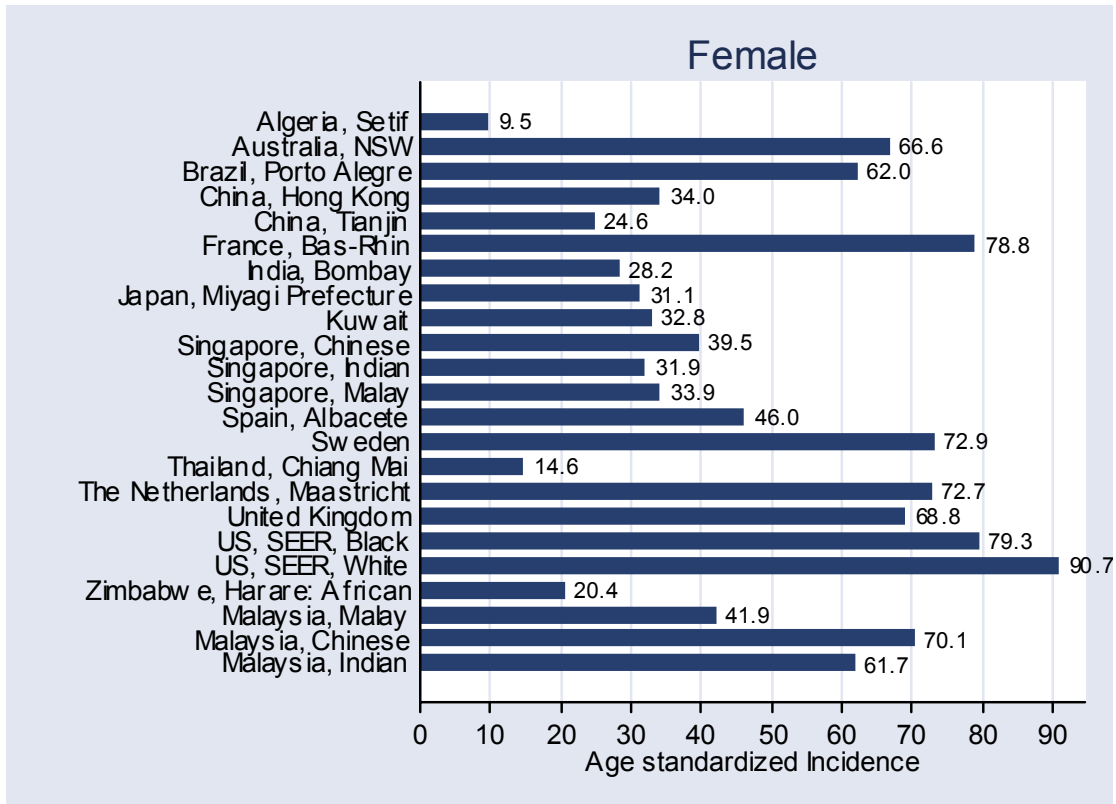
Table 2.18.3: Female Breast Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity, Peninsular Malaysia 2002

Ethnic group	No.	%	Female	
			CR	ASR
Malay	1888	44.8	33.1	41.9
Chinese	1874	44.5	75.4	70.1
Indian	450	10.7	51.8	61.7

Table 2.18.4: Female Breast Age specific Cancer Incidence per 100,000 population, by ethnicity, Peninsular Malaysia 2002

		Age groups, year								
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	CumR
Female	Malay	0.1	0.6	5.1	44.7	115.5	141.0	99.4	43.2	4.2
	Chinese	0.0	0.0	7.3	54.0	185.4	238.7	189.1	132.0	7.1
	Indian	0.0	0.0	2.6	28.2	140.1	202.5	221.3	179.3	6.5

Figure 2.18.2: Female Breast International comparisons [6] - Age standardized Incidence per 100,000 population, Peninsular Malaysia 2002



2.19 CERVIX UTERI

Cancer of cervix uteri was the second most common cancer among women in Peninsular Malaysia in the year 2002. It constituted 12.0% of total female cancers. There were a total of 1715 confirmed cases of cancer cervix, with a crude incidence rate of 17.8 per 100,000 population and ASR of 21.5 per 100,000 population.

Cancer of cervix was uncommon before age 30 years, increased incidence with age, with a peak incidence at ages 60 – 69 years, and declined thereafter.

Chinese women had the highest ASR (33.6 per 100,000 population) followed by Indians (27.7 per 100,000 population) and Malays (12.6 per 100,000 population). The lifetime risk for getting cancer of cervix was 1: 28 for Chinese, 1:34 for Indians and 1:80 for Malays.

The ASR of cancer of cervix in Malaysia (21.5) was higher than more developed countries such as Singapore (14.2), Australia (8.7) and USA (7.2 Non-Hispanic White, LA). In other Asian countries cancer of cervix was ranked fourth place or lower among cancers in women. In Western countries, cancer of the cervix was even less common. The ASR for Malaysian Chinese women (33.6) was higher compared to ethnic Chinese in Singapore (15.4). ASR of Indian females (27.7) in Malaysia was also higher than the Indian females in Singapore (7.5). These findings deserve further investigation.

Table 2.19.1: Cervix Uteri Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Female	1715	100.0	17.8	21.5

Table 2.19.2: Cervix Uteri Age specific Cancer Incidence per 100,000 population (CR), Peninsular Malaysia 2002

Age, year	No.	Female	
		%	CR
0-9	0	0.0	0.0
10-19	2	0.1	0.1
20-29	25	1.5	1.5
30-39	243	14.2	17.1
40-49	520	30.3	45.8
50-59	467	27.2	68.0
60-69	319	18.6	78.2
70+	139	8.1	51.2

Figure 2.19.1: Cervix Uteri Age specific Cancer Incidence per 100,000 population, Peninsular Malaysia 2002

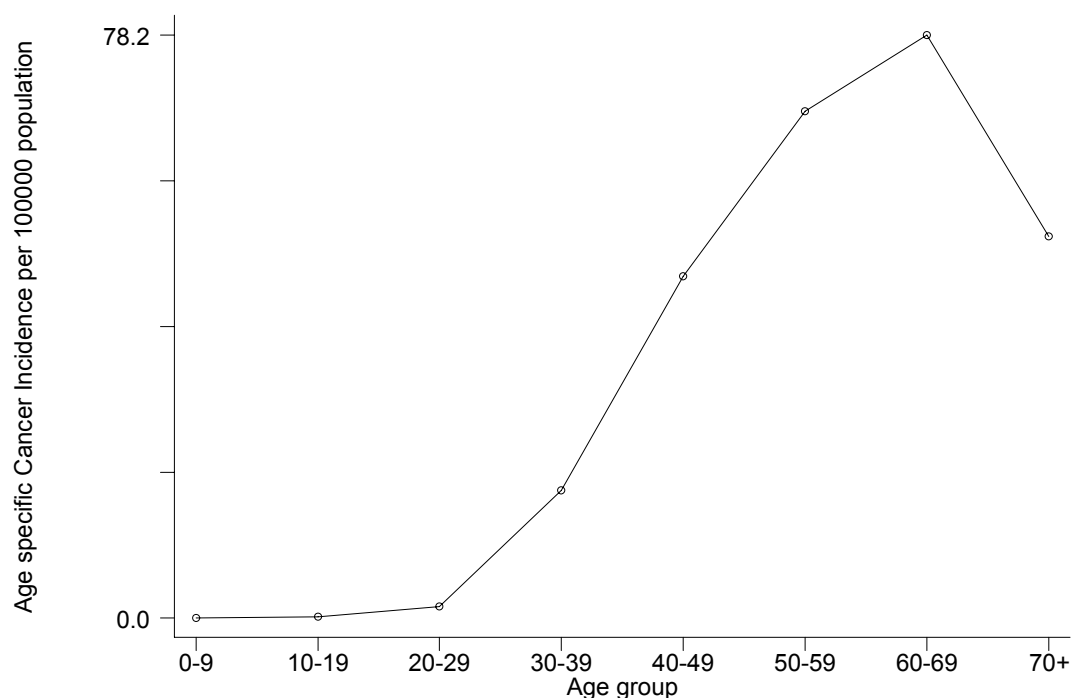


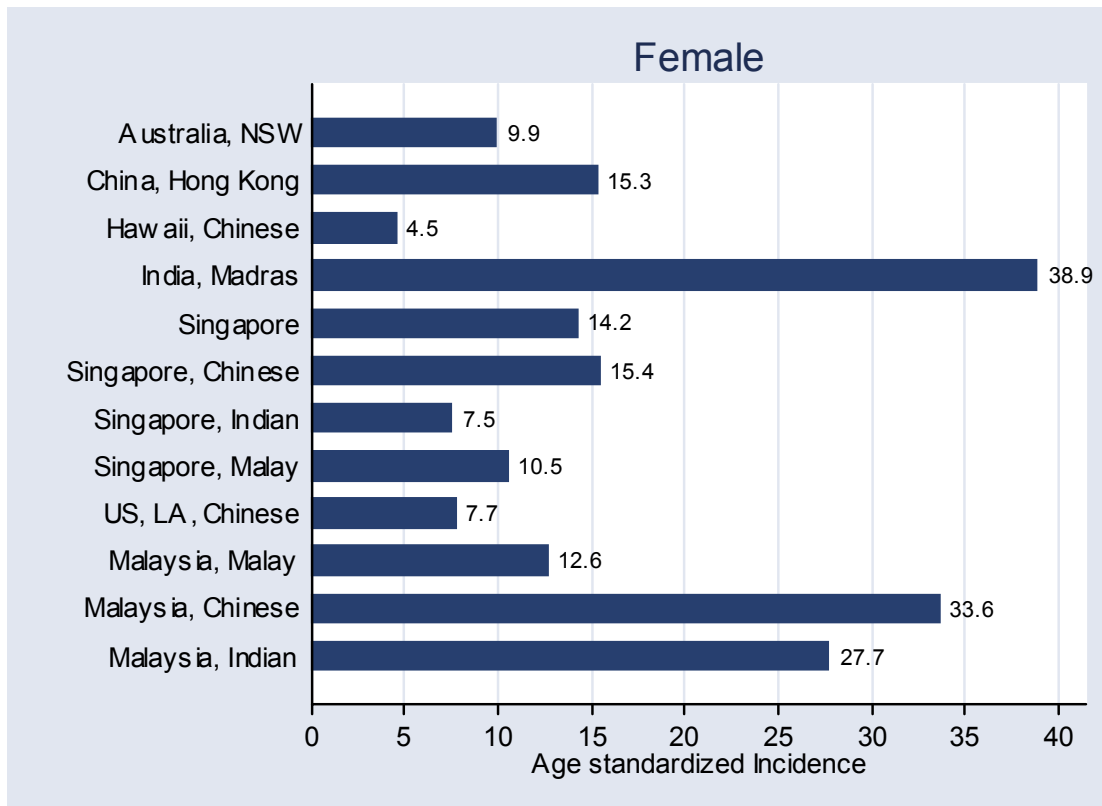
Table 2.19.3: Cervix Uteri Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity, Peninsular Malaysia 2002

Ethnic group	No.	%	Female	
			CR	ASR
Malay	542	33.5	9.5	12.6
Chinese	887	54.8	35.7	33.6
Indian	191	11.8	22.0	27.7

Table 2.19.4: Cervix Uteri Age specific Cancer Incidence per 100,000 population, by ethnicity, Peninsular Malaysia 2002

		Age groups, year								
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	CumR
Female	Malay	0.0	0.2	1.1	10.7	28.8	40.9	41.9	24.8	1.3
	Chinese	0.0	0.0	3.3	30.4	74.1	104.3	112.0	78.8	3.6
	Indian	0.0	0.0	0.7	11.6	43.6	86.6	131.7	108.7	2.9

Figure 2.19.2: Cervix Uteri International comparisons [6] - Age standardized Incidence per 100,000 population, Peninsular Malaysia 2002



2.20 CORPUS UTERI

Cancer of corpus uteri was the seventh most common cancer among women in Peninsular Malaysia in the year 2002. It constituted 3.6% of total female cancers. There were a total of 517 confirmed cases of cancer uteri, with a crude incidence of 5.4 per 100,000 population, and ASR of 7.0 per 100,000 population.

There were no reported cases of cancer corpus uteri below age 20 years. It was uncommon below age 30, increasing thereafter with age, with a peak incidence at 60 – 69 years, and declining thereafter.

Chinese women had the highest ASR (9.6 per 100,000 population) followed by Indians (8.0 per 100,000 population) and Malays (5.2 per 100,000 population). The lifetime risk for getting cancer of corpus uteri was 1 in 91 for Chinese, 1 in 100 for Indians and 1 in 167 for Malays. The difference in the ethnic-specific incidence for cancer corpus uteri was less pronounced compared to that for cancer cervix uteri.

The ASR of cancer of the corpus uteri (7.0) in Malaysia was comparable to that in Singapore (8.3), Hong Kong (7.0) and US LA Chinese (7.0). It was lower than that seen in more developed countries such as Denmark (14.7), UK, England and Wales (8.6) and US LA Whites (20.2).

Table 2.20.1: Corpus Uteri Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Female	517	100.0	5.4	7.0

Table 2.20.2: Corpus Uteri Age specific Cancer Incidence per 100,000 population (CR), Peninsular Malaysia 2002

Age, year	No.	Female	
		%	CR
0-9	0	0.0	0.0
10-19	0	0.0	0.0
20-29	10	1.9	0.6
30-39	39	7.5	2.7
40-49	93	18.0	8.2
50-59	187	36.2	27.2
60-69	127	24.6	31.2
70+	61	11.8	22.5

Figure 2.20.1: Corpus Uteri Age specific Cancer Incidence per 100,000 population, Peninsular Malaysia 2002

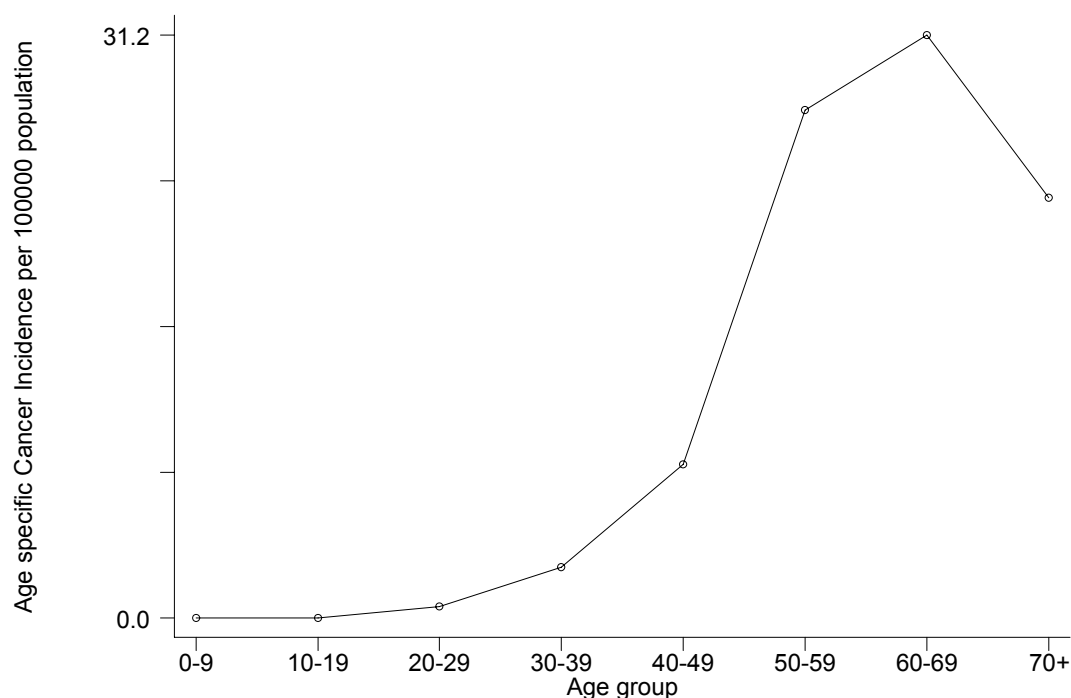


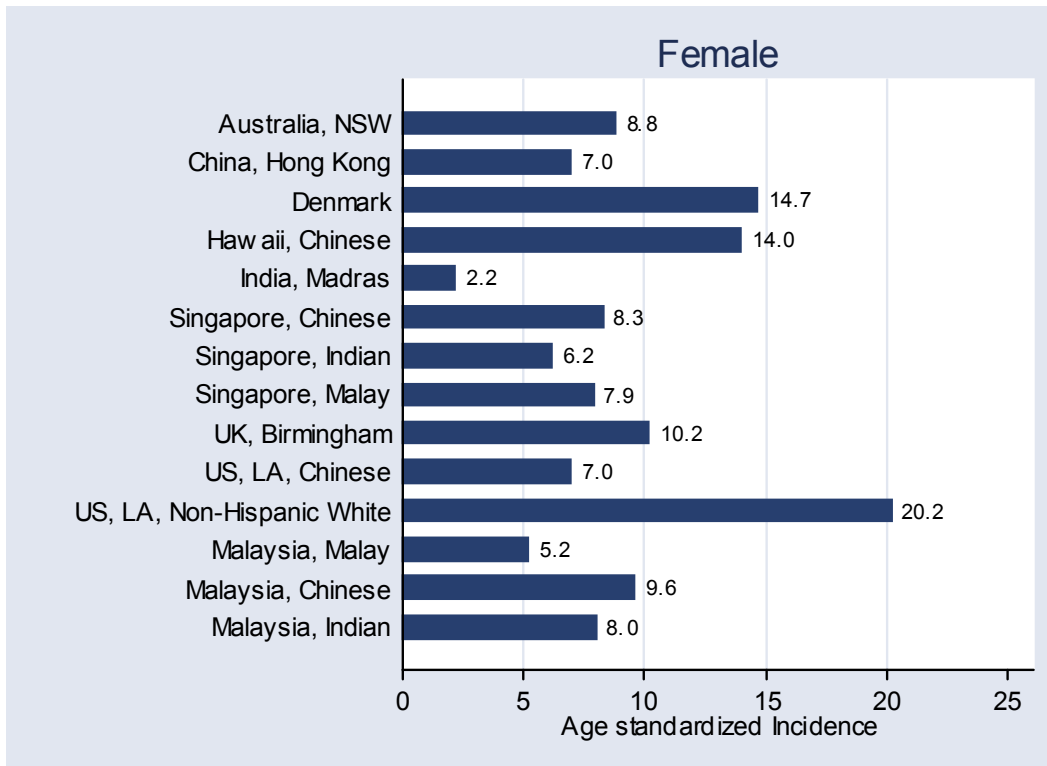
Table 2.20.3: Corpus Uteri Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity, Peninsular Malaysia 2002

Ethnic group	Female			
	No.	%	CR	ASR
Malay	204	40.9	3.6	5.2
Chinese	243	48.7	9.8	9.6
Indian	52	10.4	6.0	8.0

Table 2.20.4: Corpus Uteri Age specific Cancer Incidence per 100,000 population, by ethnicity, Peninsular Malaysia 2002

		Age groups, year								
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	CumR
Female	Malay	0.0	0.0	0.6	1.8	5.4	24.3	21.2	12.8	0.6
	Chinese	0.0	0.0	0.8	3.8	13.2	34.3	38.9	38.4	1.1
	Indian	0.0	0.0	0.0	5.1	9.4	18.5	50.4	21.7	1.0

Figure 2.20.2: Corpus Uteri International comparisons [6] - Age standardized Incidence per 100,000 population, Peninsular Malaysia 2002



2.21 OVARY

Cancer of ovary was the fourth most common cancer among women in Peninsular Malaysia in the year 2002. It constituted 5.0% of total female cancers. There were a total of 707 confirmed cases of cancer uteri, with an crude incidence of 7.4 per 100,000 population, and ASR of 8.6 per 100,000 population.

