MALAYSIAN BURDEN OF DISEASE AND INJURY STUDY

2009 - 2014

Centre for Burden of Disease Research
Institute for Public Health
National Institutes of Health
Ministry of Health, Malaysia
2017

Editors:
Dr Mohd Azahadi Omar, Dr Shubash Shander Ganapathy, Mohamad Fuad Mohamad Anuar,
Dr Chandrika Jeevananthan, Dr Fazila Haryati Ahmad, Dr LeeAnn Tan, Nazirah Alias

Produced and distributed by:
Centre for Burden of Disease Research,
Institute for Public Health,
National Institutes of Health,
Ministry of Health,
Jalan Bangsar, 50590 Kuala Lumpur,
Malaysia
Tel : +603- 2297 9400
Fax : +603- 2282 3114

Any enquires or comments on this report should be directed to:

Principal Investigator,
Malaysian Burden of Disease and Injury Study,
Institute for Public Health,
National Institutes of Health,
Ministry of Health,
Jalan Bangsar, 50590 Kuala Lumpur,
Malaysia
Tel : +603- 2297 9400
Fax : +603- 2282 3114

Published by Institute for Public Health, National Institutes of Health, Ministry of Health.

ISBN: 978-983-2387-42-8

Suggested Citation:
Institute for Public Health (IPH) 2017. Malaysian Burden of Disease and Injury Study 2009- 2014

Disclaimer:
The views expressed in this report are those of the authors alone and do not necessarily represent the opinions of the other investigators participating in the surveys, nor the view or policy of the Ministry of Health Malaysia.

Acknowledgement

The authors would like to thank the Director of the Institute for Public Health Malaysia for his continuous advice, guidance and support throughout the study. This study on Malaysian Burden of Disease and Injury was conducted with funding from the Ministry of Health, Malaysia and the authors would like to express their gratitude to the Ministry for the financial support.

Furthermore, we would like to thank the Disease Control Division and Health Information Centre of Ministry of Health, Malaysia for providing the extensive input and data that made this analysis possible. Our utmost appreciation also goes to the Department of Statistics Malaysia for their assistance not only in preparing and providing the data as needed, but also for their cooperation in working together with our team during the course of this study.

We would also like to thank the WHO representative officer for Malaysia for their assistance in providing financial support towards consultancy services. Our sincere gratitude to Dr Chalapati Rao, from Department of Global Health, Research School of Population Health, Australian National University, Australia for assisting us and providing invaluable advice and technical input and guidance for this study.

This study is based on the methodologies and in many areas, the inputs and estimates derived from the Institute of Health Metrics and Evaluation, University of Washington, which we gratefully acknowledged.

Last but not least, we would like to express our gratitude to all co-authors (staff from the Centre for Burden of Disease Research, Institute for Public Health) for all their kind support and assistance rendered in facilitating the production of this Malaysian Burden of Disease and Injury Study report.

Thank you!

Preface

Disease burden measures burden of disease using Disability Adjusted Life Years (DALYs). This time-based measure combines years of life lost due to premature mortality and years of life lost due to time lived in states of less than full health.

This report provides a comprehensive result of the Malaysian Burden of Diseases and Injuries study. Our intention is to give a comprehensive overview of our approaches, results and some discussion on the results, suggestions and recommendations from the study for future planning in Ministry of Health Malaysia (MOH) especially in strengthening local data sources. Despite the complexity in the burden of disease methodology, in addition to limitations of quality data sources, we were still able to produce reasonable results, which can be used to guide the planning of programmes by the Ministry of Health Malaysia.

Much effort was taken to improve the quality of data sources and hence the study itself. Hopefully, this report can be used as a powerful reference for future work to help in improving local data sources and to produce some valuable information for the Ministry of Health to use in policy-making efforts and planning. The Centre for Burden of Disease Research is ever-ready to collaborate with other organizations within the Ministry of Health in striving to produce the most accurate and comprehensive estimates of diseases burden in Malaysia.

In future, we hope to estimate the burden of disease attributable to various risk factors and produce projections of diseases burden in Malaysian for the next 10 years. It is hoped that this study provides the foundation and framework on which debates on national health priority setting can be based.

List of Figures

List of Tables

Table of Contents

Executive Summary

Developed by the Global Burden of Disease (GBD) study, Burden of Disease is a summary measure of population health. The overall burden of disease, measured in DALY, combines the potential Years of Life Lost (YLL) due to premature death and the Years Lost due to Disability (YLD), an equivalent of potential healthy years lost due to poor health, illness or disability.

Between 2009 and 2014, Cardiovascular and Circulatory Diseases, Malignant Neoplasms, Respiratory Infections, Unintentional Injuries and Respiratory Diseases make up the top 5 leading mortality causing disease categories in Malaysia. Among males, Ischaemic Heart Disease caused the highest number of deaths, followed by Cerebrovascular Diseases and Road Traffic Injuries. Cerebrovascular Diseases caused the highest number of deaths in females, followed by Ischaemic Heart Disease and Lower Respiratory Infections.

Cardiovascular and Circulatory Diseases, Malignant Neoplasms, Unintentional Injuries and Respiratory Infections contributed towards the leading causes of fatal burden of disease and injury in Malaysia between 2009 and 2014. Road Traffic Accidents contributed towards the leading cause of fatal burden among males, followed by Ischaemic Heart Disease and Cerebrovascular Diseases. Among females, Cerebrovascular Diseases were the leading cause of fatal burden followed by Ischaemic Heart Disease and Lower Respiratory Infections.

Non-fatal burden of disease and injury in Malaysia between 2009 and 2014 is mainly contributed by Mental and Behavioural Disorders, Diabetes Mellitus, Respiratory Diseases, Neurological Conditions and Cardiovascular and Circulatory Diseases. Among both males and females, Diabetes Mellitus was the leading cause of non-fatal burden. Ischaemic Heart Disease and Asthma were among the highest causes of non-fatal burden among males with Anxiety Disorder and Asthma the other leading causes among females.

Cardiovascular and Circulatory Diseases, Unintentional Injuries and followed by Malignant Neoplasms caused the highest total burden of disease and injury in Malaysia between 2009 and 2014. Road Traffic Injuries, Ischaemic Heart Disease, Cerebrovascular Diseases and Diabetes Mellitus caused the highest burden among males, with Cerebrovascular Diseases, Diabetes Mellitus, Ischaemic Heart Disease and Lower Respiratory Infections being the leading cause of total disease burden among females.

Burden of Disease study uses a macro level approach towards determining the burden of each disease, measuring the burden of diseases and injuries for a population at whole. The estimates presented in this study, though limited by availability of certain data, was derived from best available local data for Malaysia and through critical appraisal of available information. We believe that the estimates produced in this study is the most accurate representation of cause of death and disease burden in Malaysia.

1.0 Introduction

Developed by the Global Burden of Disease (GBD) study, Burden of Disease is a summary measure of population health. Burden of Disease study is the most recognized and widely regarded as the best summary measure that combines the impact of fatal and non-fatal conditions. The burden of specific disease conditions and overall loss of health is measured by quantifying the difference between living to old age in good health, and any deviation from a healthy state, may it be due to illness, injury, disability or death.

The overall burden of disease, measured in DALY, combines the potential years of life lost (YLL) due to premature death and the years lost due to disability (YLD), an equivalent of potential healthy years lost due to poor health, illness or disability. It other words, DALY combines the impact of dying early and living with an illness. The health loss is thus a comparison against an ideal situation where everyone lives to their potential life expectancy, free of any disease or disability.

This report presents the findings of the third Malaysian Burden of Disease (MBOD) Study, the first being done in the year 2000, followed by a second study in the year 2008. A comprehensive assessment of the magnitude and distribution of disease conditions from 2009 to 2014, for more than 100 disease conditions, is summarized in this report. The MBOD study was carried out to assist stakeholders in the public health, health services and medical research in setting priorities and planning of services and resources.

Reference:
Murray, C. J. (1994). Quantifying the burden of disease: the technical basis for disability-adjusted life years. Bulletin of the World Health Organization, 72(3), 429.
WHO (2013). WHO methods and data sources for global burden of disease estimates 2000-2011. Geneva: Department of Health Statistics and Information Systems.

2.0 Methods

2.1 DISEASE AND INJURY CATEGORY LIST

The disease and injury categories are a specific list of diseases and causes of injury for which the estimates are calculated. The categories are mutually exclusive and collectively represents all the diseases and causes of injuries. The list was drawn up to cover all fatal and non-fatal health outcomes, with the final decision on the diseases and injuries to be included in the list based on health priorities of the diseases, the availability of data, and policy interest relevant to Malaysia.

Since the last Malaysian Burden of Disease (MBOD) Study in 2008, the Global Burden of Disease (GBD) Study has undergone many revisions and updates. A team of experts from Institute for Public Health, Malaysia was set up to review and formulate a relevant and updated list for the MBOD estimates for this study. The previous disease categories used in the MBOD 2008 study, World Health Organization (WHO) Mortality Tabulation and GBD 2015 list were used for comparison to determine the current disease and injury categories.

A final disease and injury list consisting of 22 disease groups, under which 112 disease and injury categories were classified, was formulated. Residual causes were included in each disease group to ensure health loss was captured for all conditions. The final disease groups and categories used in this MBOD is included in Appendix I. The ICD-10 codes corresponding with each disease and injury category, as well as the disease group, are included.

2.2 YEARS OF LIFE LOST

Years of Life Lost (YLL) represents the burden of fatal diseases and injuries. Mortality data, by age and sex, was used to determine the YLL for each disease and injury category.

2.2.1 Mortality Data Source

The YLL estimate takes into account all the deaths that occurred in the population during the time period of this study. The total number of deaths from all causes was obtained from the Department of Statistics Malaysia, the official source of national statistics in the country. Data for each year was obtained for the age at death, gender, and cause of death with its corresponding ICD-10 code.

Malaysian mortality data is collected through the vital registration system by the National Registration Department (NRD). The compiled data is subsequently sent to the Department of Statistics Malaysia, which assigns ICD-10 codes to the registered causes of deaths and produces the national annual vital registration statistics.

There are currently two systems for certification of deaths practiced in Malaysia:

- Medically certified deaths: Deaths that occur in health facilities and are certified as to cause of death by the attending physician
- Non-medically certified deaths: Deaths that occur outside health facilities and are reported to the local police station by the next of kin, who also provide a “lay” opinion of the cause of death

2.2.2 Redistribution methods

2.2.2.1 Missing Data

The number of deaths with missing age or gender were extremely low. Missing values were assigned to the most prevalent age group or gender for the cause of death. Gross errors in the mortality data were also identified and corrected similarly by carrying out age-specific diseases check and sex-specific diseases check prior to redistribution.

2.2.2.2 Garbage Codes

The assigned cause of deaths may represent causes of death that do not accurately present the underlying cause of death. These inappropriate ICD codes for mortality, collectively known as “garbage codes”, compromise the usefulness of cause of death information from a policy perspective. These causes of death coded were listed as garbage codes if they represent;

- Causes that are not underlying cause or unlikely as a cause of death
- Intermediate causes of death
- Immediate causes of death
- Ill-defined or unspecified cause of death

Taking into consideration that Malaysia uses 3-character ICD-10 coding for causes of death and local practices of cause of death assignment, the team of Burden of Disease experts undertook to analyze the garbage codes listed by World Health Organization and Global Burden of Disease study. The ill-defined causes were then either:

a) allotted to specific cause categories;
b) distributed within specific disease groups; or
c) distributed to all causes

The final redistribution of the garbage codes is summarized in Table 2.1.

Specific Cause Allotment	
Other Infectious Diseases	A28, A48-A49, B82-B83, B94-B96, B99
Other Neonatal Conditions	P28, P96
Other Nutritional Disorders	E64
Mouth and Oropharynx Cancers	C14
Trachea, Bronchus and Lung Cancers	C39
Other Malignant Neoplasms	C26, C55, C57, C63, C68, C75-C76, C97
Benign Neoplasms	D09, D37-D41, D48
Diabetes mellitus	E14
Endocrine, Blood and Immune Disorders	E68, E85-E88
Other Neurological Conditions	G09, G80-G83, G91-G93
Cerebrovascular Diseases (Stroke)	I69
Other Circulatory Diseases	I27, I31, I44-I45, I47, I49-I51, I74, I81, I99
Other Respiratory Diseases	J80-J81, J86-J90, J93-J94, J98
Other Digestive Diseases	I85, K65-K66, K71-K72, K75, K92
Nephritis and Nephrosis	N18-N19
Other Musculoskeletal Diseases	M86
Other Chromosomal Disorders	Q99
Other Congenital Anomalies	Q89
Road Traffic Injuries	V99, Y85-Y86
Other Unintentional Injuries	X59
Disease Category Redistribution	
Redistribute to STDs excluding HIV	A64
Redistribute to all Mental and Behavioural Disorders (GROUP J)	F99
Redistribute to all Neonatal Conditions (GROUP D)	P95
Redistributed to all cancers (GROUP F)	C80
Redistribute to circulatory causes (GROUP M)	I10, I15, I70
All Cause Redistribution	
Redistribute to all causes (GROUP I & II)	A40-A41, D65, I26, I46, J96, N17, R00-R99
Redistribute to all causes (GROUP III)	S00-T98, Y10-Y34, Y87, Y89

Table 2.1: Garbage Codes Redistribution

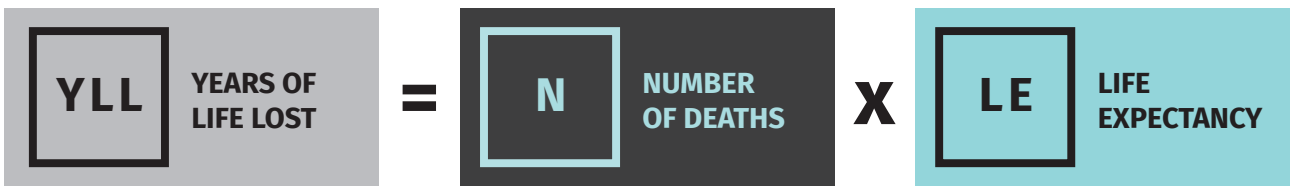
We found that garbage codes for redistribution represented 17.1% to 18.4% of medically certified deaths in Malaysia between 2009 and 2014. Specific cause allotment was assigned to the corresponding group and disease group redistribution was carried out pro-rata within their specific groups.

2.2.2.3 Cause Specific Mortality Fractions

A further challenge in accurate estimation of mortality in Malaysia is the presence of a little less than 50% of deaths that were not medically certified. To improve the quality of mortality data, based on the findings of a previous Malaysian nationwide study, we applied cause specific mortality fractions on the medically and non-medically certified deaths, derived by medical records review and verbal autopsy methods respectively, on the mortality data. This was able to give more accurate estimations of mortality numbers and significantly reduced the number of ill-defined cause of deaths for all-cause redistribution. The final ill-defined cause of deaths was than redistributed pro-rata either to all disease categories with Group I and II, or to Group III for ill-defined injury causes.

2.2.3 Calculating Years of Life Lost

Years of Life Lost (YLL) was calculated by summing the number of deaths for the disease category at 5-year age intervals, multiplied by the remaining life expectancy for the specific age group. Life expectancy for each of the years calculated was used and was obtained from the published figures from the Department of Statistics Malaysia.



2.3 YEARS LOST DUE TO DISABILITY

Years Lost due to Disability (YLD) represents the non-fatal diseases and injuries. Prevalence estimates for each disease and injury, including breakdown of the severity proportion and percentage contributing to its sequelae, was calculated and estimated. These prevalence, together with a set of disability weights for each condition, was used to calculate the YLD.

2.3.1 Morbidity Data Source

There was no single and comprehensive source of prevalence data for all non-fatal disease and injury. The prevalence of diseases and injuries were drawn from a wide variety of sources. Where possible, national data sources and local studies were used to obtain the most reliable Malaysian estimates.

Administrative data sources, including disease surveillance data, diseases registries and hospitalization data, were evaluated for their representativeness and adjusted as necessary to estimate prevalence of certain diseases. Surveys, epidemiological studies, and local studies were evaluated for their representativeness and quality before being used to estimate the prevalence.

Regional and international studies were used to produce estimates where local data was not available or deemed unreliable. Regional studies were preferred compared to studies and estimates from other regions based on the assumption that this reflected a more accurate local representation. Meta-analysis and systematic reviews, where available, were used to obtain the most accurate estimates in the absence of local and regional data.

Where disease prevalence or other parameters for estimates were not available from any reliable source, the incidence or prevalence estimates were obtained from Global Health Data Exchange GBD Results Tool from the Institute for Health Metrics and Evaluation (IHME).

DISMOD-II was used to produce prevalence estimates from incidence, case fatality, remission or duration data that was available. DISMOD-II is a freely available software commonly used for burden of disease analysis. The Malaysian population structure and background mortality

rates for each corresponding year is entered into DISMOD-II to produce these estimates.

Details of the disease models and sequelae used in this study is included in Appendix II.

2.3.2 Severity Distribution and Disability Weights

Each disease consists of a conceptual model of health loss which depicts the major sources of health loss caused by different severity levels and stages of a disease. In most cases, the major sources of health loss, also called the sequelae, were based on GBD 2015.

The disability weight (DW) for each sequelae was obtained from the GBD 2015 Supplement. Where necessary or limited by data availability, composite and/or combined disability weights were used based on disability weights for 235 unique health states in the Global Burden of Disease 2013 study. Combined disability weights were calculated according to the following formula:

2.3.3 Calculating Years Lost due to Disability

Years Lost due to Disability (YLD) was calculated by multiplying the prevalence of the disease sequelae to its disability weight by age group and sex. The total YLD for each disease and injury was obtained from the sum of YLD from all the sequelae of that disease.

2.4 DISABILITY-ADJUSTED LIFE YEARS

Disability-Adjusted Life Years (DALYs) represents the total burden of the diseases and injuries. The DALY for each disease and injury was calculated by summing the Years of Life Lost (YLL) and Years Lost due to Disability (YLD) for the disease or injury. The burden of disease of a disease group was calculated by summing the DALYs across all the diseases or injury in the group and the total burden of disease was calculated by summing the DALYs across all conditions.

Figure 2.1: Components of Disability-Adjusted Life Years (DALYs)

Reference:

Harvard University, Institute for Health Metrics and Evaluation at the University of Washington, John Hopkins University, University of Queensland, World Health Organization (2009). GBD Study Operation Manual – Final Draft.

Institute for Public Health (2016). A Study on Determination of Cause of Deaths in Malaysia

Salomon JA, Haagsma JA, Davis A, de Noordhout CM, Polinder S, Havelaar AH, Cassini A, Devleesschauwer B, Kretzschmar M, Speybroeck N, Murray CJ (2015). Disability weights for the Global Burden of Disease 2013 study. The Lancet Global Health.3(11): e712-23.

Vos, T., Allen, C., Arora, M., Barber, R. M., Bhutta, Z. A., Brown, A., ... & Coggeshall, M. (2016). Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. The Lancet, 388(10053), 1545-1602. (Supplementary Appendix)

World Health Organization (2013). WHO methods and data sources for global burden of disease estimates 2000-2011. Geneva: Department of Health Statistics and Information Systems.

3.0 Deaths

Mortality statistics are the most basic health data of a country. Reliable cause of death is necessary for health status assessment and epidemiological research.
Furthermore, especially for countries experiencing rapid health changes such as Malaysia, mortality data is essential in understanding the population health dynamics and for developing meaningful policies.

3.1 Deaths - 2009

In 2009, a total of 131,328 deaths occurred in Malaysia. A total of 75,961 deaths (57.8%) occurred among males and 55,367 deaths (42.2%) among females.

3.1.1 Pattern of Deaths by sex

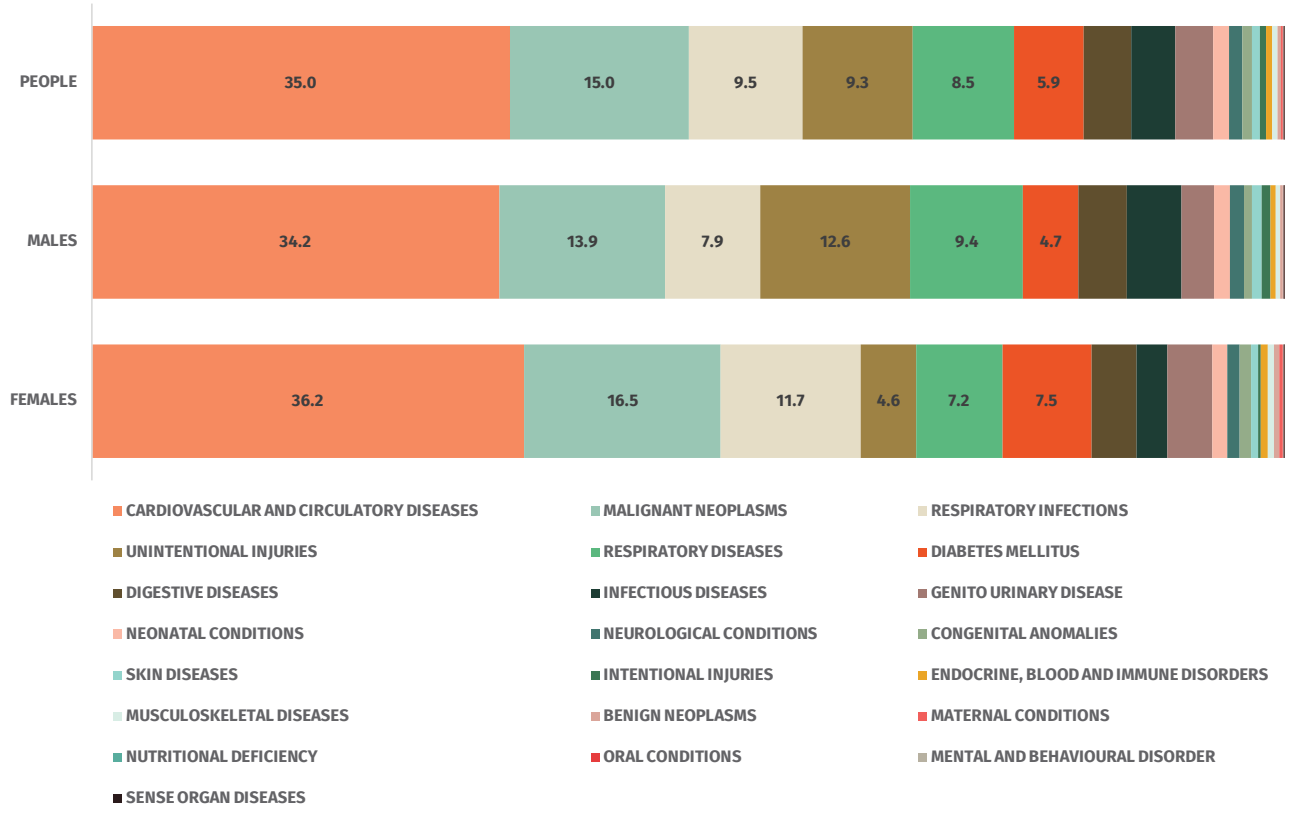


Figure 3.1.1: Percentage (%) of deaths, by disease groups and sex, 2009

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards deaths in Malaysia for 2009, followed by Malignant Neoplasms and Respiratory Infections **[Figure 3.1.1]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest number of deaths and contributed to more than a third of deaths. For males, Malignant Neoplasms contributed towards 13.9% of deaths followed by Unintentional Injuries at 12.6% and Respiratory Diseases at 9.4%. For females, Malignant Neoplasms were the second largest contributor of deaths with 16.5%, followed by Respiratory Infections at 11.7% and Diabetes Mellitus at 7.5% **[Table 3.1.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	Deaths (number)	Deaths (%)	Deaths (number)	Deaths (%)	Deaths (number)	Deaths (%)
INFECTIOUS DISEASES	4924	3.7	3467	4.6	1457	2.6
RESPIRATORY INFECTIONS	12517	9.5	6030	7.9	6487	11.7
MATERNAL CONDITIONS	193	0.1	0	0.0	193	0.3
NEONATAL CONDITIONS	1701	1.3	1007	1.3	694	1.3
NUTRITIONAL DEFICIENCY	27	0.0	12	0.0	15	0.0
MALIGNANT NEOPLASMS	19734	15.0	10579	13.9	9155	16.5
BENIGN NEOPLASMS	392	0.3	172	0.2	220	0.4
DIABETES MELLITUS	7701	5.9	3559	4.7	4142	7.5
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	641	0.5	313	0.4	328	0.6
MENTAL AND BEHAVIOURAL DISORDER	15	0.0	14	0.0	1	0.0
NEUROLOGICAL CONDITIONS	1490	1.1	926	1.2	564	1.0
SENSE ORGAN DISEASES	5	0.0	3	0.0	2	0.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	46024	35.0	25961	34.2	20063	36.2
RESPIRATORY DISEASES	11155	8.5	7145	9.4	4010	7.2
DIGESTIVE DISEASES	5203	4.0	3112	4.1	2091	3.8
GENITO URINARY DISEASE	4155	3.2	2072	2.7	2083	3.8
SKIN DISEASES	936	0.7	571	0.8	365	0.7
MUSCULOSKELETAL DISEASES	614	0.5	315	0.4	299	0.5
CONGENITAL ANOMALIES	1019	0.8	505	0.7	514	0.9
ORAL CONDITIONS	19	0.0	13	0.0	6	0.0
UNINTENTIONAL INJURIES	12167	9.3	9595	12.6	2572	4.6
INTENTIONAL INJURIES	696	0.5	590	0.8	106	0.2
TOTAL	**131328**	**100.0**	**75961**	**100.0**	**55367**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 3.1.1: Deaths by disease groups and by sex, 2009

3.1.2 Pattern of Deaths by age

Among males, mortality among those below 5 years of age contributed towards 3.2% of the total deaths in Malaysia for 2009. Neonatal Conditions contributed the largest percentage, 41.8%, of the deaths among males below 5 years of age, followed by Congenital Anomalies at 18.2%. Unintentional Injuries were the predominant cause of deaths among the males 5 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of deaths among males from the age of 45 years and above. Respiratory Diseases had an increasing percentage of contribution towards deaths in males as the age increases **[Figure 3.1.2]**.