Cancer of ovary was seen in all age groups. The incidence increased after age 40 years. Chinese women had the highest ASR (9.9 per 100,000 population) followed by Malays (8.1 per 100,000 population) and Indians (7.4 per 100,000 population). The lifetime risk for getting cancer of ovary was 1:100 for Chinese, 1: 125 for Indians and 1:125 for Malays. It was the third commonest cancer diagnosed in Malay women.

The ASR (8.6) of cancer of ovary in Malaysia was lower than that in Singapore (11.4), Denmark (14), UK England and Wales (12.4) and US LA Whites (13.1). However it was higher than that in Hong Kong (7.4) and Chinese in Los Angeles (6.6).

Table 2.21.1: Ovary Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Female	707	100.0	7.4	8.6

Table 2.21.2: Ovary Age specific Cancer Incidence per 100,000 population (CR), Peninsular Malaysia 2002

Age, year	No.	Female	
		%	CR
0-9	6	0.8	0.3
10-19	37	5.2	1.9
20-29	56	7.9	3.4
30-39	89	12.6	6.3
40-49	191	27.0	16.8
50-59	166	23.5	24.2
60-69	110	15.6	27.0
70+	52	7.4	19.2

Figure 2.21.1: Ovary Age specific Cancer Incidence per 100,000 population, Peninsular Malaysia 2002

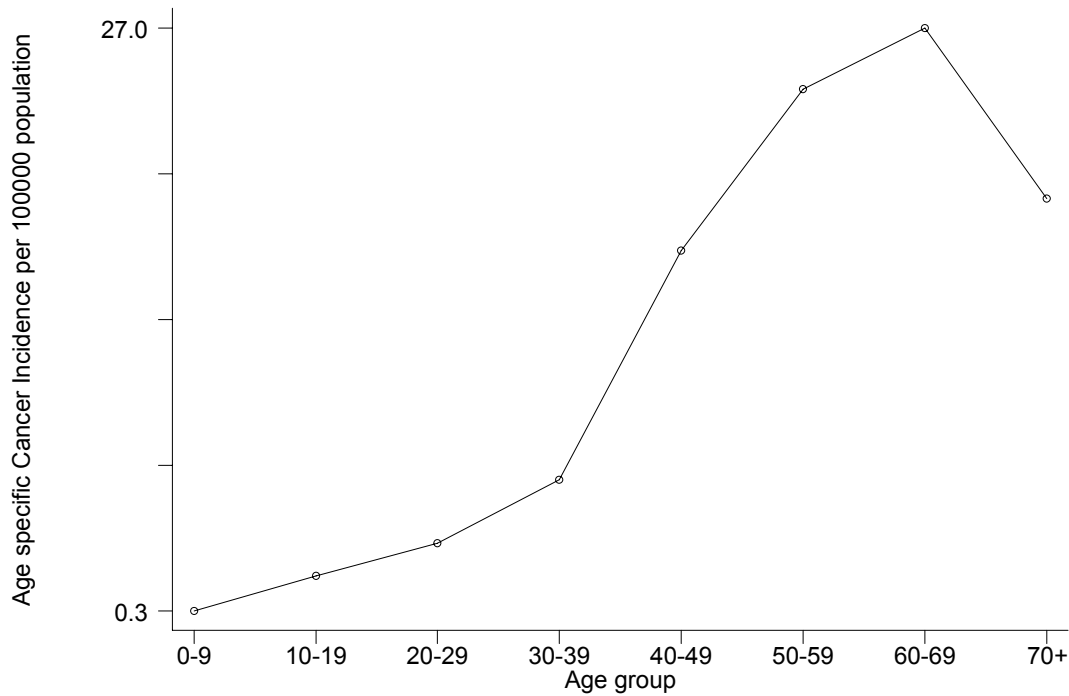


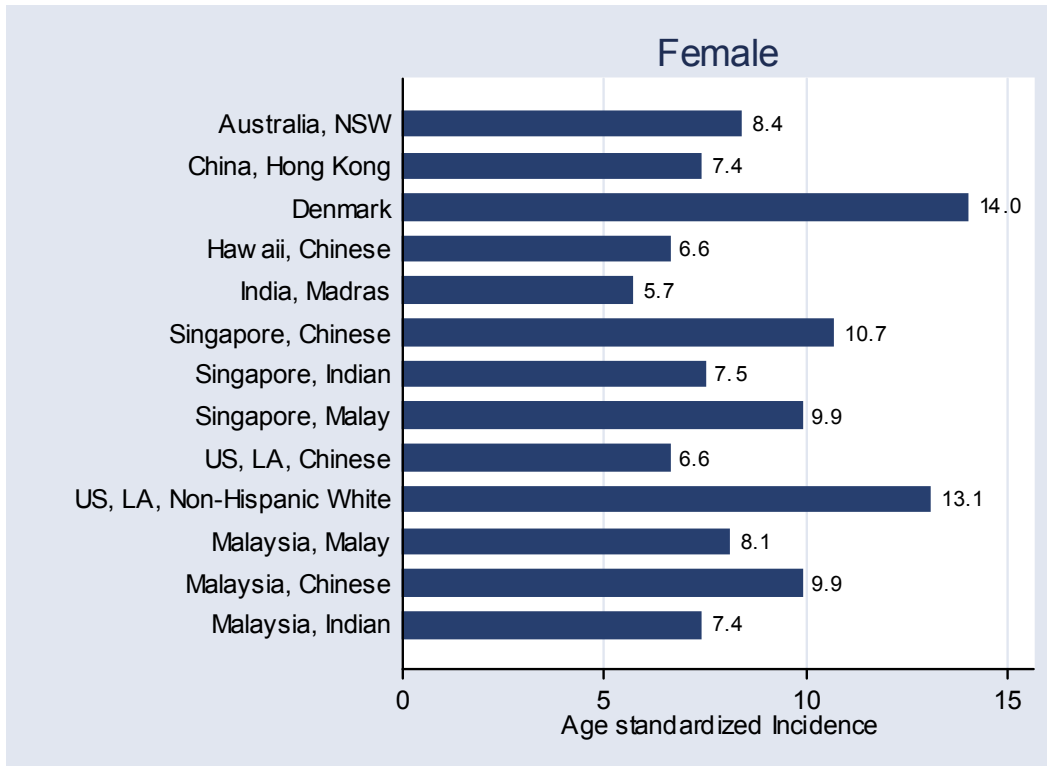
Table 2.21.3: Ovary Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity, Peninsular Malaysia 2002

Ethnic group	No.	Female		
		%	CR	ASR
Malay	369	54.1	6.5	8.1
Chinese	258	37.8	10.4	9.9
Indian	55	8.1	6.3	7.4

Table 2.21.4: Ovary Age specific Cancer Incidence per 100,000 population, by ethnicity, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Female	Malay	0.3	2.3	3.6	6.8	15.2	26.0	17.9	18.4	0.8
	Chinese	0.5	0.5	3.0	6.7	21.5	26.8	36.9	21.7	1.0
	Indian	0.0	1.8	2.6	4.3	15.4	12.4	42.0	5.4	0.8

Figure 2.21.2: Ovary International comparisons [6] - Age standardized Incidence per 100,000 population, Peninsular Malaysia 2002



2.22 PROSTATE

Prostate cancer was the sixth most frequent cancer in males and accounted for 5.7% of the total cancers in males. Its incidence rose exponentially after the age of 50 years. The ASR of 11.6 fell in between that of the less developed and the well developed countries. It is interesting to note that the incidence in Malaysian Chinese (15.7) and Malaysian Indians (11.5) was higher than those in China, Shanghai (2.3) and India, Madras (3.6) and Singapore (Chinese – 13.8, Indian – 8.3). On the other hand, Chinese who emigrated to Hawaii (62.9) and Los Angeles (20.2) of USA had a much higher incidence than those in Malaysia. These differences suggest the influence played by the environment in addition to genetic predisposition.

Among the ethnic groups, Chinese recorded the highest incidence, followed by Indians and Malays. The life time cumulative risk of prostate cancer was highest in Chinese (1:62) compared to Malays and Indians (1:83).

Table 2.22.1: Prostate Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	671	100.0	6.8	11.6

Table 2.22.2: Prostate Age specific Cancer Incidence per 100,000 population (CR), Peninsular Malaysia 2002

Age, year	No.	Male	
		%	CR
0-9	0	0.0	0.0
10-19	0	0.0	0.0
20-29	3	0.4	0.2
30-39	2	0.3	0.1
40-49	8	1.2	0.7
50-59	77	11.5	10.5
60-69	227	33.8	58.1
70+	354	52.8	161.8

Figure 2.22.1: Prostate Age specific Cancer Incidence per 100,000 population, Peninsular Malaysia 2002

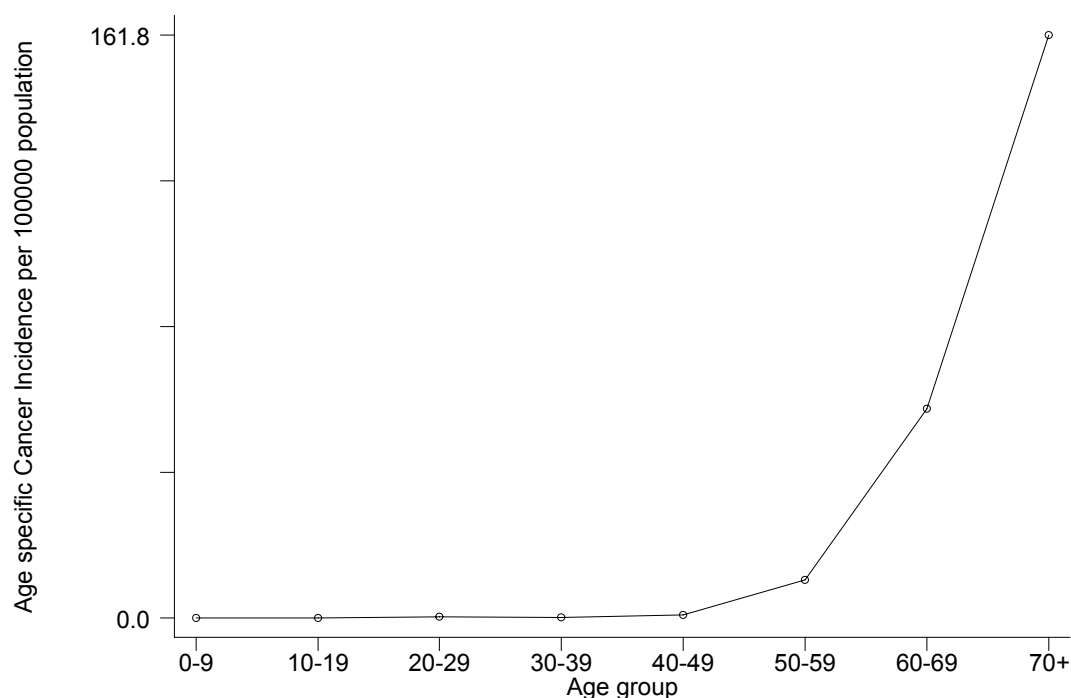


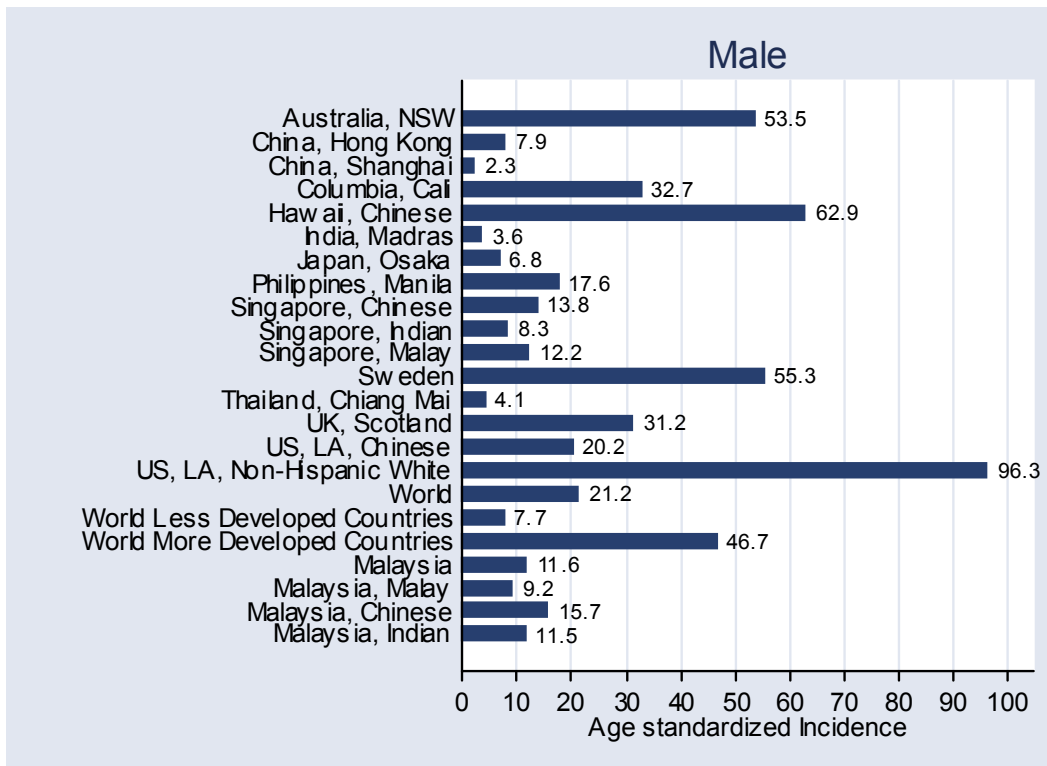
Table 2.22.3: Prostate Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity, Peninsular Malaysia 2002

Ethnic group	No.	%	Male	
			CR	ASR
Malay	273	42.1	4.7	9.2
Chinese	325	50.1	12.5	15.7
Indian	51	7.9	5.9	11.5

Table 2.22.4: Prostate Age specific Cancer Incidence per 100,000 population, by ethnicity, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	0.0	0.0	0.2	0.1	0.5	7.8	49.9	120.2	1.2
	Chinese	0.0	0.0	0.2	0.3	1.1	13.7	72.7	227.0	1.6
	Indian	0.0	0.0	0.0	0.0	0.0	15.4	42.9	175.0	1.2

Figure 2.22.2: Prostate International comparisons [6] - Age standardized Incidence per 100,000 population, Peninsular Malaysia 2002



2.23 BLADDER

In Malaysia, bladder cancer ranked tenth among males and twenty first in females. It accounted for 4.1% and 0.8% of all new cases of cancer among men and women respectively. The male to female ratio was 4.4 : 1. This was higher than the male to female ratio of 3.3 : 1 in Singapore.