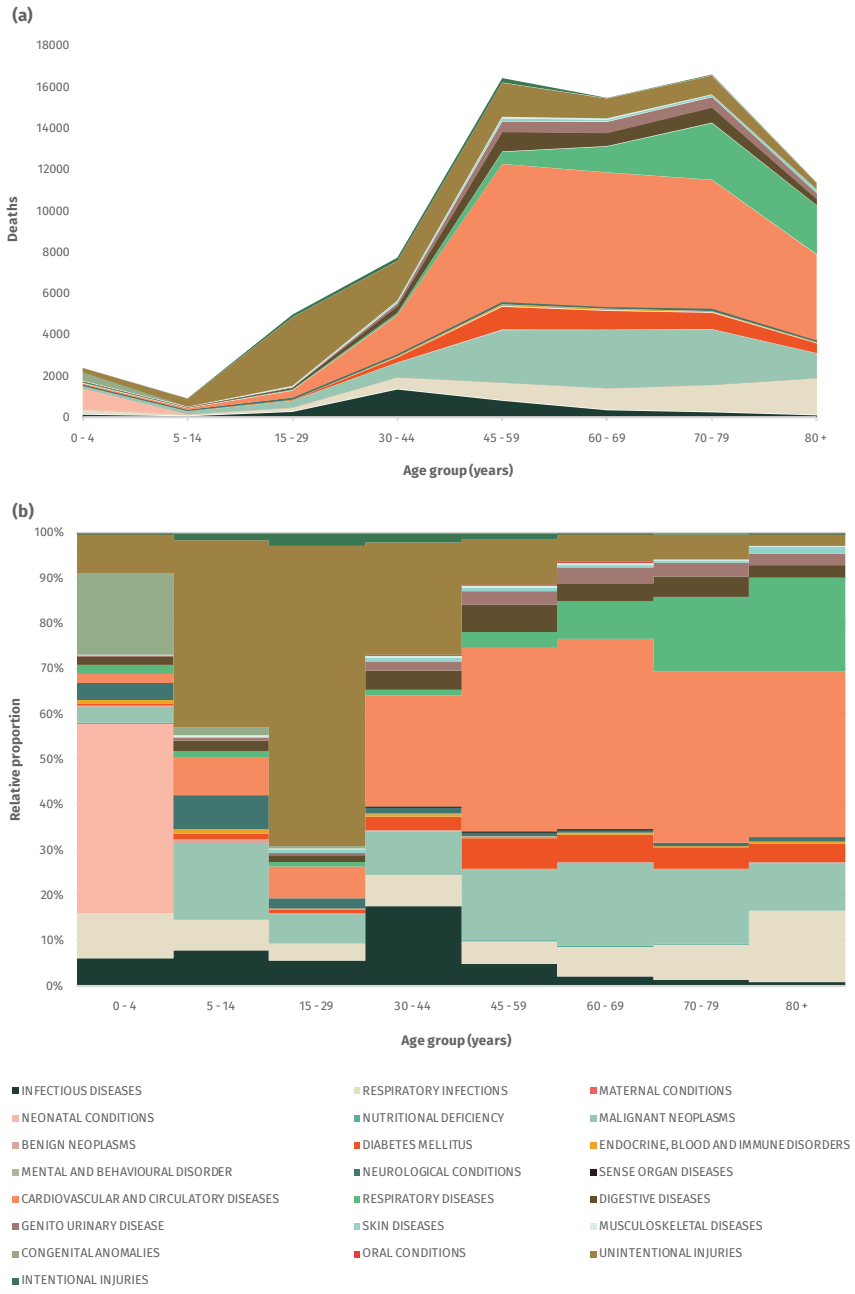


Figure 3.1.2: Number (a) & percentage (b) of deaths, by disease groups & age, males, 2009

Among females, mortality among those below 5 years of age contributed towards 3.4% of the total deaths in Malaysia for 2009. Neonatal Conditions contributed the largest percentage, 36.8%, of the deaths among females below 5 years of age, followed by Congenital Anomalies at 24.0%. Unintentional Injuries were the predominant cause of deaths among the females 5 to 29 years of age, while Malignant Neoplasms were the predominant cause of deaths among females 30 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of deaths among females from the age of 45 years and above, with an increasing percentage of contribution by Respiratory Infections towards deaths in females as the age increases **[Figure 3.1.3]**.

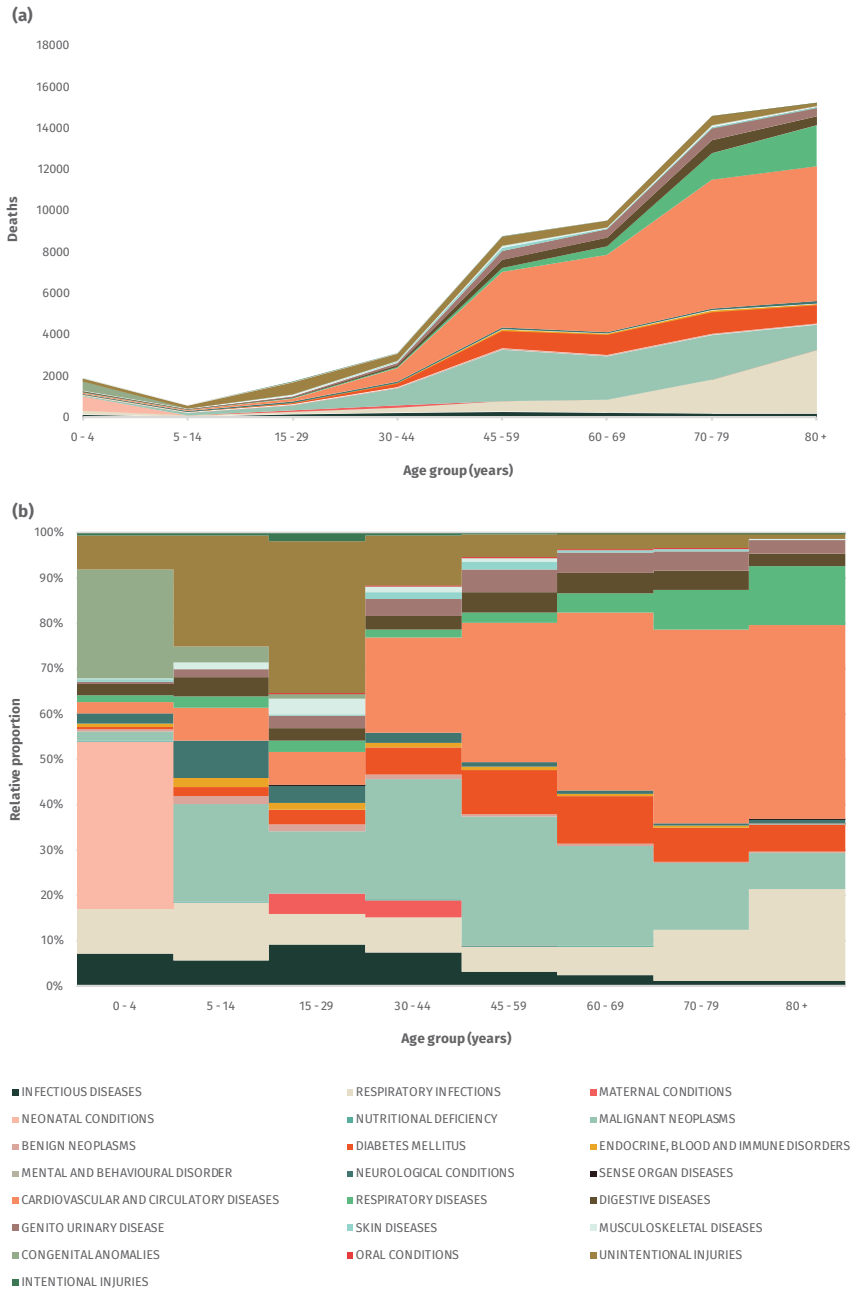


Figure 3.1.3: Number (a) & percentage (b) of deaths, by disease groups & age, females, 2009

3.1.3 Leading Causes of Deaths

Cerebrovascular Diseases were the leading cause of deaths in Malaysia for 2009, contributing to 15.4% of the total deaths. This was followed by Ischaemic Heart Disease, with 15.2%, and Lower Respiratory Infections, with 9.5% of total deaths. Road Traffic Injuries, with 6.9% and Chronic Obstructive Pulmonary Disease with 6.4% make up the five leading causes of death in 2009.

Among males, Ischaemic Heart Disease contributed the largest amount of deaths with 16.5%. Cerebrovascular Diseases were the second highest contributor of deaths in males with 13.4% followed by Road Traffic Injuries with 10.2%. Lower Respiratory Infections and Chronic Obstructive Pulmonary Disease make up the fourth and fifth leading causes of death among males. Among females, Cerebrovascular Diseases were the leading cause of death with 18.1% followed by Ischaemic Heart Disease with 13.3% and Lower Respiratory Infections with 11.7%. Diabetes Mellitus was the fourth and Chronic Obstructive Pulmonary Disease make up the fifth leading cause of deaths among females **[Table 3.1.2]**.

The leading causes of death vary according to age. Among males below 5 years of age, Birth Trauma and Asphyxia contributed the highest number of deaths. Road Traffic Injuries were the leading cause of deaths among males 5 to 44 years of age. Ischaemic Heart Disease was the second highest contributor of deaths among males 30 to 44 years of age. Among males of 45 to 79 years of age, Ischaemic Heart Diseases rises to the leading cause of deaths. Cerebrovascular Diseases were the second leading cause of deaths among males 45 to 79 years of age, and the leading cause of deaths among males 80 years of age and above. Chronic Obstructive Pulmonary Disease was the second highest cause of deaths among those 80 years of age and above. Leukaemia was the leading cancer causing deaths among males below 30 years of age while Trachea, Bronchus and Lung Cancers were the leading cancer causing deaths among those 30 years and above **[Figure 3.1.4]**.

Among females below 5 years of age, Lower Respiratory Infections contributed the highest number of deaths. Road Traffic Injuries were the leading cause of deaths among females 5 to 29 years of age. Breast Cancer was found to contribute the highest number of deaths among females 30 to 44 years of age. Cerebrovascular Diseases were the second highest contributor of deaths among females 30 to 44 years of age and among females of 45 years of age and above, Cerebrovascular Diseases were the leading cause of deaths. Ischaemic Heart Disease was the second leading cause of deaths among females 45 to 79 years of age. Lower Respiratory Infections were the third leading cause of deaths among females 70 to 79 years of age and the second highest cause of deaths among those 80 years of age and above. Breast cancer was the leading cancer causing deaths among females 30 to 69 years of age. Trachea, Bronchus and Lung Cancers were the leading cancer causing deaths among those 70 years and above **[Figure 3.1.5]**.

Rank	People	Deaths	% of total	Males	Deaths	% of total	Females	Deaths	% of total
1	Cerebrovascular Diseases (Stroke)	20200	15.4	Ischaemic Heart Disease	12536	16.5	Cerebrovascular Diseases (Stroke)	10037	18.1
2	Ischaemic Heart Disease	19904	15.2	Cerebrovascular Diseases (Stroke)	10163	13.4	Ischaemic Heart Disease	7368	13.3
3	Lower Respiratory Infections	12508	9.5	Road Traffic Injuries	7725	10.2	Lower Respiratory Infections	6481	11.7
4	Road Traffic Injuries	9104	6.9	Lower Respiratory Infections	6027	7.9	Diabetes Mellitus	4142	7.5
5	Chronic Obstructive Pulmonary Disease	8357	6.4	Chronic Obstructive Pulmonary Disease	5886	7.7	Chronic Obstructive Pulmonary Disease	2471	4.5
6	Diabetes Mellitus	7701	5.9	Diabetes Mellitus	3559	4.7	Breast Cancer	1879	3.4
7	Trachea, Bronchus and Lung Cancers	3978	3.0	Trachea, Bronchus and Lung Cancers	2715	3.6	Road Traffic Injuries	1379	2.5
8	Nephritis and Nephrosis	2807	2.1	Nephritis and Nephrosis	1466	1.9	Nephritis and Nephrosis	1341	2.4
9	Colon and Rectum Cancers	2461	1.9	Colon and Rectum Cancers	1412	1.9	Trachea, Bronchus and Lung Cancers	1263	2.3
10	Breast Cancer	1977	1.5	Tuberculosis	1207	1.6	Colon and Rectum Cancers	1049	1.9
11	Tuberculosis	1665	1.3	Liver Cancers	1085	1.4	Asthma	820	1.5
12	Liver Cancers	1654	1.3	HIV	1011	1.3	Falls	727	1.3
13	Falls	1498	1.1	Hypertensive Disease	812	1.1	Hypertensive Disease	628	1.1
14	Hypertensive Disease	1440	1.1	Falls	771	1.0	Cervix Cancer	625	1.1
15	Asthma	1255	1.0	Leukaemia	662	0.9	Liver Cancers	569	1.0
16	HIV	1139	0.9	Other Urinary Diseases	606	0.8	Tuberculosis	458	0.8
17	Leukaemia	969	0.7	Mouth and Oropharynx Cancers	595	0.8	Stomach Cancer	365	0.7
18	Skin and subcutaneous diseases	936	0.7	Skin and subcutaneous diseases	571	0.8	Skin and subcutaneous diseases	365	0.7
19	Stomach Cancer	848	0.6	Prostate Cancer	517	0.7	Brain and Other CNS Cancers	333	0.6
20	Mouth and Oropharynx Cancers	825	0.6	Peptic Ulcer Disease	487	0.6	Endocrine, Blood and Immune Disorders	328	0.6
	Top 20 diseases	**110224**	**83.9**	**Top 20 diseases**	**64211**	**84.5**	**Top 20 diseases**	**47409**	**85.6**
	All other diseases	*21104*	*16.1*	*All other diseases*	*11750*	*15.5*	*All other diseases*	*7958*	*14.4*
	Total	**131328**	**100.0**	**Total**	**75961**	**100.0**	**Total**	**55367**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 3.1.2: Leading causes of deaths, by sex, 2009

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Birth Trauma and Asphyxia (0.25; 10.5%)	Road Traffic Injuries (0.28; 29.7%)	Road Traffic Injuries (3.01; 60.4%)	Road Traffic Injuries (1.50;0 19.3%)	Ischaemic Heart Disease (3.80; 23.1%)	Ischaemic Heart Disease (3.25; 21.0%)	Ischaemic Heart Disease (2.84; 17.1%)	Cerebrovascular Diseases (Stroke) (2.09; 18.3%)
2nd	Lower Respiratory Infections (0.24; 9.9%)	Leukaemia (0.08; 8.3%)	Lower Respiratory Infections (0.18; 3.7%)	Ischaemic Heart Disease (0.97; 12.5%)	Cerebrovascular Diseases (Stroke) (2.01; 12.2%)	Cerebrovascular Diseases (Stroke) (2.56; 16.5%)	Cerebrovascular Diseases (Stroke) (2.83; 17.0%)	Chronic Obstructive Pulmonary Disease (2.04; 17.9%)
3rd	Low Birth Weight (0.22; 9.2%)	Lower Respiratory Infections (0.06; 6.8%)	Cerebrovascular Diseases (Stroke) (0.13; 2.5%)	HIV (0.70; 9.0%)	Road Traffic Injuries (1.23; 7.5%)	Lower Respiratory Infections (1.04; 6.7%)	Chronic Obstructive Pulmonary Disease (2.43; 14.6%)	Lower Respiratory Infections (1.78; 15.7%)
4th	Neonatal Infections (0.15; 6.4%)	Drowning (0.06; 6.8%)	Leukaemia (0.11; 2.2%)	Lower Respiratory Infections (0.56; 7.2%)	Diabetes Mellitus (1.10; 6.7%)	Chronic Obstructive Pulmonary Disease (1.01; 6.5%)	Lower Respiratory Infections (1.30; 7.8%)	Ischaemic Heart Disease (1.6; 14.0%)
5th	Congenital Heart Diseases (0.15; 6.1%)	Brain and Other CNS Cancers (0.04; 4.3%)	HIV (0.09; 1.8%)	Cerebrovascular Diseases (Stroke) (0.50; 6.5%)	Lower Respiratory Infections (0.86; 5.2%)	Diabetes Mellitus (0.91; 5.9%)	Diabetes Mellitus (0.79; 4.8%)	Diabetes Mellitus (0.47; 4.1%)
6th	Road Traffic Injuries (0.09; 3.8%)	Cerebrovascular Diseases (Stroke) (0.04; 3.9%)	Self-Inflicted Injuries (0.09; 1.7%)	Tuberculosis (0.33; 4.3%)	Trachea, Bronchus and Lung Cancers (0.63; 3.8%)	Trachea, Bronchus and Lung Cancers (0.88; 5.7%)	Trachea, Bronchus and Lung Cancers (0.71; 4.3%)	Trachea, Bronchus and Lung Cancers (0.37; 3.2%)
7th	Diarrhoeal Diseases (0.09; 3.6%)	Diarrhoeal Diseases (0.04; 3.8%)	Ischaemic Heart Disease (0.08; 1.6%)	Diabetes Mellitus (0.24; 3.1%)	Liver Cancers (0.39; 2.4%)	Road Traffic Injuries (0.71; 4.6%)	Road Traffic Injuries (0.67; 4.1%)	Colon and Rectum Cancers (0.25; 2.2%)
8th	Leukaemia (0.06; 2.4%)	Meningitis (0.02; 2.5%)	Tuberculosis (0.08; 1.6%)	Hypertensive Disease (0.17; 2.2%)	Nephritis and Nephrosis (0.38; 2.3%)	Colon and Rectum Cancers (0.42; 2.7%)	Nephritis and Nephrosis (0.35; 2.1%)	Road Traffic Injuries (0.23; 2%)
9th	Anencephaly (0.06; 2.3%)	Rheumatic Heart Disease (0.02; 2.4%)	Drowning (0.07; 1.5%)	Falls (0.13; 1.7%)	Chronic Obstructive Pulmonary Disease (0.37; 2.2%)	Nephritis and Nephrosis (0.41; 2.6%)	Colon and Rectum Cancers (0.35; 2.1%)	Nephritis and Nephrosis (0.18; 1.6%)
10th	Meningitis (0.04; 1.6%)	Epilepsy (0.02; 1.6%)	Falls (0.07; 1.4%)	Trachea, Bronchus and Lung Cancers (0.11; 1.4%)	Tuberculosis (0.33; 2%)	Liver Cancers (0.33; 2.2%)	Lymphoma (0.3; 1.8%)	Skin and subcutaneous diseases (0.18; 1.6%)

Figure 3.1.5: Leading causes of death (death '000; percentage %) for females, by age group, 2009

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Lower Respiratory Infections (0.19; 10.0%)	Road Traffic Injuries (0.09; 16.5%)	Road Traffic Injuries (0.47; 27.6%)	Breast Cancer (0.31; 9.9%)	Cerebrovascular Diseases (Stroke) (1.15; 13.2%)	Cerebrovascular Diseases (Stroke) (1.91; 20.0%)	Cerebrovascular Diseases (Stroke) (3.12; 21.4%)	Cerebrovascular Diseases (Stroke) (3.49; 22.9%)
2nd	Low Birth Weight (0.15; 8.1%)	Lower Respiratory Infections (0.07; 12.7%)	Lower Respiratory Infections (0.12; 6.8%)	Cerebrovascular Diseases (Stroke) (0.27; 8.8%)	Ischaemic Heart Disease (1.10; 12.5%)	Ischaemic Heart Disease (1.40; 14.7%)	Ischaemic Heart Disease (2.58; 17.7%)	Lower Respiratory Infections (3.08; 20.2%)
3rd	Birth Trauma and Asphyxia (0.15; 8.1%)	Brain and Other CNS Cancers (0.04; 7.1%)	Diabetes Mellitus (0.06; 3.3%)	Lower Respiratory Infections (0.25; 7.9%)	Diabetes Mellitus (0.86; 9.8%)	Diabetes Mellitus (1.01; 10.6%)	Lower Respiratory Infections (1.65; 11.3%)	Ischaemic Heart Disease (2.09; 13.7%)
4th	Neonatal Infections (0.13; 7.1%)	Leukaemia (0.03; 5.8%)	Tuberculosis (0.06; 3.3%)	Road Traffic Injuries (0.2; 6.5%)	Breast Cancer (0.81; 9.2%)	Lower Respiratory Infections (0.63; 6.6%)	Diabetes Mellitus (1.08; 7.4%)	Chronic Obstructive Pulmonary Disease (1.30; 8.5%)
5th	Congenital Heart Diseases (0.13; 7.1%)	Drowning (0.02; 4.2%)	Cerebrovascular Diseases (Stroke) (0.05; 3.1%)	Diabetes Mellitus (0.19; 6.1%)	Lower Respiratory Infections (0.51; 5.8%)	Breast Cancer (0.40; 4.2%)	Chronic Obstructive Pulmonary Disease (0.88; 6.0%)	Diabetes Mellitus (0.93; 6.1%)
6th	Diarrhoeal Diseases (0.10; 5.3%)	Cerebrovascular Diseases (Stroke) (0.02; 4.1%)	Leukaemia (0.05; 3%)	Ischaemic Heart Disease (0.19; 6%)	Nephritis and Nephrosis (0.28; 3.2%)	Trachea, Bronchus and Lung Cancers (0.32; 3.4%)	Nephritis and Nephrosis (0.39; 2.7%)	Asthma (0.49; 3.2%)
7th	Road Traffic Injuries (0.06; 3.0%)	Epilepsy (0.01; 2.3%)	Brain and Other CNS Cancers (0.04; 2.5%)	Hypertensive Disease (0.11; 3.6%)	Road Traffic Injuries (0.25; 2.8%)	Colon and Rectum Cancers (0.26; 2.7%)	Trachea, Bronchus and Lung Cancers (0.39; 2.7%)	Nephritis and Nephrosis (0.29; 1.9%)
8th	Anencephaly (0.04; 2.3%)	Endocrine, Blood and Immune Disorders (0.01; 2.1%)	Falls (0.04; 2.2%)	Nephritis and Nephrosis (0.08; 2.7%)	Trachea, Bronchus and Lung Cancers (0.23; 2.7%)	Nephritis and Nephrosis (0.25; 2.6%)	Colon and Rectum Cancers (0.35; 2.4%)	Trachea, Bronchus and Lung Cancers (0.25; 1.6%)
9th	Fires, Heat and Hot Substances (0.03; 1.6%)	Diabetes Mellitus (0.01; 1.9%)	Nephritis and Nephrosis (0.03; 1.8%)	Falls (0.08; 2.6%)	Colon and Rectum Cancers (0.2; 2.3%)	Chronic Obstructive Pulmonary Disease (0.22; 2.3%)	Falls (0.26; 1.8%)	Hypertensive Disease (0.19; 1.3%)
10th	Meningitis (0.02; 1.1%)	Benign Neoplasms (0.01; 1.8%)	HIV (0.03; 1.6%)	Tuberculosis (0.08; 2.5%)	Cervix Cancer (0.20; 2.2%)	Road Traffic Injuries (0.16; 1.6%)	Liver Cancers (0.20; 1.4%)	Colon and Rectum Cancers (0.19; 1.2%)

Figure 3.1.4: Leading causes of death (death '000; percentage %) for males, by age group, 2009

3.2 Deaths - 2010

In 2010, a total of 130,978 deaths occurred in Malaysia. A total of 75,905 deaths (58.0%) occurred among males and 55,073 deaths (42.0%) among females.