The ASR of bladder cancer in Malaysian males was 7.8. This figure was comparable to Singapore and China, but higher than India (Bombay 4.8) and China (Shanghai 6.9).

Chinese in this country had the highest risk of developing bladder cancer among the ethnic groups as in Singapore. Interestingly, the ASR for Chinese males in Malaysia (9.2) was higher than Chinese males in Singapore (7.7).

Age specific incidence for bladder cancer followed an exponential fashion with a steep rise from the age of 40 years.

Table 2.23.1: Bladder Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	481	81.4	4.8	7.8
Female	110	18.6	1.1	1.6
Both	591	100.0	3.0	4.5

Table 2.23.2: Bladder Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male		Female		
		%	CR	No.	%	CR
0-9	0	0.0	0.0	1	0.9	0.0
10-19	1	0.2	0.0	1	0.9	0.1
20-29	2	0.4	0.1	4	3.6	0.2
30-39	8	1.7	0.5	3	2.7	0.2
40-49	33	6.9	2.8	8	7.3	0.7
50-59	99	20.6	13.5	18	16.4	2.6
60-69	161	33.5	41.2	35	31.8	8.6
70+	177	36.8	80.9	40	36.4	14.7

Figure 2.23.1: **Bladder Age** specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

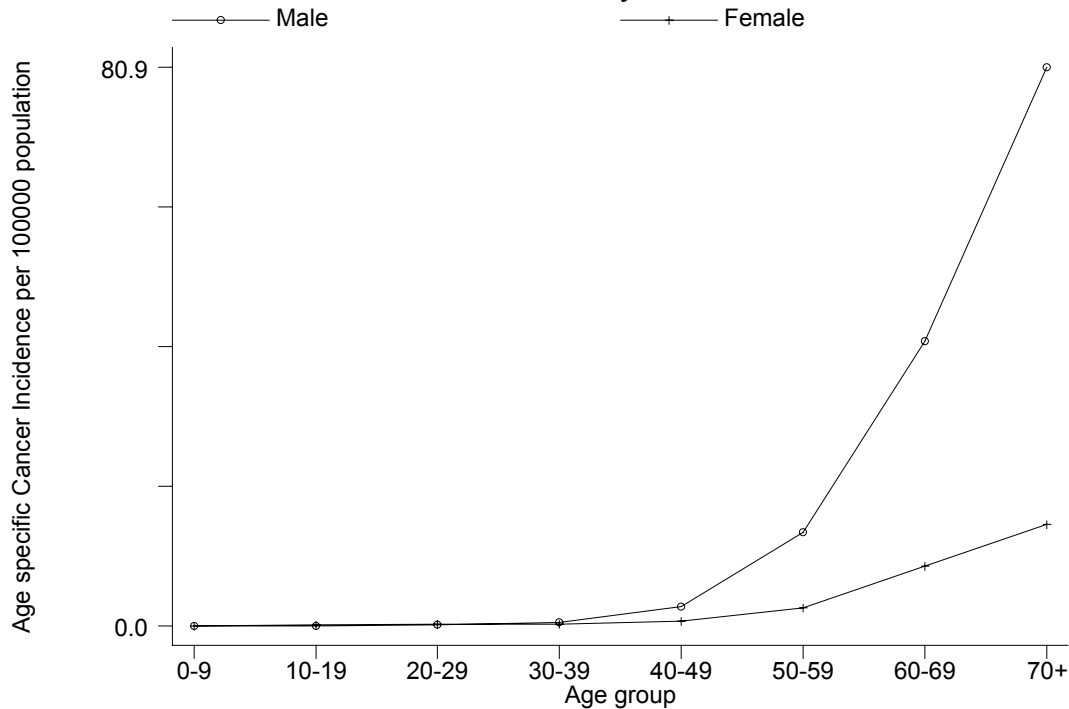


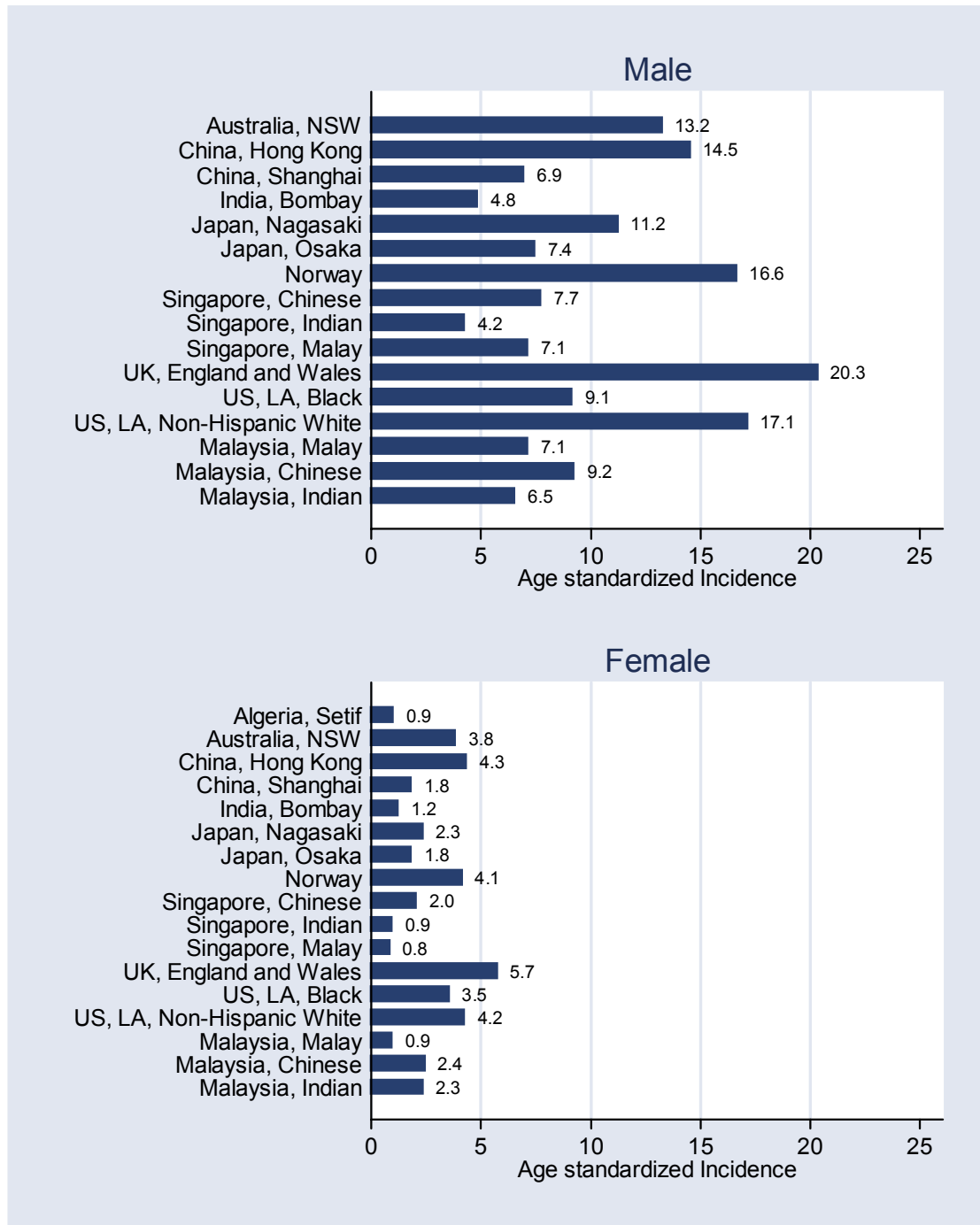
Table 2.23.3: Bladder Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	231	50.0	4.0	7.1	34	32.4	0.6	0.9
Chinese	200	43.3	7.7	9.2	60	57.1	2.4	2.4
Indian	31	6.7	3.6	6.5	11	10.5	1.3	2.3

Table 2.23.4: Bladder Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	0.0	0.1	0.2	0.5	3.8	12.6	40.8	63.5	0.9
	Chinese	0.0	0.0	0.0	1.0	2.2	12.9	44.9	112.9	1.1
	Indian	0.0	0.0	0.0	0.0	0.0	17.0	33.0	62.5	0.9
Female	Malay	0.1	0.0	0.2	0.4	0.7	1.4	5.2	5.7	0.1
	Chinese	0.0	0.2	0.0	0.0	0.9	5.0	12.7	24.6	0.3
	Indian	0.0	0.0	0.0	0.0	0.0	0.0	14.0	32.6	0.4

Figure 2.23.2: Bladder International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.24 KIDNEY and OTHER URINARY ORGANS

The age specific rate in Peninsular Malaysia was 3.3 and 1.8 for males and females respectively. This was comparable to other Asian countries of low incidence rate like China, Shanghai (2.9 for males, 1.6 for females).

This cancer ranked seventeenth among males and ranks twentieth among females in this country. Western countries like New South Wales, USA had ASRs that were 3 – 5 times higher than Malaysia. The male to female ratio was 1.8:1 which corresponded to the general male to female ratio of 2:1 in most other countries.

Incidence rates of this cancer rose rapidly after the age of 40 years. Comparison of the age-specific incidence curve with demographically similar groups (e.g. Singapore) suggested that there was under-reporting among the elderly (age more than 60 years). Among the ethnic groups in Malaysia, Chinese male had higher incidence rates and risk than Malays and Indians; this was comparable to Singapore.

We caution the reader that for this cancer, the registration of cases was incomplete. In other words, the incidence statistic reported here are lower than the true incidence in the population. Refer to section on evaluation of quality of NCR data.

Table 2.24.1: Kidney and Other Urinary Organs Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	241	63.4	2.4	3.3
Female	139	36.6	1.4	1.8
Both	380	100.0	1.9	2.6

Table 2.24.2: Kidney and Other Urinary Organs Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male		Female		
		%	CR	No.	%	CR
0-9	19	7.9	0.8	18	12.9	0.8
10-19	5	2.1	0.2	8	5.8	0.4
20-29	2	0.8	0.1	4	2.9	0.2
30-39	7	2.9	0.5	8	5.8	0.6
40-49	51	21.2	4.3	9	6.5	0.8
50-59	63	26.1	8.6	39	28.1	5.7
60-69	63	26.1	16.1	27	19.4	6.6
70+	31	12.9	14.2	26	18.7	9.6

Figure 2.24.1: Kidney and Other Urinary Organs Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

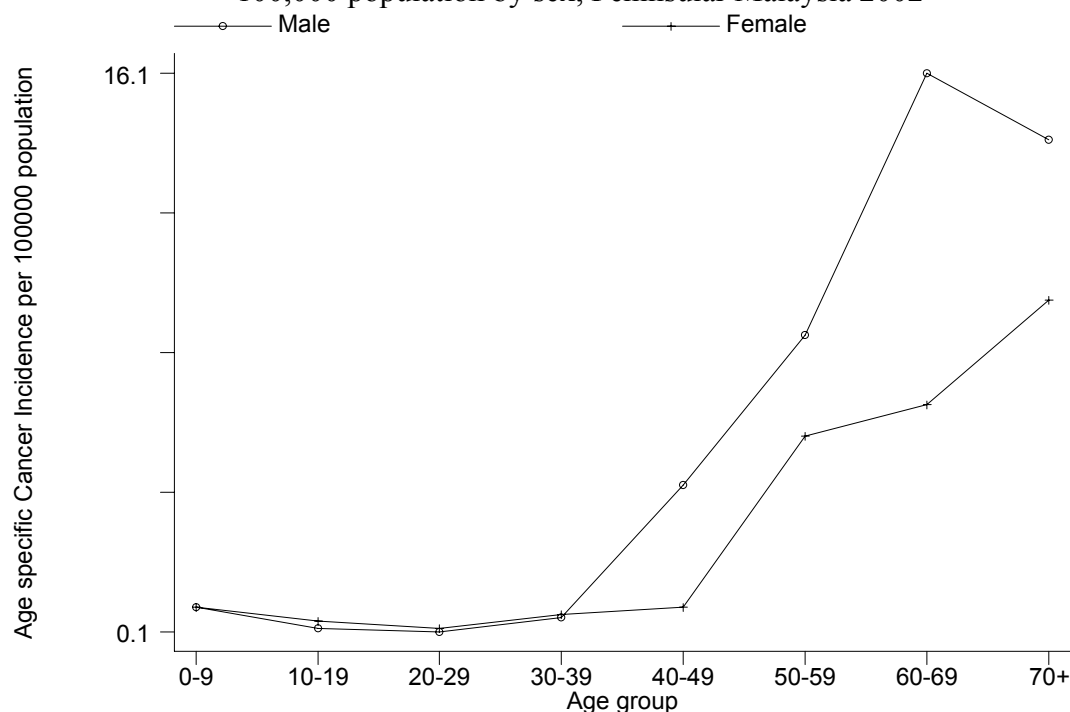


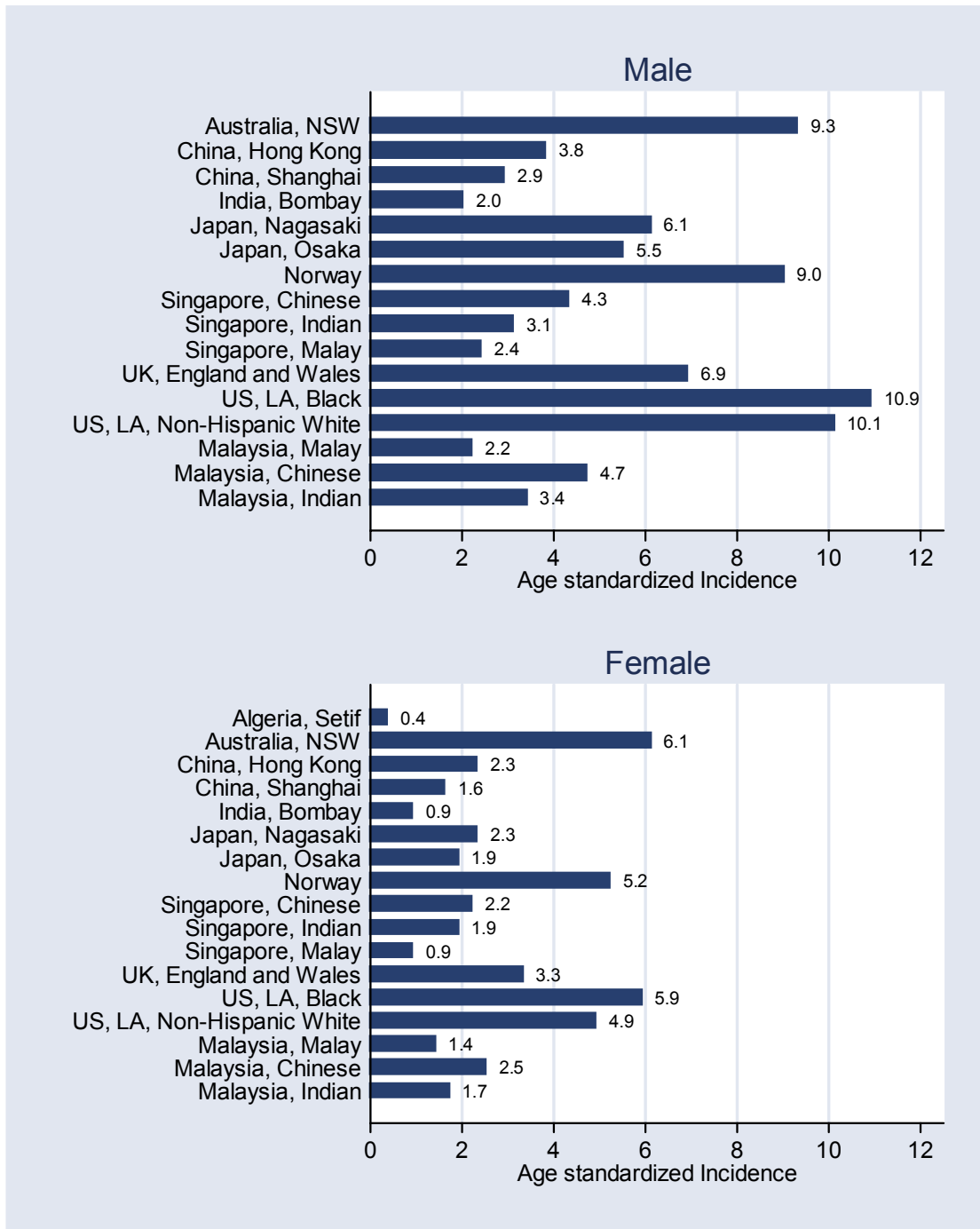
Table 2.24.3: Kidney and Other Urinary Organs Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	90	39.6	1.6	2.2	60	44.4	1.1	1.4
Chinese	115	50.7	4.4	4.7	62	45.9	2.5	2.5
Indian	22	9.7	2.5	3.4	13	9.6	1.5	1.7

Table 2.24.4: Kidney and Other Urinary Organs Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	CumR
Male	Malay	0.7	0.3	0.1	0.7	3.1	5.9	10.7	6.0	0.3
	Chinese	1.1	0.2	0.0	0.3	6.5	11.8	21.8	26.2	0.5
	Indian	1.1	0.0	0.7	0.7	5.2	9.3	13.2	12.5	0.3
Female	Malay	0.8	0.5	0.3	0.5	0.5	3.9	5.2	5.0	0.2
	Chinese	0.5	0.2	0.3	0.8	1.4	8.0	9.4	16.7	0.3
	Indian	2.3	0.0	0.0	0.7	0.9	9.3	2.8	0.0	0.2

Figure 2.24.2: Kidney and Other Urinary Organs International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.25 BRAIN and OTHER NERVOUS SYSTEM

Tumours of the brain and nervous system that was reported to the National Cancer Registry ranked fourteenth in males and seventeenth in females. ASR for males and females in Peninsular Malaysia were 2.8 and 2.2 respectively. The age-specific incidence curve for males followed a bimodal curve pattern i.e. it shows a peak at age less than 20 years old and another peak at age between 40 to 60 years. However, the age-specific incidence curve for the females rose steadily until it peaked at 60-69 years and fell thereafter. These differences could be attributed to under-reporting at the younger and older age groups among the females. Comparisons between ethnic groups showed the highest incidence rate was among Chinese males (3.6).

The ASR of Malaysian males of 2.8 approximated the incidence rates of the less developed countries which was 2.83. The ASR of Malaysian females showed a similar pattern (2.2 compared to 2.03).

We caution the reader that for this cancer, the registration of cases was incomplete. In other words, the incidence statistic reported here are lower than the true incidence in the population. Refer to section on evaluation of quality of NCR data.

Table 2.25.1: Brain and Other Nervous System Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	258	56.8	2.6	2.8
Female	196	43.2	2.0	2.2
Both	454	100.0	2.3	2.5

Table 2.25.2: Brain and Other Nervous System Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male			Female		
		%	CR	No.	%	CR	
0-9	40	15.5	1.8	27	13.8	1.3	
10-19	48	18.6	2.4	20	10.2	1.0	
20-29	30	11.6	1.8	25	12.8	1.5	
30-39	29	11.2	2.0	28	14.3	2.0	
40-49	39	15.1	3.3	40	20.4	3.5	
50-59	41	15.9	5.6	24	12.2	3.5	
60-69	20	7.8	5.1	21	10.7	5.2	
70+	11	4.3	5.0	11	5.6	4.1	

Figure 2.25.1: Brain and Other Nervous System Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

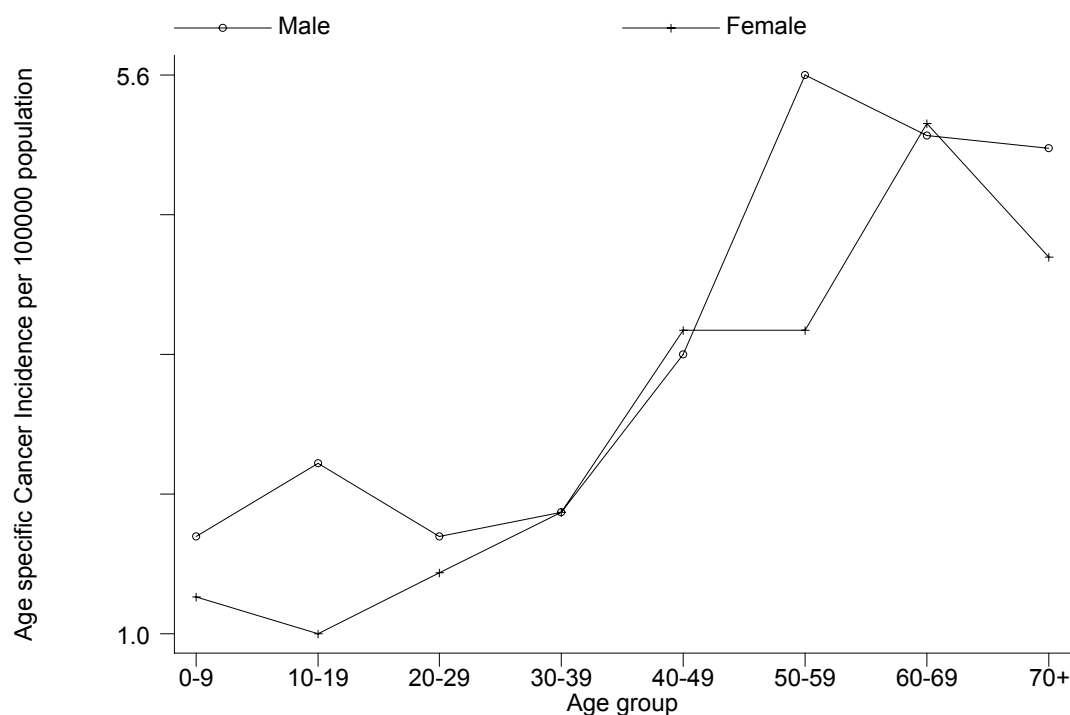


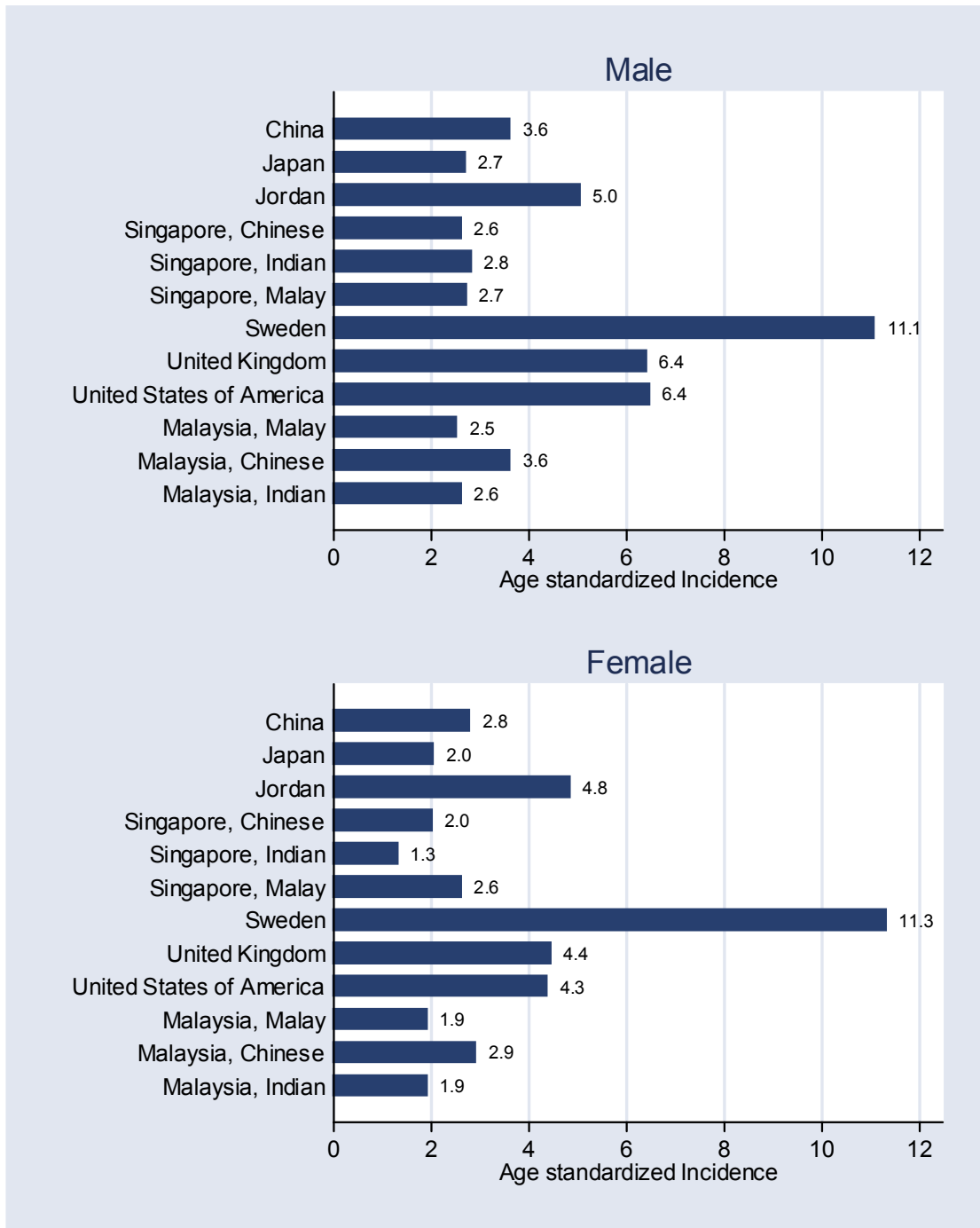
Table 2.25.3: Brain and Other Nervous System Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	134	53.8	2.3	2.5	100	53.5	1.8	1.9
Chinese	94	37.8	3.6	3.6	72	38.5	2.9	2.9
Indian	21	8.4	2.4	2.6	15	8.0	1.7	1.9

Table 2.25.4: Brain and Other Nervous System Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	2.1	2.4	1.4	1.1	2.9	5.6	2.0	5.2	0.2
	Chinese	1.3	2.6	3.4	4.5	3.0	6.1	8.6	5.2	0.3
	Indian	1.1	0.6	1.3	0.7	7.8	6.2	6.6	0.0	0.2
Female	Malay	1.1	1.1	1.0	2.5	3.3	3.3	3.8	2.1	0.2
	Chinese	1.8	1.2	2.8	1.5	4.6	3.8	6.0	7.9	0.3
	Indian	1.7	0.0	0.7	2.2	2.6	3.1	8.4	0.0	0.2

Figure 2.25.2: Brain and Other Nervous System International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.26 THYROID

Thyroid cancer occurred in all age groups. In 2002, there were a total of 590 new cases of thyroid cancer reported in Malaysia which accounted for 2.3% of all new cancer cases reported. In females, it was the ninth most common cancer reported. The total number of women was 412 cases (69.8%) while men accounted for 178 (30.2%) cases with a male to female ratio of 1: 2.3 (Table 2.26.1). This was comparable to US figures which showed a ratio of 1:3 and Singapore with a ratio of 1 : 3.4.

The age standardized incidence was highest in the Malay females, followed by Chinese and Indians. However, among the males, Chinese and Malays were affected more than Indians. Comparing with other countries, the age standardized rate for Malaysian females (4.8) was lower than that of Singapore females but comparable to that of Canada.

In all males, the lifetime cumulative risk of thyroid cancer was 1 in 500. However, in Malay and Chinese females the risk was 1 in 200 as compared to Indian females of 1 in 333 (Table 2.26.4).

Table 2.26.1: Thyroid Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	178	30.2	1.8	2.2
Female	412	69.8	4.3	4.8
Both	590	100.0	3.0	3.5

Table 2.26.2: Thyroid Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male			Female		
		No.	%	CR	No.	%	CR
0-9	14	7.9	0.6	8	1.9	0.4	
10-19	9	5.1	0.4	15	3.6	0.8	
20-29	10	5.6	0.6	46	11.2	2.8	
30-39	26	14.6	1.8	95	23.1	6.7	
40-49	31	17.4	2.6	92	22.3	8.1	
50-59	42	23.6	5.7	67	16.3	9.8	
60-69	34	19.1	8.7	51	12.4	12.5	
70+	12	6.7	5.5	38	9.2	14.0	

Figure 2.26.1: Thyroid Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

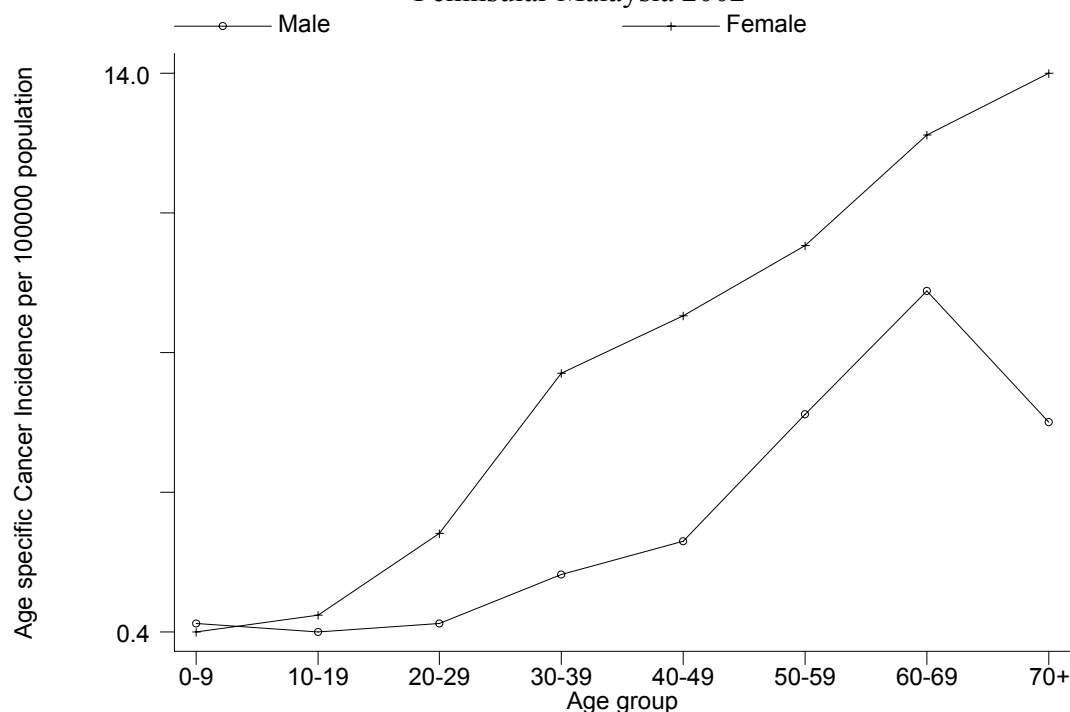


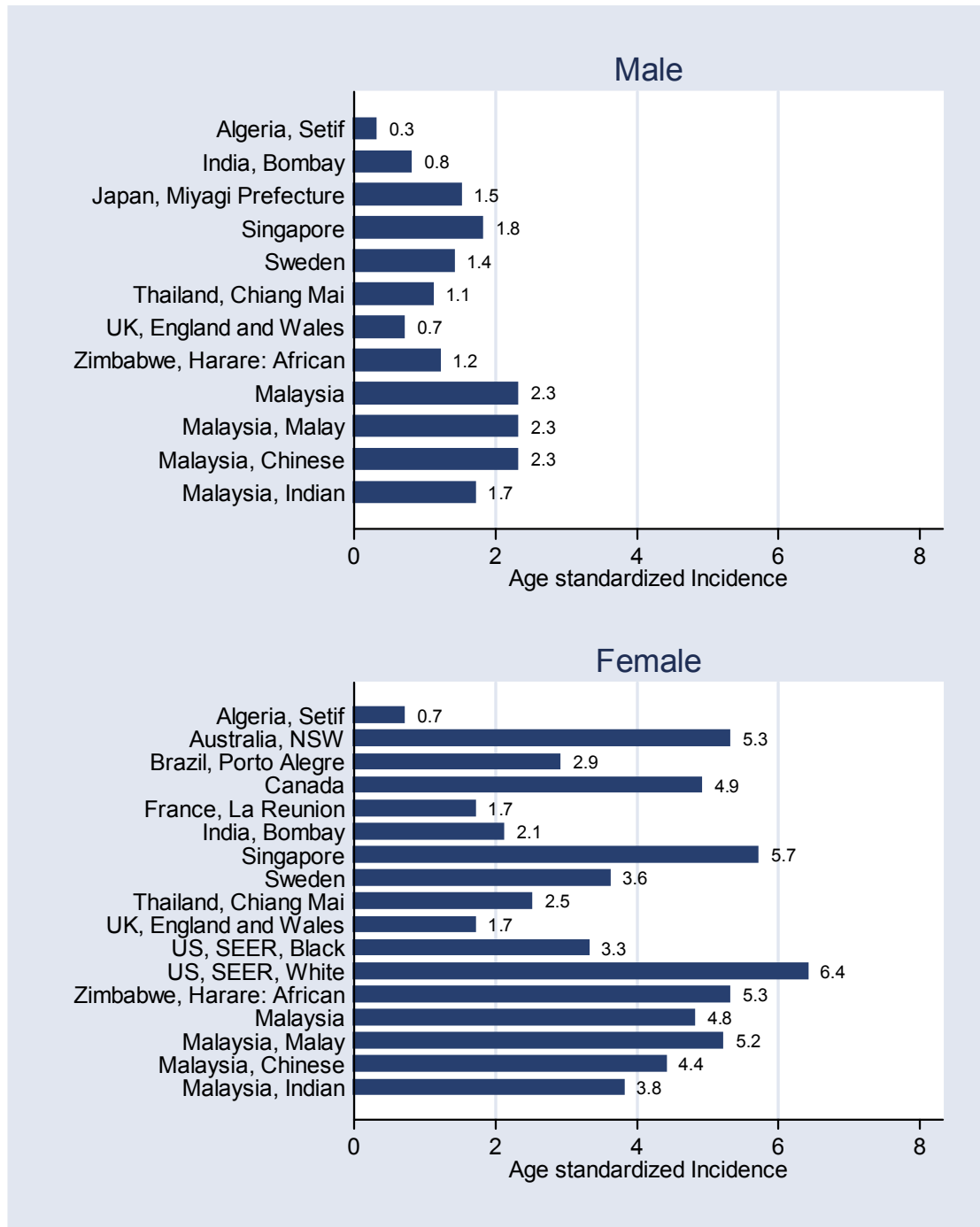
Table 2.26.3: Thyroid Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	101	58.7	1.7	2.3	240	62.0	4.2	5.2
Chinese	60	34.9	2.3	2.3	116	30.0	4.7	4.4
Indian	11	6.4	1.3	1.7	31	8.0	3.6	3.8

Table 2.26.4: Thyroid Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	0.5	0.7	0.8	2.1	2.5	6.2	7.6	6.9	0.2
	Chinese	0.8	0.0	0.2	1.5	3.8	6.9	10.6	1.3	0.2
	Indian	0.5	0.0	0.7	2.2	1.7	0.0	6.6	12.5	0.2
Female	Malay	0.5	0.7	3.1	6.6	8.8	10.8	13.7	15.6	0.5
	Chinese	0.2	0.9	2.8	5.9	8.0	8.0	12.1	11.8	0.5
	Indian	0.0	0.6	2.0	8.7	5.1	3.1	8.4	21.7	0.3

Figure 2.26.2: Thyroid International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.27 LYMPHOMA

Since ICD –0 is used, it was only the Nodal Lymphomas that were considered in this data.