3.2.1 Pattern of Deaths by sex

Figure 3.2.1: Percentage (%) of deaths, by disease groups and sex, 2010

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards deaths in Malaysia for 2010, followed by Malignant Neoplasms and Unintentional Injuries **[Figure 3.2.1]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest number of deaths and contributed to more than a third of deaths. For males, Malignant Neoplasms contributed towards 14.4% of deaths followed by Unintentional Injuries at 12.3% and Respiratory Diseases at 10.0%. For females, Malignant Neoplasms were the second largest contributor of deaths with 16.2%, followed by Respiratory Infections at 10.5% and Diabetes Mellitus at 7.1% **[Table 3.2.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	Deaths (number)	Deaths (%)	Deaths (number)	Deaths (%)	Deaths (number)	Deaths (%)
INFECTIOUS DISEASES	4836	3.7	3345	4.4	1491	2.7
RESPIRATORY INFECTIONS	11360	8.7	5599	7.4	5761	10.5
MATERNAL CONDITIONS	186	0.1	0	0.0	186	0.3
NEONATAL CONDITIONS	1651	1.3	985	1.3	666	1.2
NUTRITIONAL DEFICIENCY	20	0.0	10	0.0	10	0.0
MALIGNANT NEOPLASMS	19820	15.1	10894	14.4	8926	16.2
BENIGN NEOPLASMS	391	0.3	167	0.2	224	0.4
DIABETES MELLITUS	7542	5.8	3609	4.8	3933	7.1
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	687	0.5	335	0.4	352	0.6
MENTAL AND BEHAVIOURAL DISORDER	82	0.1	79	0.1	3	0.0
NEUROLOGICAL CONDITIONS	1464	1.1	887	1.2	577	1.0
SENSE ORGAN DISEASES	4	0.0	1	0.0	3	0.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	46611	35.6	26037	34.3	20574	37.4
RESPIRATORY DISEASES	11205	8.6	7569	10.0	3636	6.6
DIGESTIVE DISEASES	5180	4.0	2958	3.9	2222	4.0
GENITO URINARY DISEASE	4566	3.5	2171	2.9	2395	4.3
SKIN DISEASES	1089	0.8	511	0.7	578	1.0
MUSCULOSKELETAL DISEASES	647	0.5	310	0.4	337	0.6
CONGENITAL ANOMALIES	985	0.8	484	0.6	501	0.9
ORAL CONDITIONS	29	0.0	27	0.0	2	0.0
UNINTENTIONAL INJURIES	11960	9.1	9342	12.3	2618	4.8
INTENTIONAL INJURIES	663	0.5	585	0.8	78	0.1
TOTAL	**130978**	**100.0**	**75905**	**100.0**	**55073**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 3.2.1: Deaths by disease groups and by sex, 2010

3.2.2 Pattern of Deaths by age

Among males, mortality among those below 5 years of age contributed towards 3.0% of the total deaths in Malaysia for 2010. Neonatal Conditions contributed the largest percentage, 42.5%, of the deaths among males below 5 years of age, followed by Congenital Anomalies at 18.0%. Unintentional Injuries were the predominant cause of deaths among the males 5 to 29 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of deaths among males from the age of 30 years and above. Respiratory Diseases had an increasing percentage of contribution towards deaths in males as the age increases **[Figure 3.2.2]**.

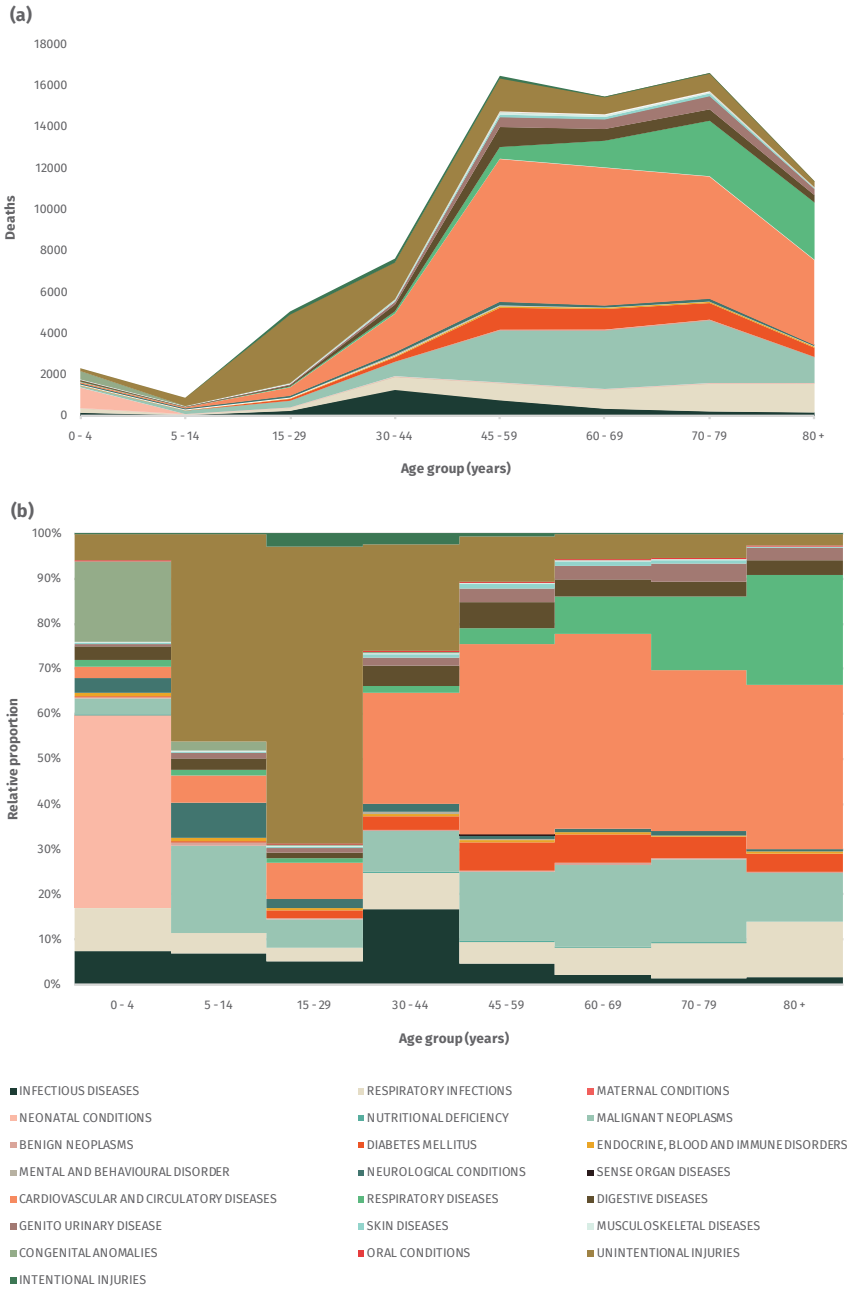


Figure 3.2.2: Number (a) & percentage (b) of deaths, by disease groups & age, males, 2010

Among females, mortality among those below 5 years of age contributed towards 3.3% of the total deaths in Malaysia for 2010. Neonatal Conditions contributed the largest percentage, 37.1%, of the deaths among females below 5 years of age, followed by Congenital Anomalies at 24.5%. Unintentional Injuries were the predominant cause of deaths among the females 5 to 29 years of age, while Malignant Neoplasms were the predominant cause of deaths among females 30 to 59 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of deaths among females from the age of 60 years and above, with an increasing percentage of contribution by Respiratory Infections towards deaths in females as the age increases **[Figure 3.2.3]**.

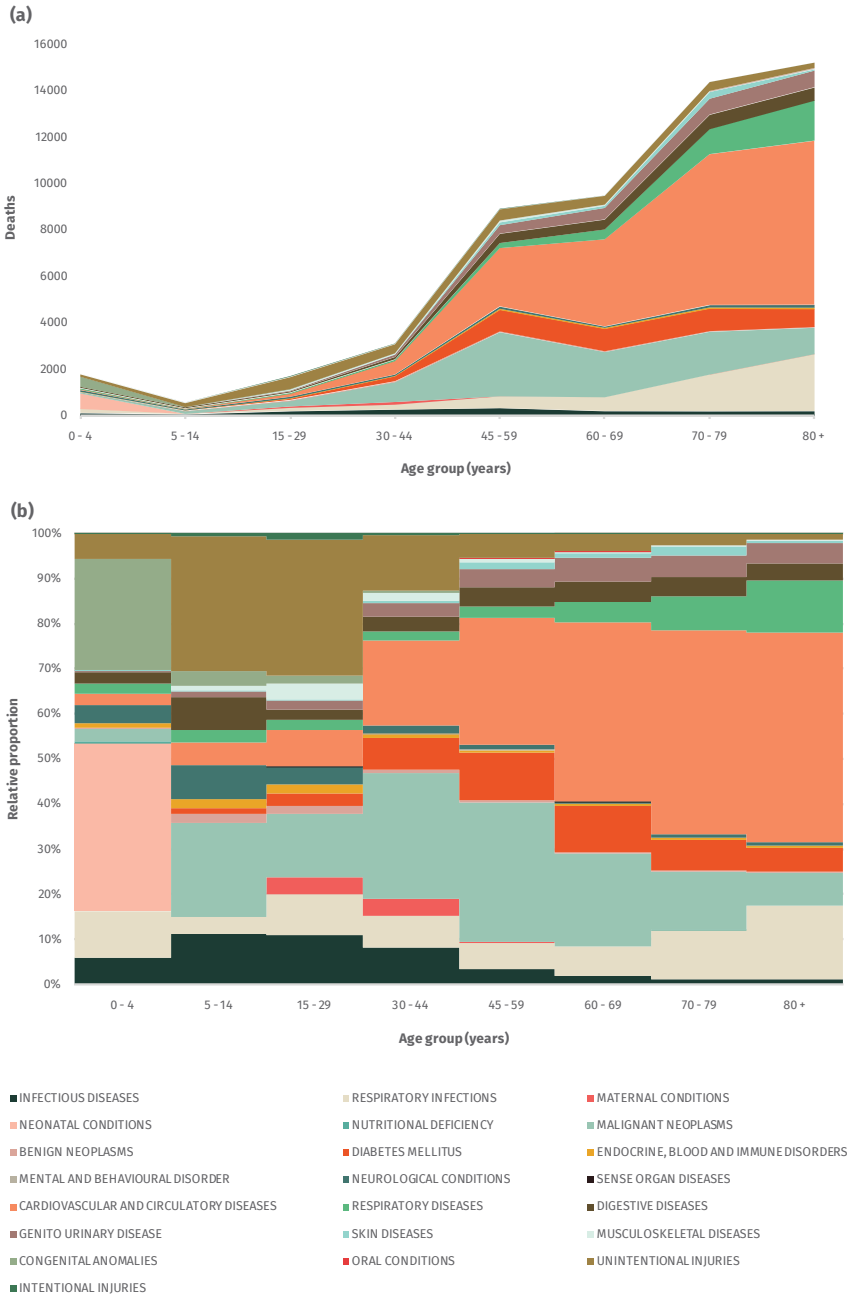


Figure 3.2.3: Number (a) & percentage (b) of deaths, by disease groups & age, females, 2010

3.2.3 Leading Causes of Deaths

Ischaemic Heart Disease were the leading cause of deaths in Malaysia for 2010, contributing to 15.4% of the total deaths. This was followed by Cerebrovascular Diseases, with 15.4%, and Lower Respiratory Infections, with 8.7% of total deaths. Road Traffic Injuries, with 6.8% and Chronic Obstructive Pulmonary Disease with 6.4% make up the five leading causes of death in 2010.

Among males, Ischaemic Heart Disease contributed the largest amount of deaths with 16.6%. Cerebrovascular Diseases were the second highest contributor of deaths in males with 13.4% followed by Road Traffic Injuries with 9.8%. Chronic Obstructive Pulmonary Disease and Lower Respiratory Infections and make up the fourth and fifth leading causes of death among males. Among females, Cerebrovascular Diseases were the leading cause of death with 18.1% followed by Ischaemic Heart Disease with 13.9% and Lower Respiratory Infections with 10.5%. Diabetes Mellitus was the fourth and Chronic Obstructive Pulmonary Disease make up the fifth leading cause of deaths among females **[Table 3.2.2]**.

The leading causes of death vary according to age. Among males below 5 years of age, Low Birth Weight contributed the highest number of deaths. Road Traffic Injuries were the leading cause of deaths among males 5 to 44 years of age. Ischaemic Heart Disease was the second highest contributor of deaths among males 30 to 44 years of age. Among males of 45 to 69 years of age, Ischaemic Heart Diseases rises to the leading cause of deaths. Cerebrovascular Diseases were the second leading cause of deaths among males 45 to 69 years of age, and the leading cause of deaths among males 70 to 79 years of age. Chronic Obstructive Pulmonary Disease was the highest cause of deaths among those 80 years of age and above. Leukaemia was the leading cancer causing deaths among males below 30 years of age while Trachea, Bronchus and Lung Cancers were the leading cancer causing deaths among those 30 years and above **[Figure 3.2.4]**.

Among females below 5 years of age, Lower Respiratory Infections contributed the highest number of deaths. Road Traffic Injuries were the leading cause of deaths among females 5 to 29 years of age. Breast Cancer was found to contribute the highest number of deaths among females 30 to 44 years of age. Cerebrovascular Diseases were the second highest contributor of deaths among females 30 to 44 years of age. Among females of 45 years of age and above, Cerebrovascular Diseases were the leading cause of deaths. Ischaemic Heart Disease was the second leading cause of deaths among females 45 years of age and above. Lower Respiratory Infections were the third leading cause of deaths among females 70 years of age and above. Breast cancer was the leading cancer causing deaths among females 30 to 69 years of age. Trachea, Bronchus and Lung Cancers were the leading cancer causing deaths among those 70 years of age and above **[Figure 3.2.5]**.

Rank	People	Deaths	% of total	Males	Deaths	% of total	Females	Deaths	% of total
1	Ischaemic Heart Disease	20223	15.4	Ischaemic Heart Disease	12575	16.6	Cerebrovascular Diseases (Stroke)	9979	18.1
2	Cerebrovascular Diseases (Stroke)	20184	15.4	Cerebrovascular Diseases (Stroke)	10205	13.4	Ischaemic Heart Disease	7648	13.9
3	Lower Respiratory Infections	11358	8.7	Road Traffic Injuries	7433	9.8	Lower Respiratory Infections	5759	10.5
4	Road Traffic Injuries	8858	6.8	Chronic Obstructive Pulmonary Disease	6275	8.3	Diabetes Mellitus	3933	7.1
5	Chronic Obstructive Pulmonary Disease	8380	6.4	Lower Respiratory Infections	5599	7.4	Chronic Obstructive Pulmonary Disease	2105	3.8
6	Diabetes Mellitus	7542	5.8	Diabetes Mellitus	3609	4.8	Breast Cancer	1829	3.3
7	Trachea, Bronchus and Lung Cancers	4004	3.1	Trachea, Bronchus and Lung Cancers	2743	3.6	Nephritis and Nephrosis	1636	3.0
8	Nephritis and Nephrosis	3179	2.4	Nephritis and Nephrosis	1543	2.0	Road Traffic Injuries	1425	2.6
9	Colon and Rectum Cancers	2495	1.9	Colon and Rectum Cancers	1502	2.0	Trachea, Bronchus and Lung Cancers	1261	2.3
10	Breast Cancer	2003	1.5	Tuberculosis	1165	1.5	Colon and Rectum Cancers	993	1.8
11	Liver Cancers	1679	1.3	Liver Cancers	1113	1.5	Hypertensive Disease	871	1.6
12	Tuberculosis	1616	1.2	HIV	909	1.2	Asthma	806	1.5
13	Hypertensive Disease	1598	1.2	Falls	808	1.1	Falls	750	1.4
14	Falls	1558	1.2	Hypertensive Disease	727	1.0	Skin and subcutaneous diseases	578	1.0
15	Asthma	1256	1.0	Leukaemia	716	0.9	Liver Cancers	566	1.0
16	Skin and subcutaneous diseases	1089	0.8	Mouth and Oropharynx Cancers	579	0.8	Cervix Cancer	520	0.9
17	HIV	1033	0.8	Prostate Cancer	561	0.7	Tuberculosis	451	0.8
18	Leukaemia	1022	0.8	Skin and subcutaneous diseases	511	0.7	Stomach Cancer	375	0.7
19	Stomach Cancer	871	0.7	Stomach Cancer	496	0.7	Endocrine, Blood and Immune Disorders	352	0.6
20	Mouth and Oropharynx Cancers	793	0.6	Peptic Ulcer Disease	467	0.6	Brain and Other CNS Cancers	331	0.6
	Top 20 diseases	**109981**	**84.0**	**Top 20 diseases**	**64215**	**84.6**	**Top 20 diseases**	**46930**	**85.2**
	All other diseases	*20997*	*16.0*	*All other diseases*	*11690*	*15.4*	*All other diseases*	*8143*	*14.8*
	Total	**130978**	**100.0**	**Total**	**75905**	**100.0**	**Total**	**55073**	**100.0**

Colour legend:

>5%	4-5%	3-4%	2-3%	0-2%

Table 3.2.2: Leading causes of deaths, by sex, 2010

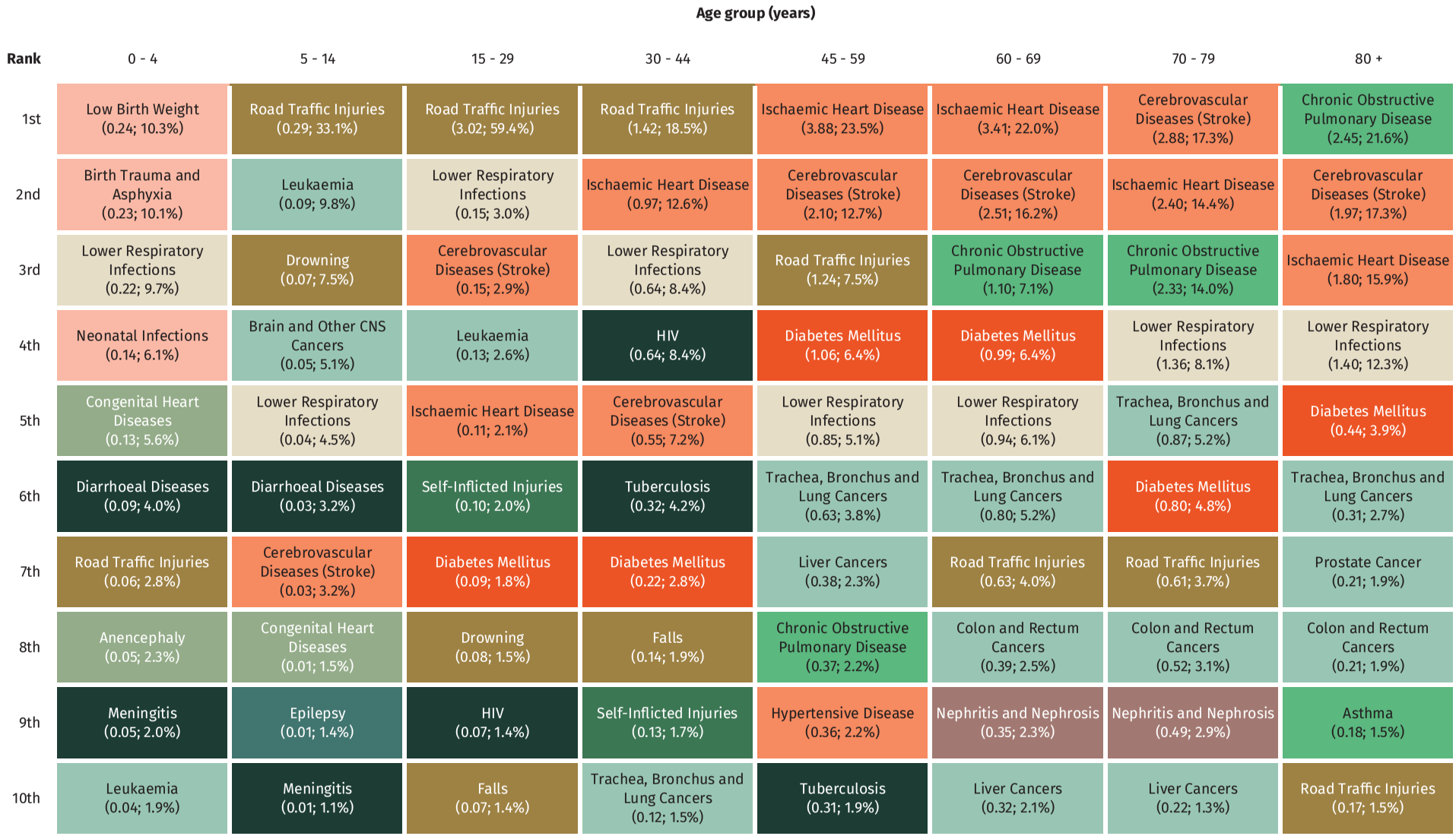


Figure 3.2.4: Leading causes of death (death '000; percentage %) for males, by age group, 2010

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Lower Respiratory Infections (0.18; 10.3%)	Road Traffic Injuries (0.09; 15.2%)	Road Traffic Injuries (0.40; 23.5%)	Breast Cancer (0.31; 9.9%)	Cerebrovascular Diseases (Stroke) (1.15; 12.9%)	Cerebrovascular Diseases (Stroke) (1.68; 17.7%)	Cerebrovascular Diseases (Stroke) (3.33; 23.2%)	Cerebrovascular Diseases (Stroke) (3.47; 22.8%)
2nd	Low Birth Weight (0.16; 8.8%)	Brain and Other CNS Cancers (0.06; 10.6%)	Lower Respiratory Infections (0.15; 9.1%)	Cerebrovascular Diseases (Stroke) (0.28; 8.9%)	Ischaemic Heart Disease (0.99; 11.1%)	Ischaemic Heart Disease (1.63; 17.3%)	Ischaemic Heart Disease (2.27; 15.8%)	Ischaemic Heart Disease (2.55; 16.8%)
3rd	Birth Trauma and Asphyxia (0.15; 8.4%)	Drowning (0.04; 7.2%)	Tuberculosis (0.05; 3.2%)	Road Traffic Injuries (0.25; 8.0%)	Diabetes Mellitus (0.93; 10.5%)	Diabetes Mellitus (0.97; 10.3%)	Lower Respiratory Infections (1.59; 11.1%)	Lower Respiratory Infections (2.46; 16.2%)
4th	Congenital Heart Diseases (0.13; 7.0%)	Leukaemia (0.03; 4.7%)	Cerebrovascular Diseases (Stroke) (0.05; 3.1%)	Lower Respiratory Infections (0.22; 7.2%)	Breast Cancer (0.84; 9.4%)	Lower Respiratory Infections (0.61; 6.4%)	Diabetes Mellitus (0.98; 6.8%)	Chronic Obstructive Pulmonary Disease (1.01; 6.7%)
5th	Neonatal Infections (0.11; 6.0%)	Diarrhoeal Diseases (0.02; 3.9%)	Diabetes Mellitus (0.05; 2.9%)	Diabetes Mellitus (0.21; 6.8%)	Lower Respiratory Infections (0.52; 5.8%)	Breast Cancer (0.38; 4.0%)	Chronic Obstructive Pulmonary Disease (0.71; 5.0%)	Diabetes Mellitus (0.78; 5.1%)
6th	Diarrhoeal Diseases (0.07; 4.0%)	Lower Respiratory Infections (0.02; 3.8%)	Leukaemia (0.05; 2.8%)	Ischaemic Heart Disease (0.18; 5.9%)	Road Traffic Injuries (0.28; 3.1%)	Nephritis and Nephrosis (0.33; 3.5%)	Nephritis and Nephrosis (0.47; 3.2%)	Nephritis and Nephrosis (0.52; 3.4%)
7th	Anencephaly (0.04; 2.4%)	Falls (0.02; 3.2%)	HIV (0.04; 2.4%)	Tuberculosis (0.09; 2.7%)	Trachea, Bronchus and Lung Cancers (0.26; 2.9%)	Trachea, Bronchus and Lung Cancers (0.30; 3.1%)	Hypertensive Disease (0.42; 2.9%)	Asthma (0.48; 3.2%)
8th	Road Traffic Injuries (0.04; 2.1%)	Cerebrovascular Diseases (Stroke) (0.01; 2.5%)	Lymphoma (0.04; 2.2%)	Trachea, Bronchus and Lung Cancers (0.07; 2.2%)	Colon and Rectum Cancers (0.23; 2.6%)	Chronic Obstructive Pulmonary Disease (0.26; 2.8%)	Trachea, Bronchus and Lung Cancers (0.37; 2.5%)	Trachea, Bronchus and Lung Cancers (0.27; 1.8%)
9th	Chronic Obstructive Pulmonary Disease (0.02; 1.2%)	HIV (0.01; 2.3%)	Falls (0.04; 2.2%)	Colon and Rectum Cancers (0.06; 2.0%)	Cervix Cancer (0.23; 2.6%)	Colon and Rectum Cancers (0.23; 2.5%)	Skin and subcutaneous diseases (0.29; 2.0%)	Colon and Rectum Cancers (0.21; 1.4%)
10th	Endocrine, Blood and Immune Disorders (0.02; 1.0%)	Congenital Heart Diseases (0.01; 2.3%)	Endocrine, Blood and Immune Disorders (0.03; 2.0%)	Nephritis and Nephrosis (0.06; 1.9%)	Nephritis and Nephrosis (0.23; 2.5%)	Road Traffic Injuries (0.22; 2.3%)	Colon and Rectum Cancers (0.25; 1.7%)	Hypertensive Disease (0.18; 1.2%)

Figure 3.2.5: Leading causes of death (death '000; percentage %) for males, by age group, 2010

3.3 Deaths - 2011

In 2011, a total of 135,463 deaths occurred in Malaysia. A total of 78,169 deaths (57.7%) occurred among males and 57,294 deaths (42.3%) among females.

3.3.1 Pattern of Deaths by sex

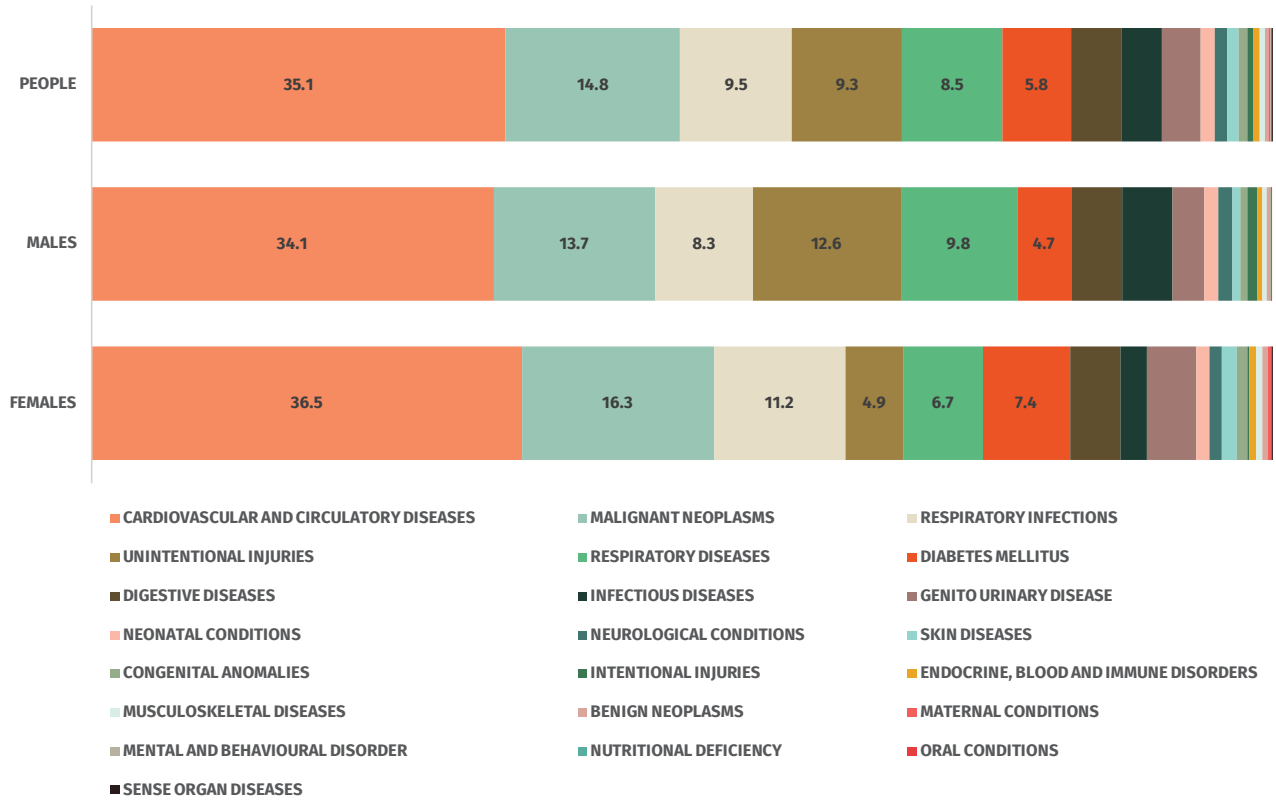


Figure 3.3.1: Percentage (%) of deaths, by disease groups and sex, 2011

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards deaths in Malaysia for 2011, followed by Malignant Neoplasms and Respiratory Infections **[Figure 3.3.1]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest number of deaths and contributed to more than a third of deaths. For males, Malignant Neoplasms contributed towards 13.7% of deaths followed by Unintentional Injuries at 12.6% and Respiratory Diseases at 9.8%. For females, Malignant Neoplasms were the second largest contributor of deaths with 16.3%, followed by Respiratory Infections at 11.2% and Diabetes Mellitus at 7.4% **[Table 3.3.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	Deaths (number)	Deaths (%)	Deaths (number)	Deaths (%)	Deaths (number)	Deaths (%)
INFECTIOUS DISEASES	5576	3.7	3541	4.1	2035	3.2
RESPIRATORY INFECTIONS	13959	9.3	6966	8.1	6993	11.0
MATERNAL CONDITIONS	201	0.1	0	0.0	201	0.3
NEONATAL CONDITIONS	1622	1.1	972	1.1	650	1.0
NUTRITIONAL DEFICIENCY	11	0.0	3	0.0	8	0.0
MALIGNANT NEOPLASMS	22994	15.3	12414	14.3	10580	16.6
BENIGN NEOPLASMS	469	0.3	213	0.2	256	0.4
DIABETES MELLITUS	8752	5.8	4132	4.8	4620	7.2
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	756	0.5	372	0.4	384	0.6
MENTAL AND BEHAVIOURAL DISORDER	120	0.1	120	0.1	0	0.0
NEUROLOGICAL CONDITIONS	1669	1.1	1002	1.2	667	1.0
SENSE ORGAN DISEASES	4	0.0	2	0.0	2	0.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	52373	34.8	29292	33.9	23081	36.2
RESPIRATORY DISEASES	12364	8.2	8220	9.5	4144	6.5
DIGESTIVE DISEASES	6277	4.2	3648	4.2	2629	4.1
GENITO URINARY DISEASE	4931	3.3	2422	2.8	2509	3.9
SKIN DISEASES	1534	1.0	653	0.8	881	1.4
MUSCULOSKELETAL DISEASES	770	0.5	392	0.5	378	0.6
CONGENITAL ANOMALIES	1177	0.8	587	0.7	590	0.9
ORAL CONDITIONS	54	0.0	47	0.1	7	0.0
UNINTENTIONAL INJURIES	13935	9.3	10846	12.5	3089	4.8
INTENTIONAL INJURIES	770	0.5	688	0.8	82	0.1
TOTAL	**150318**	**100.0**	**86532**	**100.0**	**63786**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 3.3.1: Deaths by disease groups and by sex, 2011

3.3.2 Pattern of Deaths by age

Among males, mortality among those below 5 years of age contributed towards 2.9% of the total deaths in Malaysia for 2011. Neonatal Conditions contributed the largest percentage, 41.0%, of the deaths among males below 5 years of age, followed by Congenital Anomalies at 20.7%. Unintentional Injuries were the predominant cause of deaths among the males 5 to 29 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of deaths among males from the age of 30 years and above. Respiratory Diseases had an increasing percentage of contribution towards deaths in males as the age increases **[Figure 3.3.2]**.

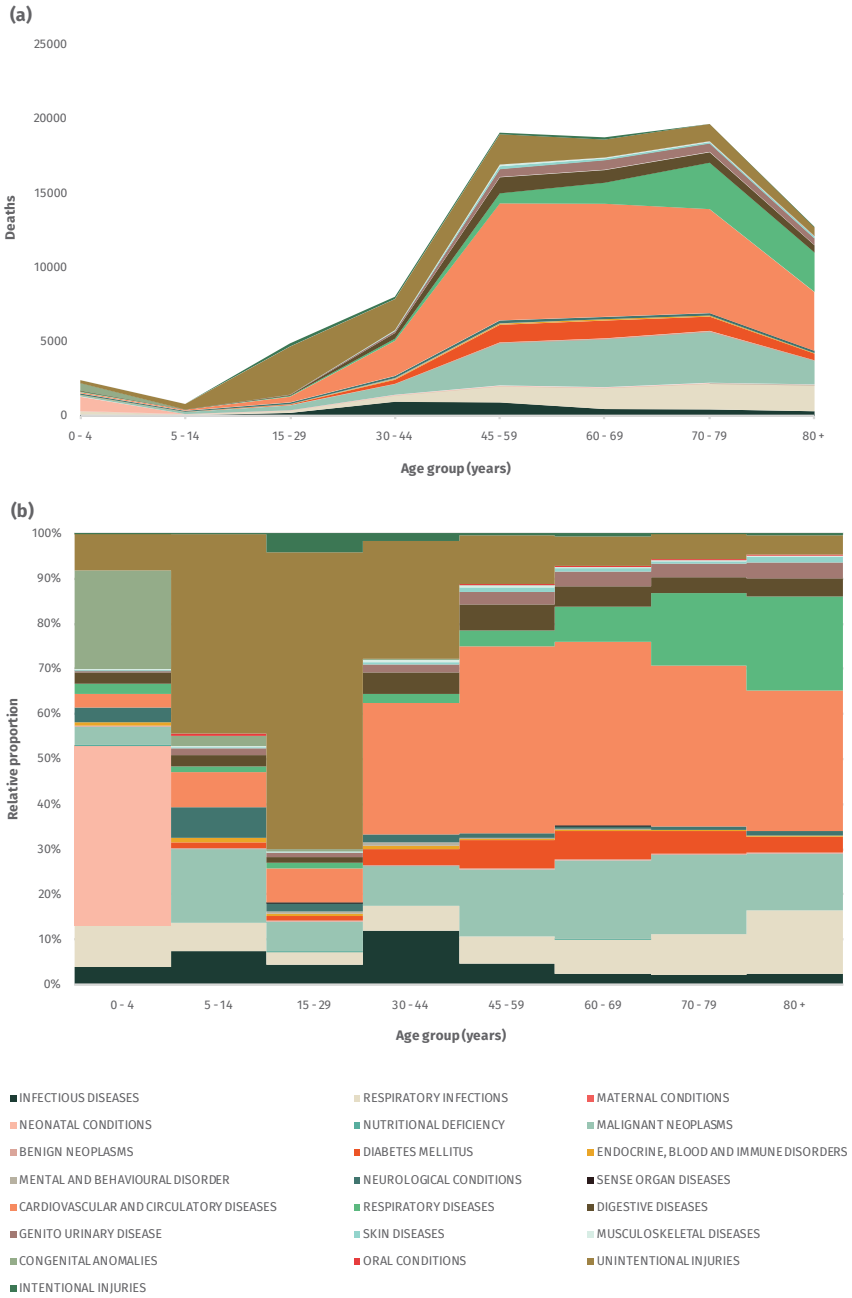


Figure 3.3.2: Number (a) & percentage (b) of deaths, by disease groups & age, males, 2011

Among females, mortality among those below 5 years of age contributed towards 3.1% of the total deaths in Malaysia for 2011. Neonatal Conditions contributed the largest percentage, 35.2%, of the deaths among females below 5 years of age, followed by Congenital Anomalies at 25.1%. Unintentional Injuries were the predominant cause of deaths among the females 5 to 29 years of age, while Malignant Neoplasms were the predominant cause of deaths among females 30 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of deaths among females from the age of 45 years and above, with an increasing percentage of contribution by Respiratory Infections towards deaths in females as the age increases **[Figure 3.3.3]**.

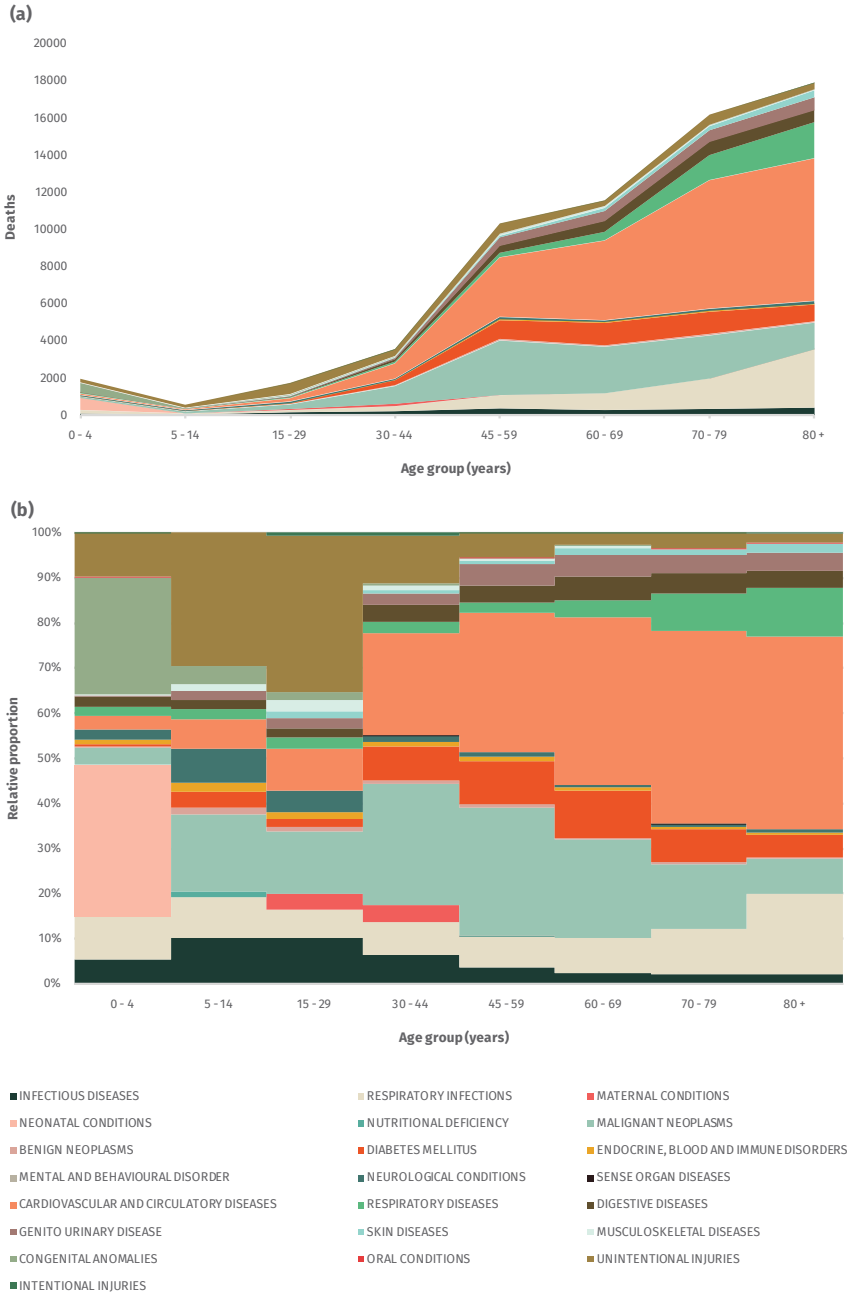


Figure 3.3.3: Number (a) & percentage (b) of deaths, by disease groups & age, females, 2011

3.3.3 Leading Causes of Deaths

Cerebrovascular Diseases were the leading cause of deaths in Malaysia for 2011, contributing to 15.4% of the total deaths. This was followed by Ischaemic Heart Disease, with 14.8%, and Lower Respiratory Infections, with 9.5% of total deaths. Road Traffic Injuries, with 6.9% and Chronic Obstructive Pulmonary Disease with 6.3% make up the five leading causes of death in 2011.

Among males, Ischaemic Heart Disease contributed the largest amount of deaths with 16.3%. Cerebrovascular Diseases were the second highest contributor of deaths in males with 13.3% followed by Road Traffic Injuries with 10.1%. Lower Respiratory Infections and Chronic Obstructive Pulmonary Disease make up the fourth and fifth leading causes of death among males. Among females, Cerebrovascular Diseases were the leading cause of death with 18.3% followed by Ischaemic Heart Disease with 12.7% and Lower Respiratory Infections with 11.2%. Diabetes Mellitus was the fourth and Chronic Obstructive Pulmonary Disease make up the fifth leading cause of deaths among females **[Table 3.3.2]**.

The leading causes of death vary according to age. Among males below 5 years of age, Low Birth Weight contributed the highest number of deaths. Road Traffic Injuries were the leading cause of deaths among males 5 to 44 years of age. Ischaemic Heart Disease was the second highest contributor of deaths among males 30 to 44 years of age. Among males of 45 to 69 years of age, Ischaemic Heart Diseases rises to the leading cause of deaths. Cerebrovascular Diseases were the second leading cause of deaths among males 45 to 69 years of age, and the leading cause of deaths among males 70 to 79 years of age. Chronic Obstructive Pulmonary Disease was the third highest cause of deaths among those 70 to 79 years of age and the leading cause of death for those 80 years old and above. Leukaemia was the leading cancer causing deaths among males below 30 years of age while Trachea, Bronchus and Lung Cancers were the leading cancer causing deaths among those 30 years and above **[Figure 3.3.4]**.

Among females below 5 years of age, Low Birth Weight contributed the highest number of deaths. Road Traffic Injuries were the leading cause of deaths among females 5 to 29 years of age. Breast Cancer was found to contribute the highest number of deaths among females 30 to 44 years of age. Cerebrovascular diseases were the second highest contributor of deaths among females 30 to 44 years of age. Among females of 45 years of age and above, Cerebrovascular Diseases were the leading cause of deaths. Ischaemic Heart Disease was the second leading cause of deaths among females 45 to 79 years of age. Lower Respiratory Infections were the third leading cause of deaths among females 70 to 79 years of age and the second highest cause of deaths among those 80 years of age and above. Breast cancer was the leading cancer causing deaths among females 30 to 69 years of age. Trachea, Bronchus and Lung Cancers were the leading cancer causing deaths among those 70 to 79 years of age with Colon and Rectum Cancers the highest among females 80 years and above **[Figure 3.3.5]**.