Lymphoma ranked seventh amongst male cancers and eleventh amongst the female cancers. Lymphomas constituted 3.7% of all cancers. There was male preponderance of 3:2. Age standardized incidence rate is highest in the Malay males and Chinese females. Ratio of Hodgkin's to Non Hodgkin Lymphoma was 1:9.

Table 2.27.1: Lymphoma Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	573	59.9	5.8	7.2
Female	384	40.1	4.0	4.7
Both	957	100.0	4.9	5.9

Table 2.27.2: Lymphoma Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	Male			Female		
	No.	%	CR	No.	%	CR
0-9	28	4.9	1.2	11	2.9	0.5
10-19	57	9.9	2.8	44	11.5	2.3
20-29	47	8.2	2.8	37	9.6	2.3
30-39	62	10.8	4.2	50	13.0	3.5
40-49	78	13.6	6.6	62	16.1	5.5
50-59	135	23.6	18.5	74	19.3	10.8
60-69	107	18.7	27.4	69	18.0	16.9
70+	59	10.3	27.0	37	9.6	13.6

Figure 2.27.1: Lymphoma Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

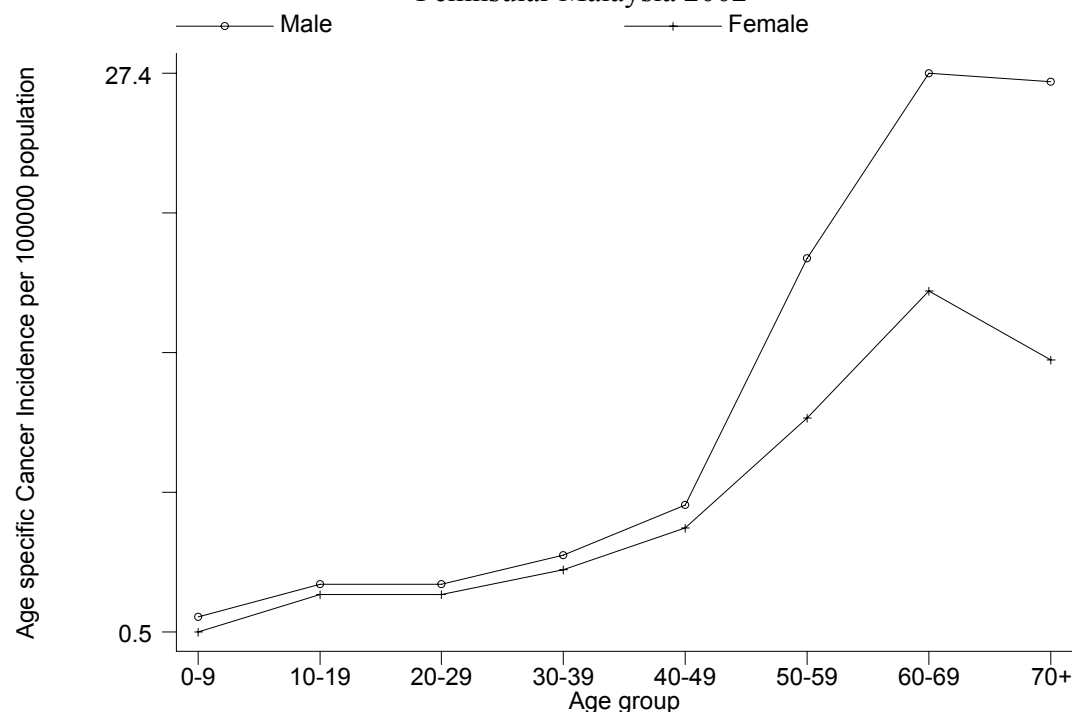


Table 2.27.3: Lymphoma Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	336	61.1	5.8	7.7	206	55.7	3.6	4.5
Chinese	172	31.3	6.6	6.8	130	35.1	5.2	5.2
Indian	42	7.6	4.8	6.8	34	9.2	3.9	4.8

Table 2.27.4: Lymphoma Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	CumR
Male	Malay	1.5	3.2	3.1	4.7	8.2	21.0	26.0	24.9	0.8
	Chinese	0.0	3.1	3.1	4.0	6.3	17.9	23.8	30.2	0.7
	Indian	2.2	0.6	2.0	4.4	3.5	13.9	39.6	18.8	0.8
Female	Malay	0.6	1.9	2.4	3.5	6.4	9.4	16.0	12.0	0.5
	Chinese	0.5	3.1	3.0	3.8	4.6	12.6	18.8	13.8	0.6
	Indian	0.0	2.4	0.7	3.6	4.3	13.9	16.8	21.7	0.5

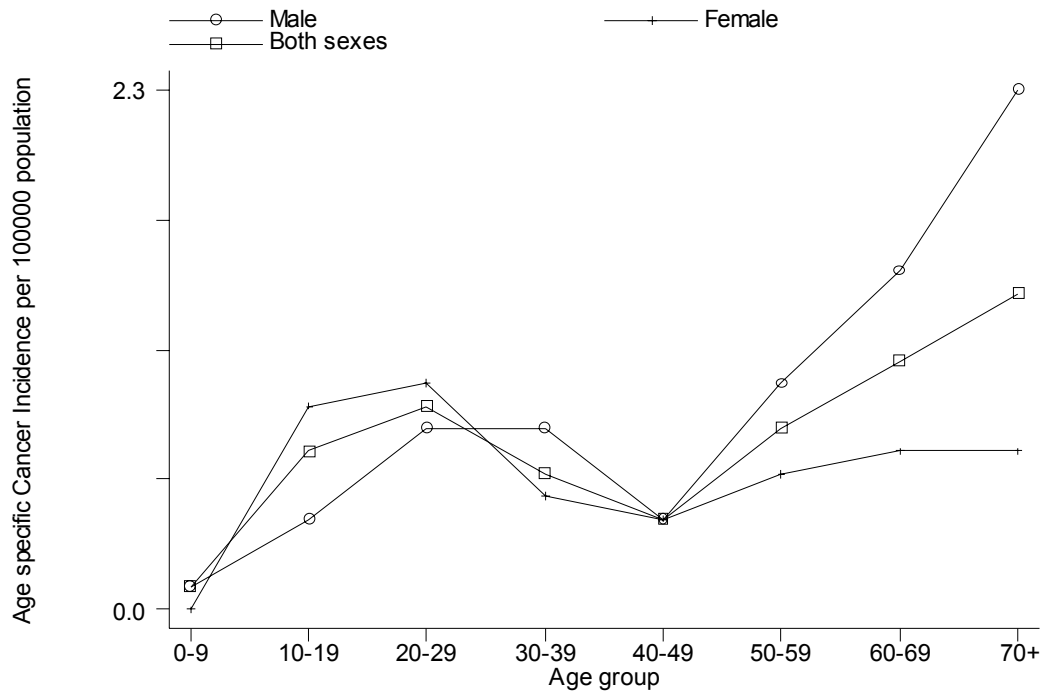
2.27.1 Hodgkin's Lymphoma

The male to female ratio was 1:1. Bimodal peak incidence for males were at 20-29 years and above 70 years of age; however in females, the peak occurred at 10-19 years and 60-69 years..

Table 2.27.1.2 Hodgkin Lymphoma Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	Male			Female			Both		
	No.	%	CR	No.	%	CR	No.	%	CR
0-9	2	3.5	0.1	1	1.8	0.0	3	2.7	0.1
10-19	8	14.0	0.4	18	32.1	0.9	26	23.0	0.7
20-29	13	22.8	0.8	16	28.6	1.0	29	25.7	0.9
30-39	11	19.3	0.8	7	12.5	0.5	18	15.9	0.6
40-49	5	8.8	0.4	5	8.9	0.4	10	8.8	0.4
50-59	7	12.3	1.0	4	7.1	0.6	11	9.7	0.8
60-69	6	10.5	1.5	3	5.4	0.7	9	8.0	1.1
70+	5	8.8	2.3	2	3.6	0.7	7	6.2	1.4

Figure 2.27.1.2 Hodgkin Lymphoma Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002



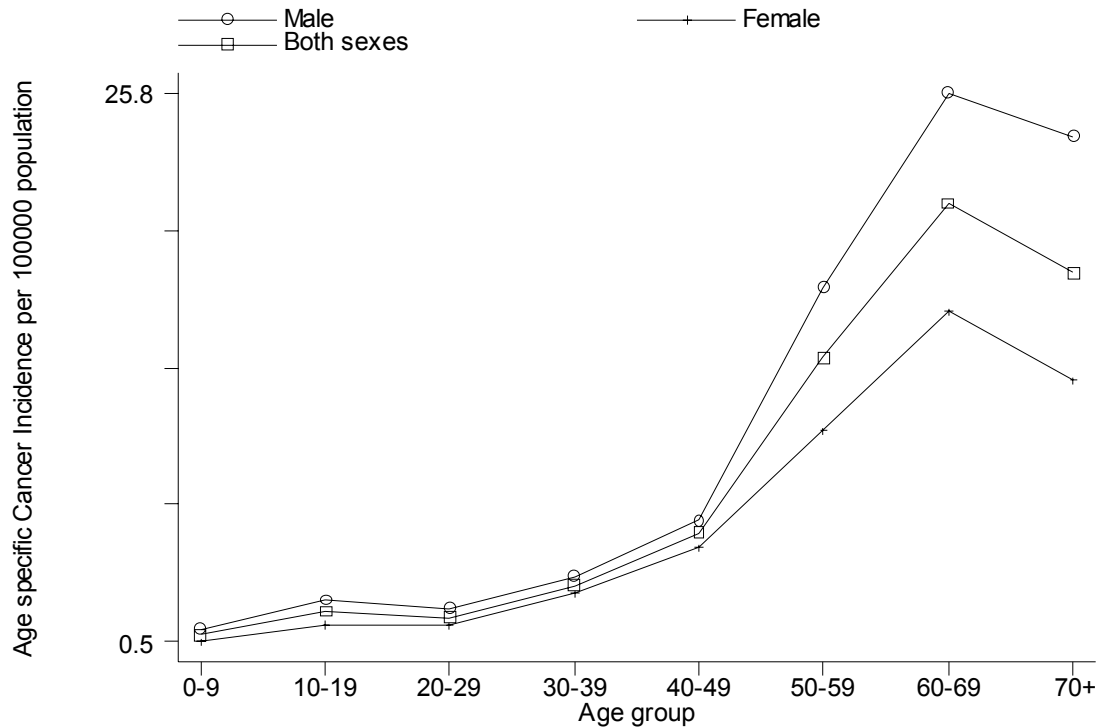
2.27.2 Non Hodgkin Lymphoma

The male to female ratio was 1.4 : 1. The peak incidence for both sexes was in the age group 60-69 years.

Table 2.27.2.2 Non Hodgkin Lymphoma Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	Male			Female			Both		
	No.	%	CR	No.	%	CR	No.	%	CR
0-9	26	5.1	1.1	10	3.2	0.5	36	4.4	0.8
10-19	49	9.6	2.4	26	8.2	1.3	75	9.1	1.9
20-29	34	6.7	2.0	20	6.3	1.2	54	6.5	1.6
30-39	51	10.0	3.5	38	12.0	2.7	89	10.8	3.1
40-49	72	14.2	6.1	55	17.4	4.8	127	15.4	5.5
50-59	123	24.2	16.8	70	22.1	10.2	193	23.4	13.6
60-69	101	19.9	25.8	64	20.2	15.7	165	20.0	20.7
70+	52	10.2	23.8	34	10.7	12.5	86	10.4	17.5

Figure 2.27.2.1 Non Hodgkin Lymphoma Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.28 LYMPHATIC LEUKAEMIA

Five hundred and eighty cases of Lymphoid Leukemia had been reported to the National Cancer Registry in 2002, comprising 2.2% of total number of cancers. Males predominated at a ratio of 1.4 : 1.

Lymphoid Leukemia

Age Standardised incidence rate for Lymphoid Leukemia was highest among Malays, with almost similar rates among the major ethnic groups. This was in contrast to the variation seen among the ethnic groups in Singapore. The incidence was higher in Malaysia than in Singapore (1.4-2.3 for males, 1.1-2.0 for females), Hong Kong (2.4 for males, 1.6 for females) and Madras (1.4 for males, 0.8 for females).

The bimodal peak with young children below the age of 10 years and above the age of 50 years was similar to that seen all over the world.

Table 2.28.1: Lymphatic Leukaemia Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	342	59.0	3.4	3.5
Female	238	41.0	2.5	2.5
Both	580	100.0	3.0	3.0

Table 2.28.2: Lymphatic Leukaemia Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male			Female		
		%	CR	No.	%	CR	
0-9	172	50.3	7.5	120	50.4	5.6	
10-19	79	23.1	3.9	62	26.1	3.2	
20-29	22	6.4	1.3	8	3.4	0.5	
30-39	14	4.1	1.0	12	5.0	0.8	
40-49	15	4.4	1.3	7	2.9	0.6	
50-59	17	5.0	2.3	11	4.6	1.6	
60-69	13	3.8	3.3	14	5.9	3.4	
70+	10	2.9	4.6	4	1.7	1.5	

Figure 2.28.1: Lymphatic Leukaemia Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