Rank	People	Deaths	% of total	Males	Deaths	% of total	Females	Deaths	% of total
1	Cerebrovascular Diseases (Stroke)	20843	15.4	Ischaemic Heart Disease	12777	16.3	Cerebrovascular Diseases (Stroke)	10462	18.3
2	Ischaemic Heart Disease	20050	14.8	Cerebrovascular Diseases (Stroke)	10381	13.3	Ischaemic Heart Disease	7273	12.7
3	Lower Respiratory Infections	12847	9.5	Road Traffic Injuries	7867	10.1	Lower Respiratory Infections	6395	11.2
4	Road Traffic Injuries	9282	6.9	Lower Respiratory Infections	6452	8.3	Diabetes Mellitus	4251	7.4
5	Chronic Obstructive Pulmonary Disease	8548	6.3	Chronic Obstructive Pulmonary Disease	6328	8.1	Chronic Obstructive Pulmonary Disease	2220	3.9
6	Diabetes Mellitus	7889	5.8	Diabetes Mellitus	3638	4.7	Breast Cancer	1911	3.3
7	Trachea, Bronchus and Lung Cancers	3974	2.9	Trachea, Bronchus and Lung Cancers	2734	3.5	Nephritis and Nephrosis	1584	2.8
8	Nephritis and Nephrosis	3080	2.3	Nephritis and Nephrosis	1496	1.9	Road Traffic Injuries	1415	2.5
9	Colon and Rectum Cancers	2574	1.9	Colon and Rectum Cancers	1432	1.8	Trachea, Bronchus and Lung Cancers	1240	2.2
10	Breast Cancer	1960	1.4	Tuberculosis	1241	1.6	Colon and Rectum Cancers	1142	2.0
11	Hypertensive Disease	1925	1.4	Liver Cancers	1134	1.5	Hypertensive Disease	985	1.7
12	Falls	1755	1.3	Hypertensive Disease	940	1.2	Falls	940	1.6
13	Liver Cancers	1705	1.3	Falls	815	1.0	Asthma	819	1.4
14	Tuberculosis	1639	1.2	Leukaemia	715	0.9	Skin and subcutaneous diseases	745	1.3
15	Asthma	1270	0.9	HIV	706	0.9	Liver Cancers	571	1.0
16	Skin and subcutaneous diseases	1269	0.9	Mouth and Oropharynx Cancers	606	0.8	Cervix Cancer	556	1.0
17	Leukaemia	1049	0.8	Prostate Cancer	558	0.7	Tuberculosis	398	0.7
18	Stomach Cancer	914	0.7	Stomach Cancer	529	0.7	Stomach Cancer	385	0.7
19	Mouth and Oropharynx Cancers	839	0.6	Skin and subcutaneous diseases	524	0.7	Endocrine, Blood and Immune Disorders	349	0.6
20	HIV	816	0.6	Peptic Ulcer Disease	515	0.7	Brain and Other CNS Cancers	341	0.6
	Top 20 diseases	**113974**	**84.1**	**Top 20 diseases**	**66109**	**84.6**	**Top 20 diseases**	**49159**	**85.8**
	All other diseases	*21489*	*15.9*	*All other diseases*	*12060*	*15.4*	*All other diseases*	*8135*	*14.2*
	Total	**135463**	**100.0**	**Total**	**78169**	**100.0**	**Total**	**57294**	**100.0**

Colour legend:

>5%	4-5%	3-4%	2-3%	0-2%

Table 3.3.2: Leading causes of deaths, by sex, 2011

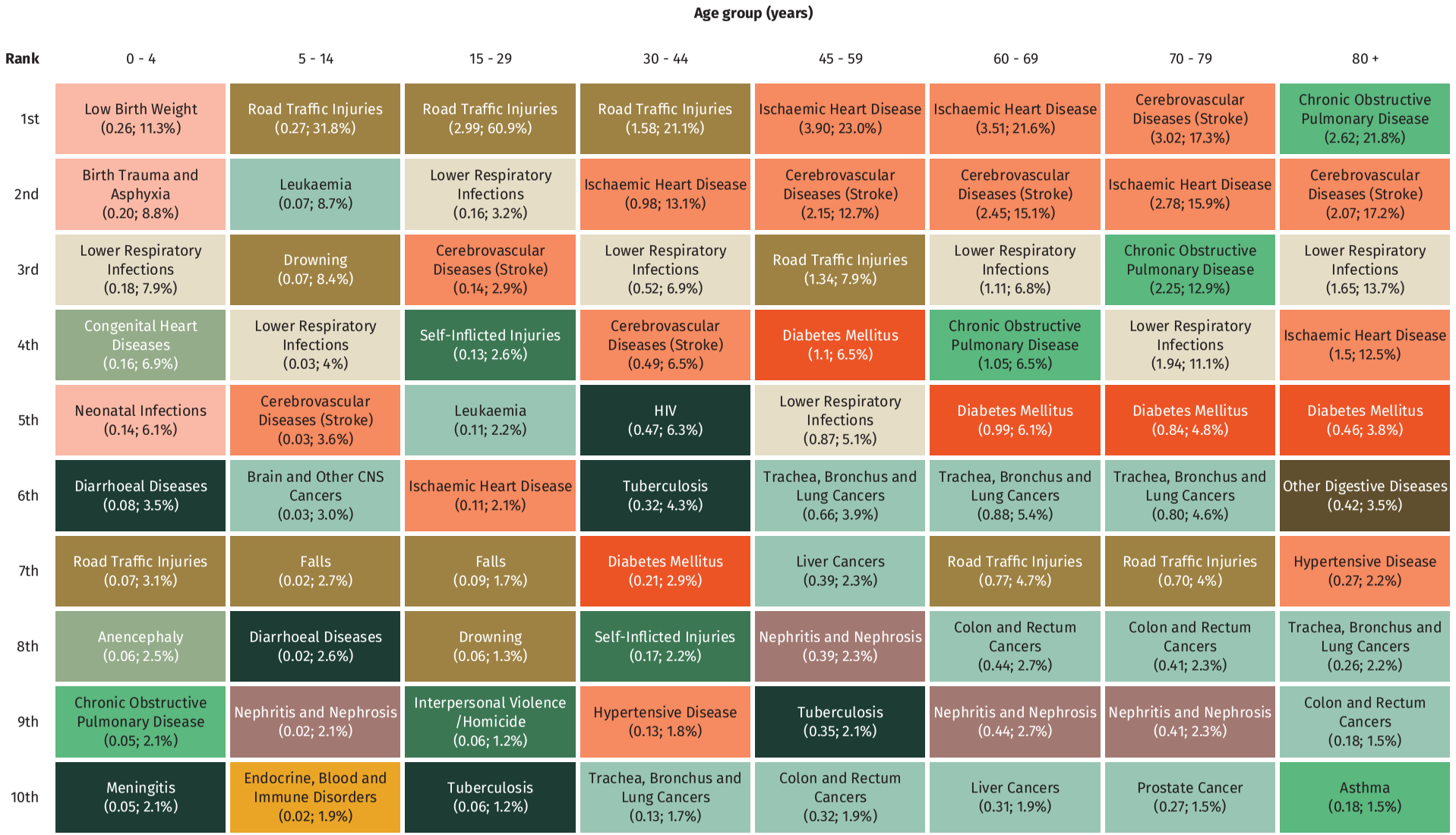
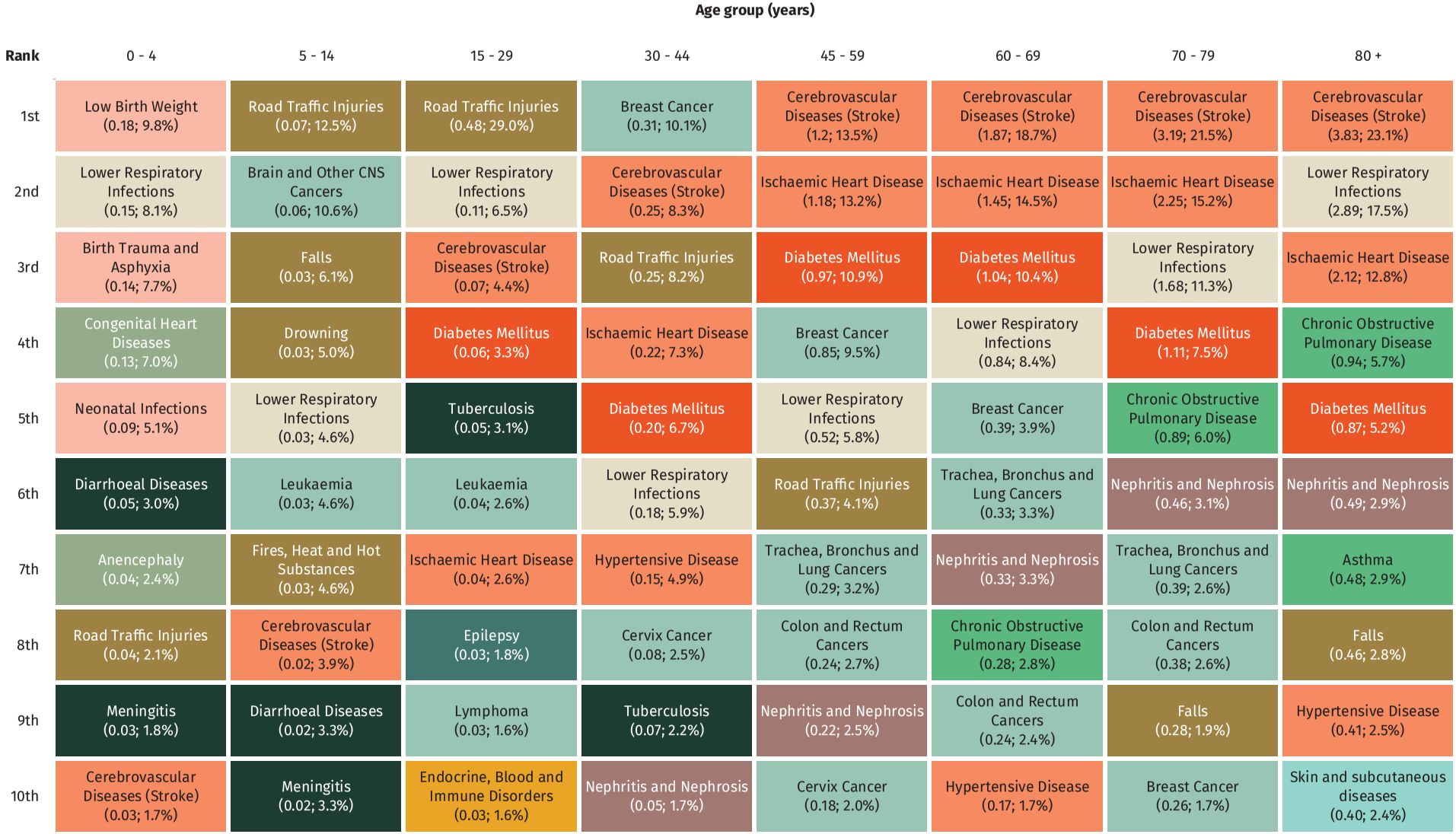


Figure 3.3.4: Leading causes of death (death '000; percentage %) for males, by age group, 2011



Rank	Age group (years) 0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Low Birth Weight (0.18; 9.8%)	Road Traffic Injuries (0.07; 12.5%)	Road Traffic Injuries (0.48; 29.0%)	Breast Cancer (0.31; 10.1%)	Cerebrovascular Diseases (Stroke) (1.2; 13.5%)	Cerebrovascular Diseases (Stroke) (1.87; 18.7%)	Cerebrovascular Diseases (Stroke) (3.19; 21.5%)	Cerebrovascular Diseases (Stroke) (3.83; 23.1%)
2nd	Lower Respiratory Infections (0.15; 8.1%)	Brain and Other CNS Cancers (0.06; 10.6%)	Lower Respiratory Infections (0.11; 6.5%)	Cerebrovascular Diseases (Stroke) (0.25; 8.3%)	Ischaemic Heart Disease (1.18; 13.2%)	Ischaemic Heart Disease (1.45; 14.5%)	Ischaemic Heart Disease (2.25; 15.2%)	Lower Respiratory Infections (2.89; 17.5%)
3rd	Birth Trauma and Asphyxia (0.14; 7.7%)	Falls (0.03; 6.1%)	Cerebrovascular Diseases (Stroke) (0.07; 4.4%)	Road Traffic Injuries (0.25; 8.2%)	Diabetes Mellitus (0.97; 10.9%)	Diabetes Mellitus (1.04; 10.4%)	Lower Respiratory Infections (1.68; 11.3%)	Ischaemic Heart Disease (2.12; 12.8%)
4th	Congenital Heart Diseases (0.13; 7.0%)	Drowning (0.03; 5.0%)	Diabetes Mellitus (0.06; 3.3%)	Ischaemic Heart Disease (0.22; 7.3%)	Breast Cancer (0.85; 9.5%)	Lower Respiratory Infections (0.84; 8.4%)	Diabetes Mellitus (1.11; 7.5%)	Chronic Obstructive Pulmonary Disease (0.94; 5.7%)
5th	Neonatal Infections (0.09; 5.1%)	Lower Respiratory Infections (0.03; 4.6%)	Tuberculosis (0.05; 3.1%)	Diabetes Mellitus (0.20; 6.7%)	Lower Respiratory Infections (0.52; 5.8%)	Breast Cancer (0.39; 3.9%)	Chronic Obstructive Pulmonary Disease (0.89; 6.0%)	Diabetes Mellitus (0.87; 5.2%)
6th	Diarrhoeal Diseases (0.05; 3.0%)	Leukaemia (0.03; 4.6%)	Leukaemia (0.04; 2.6%)	Lower Respiratory Infections (0.18; 5.9%)	Road Traffic Injuries (0.37; 4.1%)	Trachea, Bronchus and Lung Cancers (0.33; 3.3%)	Nephritis and Nephrosis (0.46; 3.1%)	Nephritis and Nephrosis (0.49; 2.9%)
7th	Anencephaly (0.04; 2.4%)	Fires, Heat and Hot Substances (0.03; 4.6%)	Ischaemic Heart Disease (0.04; 2.6%)	Hypertensive Disease (0.15; 4.9%)	Trachea, Bronchus and Lung Cancers (0.29; 3.2%)	Nephritis and Nephrosis (0.33; 3.3%)	Trachea, Bronchus and Lung Cancers (0.39; 2.6%)	Asthma (0.48; 2.9%)
8th	Road Traffic Injuries (0.04; 2.1%)	Cerebrovascular Diseases (Stroke) (0.02; 3.9%)	Epilepsy (0.03; 1.8%)	Cervix Cancer (0.08; 2.5%)	Colon and Rectum Cancers (0.24; 2.7%)	Chronic Obstructive Pulmonary Disease (0.28; 2.8%)	Colon and Rectum Cancers (0.38; 2.6%)	Falls (0.46; 2.8%)
9th	Meningitis (0.03; 1.8%)	Diarrhoeal Diseases (0.02; 3.3%)	Lymphoma (0.03; 1.6%)	Tuberculosis (0.07; 2.2%)	Nephritis and Nephrosis (0.22; 2.5%)	Colon and Rectum Cancers (0.24; 2.4%)	Falls (0.28; 1.9%)	Hypertensive Disease (0.41; 2.5%)
10th	Cerebrovascular Diseases (Stroke) (0.03; 1.7%)	Meningitis (0.02; 3.3%)	Endocrine, Blood and Immune Disorders (0.03; 1.6%)	Nephritis and Nephrosis (0.05; 1.7%)	Cervix Cancer (0.18; 2.0%)	Hypertensive Disease (0.17; 1.7%)	Breast Cancer (0.26; 1.7%)	Skin and subcutaneous diseases (0.40; 2.4%)

Figure 3.3.5: Leading causes of death (death '000; percentage %) for females, by age group, 2011

3.4 Deaths - 2012

In 2012, a total of 138,692 deaths occurred in Malaysia. A total of 79,865 deaths (57.6%) occurred among males and 58,827 deaths (42.4%) among females.

3.4.1 Pattern of Deaths by sex

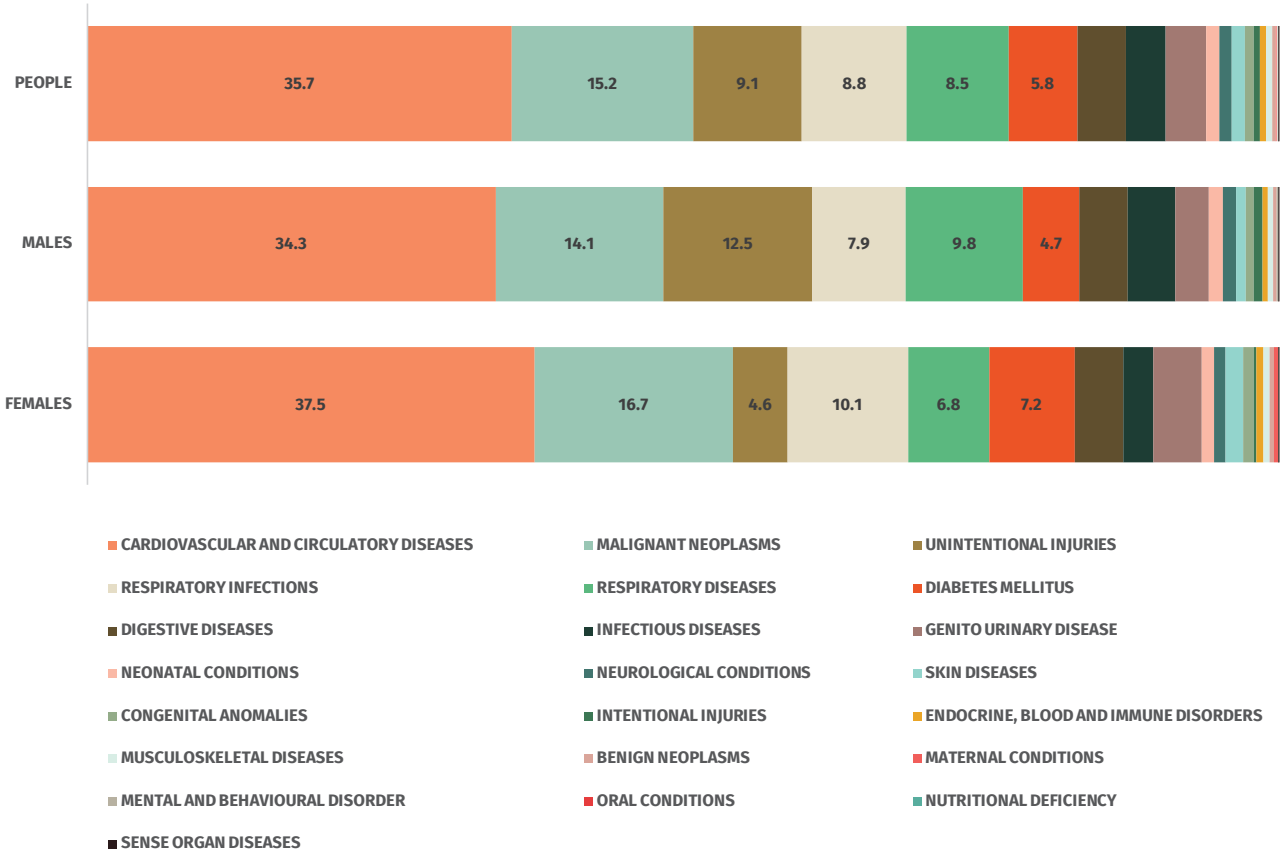


Figure 3.4.1: Percentage (%) of deaths, by disease groups and sex, 2012

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards deaths in Malaysia for 2012, followed by Malignant Neoplasms, Unintentional Injuries and Respiratory Infections **[Figure 3.4.1]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest number of deaths and contributed to more than a third of deaths. For males, Malignant Neoplasms contributed towards 14.1% of deaths followed by Unintentional Injuries at 12.5% and Respiratory Diseases at 9.8%. For females, Malignant Neoplasms were the second largest contributor of deaths with 16.7%, followed by Respiratory Infections at 10.1% and Diabetes Mellitus at 7.2% **[Table 3.4.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	Deaths (number)	Deaths (%)	Deaths (number)	Deaths (%)	Deaths (number)	Deaths (%)
INFECTIOUS DISEASES	4682	3.4	3184	4.0	1498	2.5
RESPIRATORY INFECTIONS	12222	8.8	6280	7.9	5942	10.1
MATERNAL CONDITIONS	182	0.1	0	0.0	182	0.3
NEONATAL CONDITIONS	1538	1.1	953	1.2	585	1.0
NUTRITIONAL DEFICIENCY	21	0.0	13	0.0	8	0.0
MALIGNANT NEOPLASMS	21049	15.2	11249	14.1	9800	16.7
BENIGN NEOPLASMS	425	0.3	187	0.2	238	0.4
DIABETES MELLITUS	8004	5.8	3772	4.7	4232	7.2
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	709	0.5	351	0.4	358	0.6
MENTAL AND BEHAVIOURAL DISORDER	111	0.1	110	0.1	1	0.0
NEUROLOGICAL CONDITIONS	1516	1.1	918	1.1	598	1.0
SENSE ORGAN DISEASES	5	0.0	2	0.0	3	0.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	49491	35.7	27402	34.3	22089	37.5
RESPIRATORY DISEASES	11834	8.5	7833	9.8	4001	6.8
DIGESTIVE DISEASES	5660	4.1	3279	4.1	2381	4.0
GENITO URINARY DISEASE	4626	3.3	2225	2.8	2401	4.1
SKIN DISEASES	1482	1.1	615	0.8	867	1.5
MUSCULOSKELETAL DISEASES	654	0.5	359	0.4	295	0.5
CONGENITAL ANOMALIES	1031	0.7	511	0.6	520	0.9
ORAL CONDITIONS	22	0.0	20	0.0	2	0.0
UNINTENTIONAL INJURIES	12667	9.1	9964	12.5	2703	4.6
INTENTIONAL INJURIES	761	0.5	638	0.8	123	0.2
TOTAL	**138692**	**100.0**	**79865**	**100.0**	**58827**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 3.4.1: Deaths by disease groups and by sex, 2012

3.4.2 Pattern of Deaths by age

Among males, mortality among those below 5 years of age contributed towards 2.8% of the total deaths in Malaysia for 2012. Neonatal Conditions contributed the largest percentage, 42.0%, of the deaths among males below 5 years of age, followed by Congenital Anomalies at 20.4%. Unintentional Injuries were the predominant cause of deaths among the males 5 to 29 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of deaths among males from the age of 30 years and above. Respiratory Diseases had an increasing percentage of contribution towards deaths in males as the age increases **[Figure 3.4.2]**.

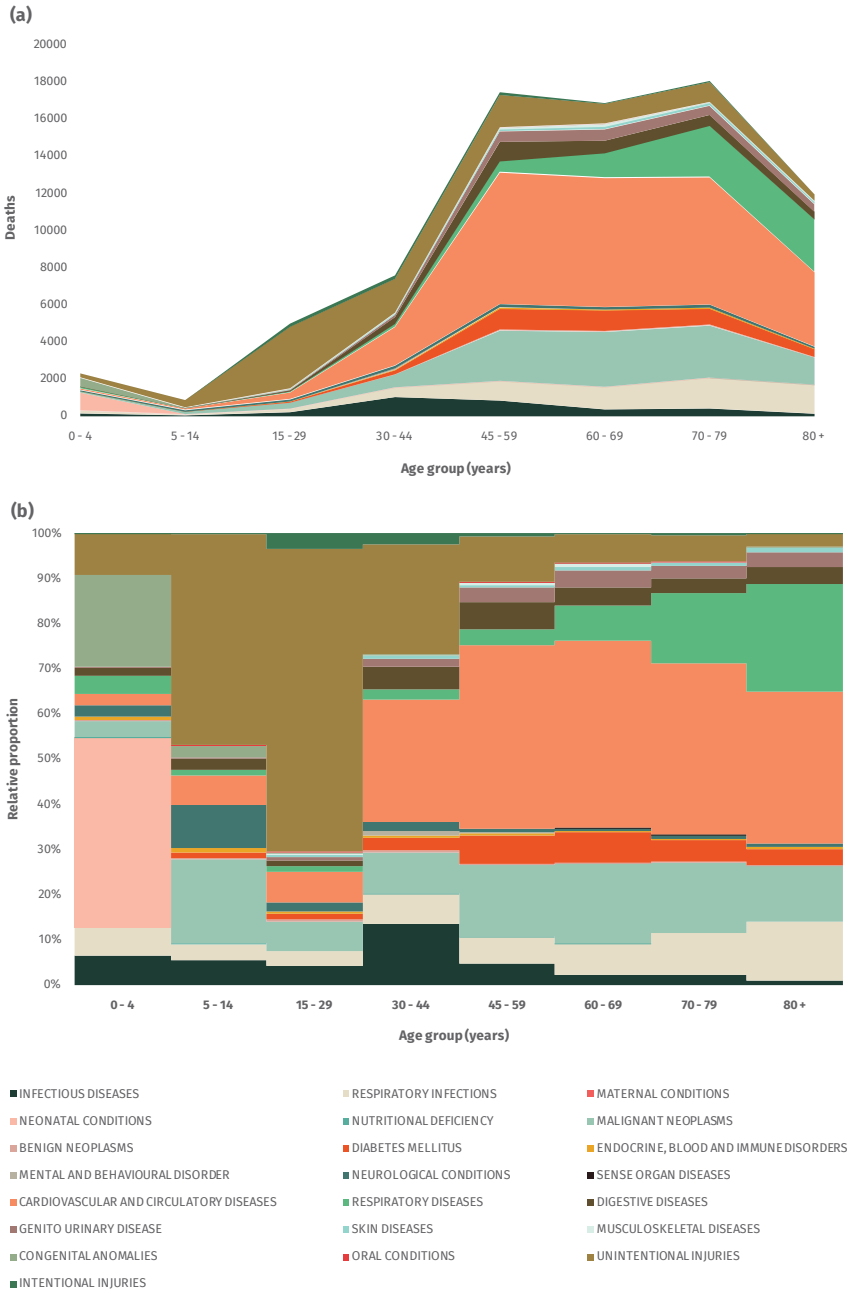


Figure 3.4.2: Number (a) & percentage (b) of deaths, by disease groups & age, males, 2012

Among females, mortality among those below 5 years of age contributed towards 3.0% of the total deaths in Malaysia for 2012. Neonatal Conditions contributed the largest percentage, 33.6%, of the deaths among females below 5 years of age, followed by Congenital Anomalies at 27.2%. Unintentional Injuries were the predominant cause of deaths among the females 5 to 29 years of age, while Malignant Neoplasms were the predominant cause of deaths among females 30 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of deaths among females from the age of 45 years and above, with an increasing percentage of contribution by Respiratory Infections towards deaths in females as the age increases **[Figure 3.4.3]**.

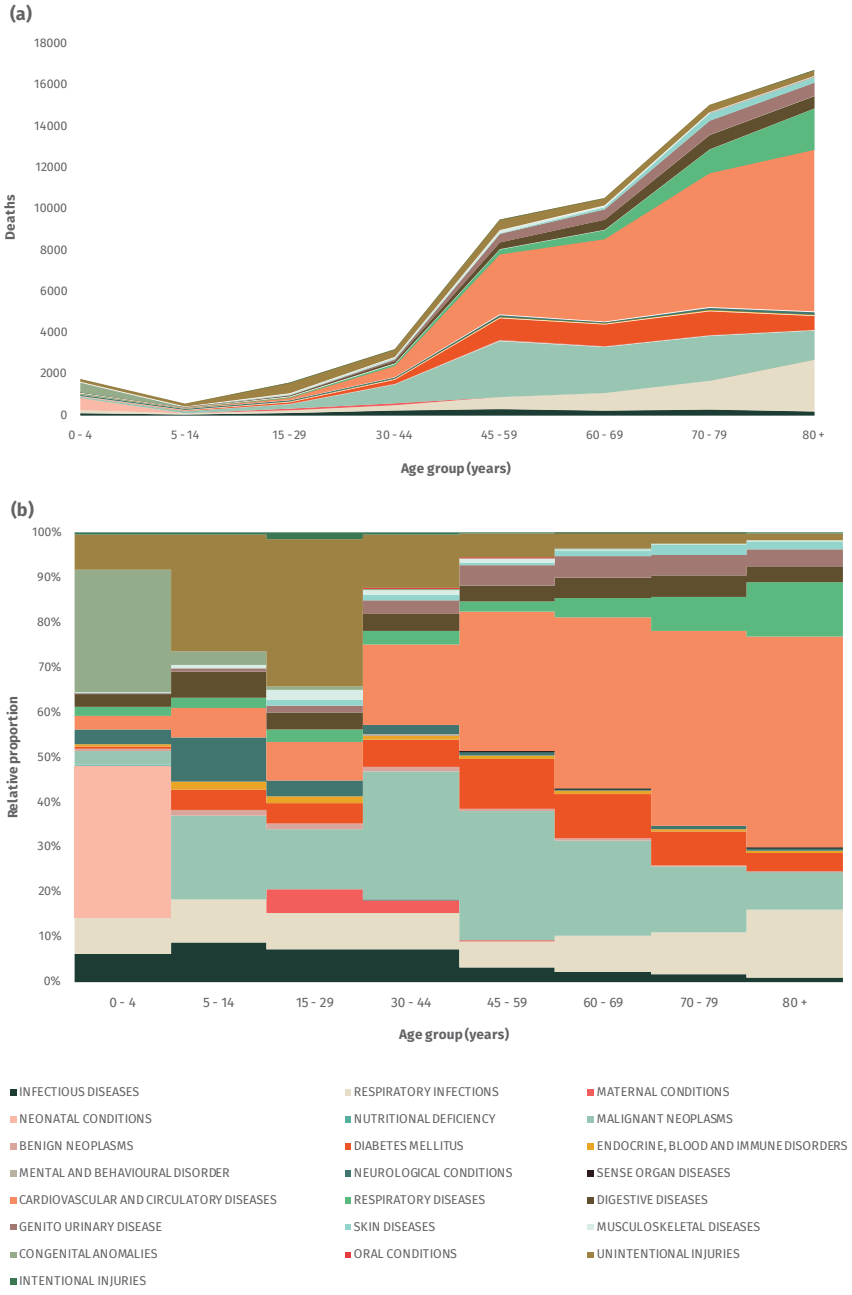


Figure 3.4.3: Number (a) & percentage (b) of deaths, by disease groups & age, females, 2012

3.4.3 Leading Causes of Deaths

Cerebrovascular Diseases were the leading cause of deaths in Malaysia for 2012, contributing to 15.5% of the total deaths. This was followed by Ischaemic Heart Disease, with 15.2%, and Lower Respiratory Infections, with 8.8% of total deaths. Road Traffic Injuries, with 6.8% and Chronic Obstructive Pulmonary Disease with 6.3% make up the five leading causes of death in 2012.

Among males, Ischaemic Heart Disease contributed the largest amount of deaths with 16.7%. Cerebrovascular Diseases were the second highest contributor of deaths in males with 13.2% followed by Road Traffic Injuries with 10.0%. Chronic Obstructive Pulmonary Disease and Lower Respiratory Infections make up the fourth and fifth leading causes of death among males. Among females, Cerebrovascular Diseases were the leading cause of death with 18.6% followed by Ischaemic Heart Disease with 13.2% and Lower Respiratory Infections with 10.1%. Diabetes Mellitus was the fourth and Chronic Obstructive Pulmonary Disease made up the fifth leading cause of deaths among females **[Table 3.4.2]**.

The leading causes of death vary according to age. Among males below 5 years of age, Low Birth Weight contributed the highest number of deaths. Road Traffic Injuries were the leading cause of deaths among males 5 to 44 years of age. Ischaemic Heart Disease was the second highest contributor of deaths among males 30 to 44 years of age. Among males of 45 to 69 years of age, Ischaemic Heart Diseases rises to the leading cause of deaths. Cerebrovascular Diseases were the second leading cause of deaths among males 45 to 69 years of age, and the leading cause of deaths among males 70 to 79 years of age. Chronic Obstructive Pulmonary Disease was the third highest cause of deaths among those 70 to 79 years of age and the leading cause of death for those 80 years old and above. Leukaemia was the leading cancer causing deaths among males below 30 years of age while Trachea, Bronchus and Lung Cancers were the leading cancer causing deaths among those 45 years and above **[Figure 3.4.4]**.

Among females below 5 years of age, Low Birth Weight contributed the highest number of deaths. Road Traffic Injuries were the leading cause of deaths among females 5 to 29 years of age. Breast Cancer was found to contribute the highest number of deaths among females 30 to 44 years of age. Road Traffic Accidents were the second highest contributor of deaths among females 30 to 44 years of age. Among females of 45 years of age and above, Cerebrovascular Diseases were the leading cause of deaths. Ischaemic Heart Disease was the second leading cause of deaths among females 45 to 79 years of age. Lower Respiratory Infections were the third leading cause of deaths among females 70 to 79 years of age and the second highest cause of deaths among those 80 years of age and above. Breast cancer was the leading cancer causing deaths among females 30 to 69 years of age. Trachea, Bronchus and Lung Cancers were the leading cancer causing deaths among those 70 to 79 years of age with Colon and Rectum Cancers the highest among females 80 years and above **[Figure 3.4.5]**.

Rank	People	Deaths	% of total	Males	Deaths	% of total	Females	Deaths	% of total
1	Cerebrovascular Diseases (Stroke)	21456	15.5	Ischaemic Heart Disease	13346	16.7	Cerebrovascular Diseases (Stroke)	10920	18.6
2	Ischaemic Heart Disease	21110	15.2	Cerebrovascular Diseases (Stroke)	10536	13.2	Ischaemic Heart Disease	7764	13.2
3	Lower Respiratory Infections	12214	8.8	Road Traffic Injuries	7981	10.0	Lower Respiratory Infections	5939	10.1
4	Road Traffic Injuries	9489	6.8	Chronic Obstructive Pulmonary Disease	6443	8.1	Diabetes Mellitus	4232	7.2
5	Chronic Obstructive Pulmonary Disease	8791	6.3	Lower Respiratory Infections	6275	7.9	Chronic Obstructive Pulmonary Disease	2348	4.0
6	Diabetes Mellitus	8004	5.8	Diabetes Mellitus	3772	4.7	Breast Cancer	2091	3.6
7	Trachea, Bronchus and Lung Cancers	4182	3.0	Trachea, Bronchus and Lung Cancers	2879	3.6	Nephritis and Nephrosis	1597	2.7
8	Nephritis and Nephrosis	3148	2.3	Nephritis and Nephrosis	1551	1.9	Road Traffic Injuries	1508	2.6
9	Colon and Rectum Cancers	2640	1.9	Colon and Rectum Cancers	1523	1.9	Trachea, Bronchus and Lung Cancers	1303	2.2
10	Breast Cancer	2096	1.5	Tuberculosis	1184	1.5	Hypertensive Disease	1155	2.0
11	Hypertensive Disease	2012	1.5	Liver Cancers	1151	1.4	Colon and Rectum Cancers	1117	1.9
12	Liver Cancers	1769	1.3	Hypertensive Disease	857	1.1	Skin and subcutaneous diseases	867	1.5
13	Tuberculosis	1674	1.2	Falls	848	1.1	Asthma	840	1.4
14	Falls	1563	1.1	Leukaemia	744	0.9	Falls	715	1.2
15	Skin and subcutaneous diseases	1482	1.1	HIV	686	0.9	Liver Cancers	618	1.1
16	Asthma	1299	0.9	Skin and subcutaneous diseases	615	0.8	Cervix Cancer	610	1.0
17	Other Neurological Conditions	1178	0.8	Mouth and Oropharynx Cancers	611	0.8	Tuberculosis	490	0.8
18	Leukaemia	1054	0.8	Prostate Cancer	600	0.8	Stomach Cancer	440	0.7
19	Stomach Cancer	1031	0.7	Stomach Cancer	591	0.7	Endocrine, Blood and Immune Disorders	358	0.6
20	Mouth and Oropharynx Cancers	858	0.6	Peptic Ulcer Disease	493	0.6	Brain and Other CNS Cancers	354	0.6
	Top 20 diseases	**116617**	**84.1**	**Top 20 diseases**	**67469**	**84.5**	**Top 20 diseases**	**50328**	**85.6**
	All other diseases	*22075*	*15.9*	*All other diseases*	*12396*	*15.5*	*All other diseases*	*8499*	*14.4*
	Total	**138692**	**100.0**	**Total**	**79865**	**100.0**	**Total**	**58827**	**100.0**

Colour legend:

>5%	4-5%	3-4%	2-3%	0-2%

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Low Birth Weight (0.23; 10.3%)	Road Traffic Injuries (0.28; 33.7%)	Road Traffic Injuries (3.05; 61.4%)	Road Traffic Injuries (1.45; 19.2%)	Ischaemic Heart Disease (4.01; 23%)	Ischaemic Heart Disease (3.54; 21%)	Cerebrovascular Diseases (Stroke) (3.18; 17.6%)	Chronic Obstructive Pulmonary Disease (2.43; 20.4%)
2nd	Birth Trauma and Asphyxia (0.21; 9.4%)	Leukaemia (0.08; 9%)	Lower Respiratory Infections (0.16; 3.2%)	Ischaemic Heart Disease (1.09; 14.4%)	Cerebrovascular Diseases (Stroke) (2.11; 12.1%)	Cerebrovascular Diseases (Stroke) (2.68; 15.9%)	Ischaemic Heart Disease (2.94; 16.3%)	Cerebrovascular Diseases (Stroke) (1.82; 15.3%)
3rd	Congenital Heart Diseases (0.15; 6.7%)	Drowning (0.07; 8%)	Cerebrovascular Diseases (Stroke) (0.13; 2.6%)	Cerebrovascular Diseases (Stroke) (0.58; 7.6%)	Road Traffic Injuries (1.36; 7.8%)	Lower Respiratory Infections (1.2; 7.1%)	Chronic Obstructive Pulmonary Disease (2.42; 13.4%)	Ischaemic Heart Disease (1.68; 14.1%)
4th	Lower Respiratory Infections (0.14; 6.2%)	Brain and Other CNS Cancers (0.04; 5.2%)	Self-Inflicted Injuries (0.12; 2.5%)	Lower Respiratory Infections (0.51; 6.7%)	Diabetes Mellitus (1.11; 6.4%)	Diabetes Mellitus (1.11; 6.6%)	Lower Respiratory Infections (1.65; 9.1%)	Lower Respiratory Infections (1.55; 13%)
5th	Neonatal Infections (0.14; 6%)	Lower Respiratory Infections (0.03; 3.5%)	Leukaemia (0.12; 2.3%)	HIV (0.45; 5.9%)	Lower Respiratory Infections (1.05; 6%)	Chronic Obstructive Pulmonary Disease (1.08; 6.4%)	Trachea, Bronchus and Lung Cancers (0.88; 4.9%)	Diabetes Mellitus (0.42; 3.5%)
6th	Road Traffic Injuries (0.08; 3.7%)	Diarrhoeal Diseases (0.02; 2.9%)	Ischaemic Heart Disease (0.08; 1.6%)	Tuberculosis (0.29; 3.9%)	Trachea, Bronchus and Lung Cancers (0.7; 4%)	Trachea, Bronchus and Lung Cancers (0.85; 5%)	Diabetes Mellitus (0.85; 4.7%)	Trachea, Bronchus and Lung Cancers (0.33; 2.8%)
7th	Diarrhoeal Diseases (0.08; 3.6%)	Rheumatic Heart Disease (0.02; 2.8%)	Drowning (0.07; 1.4%)	Diabetes Mellitus (0.22; 2.9%)	Nephritis and Nephrosis (0.44; 2.5%)	Road Traffic Injuries (0.79; 4.7%)	Road Traffic Injuries (0.78; 4.3%)	Nephritis and Nephrosis (0.26; 2.2%)
8th	Chronic Obstructive Pulmonary Disease (0.07; 3.1%)	Epilepsy (0.02; 1.9%)	Tuberculosis (0.06; 1.3%)	Hypertensive Disease (0.13; 1.7%)	Liver Cancers (0.38; 2.2%)	Colon and Rectum Cancers (0.43; 2.6%)	Colon and Rectum Cancers (0.47; 2.6%)	Colon and Rectum Cancers (0.21; 1.8%)
9th	Anencephaly (0.06; 2.5%)	Congenital Heart Diseases (0.02; 1.8%)	Diabetes Mellitus (0.06; 1.2%)	Self-Inflicted Injuries (0.12; 1.6%)	Tuberculosis (0.37; 2.1%)	Nephritis and Nephrosis (0.43; 2.6%)	Nephritis and Nephrosis (0.3; 1.6%)	Road Traffic Injuries (0.19; 1.6%)
10th	Meningitis (0.04; 1.6%)	Cerebrovascular Diseases (Stroke) (0.01; 1.6%)	Falls (0.06; 1.2%)	Falls (0.12; 1.6%)	Chronic Obstructive Pulmonary Disease (0.36; 2.1%)	Liver Cancers (0.36; 2.1%)	Prostate Cancer (0.26; 1.5%)	Prostate Cancer (0.18; 1.5%)

Figure 3.4.4: Leading causes of death (death '000; percentage %) for males, by age group, 2012

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Low Birth Weight (0.15; 8.4%)	Road Traffic Injuries (0.06; 11.8%)	Road Traffic Injuries (0.41; 25.8%)	Breast Cancer (0.31; 9.6%)	Cerebrovascular Diseases (Stroke) (1.32; 14%)	Cerebrovascular Diseases (Stroke) (1.87; 17.8%)	Cerebrovascular Diseases (Stroke) (3.43; 22.8%)	Cerebrovascular Diseases (Stroke) (3.94; 23.5%)
2nd	Lower Respiratory Infections (0.14; 8.2%)	Lower Respiratory Infections (0.05; 9.6%)	Lower Respiratory Infections (0.13; 8%)	Road Traffic Injuries (0.27; 8.5%)	Ischaemic Heart Disease (1.18; 12.4%)	Ischaemic Heart Disease (1.66; 15.8%)	Ischaemic Heart Disease (2.25; 15%)	Lower Respiratory Infections (2.52; 15%)
3rd	Congenital Heart Diseases (0.14; 8.2%)	Brain and Other CNS Cancers (0.05; 9.2%)	Diabetes Mellitus (0.07; 4.5%)	Lower Respiratory Infections (0.25; 7.9%)	Diabetes Mellitus (1.04; 11%)	Diabetes Mellitus (1.05; 10%)	Lower Respiratory Infections (1.4; 9.3%)	Ischaemic Heart Disease (2.42; 14.4%)
4th	Birth Trauma and Asphyxia (0.12; 6.7%)	Fires, Heat and Hot Substances (0.03; 5.7%)	Cerebrovascular Diseases (Stroke) (0.07; 4.4%)	Cerebrovascular Diseases (Stroke) (0.25; 7.8%)	Breast Cancer (0.84; 8.9%)	Lower Respiratory Infections (0.86; 8.2%)	Diabetes Mellitus (1.16; 7.7%)	Chronic Obstructive Pulmonary Disease (1.21; 7.2%)
5th	Neonatal Infections (0.1; 5.6%)	Diabetes Mellitus (0.03; 4.6%)	Tuberculosis (0.06; 3.5%)	Ischaemic Heart Disease (0.22; 7%)	Lower Respiratory Infections (0.59; 6.2%)	Breast Cancer (0.45; 4.2%)	Chronic Obstructive Pulmonary Disease (0.73; 4.8%)	Diabetes Mellitus (0.67; 4%)
6th	Road Traffic Injuries (0.06; 3.6%)	Leukaemia (0.02; 4.4%)	Leukaemia (0.04; 2.8%)	Diabetes Mellitus (0.2; 6.3%)	Road Traffic Injuries (0.32; 3.4%)	Trachea, Bronchus and Lung Cancers (0.33; 3.1%)	Nephritis and Nephrosis (0.47; 3.1%)	Hypertensive Disease (0.56; 3.4%)
7th	Diarrhoeal Diseases (0.06; 3.3%)	Diarrhoeal Diseases (0.02; 4%)	Lymphoma (0.03; 2.1%)	Tuberculosis (0.08; 2.6%)	Trachea, Bronchus and Lung Cancers (0.28; 2.9%)	Nephritis and Nephrosis (0.31; 2.9%)	Trachea, Bronchus and Lung Cancers (0.41; 2.7%)	Asthma (0.5; 3%)
8th	Anencephaly (0.04; 2.2%)	Cerebrovascular Diseases (Stroke) (0.02; 4%)	Falls (0.03; 1.9%)	Colon and Rectum Cancers (0.08; 2.6%)	Nephritis and Nephrosis (0.28; 2.9%)	Chronic Obstructive Pulmonary Disease (0.26; 2.4%)	Skin and subcutaneous diseases (0.36; 2.4%)	Nephritis and Nephrosis (0.45; 2.7%)
9th	Meningitis (0.03; 1.8%)	Drowning (0.02; 4%)	Epilepsy (0.03; 1.6%)	Cervix Cancer (0.07; 2.3%)	Colon and Rectum Cancers (0.24; 2.5%)	Colon and Rectum Cancers (0.24; 2.3%)	Hypertensive Disease (0.3; 2%)	Skin and subcutaneous diseases (0.29; 1.7%)
10th	Fires, Heat and Hot Substances (0.02; 1.2%)	Falls (0.02; 2.8%)	Maternal Haemorrhage (0.02; 1.5%)	Nephritis and Nephrosis (0.07; 2.1%)	Cervix Cancer (0.2; 2.2%)	Road Traffic Injuries (0.17; 1.6%)	Colon and Rectum Cancers (0.29; 1.9%)	Colon and Rectum Cancers (0.25; 1.5%)

Figure 3.4.5: Leading causes of death (death '000; percentage %) for females, by age group, 2012

3.5 Deaths - 2013

In 2013, a total of 142,202 deaths occurred in Malaysia. A total of 81,941 deaths (57.6%) occurred among males and 60,621 deaths (42.4%) among females.

3.5.1 Pattern of Deaths by sex

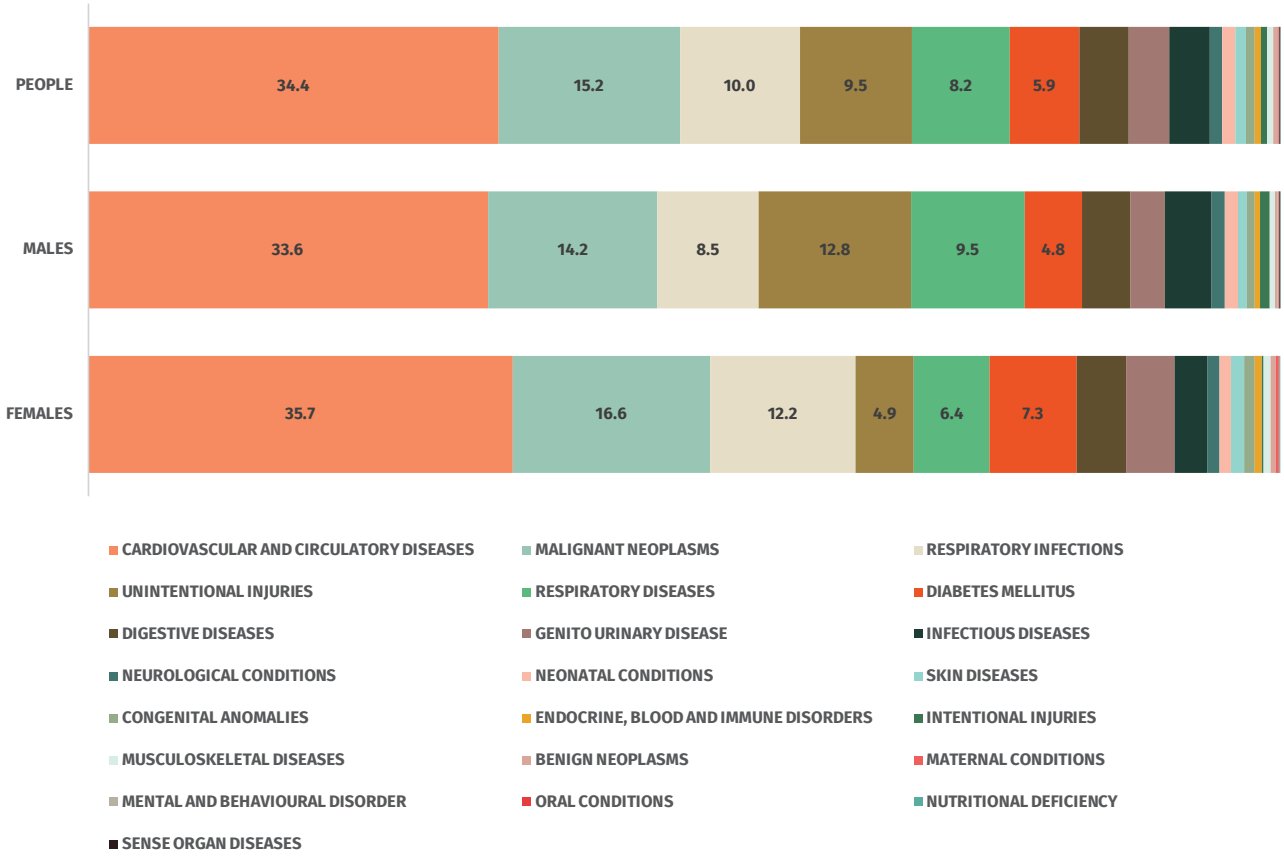


Figure 3.5.1: Percentage (%) of deaths, by disease groups and sex, 2013

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards deaths in Malaysia for 2013, followed by Malignant Neoplasms and Respiratory Infections **[Figure 3.5.1]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest number of deaths and contributed to more than a third of deaths. For males, Malignant Neoplasms contributed towards 14.2% of deaths followed by Unintentional Injuries at 12.8% and Respiratory Diseases at 9.5%. For females, Malignant Neoplasms were the second largest contributor of deaths with 16.6%, followed by Respiratory Infections at 12.2% and Diabetes Mellitus at 7.3% **[Table 3.5.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	Deaths (number)	Deaths (%)	Deaths (number)	Deaths (%)	Deaths (number)	Deaths (%)
INFECTIOUS DISEASES	4828	3.4	3187	3.9	1641	2.7
RESPIRATORY INFECTIONS	14289	10.0	6949	8.5	7340	12.2
MATERNAL CONDITIONS	169	0.1	0	0.0	169	0.3
NEONATAL CONDITIONS	1514	1.1	915	1.1	599	1.0
NUTRITIONAL DEFICIENCY	29	0.0	8	0.0	21	0.0
MALIGNANT NEOPLASMS	21664	15.2	11673	14.2	9991	16.6
BENIGN NEOPLASMS	439	0.3	189	0.2	250	0.4
DIABETES MELLITUS	8342	5.9	3928	4.8	4414	7.3
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	759	0.5	376	0.5	383	0.6
MENTAL AND BEHAVIOURAL DISORDER	85	0.1	85	0.1	0	0.0
NEUROLOGICAL CONDITIONS	1531	1.1	933	1.1	598	1.0
SENSE ORGAN DISEASES	1	0.0	1	0.0	0	0.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	48981	34.4	27495	33.6	21486	35.7
RESPIRATORY DISEASES	11635	8.2	7802	9.5	3833	6.4
DIGESTIVE DISEASES	5848	4.1	3380	4.1	2468	4.1
GENITO URINARY DISEASE	4833	3.4	2346	2.9	2487	4.1
SKIN DISEASES	1293	0.9	623	0.8	670	1.1
MUSCULOSKELETAL DISEASES	686	0.5	341	0.4	345	0.6
CONGENITAL ANOMALIES	1039	0.7	521	0.6	518	0.9
ORAL CONDITIONS	43	0.0	38	0.0	5	0.0
UNINTENTIONAL INJURIES	13445	9.5	10488	12.8	2957	4.9
INTENTIONAL INJURIES	749	0.5	663	0.8	86	0.1
TOTAL	**142202**	**100.0**	**81941**	**100.0**	**60261**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 3.5.1: Deaths by disease groups and by sex, 2013

3.5.2 Pattern of Deaths by age

Among males, mortality among those below 5 years of age contributed towards 2.7% of the total deaths in Malaysia for 2013. Neonatal Conditions contributed the largest percentage, 40.7%, of the deaths among males below 5 years of age, followed by Congenital Anomalies at 20.7%. Unintentional Injuries were the predominant cause of deaths among the males 5 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of deaths among males from the age of 45 years and above. Respiratory Diseases had an increasing percentage of contribution towards deaths in males as the age increases **[Figure 3.5.2]**.