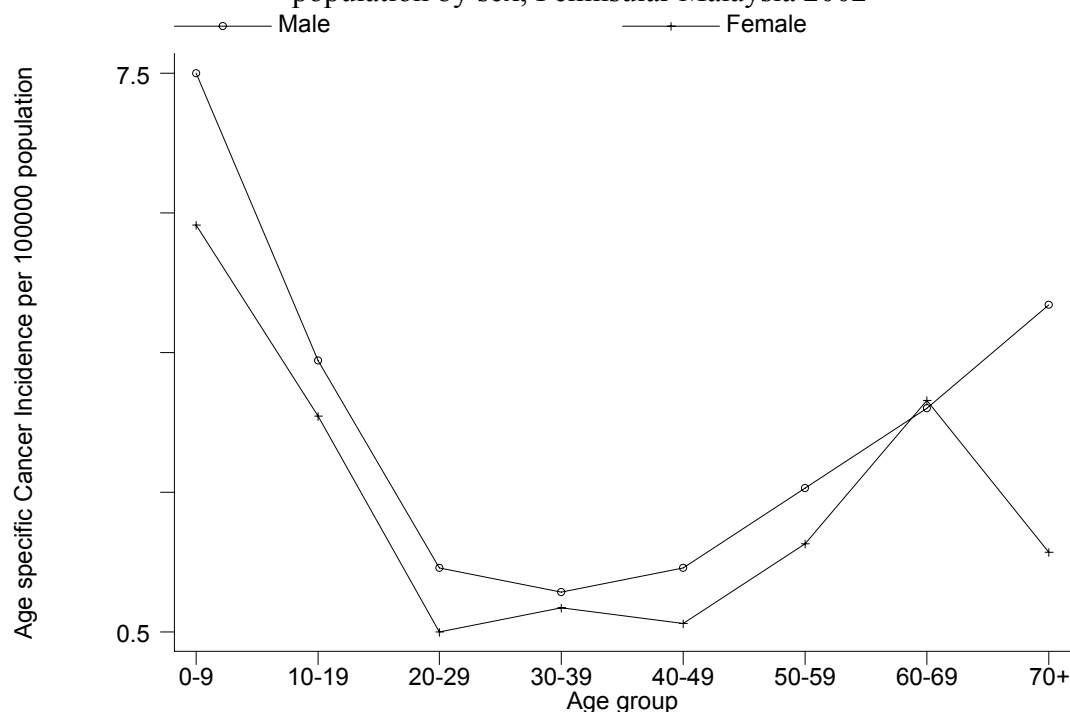


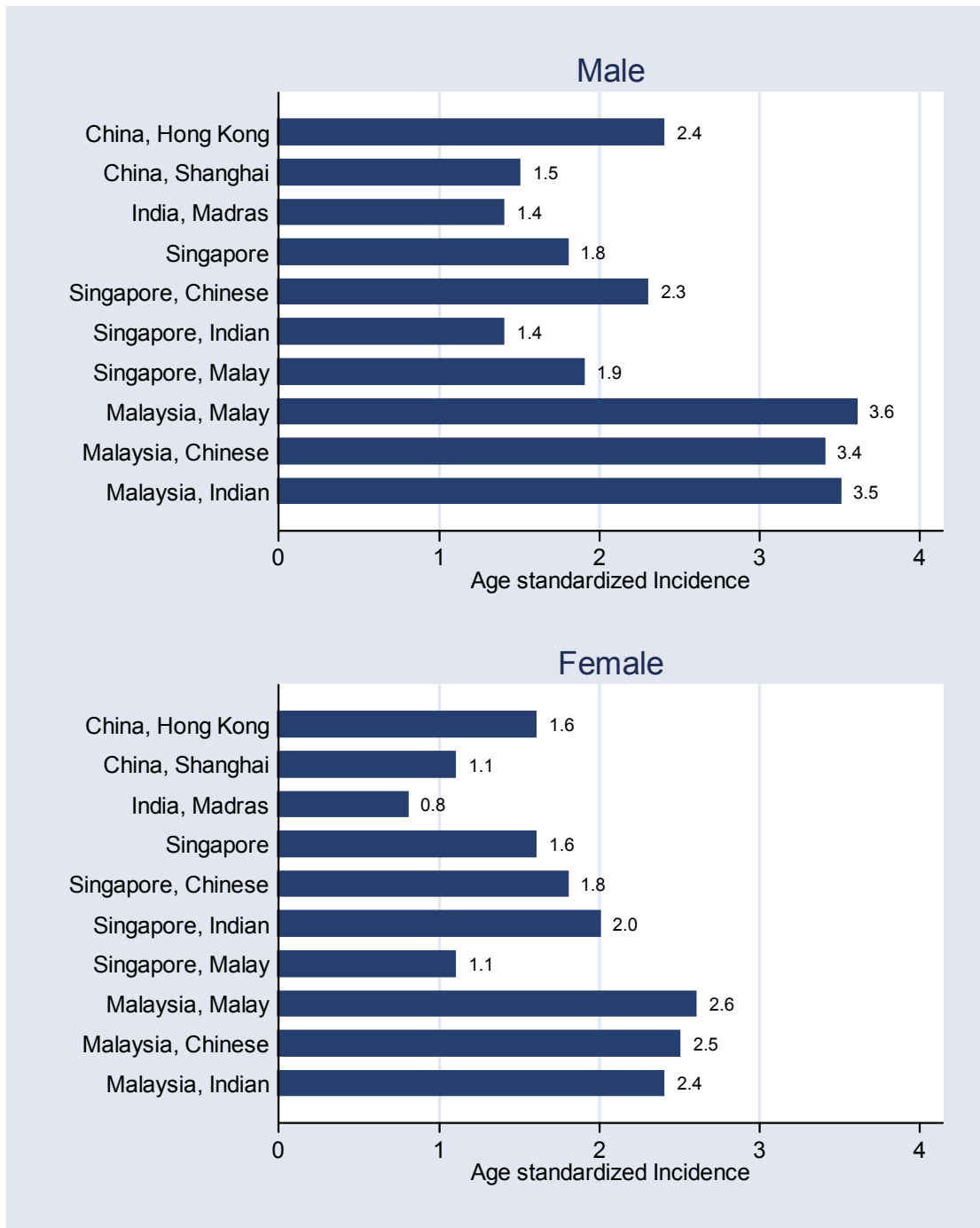
Table 2.28.3: Lymphatic Leukaemia Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	218	66.5	3.8	3.6	156	67.2	2.7	2.6
Chinese	81	24.7	3.1	3.4	56	24.1	2.3	2.5
Indian	29	8.8	3.3	3.5	20	8.6	2.3	2.4

Table 2.28.4: Lymphatic Leukaemia Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	CumR
Male	Malay	8.3	3.5	1.6	0.9	0.8	2.1	3.1	6.0	0.2
	Chinese	7.0	4.9	1.2	0.5	2.2	1.9	2.6	2.6	0.2
	Indian	5.5	4.0	0.7	3.0	0.9	6.2	6.6	0.0	0.3
Female	Malay	6.1	3.0	0.6	0.9	0.8	1.7	2.8	1.4	0.2
	Chinese	4.8	3.6	0.3	0.8	0.6	1.7	5.4	2.0	0.2
	Indian	6.2	3.6	0.0	1.4	0.0	1.5	0.0	0.0	0.1

Figure 2.28.2: Lymphatic Leukaemia International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



2.29 MYELOID LEUKAEMIA

Six hundred and forty-nine cases of Myeloid Leukemia had been reported to the National Cancer Registry in 2002, comprising 2.5% of total number of cancers. Males predominated at a ratio of 1.2 : 1.

Age Standardized incidence Rate (ASR) for Myeloid Leukemia was higher than lymphoid leukemia with ethnic variation. Malaysian Chinese males and females showed higher incidence rates compared to the other major ethnic groups. Chinese in Malaysia had higher ASR (4.9 for males, 4.7 for females) compared to Hong Kong (3.4 for males, 2.5 for females) and Singapore (3.3 for males, 2.0 for females). Indian males in Malaysia had higher ASR (3.0) compared to Indians in Madras (1.3) and Indians in Singapore (1.5).

The age specific incidence for Myeloid Leukemia rose with age.

Table 2.29.1: Myeloid Leukaemia Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by sex, Peninsular Malaysia 2002

Sex	No.	%	CR	ASR
Male	352	54.2	3.5	3.9
Female	297	45.8	3.1	3.3
Both	649	100.0	3.3	3.6

Table 2.29.2: Myeloid Leukaemia Age specific Cancer Incidence per 100,000 population (CR) by sex, Peninsular Malaysia 2002

Age, year	No.	Male			Female		
		%	CR	No.	%	CR	
0-9	52	14.8	2.3	41	13.8	1.9	
10-19	56	15.9	2.8	30	10.1	1.6	
20-29	37	10.5	2.2	51	17.2	3.1	
30-39	51	14.5	3.5	38	12.8	2.7	
40-49	64	18.2	5.4	47	15.8	4.1	
50-59	40	11.4	5.5	39	13.1	5.7	
60-69	29	8.2	7.4	29	9.8	7.1	
70+	23	6.5	10.5	22	7.4	8.1	

Figure 2.29.1: Myeloid Leukaemia Age specific Cancer Incidence per 100,000 population by sex, Peninsular Malaysia 2002

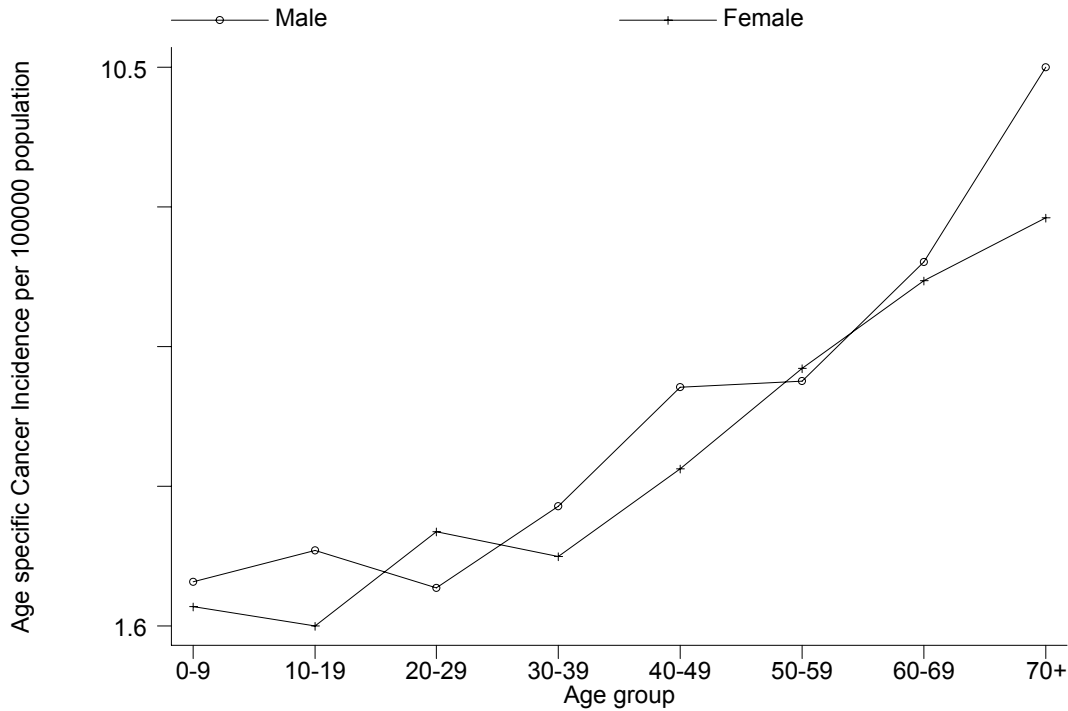


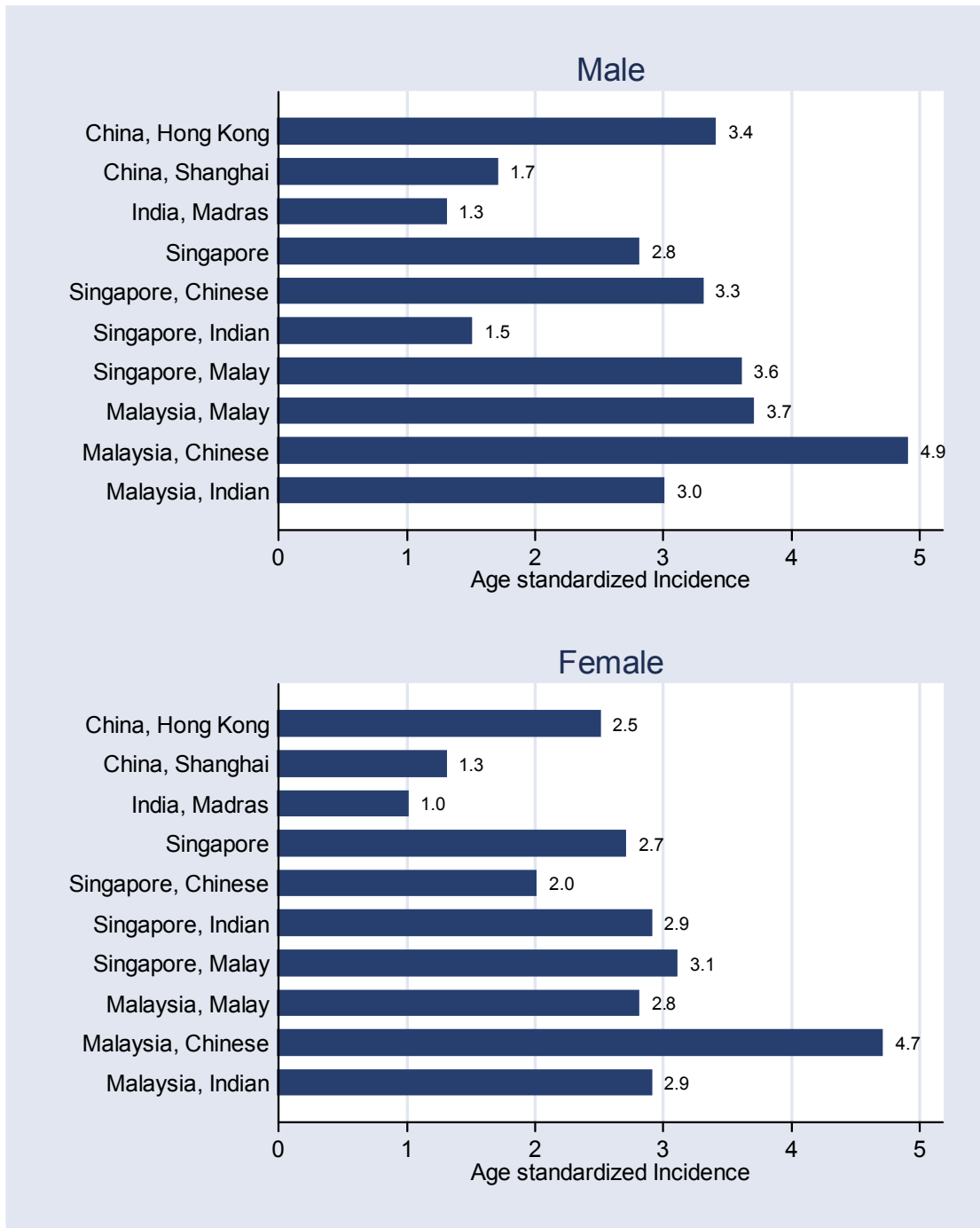
Table 2.29.3: Myeloid Leukaemia Cancer Incidence per 100,000 population (CR) and Age-standardized incidence (ASR), by ethnicity and sex, Peninsular Malaysia 2002

Ethnic group	Male				Female			
	No.	%	CR	ASR	No.	%	CR	ASR
Malay	190	55.6	3.3	3.7	140	49.8	2.5	2.8
Chinese	127	37.1	4.9	4.9	118	42.0	4.7	4.7
Indian	25	7.3	2.9	3.0	23	8.2	2.6	2.9

Table 2.29.4: Myeloid Leukaemia Age specific Cancer Incidence per 100,000 population, by ethnicity and sex, Peninsular Malaysia 2002

		Age groups, year								CumR
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	
Male	Malay	2.2	2.6	1.9	3.7	5.2	5.4	7.6	8.6	0.3
	Chinese	2.7	4.0	4.1	3.8	7.1	6.5	7.3	13.1	0.4
	Indian	1.1	0.6	2.0	5.9	4.3	4.6	6.6	6.3	0.3
Female	Malay	1.7	1.1	2.3	2.3	4.6	4.1	7.1	3.5	0.2
	Chinese	2.5	2.4	5.5	3.8	3.4	9.2	8.0	13.8	0.4
	Indian	2.3	1.8	3.3	1.4	3.4	1.5	5.6	10.9	0.3

Figure 2.29.2: Myeloid Leukaemia International comparisons [6] - Age standardized Incidence per 100,000 population by sex, Peninsular Malaysia 2002



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APPENDICES

Table A1: New cases of cancer and percentage of total number of cases by site, age and sex, Peninsular Malaysia 2002

Site		Age groups, year															Total	Tot-%		
		0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-			75+	
LIP	Male							1	1	1			3	3	1		2	12	0.1	
	Female					1					3	3	3	3	1	2	3	22	0.2	
TONGUE	Male						1	6	7	19	19	14	14	22	21	21	12	156	1.3	
	Female			1	2	1	3	2	3	7	9	5	10	9	8	11	7	78	0.5	
SALIVARY GLANDS	Male	1			2	1	3	4	7	11	12	11	11	6	9	5	11	94	0.8	
	Female		2	2	1	3	3	7	2	8	4	7	12	2	4	1	5	63	0.4	
GUM, MOUTH, OTHERS	Male	1				1	1	5	5	9	23	9	9	25	15	17	27	147	1.2	
	Female	1	1				1	2	2	5	11	12	31	28	29	17	26	166	1.2	
OROPHARYNX	Male		1			1				3	2	4	9	8	11	7	12	14	72	0.6
	Female						1	1	2	1	1	8		5	1		5	25	0.2	
NASOPHARYNX	Male	1	1	4	4	15	18	45	103	136	162	144	107	91	63	24	22	940	8.0	
	Female		1	1	14	4	6	29	45	39	68	53	49	38	33	16	7	403	2.8	
HYPOPHARYNX	Male								2		3	4	4	9	17	6	8	53	0.4	
	Female										4	1	5	3	3	3	2	21	0.1	
OTHER PHARYNX	Male		1		1			2	4	4	7	5	6	11	4	4	3	52	0.4	
	Female			1	1	1	1		1	3	2	3	3	3	4	6	3	32	0.2	
ESOPHAGUS	Male			1		1	1	2	3	8	21	24	20	40	36	24	40	221	1.9	
	Female		1	1			1		2	8	9	10	18	23	24	13	19	129	0.9	

STOMACH	Male	1		2		2	2	8	15	28	31	35	51	59	85	81	87	487	4.1
	Female				1	2	1	8	12	11	37	38	31	42	63	44	67	357	2.5
SMALL INTESTINE	Male		3	1		4		1	3	2	11	5	7	12	7	8	2	66	0.6
	Female	1				1	3		2	2	7	5	7	7	5	3	3	46	0.3
Caecum	Male		1				1		2	3	6	1	8	10	4	5	3	44	0.4
	Female						1		2	1	1	2	3	5	2	9	3	7	36
Appendix	Male						1			1	1			1		1		5	0.0
	Female			1	3		2	1	2	1	3	1			1		2	17	0.1
Ascending colon	Male						1			2		5	2	4	5	3	7	29	0.2
	Female										1	3		7	2	3	4	20	0.1
Hepatic flexure of colon	Male						1							1	2			4	0.0
	Female								1	1	1	1			2	2	2	10	0.1
Transverse colon	Male				1		1	1			1		1		3	1	4	13	0.1
	Female							2			2	2	3	1	4	4	2	20	0.1
Splenic flexure of colon	Male				1							1	3	2	3		1	11	0.1
	Female				1						1		1		1		1	5	0.0
Descending colon	Male							1			1	1	1	3	1	2	5	15	0.1
	Female								1	2	2	2	2	3	2	2	3	17	0.1
Sigmoid colon	Male			1	2	2	2	4	4	11	9	12	15	23	15	22	122	1.0	
	Female						4	4	10	12	13	28	18	17	16	22	144	1.0	
COLON	Male	1			6	5	5	16	21	43	46	75	72	97	101	90	96	674	5.7
	Female		1	1		1	6	15	12	29	44	58	74	63	62	74	96	536	3.8