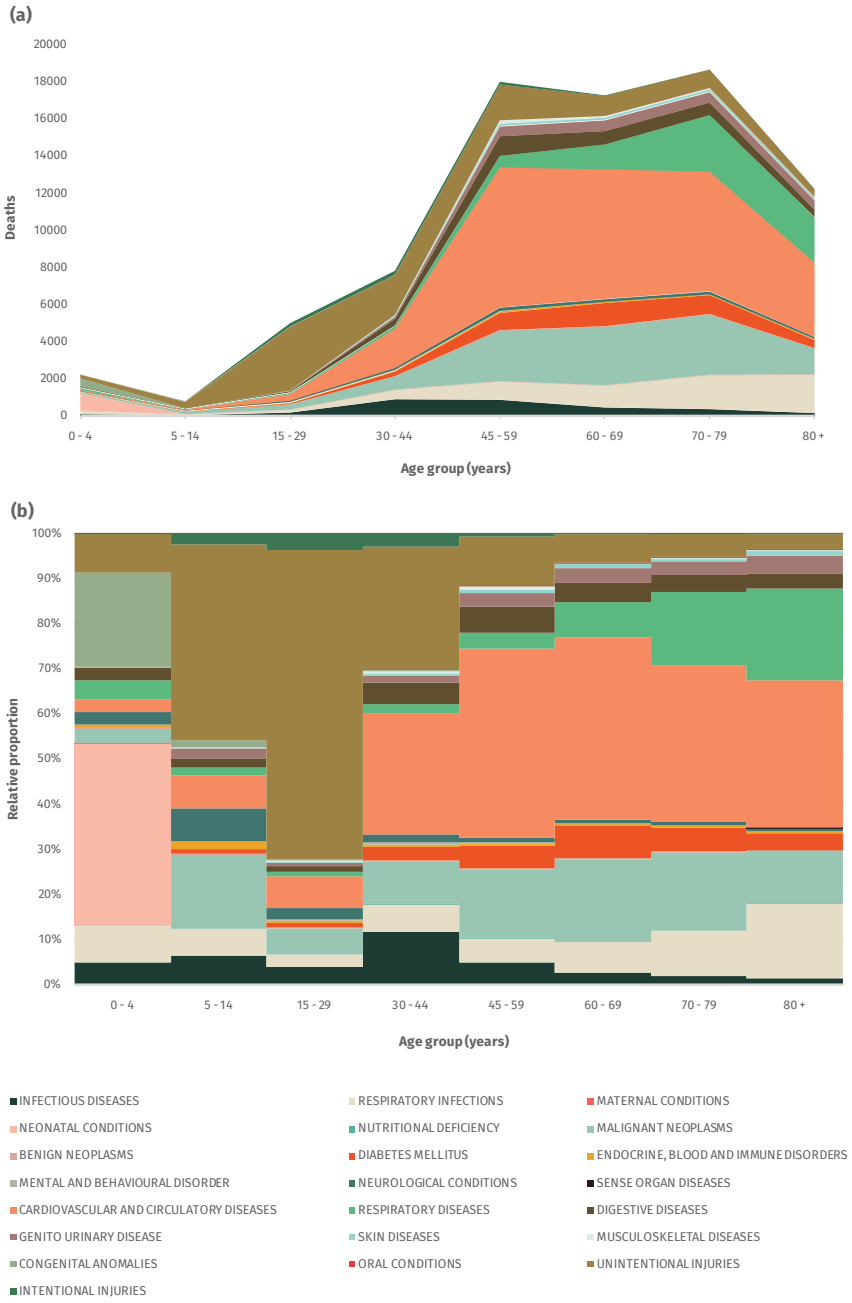


Figure 3.5.2: Number (a) & percentage (b) of deaths, by disease groups & age, males, 2013

Among females, mortality among those below 5 years of age contributed towards 2.9% of the total deaths in Malaysia for 2013. Neonatal Conditions contributed the largest percentage, 34.6%, of the deaths among females below 5 years of age, followed by Congenital Anomalies at 26.8%. Unintentional Injuries were the predominant cause of deaths among the females 5 to 29 years of age, while Malignant Neoplasms were the predominant cause of deaths among females 30 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of deaths among females from the age of 45 years and above, with an increasing percentage of contribution by Respiratory Infections towards deaths in females as the age increases **[Figure 3.5.3]**.

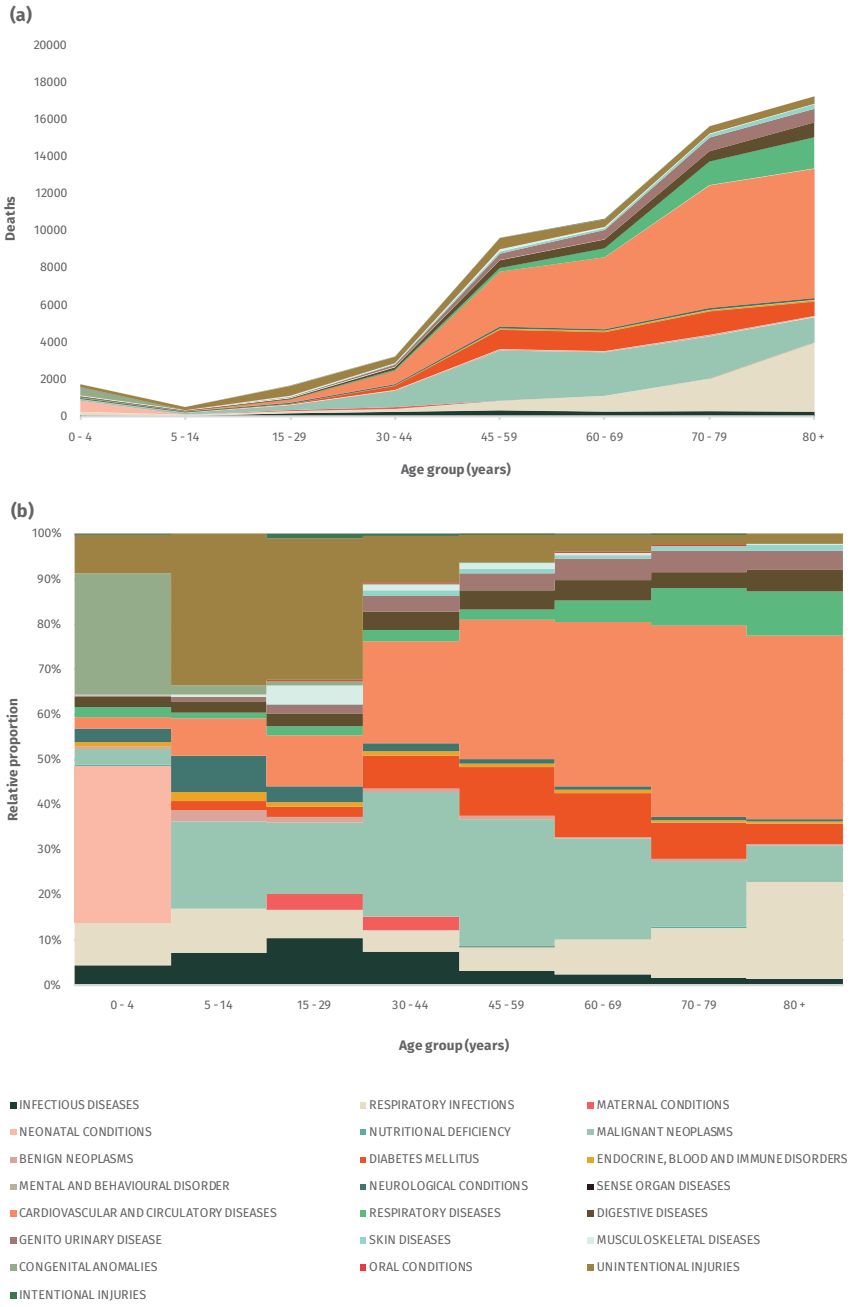


Figure 3.5.3: Number (a) & percentage (b) of deaths, by disease groups & age, females, 2013

3.5.3 Leading Causes of Deaths

Cerebrovascular Diseases were the leading cause of deaths in Malaysia for 2013, contributing to 15.58% of the total deaths. This was followed by Ischaemic Heart Disease, with 14.37%, and Lower Respiratory Infections, with 10.04% of total deaths. Road Traffic Injuries, with 7.06% and Chronic Obstructive Pulmonary Disease with 6.09% make up the five leading causes of death in 2013.

Among males, Ischaemic Heart Disease contributed the largest amount of deaths with 15.69%. Cerebrovascular Diseases were the second highest contributor of deaths in males with 13.54% followed by Road Traffic Injuries with 10.23%. Lower Respiratory Infections and Chronic Obstructive Pulmonary Disease make up the fourth and fifth leading causes of death among males. Among females, Cerebrovascular Diseases were the leading cause of death with 18.37% followed by Ischaemic Heart Disease with 12.56% and Lower Respiratory Infections with 12.17%. Diabetes Mellitus was the fourth and Chronic Obstructive Pulmonary Disease make up the fifth leading cause of deaths among females **[Table 3.5.2]**.

The leading causes of death vary according to age. Among males below 5 years of age, Low Birth Weight contributed the highest number of deaths. Road Traffic Injuries were the leading cause of deaths among males 5 to 44 years of age. Ischaemic Heart Disease was the second highest contributor of deaths among males 30 to 44 years of age. Among males of 45 to 69 years of age, Ischaemic Heart Diseases rises to the leading cause of deaths. Cerebrovascular Diseases were the second leading cause of deaths among males 45 to 69 years of age, and the leading cause of deaths among males 70 years of age and above. Chronic Obstructive Pulmonary Disease was the second highest cause of deaths among those 70 years of age and above. Leukaemia was the leading cancer causing deaths among males below 30 years of age while Trachea, Bronchus and Lung Cancers were the leading cancer causing deaths among those 30 years and above **[Figure 3.5.4]**.

Among females below 5 years of age, Low Birth Weight contributed the highest number of deaths. Road Traffic Injuries were the leading cause of deaths among females 5 to 29 years of age. Breast Cancer was found to contribute the highest number of deaths among females 30 to 44 years of age. Road Traffic Injuries were the second highest contributor of deaths among females 30 to 44 years of age. Among females of 45 years of age and above, Cerebrovascular Diseases were the leading cause of deaths. Ischaemic Heart Disease was the second leading cause of deaths among females 45 to 79 years of age. Lower Respiratory Infections were the third leading cause of deaths among females 70 to 79 years of age and the second highest cause of deaths among those 80 years of age and above. Breast cancer was the leading cancer causing deaths among females 30 to 69 years of age. Trachea, Bronchus and Lung Cancers were the leading cancer causing deaths among those 70 to 79 years of age with Colon and Rectum Cancers the highest among females 80 years and above **[Figure 3.5.5]**.

Rank	People	Deaths	% of total	Males	Deaths	% of total	Females	Deaths	% of total
1	Cerebrovascular Diseases (Stroke)	22158	15.6	Ischaemic Heart Disease	12859	15.7	Cerebrovascular Diseases (Stroke)	11067	18.4
2	Ischaemic Heart Disease	20428	14.4	Cerebrovascular Diseases (Stroke)	11091	13.5	Ischaemic Heart Disease	7569	12.6
3	Lower Respiratory Infections	14278	10.0	Road Traffic Injuries	8383	10.2	Lower Respiratory Infections	7336	12.2
4	Road Traffic Injuries	10039	7.1	Lower Respiratory Infections	6942	8.5	Diabetes Mellitus	4414	7.3
5	Chronic Obstructive Pulmonary Disease	8666	6.1	Chronic Obstructive Pulmonary Disease	6405	7.8	Chronic Obstructive Pulmonary Disease	2261	3.8
6	Diabetes Mellitus	8342	5.9	Diabetes Mellitus	3928	4.8	Other Circulatory Diseases	2053	3.4
7	Trachea, Bronchus and Lung Cancers	4355	3.1	Trachea, Bronchus and Lung Cancers	3004	3.7	Breast Cancer	2032	3.4
8	Nephritis and Nephrosis	3294	2.3	Nephritis and Nephrosis	1655	2.0	Road Traffic Injuries	1656	2.7
9	Colon and Rectum Cancers	2737	1.9	Colon and Rectum Cancers	1597	1.9	Nephritis and Nephrosis	1639	2.7
10	Breast Cancer	2082	1.5	Liver Cancers	1219	1.5	Trachea, Bronchus and Lung Cancers	1351	2.2
11	Liver Cancers	1879	1.3	Tuberculosis	1169	1.4	Colon and Rectum Cancers	1140	1.9
12	Falls	1653	1.2	Falls	892	1.1	Falls	761	1.3
13	Tuberculosis	1610	1.1	Hypertensive Disease	837	1.0	Asthma	746	1.2
14	Hypertensive Disease	1421	1.0	Leukaemia	757	0.9	Skin and subcutaneous diseases	670	1.1
15	Skin and subcutaneous diseases	1293	0.9	Prostate Cancer	658	0.8	Liver Cancers	660	1.1
16	Asthma	1197	0.8	Skin and subcutaneous diseases	623	0.8	Hypertensive Disease	584	1.0
17	Leukaemia	1090	0.8	Mouth and Oropharynx Cancers	621	0.8	Cervix Cancer	572	0.9
18	Stomach Cancer	1005	0.7	Leukaemia	757	0.9	Tuberculosis	441	0.7
19	Mouth and Oropharynx Cancers	866	0.6	Stomach Cancer	568	0.7	Stomach Cancer	437	0.7
20	Peptic Ulcer Disease	795	0.6	HIV	535	0.7	Diarrhoeal Diseases	409	0.7
	Top 20 diseases	**109188**	**76.8**	**Top 20 diseases**	**64500**	**78.7**	**Top 20 diseases**	**47798**	**79.3**
	All other diseases	*33014*	*23.2*	*All other diseases*	*17441*	*21.3*	*All other diseases*	*12463*	*20.7*
	Total	**142202**	**100.0**	**Total**	**81941**	**100.0**	**Total**	**60261**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 3.5.2: Leading causes of deaths, by sex, 2013

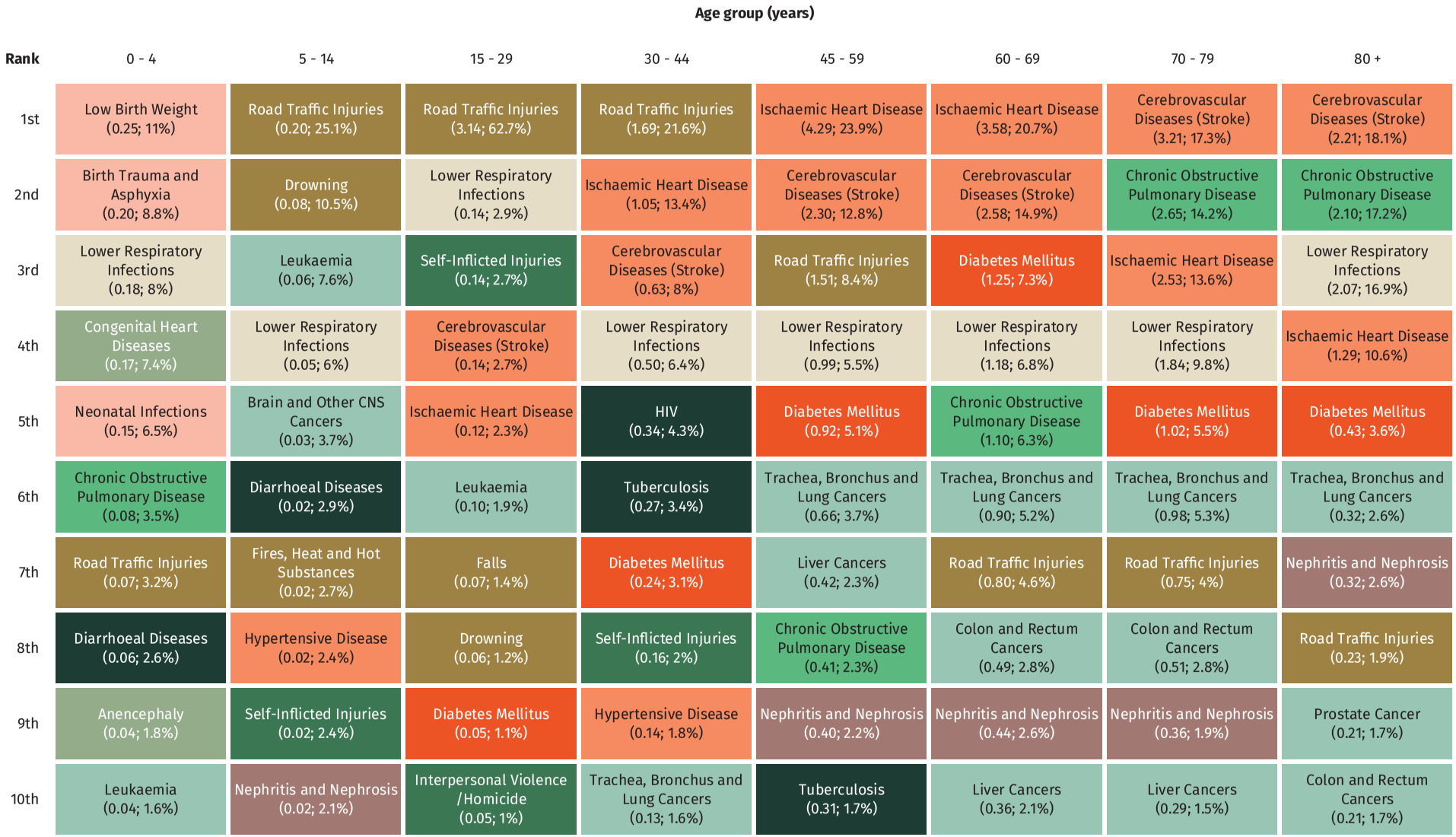


Figure 3.5.4: Leading causes of death (death '000; percentage %) for males, by age group, 2013

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Low Birth Weight (0.17; 9.6%)	Road Traffic Injuries (0.08; 15.1%)	Road Traffic Injuries (0.45; 27%)	Breast Cancer (0.32; 10%)	Cerebrovascular Diseases (Stroke) (1.30; 13.5%)	Cerebrovascular Diseases (Stroke) (2.01; 18.9%)	Cerebrovascular Diseases (Stroke) (3.64; 23.3%)	Cerebrovascular Diseases (Stroke) (3.79; 22%)
2nd	Lower Respiratory Infections (0.17; 9.5%)	Drowning (0.05; 10.3%)	Lower Respiratory Infections (0.10; 6.3%)	Road Traffic Injuries (0.25; 7.7%)	Ischaemic Heart Disease (1.21; 12.6%)	Ischaemic Heart Disease (1.51; 14.2%)	Ischaemic Heart Disease (2.41; 15.4%)	Lower Respiratory Infections (3.75; 21.8%)
3rd	Congenital Heart Diseases (0.14; 8.1%)	Lower Respiratory Infections (0.05; 9.9%)	Cerebrovascular Diseases (Stroke) (0.07; 4.2%)	Cerebrovascular Diseases (Stroke) (0.23; 7.2%)	Diabetes Mellitus (1.05; 10.9%)	Diabetes Mellitus (1.03; 9.7%)	Lower Respiratory Infections (1.76; 11.2%)	Ischaemic Heart Disease (2.15; 12.4%)
4th	Birth Trauma and Asphyxia (0.11; 6.5%)	Brain and Other CNS Cancers (0.05; 9.9%)	Tuberculosis (0.07; 4.1%)	Ischaemic Heart Disease (0.23; 7.2%)	Breast Cancer (0.82; 8.6%)	Lower Respiratory Infections (0.85; 8%)	Diabetes Mellitus (1.27; 8.1%)	Chronic Obstructive Pulmonary Disease (0.98; 5.7%)
5th	Neonatal Infections (0.08; 4.7%)	Falls (0.03; 5.4%)	Ischaemic Heart Disease (0.06; 3.6%)	Diabetes Mellitus (0.23; 7.2%)	Lower Respiratory Infections (0.51; 5.3%)	Breast Cancer (0.48; 4.5%)	Chronic Obstructive Pulmonary Disease (0.85; 5.5%)	Diabetes Mellitus (0.78; 4.5%)
6th	Road Traffic Injuries (0.06; 3.7%)	Leukaemia (0.03; 5%)	Leukaemia (0.05; 3.1%)	Hypertensive Disease (0.17; 5.2%)	Road Traffic Injuries (0.35; 3.7%)	Trachea, Bronchus and Lung Cancers (0.33; 3.1%)	Trachea, Bronchus and Lung Cancers (0.48; 3.1%)	Nephritis and Nephrosis (0.53; 3.1%)
7th	Diarrhoeal Diseases (0.05; 2.9%)	Cerebrovascular Diseases (Stroke) (0.02; 3.2%)	Brain and Other CNS Cancers (0.04; 2.5%)	Lower Respiratory Infections (0.15; 4.6%)	Trachea, Bronchus and Lung Cancers (0.28; 2.9%)	Nephritis and Nephrosis (0.31; 2.9%)	Nephritis and Nephrosis (0.46; 2.9%)	Asthma (0.40; 2.3%)
8th	Anencephaly (0.03; 2%)	Epilepsy (0.01; 2.8%)	Diabetes Mellitus (0.04; 2.2%)	Tuberculosis (0.08; 2.5%)	Cervix Cancer (0.24; 2.5%)	Chronic Obstructive Pulmonary Disease (0.30; 2.8%)	Colon and Rectum Cancers (0.32; 2%)	Falls (0.30; 1.7%)
9th	Leukaemia (0.03; 1.8%)	Diarrhoeal Diseases (0.01; 2.4%)	Lymphoma (0.03; 1.8%)	Nephritis and Nephrosis (0.07; 2.3%)	Colon and Rectum Cancers (0.23; 2.4%)	Colon and Rectum Cancers (0.28; 2.7%)	Breast Cancer (0.28; 1.8%)	Skin and subcutaneous diseases (0.24; 1.4%)
10th	Chronic Obstructive Pulmonary Disease (0.02; 1.4%)	Benign Neoplasms (0.01; 2.4%)	Nephritis and Nephrosis (0.03; 1.7%)	Colon and Rectum Cancers (0.06; 2%)	Nephritis and Nephrosis (0.23; 2.3%)	Road Traffic Injuries (0.27; 2.5%)	Liver Cancers (0.18; 1.2%)	Colon and Rectum Cancers (0.24; 1.4%)

Figure 3.5.5: Leading causes of death (death '000; percentage %) for females, by age group, 2013

3.6 Deaths – 2014

In 2014, a total of 150,318 deaths occurred in Malaysia. A total of 86,532 deaths (57.6%) occurred among males and 63,786 deaths (42.4%) among females.