Rectosigmoid junction	Male									3	8	9	3	16	3	7	10	59	0.5
	Female						2			3	8	4	9	4	8	8	8	54	0.4
Rectum	Male			1		3	3	8	12	24	40	55	58	72	86	69	72	503	4.3
	Female	1		1		1	2	9	16	17	24	45	46	38	45	45	50	340	2.4
RECTUM	Male					2	4		4	11	14	19	23	34	39	27	21	198	1.7
	Female					1		5		5	12	10	11	15	9	11	7	86	0.6
Anal canal	Male									2		3	3	3	1	3	3	18	0.2
	Female								1	1	1	5	3		1	1	6	19	0.1
Anorectal /Anus	Male			1				1	2	1	1	1	1	4	3		3	18	0.2
	Female								1		1		3		2	2	6	15	0.1
LIVER/ Intra-BILE DUCTS	Male	7	4		3	5	3	16	20	32	32	60	53	57	54	39	32	417	3.5
	Female	6	2	2	2		5	3	5	9	16	21	15	17	19	16	11	149	1.0
GALLBLADDER/ Extra-BILE DUCT	Male							1	2	3	4	4	8	11	12	9	10	64	0.5
	Female							1	4	5	7	6	8	14	8	11	11	75	0.5
PANCREAS	Male						1	2	5	9	21	25	18	17	24	14	12	148	1.3
	Female			2	1	2		1	2	4	6	12	12	12	17	10	9	90	0.6
OTHER DIGESTIVE ORGANS	Male					2	2	2	2	1	2	5	9	5	8	2	11	51	0.4
	Female	1					1	3	1	4	10	4	8	7	9	5	6	59	0.4
NASAL, SINUSES, EAR	Male			4			2	3	9	8	15	12	7	14	11	9	9	103	0.9
	Female	3	1	2	1	1			7	5	6	5	6	7	8	2	8	62	0.4

LARYNX	Male		1					1	7	4	15	23	26	53	53	30	37	250	2.1
	Female					1					1	3	8	10	7	6	5	3	44
TRACHEA, BRONCHUS AND LUNG	Male		2	1	7	7	7	17	26	72	108	152	199	274	328	234	212	1646	13.9
	Female	2		1	2	1	3	15	19	41	51	66	72	103	95	75	64	610	4.3
PLEURA	Male					1	1				3	1	3	8	8	6	2	33	0.3
	Female	1				1		1	1	3	2	4	1	6	1	3	5	29	0.2
THYMUS/HEART/ MEDIASTINUM	Male		2		7	2	1	4	1		3	4	3	5	2	2	1	37	0.3
	Female	1		1	1	1	1		1	3	1	1	1	2		1		15	0.1
BONES and JOINTS	Male	2	5	18	22	11	9	9	10	9	12	14	10	3	4	6	2	146	1.2
	Female		4	14	16	4	8	5	5	6	5	7	4	7	3	2	4	94	0.7
CT/ SUBCUT./SOFT TISSUES	Male	16	17	7	15	11	11	14	13	18	19	14	9	24	16	11	14	229	1.9
	Female	10	9	4	3	4	12	19	13	21	20	12	9	17	13	7	6	179	1.3
Basal cell carcinoma	Male						4	1	5	9	13	15	25	25	28	20	45	190	1.6
	Female							4	7	8	11	15	14	25	34	41	45	204	1.4
Squamous cell carcinoma	Male		2				3	1	3	11	9	15	23	24	40	21	52	204	1.7
	Female		1		1	2			2	2	7	8	11	7	19	19	40	119	0.8
Cutaneous melanomas	Male						1	4	1	3	6	3	6	4	3	5	13	49	0.4
	Female					1	3	2	1	3	3	7	1	2	3	4	10	40	0.3

Skin appendage carcinomas	Male			1				2	2	2				1	1	9	0.1	
	Female				2				1			3		2	2	10	0.1	
Dermatofibrosarcomas/Merkel	Male		1	1					2	2		1				7	0.1	
	Female		2		3	1	2				1		1			10	0.1	
Kaposi's sarcoma	Male	1		1												2	0.0	
	Female											1				1	0.0	
Other skin/soft tissue sarcoma	Male		1										1		1	3	0.0	
	Female					1							1		1	3	0.0	
Mycosis fungoides/skin lymphom	Male					3	2	1	2		3	5	1			17	0.1	
	Female		1	1	1		1			1		3		1		9	0.1	
OTHER SKIN	Male							5	2	5	6	8	6	2	1	35	0.3	
	Female	1					1	3	5	4	3	2	2	2	2	25	0.2	
FEMALE BREAST	Male																	
	Female	1	8	10	73	195	424	704	853	761	481	366	219	113	129	4337	30.4	
MALE BREAST	Male			1		1	1	8	5	13	10	7	4	5	1	56	0.5	
	Female																	
CERVIX UTERI	Male																	
	Female		1	1	7	18	83	160	247	273	284	183	194	125	66	73	1715	12.0
PLACENTA	Male																	
	Female			3	2	4	2	3	4	2	1	1		1		23	0.2	
CORPUS UTERI	Male																	
	Female			2	8	13	26	45	48	85	102	77	50	35	26	517	3.6	

OVARY	Male																		
	Female	6	9	28	28	28	39	50	72	119	96	70	64	46	21	31	707	5.0	
FALLOPIAN, LIGAMENT, ADNEXA	Male																		
	Female								1	1	1	2	1	1			7	0.0	
VAGINA	Male																		
	Female	1					1	1	4	8	3	2	7	6	3	5	41	0.3	
VULVA	Male																		
	Female				2			1	2	5		3	6	3	8	5	35	0.2	
PROSTATE GLAND	Male				1	2		2	3	5	24	53	90	137	132	222	671	5.7	
	Female																		
TESTIS	Male	16	2	2	4	15	13	16	8	11	8	6	6	2	2	5	3	119	1.0
	Female																		
PENIS/ OTHER MALE GENITAL	Male			1					4	2	5	8	8	2	3	5	38	0.3	
	Female																		
URINARY BLADDER	Male			1		2	3	5	19	14	47	52	74	87	76	101	481	4.1	
	Female	1		1		4		3	4	4	13	5	15	20	18	22	110	0.8	
KIDNEY	Male	13	6	3	2		2	1	6	19	30	32	27	32	21	15	11	220	1.9
	Female	12	6	2	5	1	1	1	4	2	6	18	16	13	12	12	4	115	0.8
OTHER URINARY	Male										2	1	3	6	4	1	4	21	0.2
	Female				1	1	1	2	1		1	4	1	1	1	4	6	24	0.2
EYE/LACRIMAL GLAND	Male	16	1	1	4		1	1	4	3	8	3	5	2	4	1	4	58	0.5
	Female	33	7	1			1	1	4	1			3	2	1	2	1	57	0.4

BRAIN	Male	20	16	26	21	15	10	12	14	14	19	23	13	10	8	6	4	231	2.0
	Female	10	15	6	13	14	8	13	14	11	17	9	8	5	9	4	4	160	1.1
OTHER CNS	Male	3	1	1		1	4	1	2	2	4	3	2	2			1	27	0.2
	Female	2		1		2	1	1		5	7	3	4	4	3	2	1	36	0.3
THYROID GLAND	Male	8	6	5	4	5	5	12	14	21	10	20	22	19	15	2	10	178	1.5
	Female	4	4	5	10	13	33	51	44	43	49	38	29	28	23	19	19	412	2.9
OTHER ENDOCRINE	Male	3	2	1	2	3	2	1	2	2	6	1	1					26	0.2
	Female	4	2			3	1	1		4	5	2	2		2			26	0.2
Hodgkin's disease	Male		2	4	4	6	7	3	8	1	4	2	5	4	2	1	4	57	0.5
	Female	1		7	11	11	5	5	2	1	4	3	1	1	2	2		56	0.4
Non-Hodgkin's lymphoma	Male	12	14	24	25	18	16	28	23	32	40	51	72	48	53	18	34	508	4.3
	Female	7	3	8	18	7	13	18	20	27	28	40	30	29	35	20	14	317	2.2
Lymphatic leukaemia	Male	101	71	37	42	17	5	8	6	9	6	11	6	9	4	5	5	342	2.9
	Female	64	56	39	23	4	4	9	3	1	6	7	4	9	5	1	3	238	1.7
Myeloid leukaemia	Male	36	16	28	28	13	24	20	31	34	30	21	19	19	10	9	14	352	3.0
	Female	22	19	17	13	31	20	15	23	29	18	22	17	12	17	10	12	297	2.1
Other leukaemia	Male	15	13	6	12	5	6	11	8	9	8	12	13	12	7	12	10	159	1.3
	Female	8	7	7	5	2	4	2	4	3	9	4	7	2	9	6	10	89	0.6
Myeloma/Immuno proliferative	Male	1		1		1	1		3	5	9	16	17	18	17	8	4	101	0.9
	Female	4						1	1	2	12	9	9	14	9	5	5	71	0.5
OTHER RE	Male	3		1				1	1		1	1	1					9	0.1
	Female	1	1						1	1								4	0.0
UNKNOWN PRIMARY SITES	Male	6	5	7	10	8	9	15	19	33	40	57	56	72	53	49	61	500	4.2
	Female	1	3		3	5	8	12	23	27	39	51	42	43	49	29	46	381	2.7

Table A2: Age specific Cancer Incidence per 100,000 population, Age standardized incidence and Cumulative risk, by site, age and sex, Peninsular Malaysia 2002

Site		Age groups, year															CR	ASR	CumR		
		0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-				75+	
LIP	Male							0.1	0.1	0.2			1.0	1.3	0.6		1.8	0.1	0.2	0.0	
	Female					0.1				0.5	0.6	0.8	1.0	1.3	0.6	1.6	2.0	0.2	0.3	0.0	
TONGUE	Male						0.1	0.8	1.0	3.0	3.5	3.3	4.5	9.6	13.0	19.9	10.6	1.6	2.2	0.3	
	Female			0.1	0.2	0.1	0.4	0.3	0.4	1.1	1.7	1.3	3.5	3.9	4.5	9.0	4.7	0.8	1.0	0.1	
SALIVARY GLANDS	Male	0.1			0.2	0.1	0.4	0.5	1.0	1.7	2.2	2.6	3.6	2.6	5.6	4.7	9.7	0.9	1.2	0.1	
	Female		0.2	0.2	0.1	0.4	0.4	1.0	0.3	1.3	0.8	1.8	4.2	0.9	2.3	0.8	3.4	0.7	0.7	0.1	
GUM, MOUTH, OTHERS	Male	0.1				0.1	0.1	0.7	0.7	1.4	4.2	2.1	2.9	10.9	9.3	16.1	23.9	1.5	2.2	0.2	
	Female	0.1	0.1				0.1	0.3	0.3	0.8	2.1	3.0	10.8	12.2	16.3	13.9	17.4	1.7	2.4	0.3	
OROPHARYNX	Male		0.1			0.1				0.4	0.3	0.7	2.1	2.6	4.8	4.3	11.4	12.4	0.7	1.1	0.1
	Female						0.1	0.1	0.3	0.2	0.2	2.0		2.2	0.6		3.4	0.3	0.3	0.0	
NASOPHARYNX	Male	0.1	0.1	0.4	0.4	1.7	2.3	6.0	14.6	21.5	29.6	34.1	34.7	39.6	39.1	22.7	19.4	9.5	11.4	1.2	
	Female		0.1	0.1	1.5	0.5	0.8	3.9	6.5	6.4	13.0	13.3	17.0	16.5	18.6	13.1	4.7	4.2	5.0	0.6	
HYPOPHARYNX	Male									0.3		0.5	0.9	1.3	3.9	10.6	5.7	7.1	0.5	0.9	0.1
	Female										0.8	0.3	1.7	1.3	1.7	2.4	1.3	0.2	0.3	0.0	
OTHER PHARYNX	Male		0.1		0.1			0.3	0.6	0.6	1.3	1.2	1.9	4.8	2.5	3.8	2.7	0.5	0.7	0.1	
	Female			0.1	0.1	0.1	0.1		0.1	0.5	0.4	0.8	1.0	1.3	2.3	4.9	2.0	0.3	0.4	0.1	
ESOPHAGUS	Male			0.1		0.1	0.1	0.3	0.4	1.3	3.8	5.7	6.5	17.4	22.3	22.7	35.3	2.2	3.4	0.4	
	Female		0.1	0.1			0.1		0.3	1.3	1.7	2.5	6.2	10.0	13.5	10.6	12.8	1.3	1.9	0.2	
STOMACH	Male	0.1		0.2		0.2	0.3	1.1	2.1	4.4	5.7	8.3	16.5	25.7	52.8	76.7	76.9	4.9	7.6	1.0	
	Female				0.1	0.2	0.1	1.1	1.7	1.8	7.1	9.5	10.8	18.2	35.5	35.9	45.0	3.7	5.1	0.6	

SMALL INTESTINE	Male	0.3	0.1	0.5	0.1	0.4	0.3	2.0	1.2	2.3	5.2	4.3	7.6	1.8	0.7	0.9	0.1		
	Female	0.1		0.1	0.4	0.3	0.3	1.3	1.3	2.4	3.0	2.8	2.4	2.0	0.5	0.6	0.1		
Caecum	Male	0.1			0.1	0.3	0.5	1.1	0.2	2.6	4.4	2.5	4.7	2.7	0.4	0.6	0.1		
	Female		0.1			0.3	0.1	0.2	0.4	0.8	1.7	0.9	5.1	2.4	4.7	0.4	0.5	0.1	
Appendix	Male				0.1			0.2	0.2			0.4		0.9		0.1	0.1	0.0	
	Female		0.1	0.3	0.3	0.1	0.3	0.2	0.6	0.3			0.6		1.3	0.2	0.2	0.0	
Ascending colon	Male					0.1		0.3		1.2	0.6	1.7	3.1	2.8	6.2	0.3	0.5	0.0	
	Female								0.2	0.8		3.0	1.1	2.4	2.7	0.2	0.3	0.0	
Hepatic flexure of colon	Male					0.1						0.4	1.2			0.0	0.1	0.0	
	Female							0.2	0.2	0.3	0.3		1.1	1.6	1.3	0.1	0.1	0.0	
Transverse colon	Male			0.1	0.1	0.1		0.2		0.3			1.9	0.9	3.5	0.1	0.2	0.0	
	Female					0.3			0.4	0.5	1.0	0.4	2.3	3.3	1.3	0.2	0.3	0.0	
Splenic flexure of colon	Male			0.1					0.2	1.0	0.9	1.9			0.9	0.1	0.2	0.0	
	Female		0.1					0.2		0.3			0.6		0.7	0.1	0.1	0.0	
Descending colon	Male						0.1	0.2	0.2	0.3	1.3	0.6	1.9	4.4	0.2	0.2	0.0		
	Female							0.2	0.4	0.5	0.7	1.3	1.1	1.6	2.0	0.2	0.2	0.0	
Sigmoid colon	Male		0.1	0.2	0.3	0.3	0.6	0.6	2.0	2.1	3.9	6.5	14.3	14.2	19.4	1.2	1.9	0.2	
	Female					0.5	0.6	1.6	2.3	3.3	9.7	7.8	9.6	13.1	14.8	1.5	2.0	0.2	
COLON	Male	0.1		0.6	0.6	0.6	2.1	3.0	6.8	8.4	17.8	23.3	42.2	62.7	85.2	84.8	6.8	10.2	1.3
	Female	0.1	0.1	0.1	0.8	2.0	1.7	4.7	8.4	14.6	25.7	27.4	34.9	60.4	64.4	5.6	7.5	0.9	
Rectosigmoid junction	Male							0.5	1.5	2.1	1.0	7.0	1.9	6.6	8.8	0.6	0.9	0.1	
	Female				0.3		0.5	1.5	1.0	3.1	1.7	4.5	6.5	5.4	0.6	0.8	0.1		

Rectum	Male			0.1		0.3	0.4	1.1	1.7	3.8	7.3	13.0	18.8	31.3	53.4	65.3	63.6	5.1	7.7	1.0	
	Female	0.1		0.1		0.1	0.3	1.2	2.3	2.8	4.6	11.3	16.0	16.5	25.4	36.7	33.6	3.5	4.7	0.6	
RECTUM	Male					0.2	0.5		0.6	1.7	2.6	4.5	7.5	14.8	24.2	25.6	18.6	2.0	3.1	0.4	
	Female					0.1		0.7		0.8	2.3	2.5	3.8	6.5	5.1	9.0	4.7	0.9	1.2	0.2	
Anal canal	Male									0.3		0.7	1.0	1.3	0.6	2.8	2.7	0.2	0.3	0.0	
	Female								0.1	0.2	0.2	1.3	1.0		0.6	0.8	4.0	0.2	0.2	0.0	
Anorectal /Anus	Male			0.1				0.1	0.3	0.2	0.2	0.2	0.3	1.7	1.9		2.7	0.2	0.3	0.0	
	Female								0.1		0.2		1.0		1.1	1.6	4.0	0.2	0.2	0.0	
LIVER/ Intra-BILE DUCTS	Male	0.6	0.4		0.3	0.6	0.4	2.1	2.8	5.1	5.9	14.2	17.2	24.8	33.5	36.9	28.3	4.2	5.9	0.7	
	Female	0.5	0.2	0.2	0.2		0.6	0.4	0.7	1.5	3.1	5.3	5.2	7.4	10.7	13.1	7.4	1.5	2.0	0.2	
GALLBLADDER/Extra-BILE DUCT	Male							0.1	0.3	0.5	0.7	0.9	2.6	4.8	7.4	8.5	8.8	0.6	1.0	0.1	
	Female							0.1	0.6	0.8	1.3	1.5	2.8	6.1	4.5	9.0	7.4	0.8	1.1	0.1	
PANCREAS	Male						0.1	0.3	0.7	1.4	3.8	5.9	5.8	7.4	14.9	13.3	10.6	1.5	2.1	0.3	
	Female			0.2	0.1	0.2		0.1	0.3	0.7	1.1	3.0	4.2	5.2	9.6	8.2	6.0	0.9	1.3	0.2	
OTHER DIGESTIVE ORGANS	Male					0.2	0.3	0.3	0.3	0.2	0.4	1.2	2.9	2.2	5.0	1.9	9.7	0.5	0.7	0.1	
	Female	0.1					0.1	0.4	0.1	0.7	1.9	1.0	2.8	3.0	5.1	4.1	4.0	0.6	0.8	0.1	
NASAL, SINUSES, EAR	Male					0.4		0.3	0.4	1.3	1.3	2.7	2.8	2.3	6.1	6.8	8.5	8.0	1.0	1.4	0.2
	Female	0.3	0.1	0.2	0.1	0.1			1.0	0.8	1.1	1.3	2.1	3.0	4.5	1.6	5.4	0.6	0.8	0.1	
LARYNX	Male		0.1					0.1	1.0	0.6	2.7	5.4	8.4	23.1	32.9	28.4	32.7	2.5	4.0	0.5	
	Female					0.1				0.2	0.6	2.0	3.5	3.0	3.4	4.1	2.0	0.5	0.6	0.1	

TRACHEA, BRONCHUS AND LUNG	Male		0.2	0.1	0.7	0.8	0.9	2.3	3.7	11.4	19.8	36.0	64.5	119.3	203.6	221.6	187.3	16.6	25.9	3.4	
	Female	0.2		0.1	0.2	0.1	0.4	2.0	2.8	6.7	9.7	16.6	25.0	44.7	53.5	61.2	43.0	6.3	8.7	1.1	
PLEURA	Male					0.1	0.1				0.5	0.2	1.0	3.5	5.0	5.7	1.8	0.3	0.5	0.1	
	Female	0.1				0.1		0.1	0.1	0.5	0.4	1.0	0.3	2.6	0.6	2.4	3.4	0.3	0.4	0.0	
THYMUS/HEA RT/MEDIASTI NUM	Male		0.2		0.7	0.2	0.1	0.5	0.1		0.5	0.9	1.0	2.2	1.2	1.9	0.9	0.4	0.5	0.0	
	Female	0.1		0.1	0.1	0.1	0.1		0.1	0.5	0.2	0.3	0.3	0.9		0.8		0.2	0.2	0.0	
BONES and JOINTS	Male	0.2	0.5	1.7	2.3	1.3	1.1	1.2	1.4	1.4	2.2	3.3	3.2	1.3	2.5	5.7	1.8	1.5	1.6	0.1	
	Female		0.4	1.4	1.7	0.5	1.0	0.7	0.7	1.0	1.0	1.8	1.4	3.0	1.7	1.6	2.7	1.0	1.0	0.1	
CT/ SUBCUT./SOFT TISSUES	Male	1.3	1.6	0.7	1.5	1.3	1.4	1.9	1.8	2.9	3.5	3.3	2.9	10.4	9.9	10.4	12.4	2.3	2.8	0.3	
	Female	0.9	0.9	0.4	0.3	0.5	1.6	2.6	1.9	3.4	3.8	3.0	3.1	7.4	7.3	5.7	4.0	1.9	2.1	0.2	
Basal cell carcinoma	Male						0.5	0.1	0.7	1.4	2.4	3.6	8.1	10.9	17.4	18.9	39.8	1.9	3.0	0.3	
	Female							0.5	1.0	1.3	2.1	3.8	4.9	10.9	19.2	33.5	30.2	2.1	3.0	0.4	
Squamous cell carcinoma	Male		0.2				0.4	0.1	0.4	1.7	1.6	3.6	7.5	10.4	24.8	19.9	45.9	2.1	3.2	0.4	
	Female		0.1		0.1	0.2				0.3	0.3	1.3	2.0	3.8	3.0	10.7	15.5	26.8	1.2	1.7	0.2
Cutaneous melanomas	Male						0.1	0.5	0.1	0.5	1.1	0.7	1.9	1.7	1.9	4.7	11.5	0.5	0.7	0.1	
	Female					0.1	0.4	0.3	0.1	0.5	0.6	1.8	0.3	0.9	1.7	3.3	6.7	0.4	0.5	0.0	
Skin appendage carcinomas	Male					0.1			0.3	0.3	0.4					0.9	0.9	0.1	0.1	0.0	
	Female						0.3			0.2				1.3		1.6	1.3	0.1	0.1	0.0	

Dermatofibrosarcomas/Merkel	Male		0.1	0.1				0.3	0.4		0.3				0.1	0.1	0.0		
	Female		0.2		0.4	0.1	0.3			0.3		0.4			0.1	0.1	0.0		
Kaposi's sarcoma	Male	0.1		0.1											0.0	0.0	0.0		
	Female											0.4			0.0	0.0	0.0		
Other skin/soft tissue sarcoma	Male		0.1										0.6	0.9	0.0	0.0	0.0		
	Female					0.1							0.6	0.7	0.0	0.0	0.0		
Mycosis fungoides/skin lymphom	Male				0.4	0.3	0.2	0.4		1.0	2.2	0.6			0.2	0.2	0.0		
	Female		0.1	0.1	0.1		0.1			0.3		1.3		0.8	0.1	0.1	0.0		
OTHER SKIN	Male							0.8	0.4	1.2	1.9	3.5	3.7	1.9	0.9	0.4	0.5	0.1	
	Female	0.1					0.1	0.5	1.0	1.0	1.0	0.9	1.1	1.6	1.3	0.3	0.3	0.0	
FEMALE BREAST	Male																		
	Female	0.1		0.8	1.2	9.5	26.5	61.7	115.3	162.7	191.0	167.0	159.0	123.4	92.2	86.6	45.1	52.8	5.4
MALE BREAST	Male			0.1		0.1	0.1	1.3	0.9	3.1	3.2	3.0	2.5	4.7	0.9	0.6	0.7	0.1	
	Female																		
CERVIX UTERI	Female		0.1	0.1	0.8	2.3	11.3	23.3	40.5	52.1	71.3	63.5	84.3	70.4	53.9	49.0	17.8	21.5	2.3
PLACENTA	Male																		
	Female			0.4	0.3	0.5	0.3	0.5	0.8	0.5	0.3	0.4		0.8		0.2	0.2	0.0	
CORPUS UTERI	Male																		
	Female			0.2	1.0	1.8	3.8	7.4	9.2	21.3	35.4	33.4	28.2	28.6	17.4	5.4	7.0	0.8	
OVARY	Male																		
	Female	0.6	0.9	3.0	3.3	3.6	5.3	7.3	11.8	22.7	24.1	24.3	27.8	25.9	17.1	20.8	7.4	8.6	0.9

FALLOPIAN, LIGAMENT, ADNEXA	Male																				
	Female									0.2	0.2	0.3	0.7	0.4	0.6				0.1	0.1	0.0
VAGINA	Male																				
	Female	0.1					0.1	0.1	0.7	1.5	0.8	0.7	3.0	3.4	2.4	3.4	0.4	0.6	0.1		
VULVA	Male																				
	Female					0.2		0.1	0.3	1.0		1.0	2.6	1.7	6.5	3.4	0.4	0.5	0.1		
PROSTATE GLAND	Male					0.1	0.3	0.3	0.5	0.9	5.7	17.2	39.2	85.0	125.0	196.1	6.8	11.6	1.4		
	Female																				
TESTIS	Male	1.3	0.2	0.2	0.4	1.7	1.6	2.1	1.1	1.7	1.5	1.4	1.9	0.9	1.2	4.7	2.7	1.2	1.3	0.1	
	Female																				
PENIS/ OTHER MALE GENITAL	Male					0.1				0.6	0.4	1.2	2.6	3.5	1.2	2.8	4.4	0.4	0.6	0.1	
	Female																				
URINARY BLADDER	Male					0.1		0.3	0.4	0.7	3.0	2.6	11.1	16.9	32.2	54.0	72.0	89.2	4.8	7.8	1.0
	Female	0.1				0.1		0.5		0.4	0.7	0.8	3.3	1.7	6.5	11.3	14.7	14.8	1.1	1.6	0.2
KIDNEY	Male	1.1	0.6	0.3	0.2		0.3	0.1	0.9	3.0	5.5	7.6	8.7	13.9	13.0	14.2	9.7	2.2	3.0	0.3	
	Female	1.1	0.6	0.2	0.5	0.1	0.1	0.1	0.6	0.3	1.1	4.5	5.6	5.6	6.8	9.8	2.7	1.2	1.5	0.2	
OTHER URINARY	Male										0.4	0.2	1.0	2.6	2.5	0.9	3.5	0.2	0.3	0.0	
	Female					0.1	0.1	0.1	0.3	0.1		0.2	1.0	0.3	0.4	0.6	3.3	4.0	0.2	0.3	0.0
EYE/LACRIMAL GLAND	Male	1.3	0.1	0.1	0.4		0.1	0.1	0.6	0.5	1.5	0.7	1.6	0.9	2.5	0.9	3.5	0.6	0.7	0.1	
	Female	2.9	0.7	0.1			0.1	0.1	0.6	0.2			1.0	0.9	0.6	1.6	0.7	0.6	0.6	0.0	
BRAIN	Male	1.7	1.5	2.5	2.2	1.7	1.3	1.6	2.0	2.2	3.5	5.4	4.2	4.4	5.0	5.7	3.5	2.3	2.5	0.2	
	Female	0.9	1.5	0.6	1.4	1.6	1.0	1.8	2.0	1.8	3.2	2.3	2.8	2.2	5.1	3.3	2.7	1.7	1.8	0.2	

OTHER CNS	Male	0.3	0.1	0.1		0.1	0.5	0.1	0.3	0.3	0.7	0.7	0.6	0.9			0.9	0.3	0.3	0.0
	Female	0.2		0.1		0.2	0.1	0.1		0.8	1.3	0.8	1.4	1.7	1.7	1.6	0.7	0.4	0.5	0.1
THYROID GLAND	Male	0.7	0.6	0.5	0.4	0.6	0.6	1.6	2.0	3.3	1.8	4.7	7.1	8.3	9.3	1.9	8.8	1.8	2.2	0.2
	Female	0.4	0.4	0.5	1.1	1.5	4.3	6.9	6.4	7.0	9.3	9.5	10.1	12.2	13.0	15.5	12.8	4.3	4.8	0.5
OTHER ENDOCRINE	Male	0.3	0.2	0.1	0.2	0.3	0.3	0.1	0.3	0.3	1.1	0.2	0.3					0.3	0.3	0.0
	Female	0.4	0.2			0.4	0.1	0.1		0.7	1.0	0.5	0.7		1.1			0.3	0.3	0.0
Hodgkin's disease	Male		0.2	0.4	0.4	0.7	0.9	0.4	1.1	0.2	0.7	0.5	1.6	1.7	1.2	0.9	3.5	0.6	0.6	0.1
	Female	0.1		0.7	1.2	1.3	0.6	0.7	0.3	0.2	0.8	0.8	0.3	0.4	1.1	1.6		0.6	0.6	0.1
Non-Hodgkin's lymphoma	Male	1.0	1.3	2.3	2.6	2.1	2.0	3.7	3.3	5.1	7.3	12.1	23.3	20.9	32.9	17.0	30.0	5.1	6.5	0.7
	Female	0.6	0.3	0.8	1.9	0.8	1.7	2.4	2.9	4.4	5.3	10.0	10.4	12.6	19.7	16.3	9.4	3.3	4.0	0.5
Lymphatic leukaemia	Male	8.5	6.5	3.6	4.3	1.9	0.6	1.1	0.9	1.4	1.1	2.6	1.9	3.9	2.5	4.7	4.4	3.4	3.5	0.2
	Female	5.7	5.5	4.0	2.4	0.5	0.5	1.2	0.4	0.2	1.1	1.8	1.4	3.9	2.8	0.8	2.0	2.5	2.5	0.2
Myeloid leukaemia	Male	3.0	1.5	2.7	2.9	1.5	3.0	2.7	4.4	5.4	5.5	5.0	6.2	8.3	6.2	8.5	12.4	3.5	3.9	0.3
	Female	2.0	1.9	1.7	1.4	3.6	2.6	2.0	3.3	4.7	3.4	5.5	5.9	5.2	9.6	8.2	8.1	3.1	3.3	0.3
Other leukaemia	Male	1.3	1.2	0.6	1.2	0.6	0.8	1.5	1.1	1.4	1.5	2.8	4.2	5.2	4.3	11.4	8.8	1.6	1.9	0.2
	Female	0.7	0.7	0.7	0.5	0.2	0.5	0.3	0.6	0.5	1.7	1.0	2.4	0.9	5.1	4.9	6.7	0.9	1.1	0.1
Myeloma/Immuno proliferative	Male	0.1		0.1		0.1	0.1		0.4	0.8	1.6	3.8	5.5	7.8	10.6	7.6	3.5	1.0	1.5	0.2
	Female	0.4						0.1	0.1	0.3	2.3	2.3	3.1	6.1	5.1	4.1	3.4	0.7	1.0	0.1
OTHER RE	Male	0.3		0.1				0.1	0.1		0.2	0.2	0.3					0.1	0.1	0.0
	Female	0.1	0.1						0.1	0.2								0.0	0.0	0.0
UNKNOWN PRIMARY SITES	Male	0.5	0.5	0.7	1.0	0.9	1.1	2.0	2.7	5.2	7.3	13.5	18.1	31.3	32.9	46.4	53.9	5.0	7.1	0.8
	Female	0.1	0.3		0.3	0.6	1.0	1.6	3.3	4.4	7.4	12.8	14.6	18.7	27.6	23.7	30.9	4.0	5.1	0.6

Table A3: Age, sex and ethnic distribution of the population of Peninsular Malaysia 2002

Age group, years	Malay		Chinese		Indian		All groups	
	Male	Female	Male	Female	Male	Female	Male	Female
0-4	773,100	730,500	242,700	225,700	94,600	91,200	1,189,600	1,120,400
5-9	729,000	685,400	231,800	211,400	88,400	85,200	1,089,200	1,019,800
10-14	691,300	660,200	228,600	210,900	87,600	83,400	1,034,800	982,800
15-19	632,000	615,300	224,500	211,600	86,000	82,400	975,700	944,300
20-24	508,200	507,400	212,100	202,300	78,400	78,100	876,300	855,500
25-29	405,500	416,000	202,600	195,000	71,700	74,000	789,000	771,400
30-34	384,100	395,700	201,700	196,800	69,200	71,100	754,400	735,300
35-39	363,600	373,200	198,000	194,100	65,800	67,100	705,600	687,200
40-44	327,100	329,700	190,300	183,300	61,300	62,200	631,600	610,500
45-49	284,300	281,300	176,200	166,300	54,300	54,900	546,700	524,400
50-54	216,800	211,300	146,700	134,600	39,200	39,200	422,100	398,500
55-59	155,300	150,300	116,000	104,200	25,600	25,500	308,500	288,300
60-64	115,300	119,900	88,600	84,200	18,100	20,200	229,700	230,100
65-69	80,900	92,300	62,800	64,900	12,200	15,500	161,100	177,500
70-74	54,800	64,500	39,200	45,000	7,800	9,200	105,600	122,500
75+	61,700	76,600	37,000	56,500	8,200	9,200	113,200	148,900
TOTAL	5,783,300	5,709,700	2,598,700	2,486,800	868,400	868,300	9,933,100	9,617,500

Table A4: Age and sex distribution of the population of Sabah 2002

Age group, years	Male	Female
0-4	174,600	165,400
5-9	185,500	174,300
10-14	173,800	165,600
15-19	158,700	153,200
20-24	138,900	136,300
25-29	118,200	118,100
30-34	110,500	107,300
35-39	101,700	94,800
40-44	85,100	74,200
45-49	67,800	54,300
50-54	47,500	37,200
55-59	30,200	23,900
60-64	22,400	18,700
65-69	16,200	14,700
70-74	10,100	9,400
75+	10,700	9,900
TOTAL	1,451,800	1,357,300

Table A5: Age and sex distribution of the population of Sarawak 2002

Age group, years	Male	Female
0-4	140,800	135,000
5-9	125,400	117,700
10-14	112,500	106,800
15-19	103,300	99,200
20-24	94,400	92,900
25-29	86,300	87,000
30-34	83,700	82,300
35-39	79,700	76,100
40-44	69,400	65,200
45-49	58,200	53,900
50-54	45,500	42,400
55-59	33,800	32,200
60-64	24,600	25,100
65-69	17,200	18,900
70-74	12,200	13,300
75+	15,600	16,600
TOTAL	1,102,200	1,064,700