3.6.1 Pattern of Deaths by sex

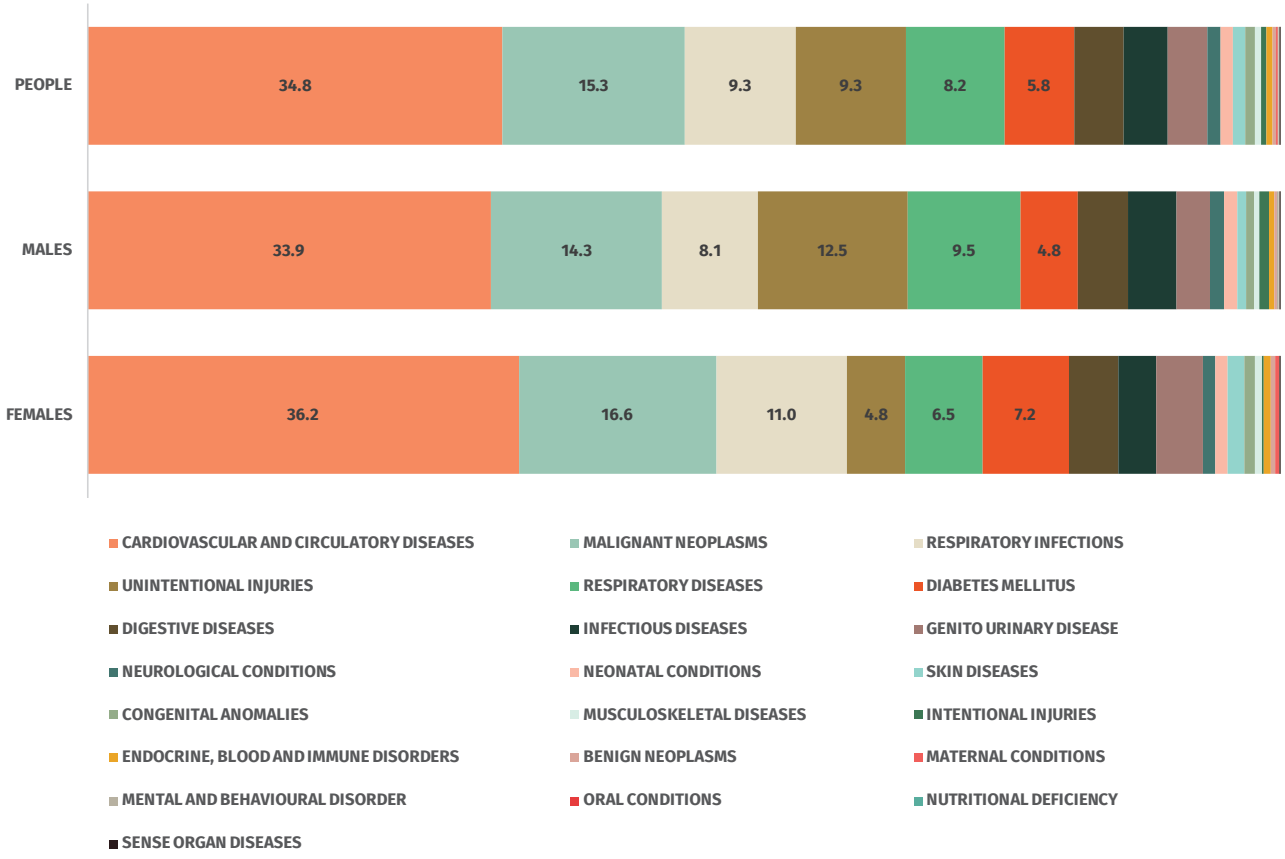


Figure 3.6.1: Percentage (%) of deaths, by disease groups and sex, 2014

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards deaths in Malaysia for 2014, followed by Malignant Neoplasms and Respiratory Infections **[Figure 3.6.1]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest number of deaths and contributed to more than a third of deaths. For males, Malignant Neoplasms contributed towards 14.3% of deaths followed by Unintentional Injuries at 12.5% and Respiratory Diseases at 9.5%. For females, Malignant Neoplasms were the second largest contributor of deaths with 16.6%, followed by Respiratory Infections at 11.0% and Diabetes Mellitus at 7.2% **[Table 3.6.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	Deaths (number)	Deaths (%)	Deaths (number)	Deaths (%)	Deaths (number)	Deaths (%)
INFECTIOUS DISEASES	5576	3.7	3541	4.1	2035	3.2
RESPIRATORY INFECTIONS	13959	9.3	6966	8.1	6993	11.0
MATERNAL CONDITIONS	201	0.1	0	0.0	201	0.3
NEONATAL CONDITIONS	1622	1.1	972	1.1	650	1.0
NUTRITIONAL DEFICIENCY	11	0.0	3	0.0	8	0.0
MALIGNANT NEOPLASMS	22994	15.3	12414	14.3	10580	16.6
BENIGN NEOPLASMS	469	0.3	213	0.2	256	0.4
DIABETES MELLITUS	8752	5.8	4132	4.8	4620	7.2
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	756	0.5	372	0.4	384	0.6
MENTAL AND BEHAVIOURAL DISORDER	120	0.1	120	0.1	0	0.0
NEUROLOGICAL CONDITIONS	1669	1.1	1002	1.2	667	1.0
SENSE ORGAN DISEASES	4	0.0	2	0.0	2	0.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	52373	34.8	29292	33.9	23081	36.2
RESPIRATORY DISEASES	12364	8.2	8220	9.5	4144	6.5
DIGESTIVE DISEASES	6277	4.2	3648	4.2	2629	4.1
GENITO URINARY DISEASE	4931	3.3	2422	2.8	2509	3.9
SKIN DISEASES	1534	1.0	653	0.8	881	1.4
MUSCULOSKELETAL DISEASES	770	0.5	392	0.5	378	0.6
CONGENITAL ANOMALIES	1177	0.8	587	0.7	590	0.9
ORAL CONDITIONS	54	0.0	47	0.1	7	0.0
UNINTENTIONAL INJURIES	13935	9.3	10846	12.5	3089	4.8
INTENTIONAL INJURIES	770	0.5	688	0.8	82	0.1
TOTAL	**150318**	**100.0**	**86532**	**100.0**	**63786**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 3.6.1: Deaths by disease groups and by sex, 2014

3.6.2 Pattern of Deaths by age

Among males, mortality among those below 5 years of age contributed towards 2.8% of the total deaths in Malaysia for 2014. Neonatal Conditions contributed the largest percentage, 39.8%, of the deaths among males below 5 years of age, followed by Congenital Anomalies at 21.8%. Unintentional Injuries were the predominant cause of deaths among the males 5 to 29 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of deaths among males from the age of 30 years and above. Respiratory Diseases had an increasing percentage of contribution towards deaths in males as the age increases **[Figure 3.6.2]**.

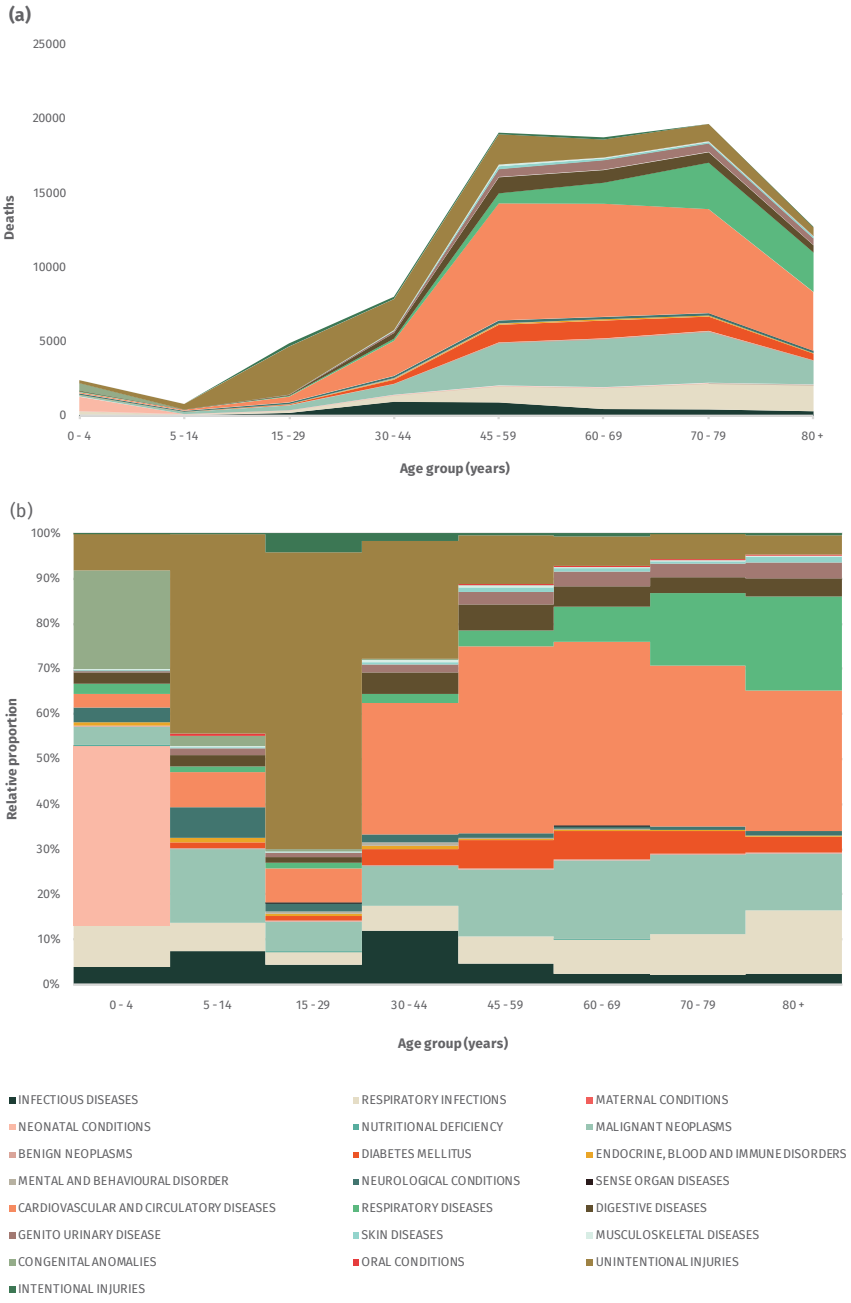


Figure 3.6.2: Number (a) & percentage (b) of deaths, by disease groups & age, males, 2014

Among females, mortality among those below 5 years of age contributed towards 3.0% of the total deaths in Malaysia for 2014. Neonatal Conditions contributed the largest percentage, 33.5%, of the deaths among females below 5 years of age, followed by Congenital Anomalies at 26.0%. Unintentional Injuries were the predominant cause of deaths among the females 5 to 29 years of age, while Malignant Neoplasms were the predominant cause of deaths among females 30 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of deaths among females from the age of 45 years and above, with an increasing percentage of contribution by Respiratory Infections towards deaths in females as the age increases **[Figure 3.6.3]**.

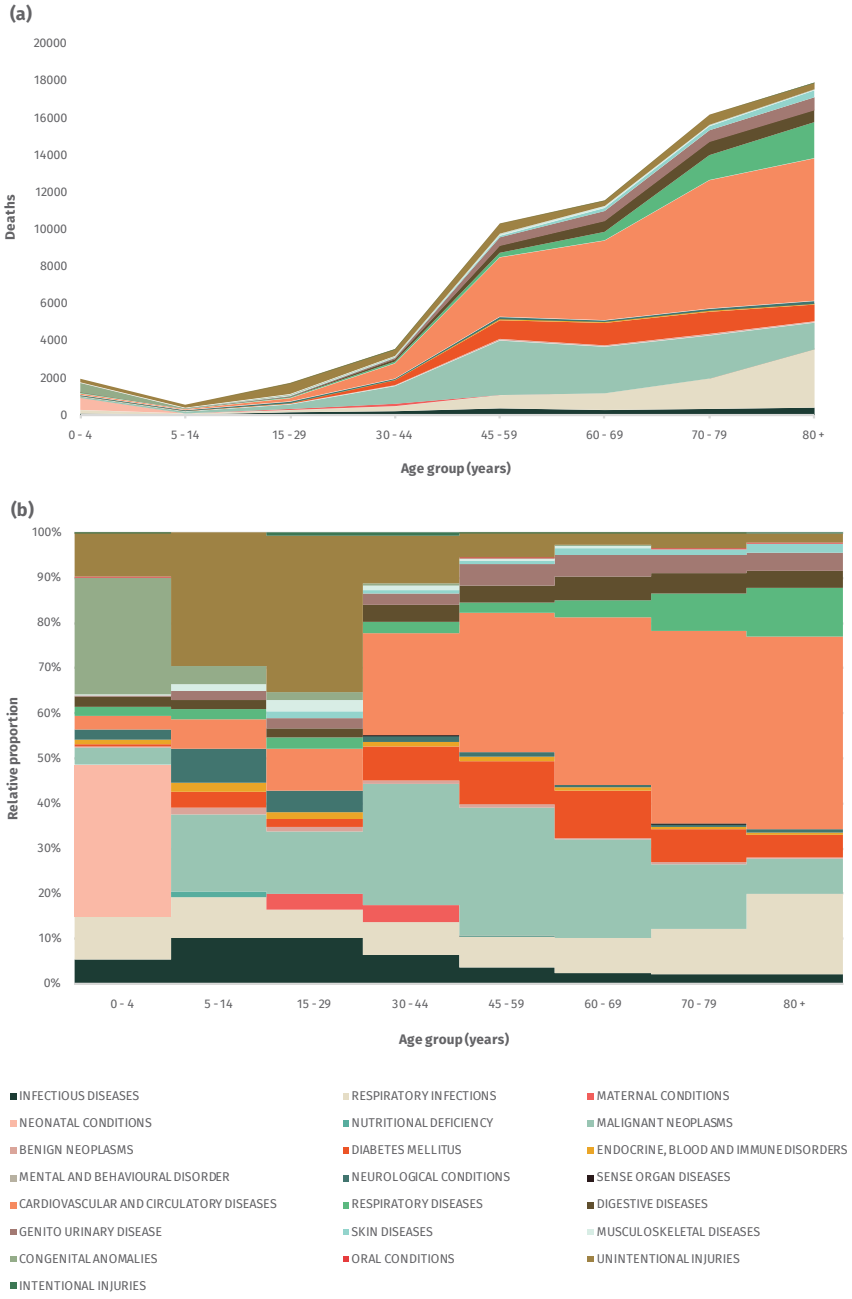


Figure 3.6.3: Number (a) & percentage (b) of deaths, by disease groups & age, females, 2014

3.6.3 Leading Causes of Deaths

Cerebrovascular Diseases were the leading cause of deaths in Malaysia for 2014, contributing to 15.2% of the total deaths. This was followed by Ischaemic Heart Disease, with 14.8%, and Lower Respiratory Infections, with 9.3% of total deaths. Road Traffic Injuries, with 6.8% and Chronic Obstructive Pulmonary Disease with 6.1% make up the five leading causes of death in 2014.

Among males, Ischaemic Heart Disease contributed the largest amount of deaths with 16.2%. Cerebrovascular Diseases were the second highest contributor of deaths in males with 13.3% followed by Road Traffic Injuries with 9.9%. Lower Respiratory Infections and Chronic Obstructive Pulmonary Disease make up the fourth and fifth leading causes of death among males. Among females, Cerebrovascular Diseases were the leading cause of death with 17.9% followed by Ischaemic Heart Disease with 12.9% and Lower Respiratory Infections with 11.0%. Diabetes Mellitus was the fourth and Chronic Obstructive Pulmonary Disease make up the fifth leading cause of deaths among females **[Table 3.6.2]**.

The leading causes of death vary according to age. Among males below 5 years of age, Low Birth Weight contributed the highest number of deaths. Road Traffic Injuries were the leading cause of deaths among males 5 to 44 years of age. Ischaemic Heart Disease was the second highest contributor of deaths among males 30 to 44 years of age. Among males of 45 to 69 years of age, Ischaemic Heart Diseases rises to the leading cause of deaths. Cerebrovascular Diseases were the second leading cause of deaths among males 45 to 69 years of age, and the leading cause of deaths among males 70 to 79 years of age. Chronic Obstructive Pulmonary Disease was the highest cause of deaths among those 80 years of age and above. Leukaemia was the leading cancer causing deaths among males below 45 years of age while Trachea, Bronchus and Lung Cancers were the leading cancer causing deaths among those 45 years and above **[Figure 3.6.4]**.

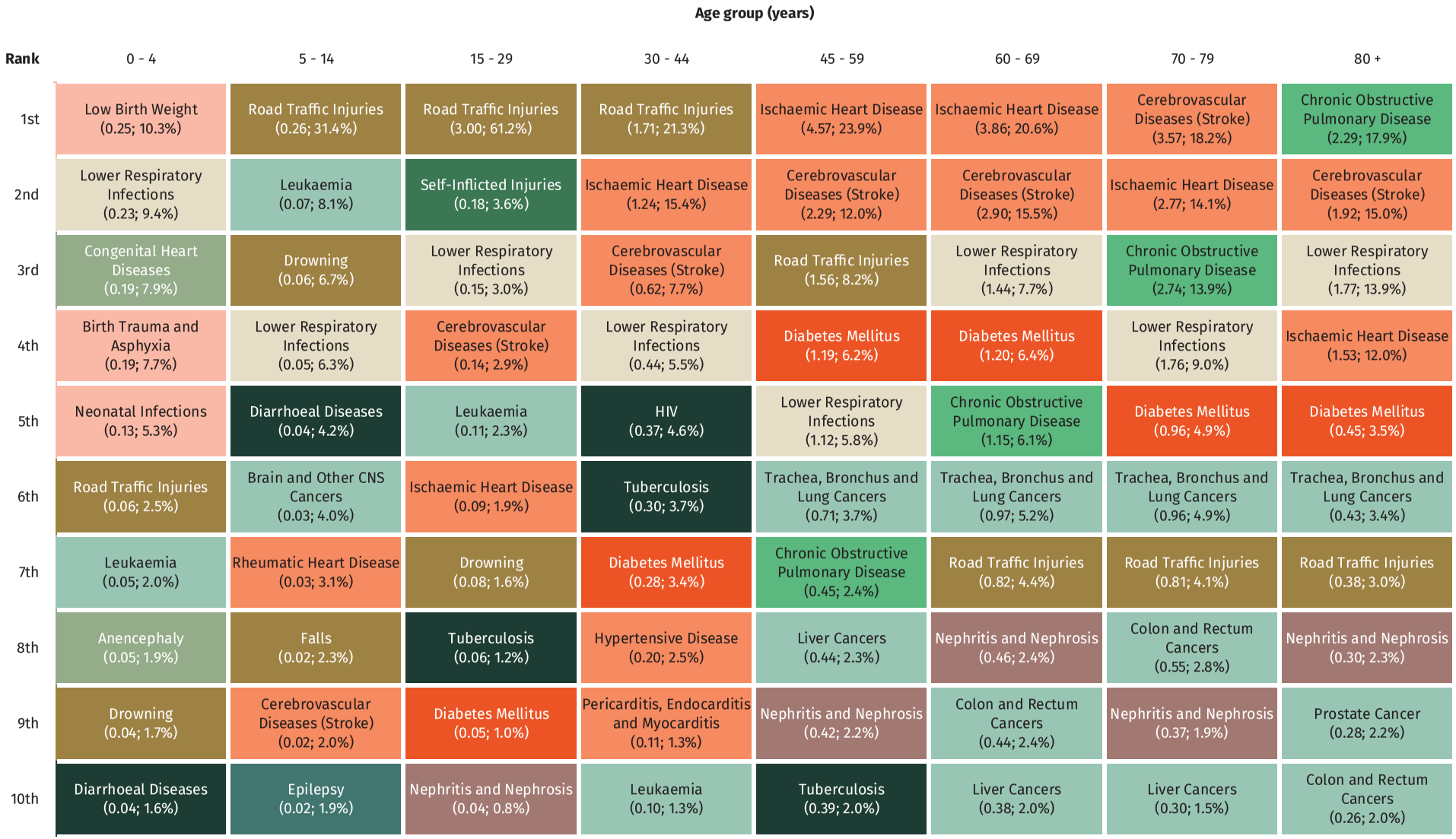
Among females below 5 years of age, Lower Respiratory Infections contributed the highest number of deaths. Road Traffic Injuries were the leading cause of deaths among females 5 to 29 years of age. Breast Cancer was found to contribute the highest number of deaths among females 30 to 44 years of age. Cerebrovascular Diseases were the second highest contributor of deaths among females 30 to 44 years of age and the leading cause of deaths among females of 45 years of age and above. Ischaemic Heart Disease was the second leading cause of deaths among females 45 to 79 years of age. Lower Respiratory Infections were the third leading cause of deaths among females 70 to 79 years of age and the second highest cause of deaths among those 80 years of age and above. Breast cancer was the leading cancer causing deaths among females 30 to 69 years of age and Trachea, Bronchus and Lung Cancers were the leading cancer causing deaths among those 70 years of age and above. **[Figure 3.6.5]**.

Rank	People	Deaths	% of total	Males	Deaths	% of total	Females	Deaths	% of total
1	Cerebrovascular Diseases (Stroke)	22922	15.2	Ischaemic Heart Disease	14052	16.2	Cerebrovascular Diseases (Stroke)	11434	17.9
2	Ischaemic Heart Disease	22303	14.8	Cerebrovascular Diseases (Stroke)	11488	13.3	Ischaemic Heart Disease	8251	12.9
3	Lower Respiratory Infections	13947	9.3	Road Traffic Injuries	8607	9.9	Lower Respiratory Infections	6986	11.0
4	Road Traffic Injuries	10261	6.8	Lower Respiratory Infections	6961	8.0	Diabetes Mellitus	4620	7.2
5	Chronic Obstructive Pulmonary Disease	9194	6.1	Chronic Obstructive Pulmonary Disease	6740	7.8	Chronic Obstructive Pulmonary Disease	2454	3.8
6	Diabetes Mellitus	8752	5.8	Diabetes Mellitus	4132	4.8	Breast Cancer	2197	3.4
7	Trachea, Bronchus and Lung Cancers	4725	3.1	Trachea, Bronchus and Lung Cancers	3176	3.7	Road Traffic Injuries	1654	2.6
8	Nephritis and Nephrosis	3304	2.2	Nephritis and Nephrosis	1699	2.0	Nephritis and Nephrosis	1605	2.5
9	Colon and Rectum Cancers	2935	2.0	Colon and Rectum Cancers	1698	2.0	Trachea, Bronchus and Lung Cancers	1549	2.4
10	Breast Cancer	2344	1.6	Tuberculosis	1331	1.5	Colon and Rectum Cancers	1237	1.9
11	Liver Cancers	1950	1.3	Liver Cancers	1282	1.5	Hypertensive Disease	1068	1.7
12	Hypertensive Disease	1938	1.3	Falls	953	1.1	Skin and subcutaneous diseases	881	1.4
13	Tuberculosis	1857	1.2	Hypertensive Disease	870	1.0	Falls	880	1.4
14	Falls	1833	1.2	Leukaemia	806	0.9	Asthma	789	1.2
15	Skin and subcutaneous diseases	1534	1.0	Prostate Cancer	699	0.8	Liver Cancers	668	1.0
16	Asthma	1268	0.8	Mouth and Oropharynx Cancers	678	0.8	Cervix Cancer	597	0.9
17	Stomach Cancer	998	0.7	Skin and subcutaneous diseases	653	0.8	Diarrhoeal Diseases	547	0.9
18	Diarrhoeal Diseases	966	0.6	Peptic Ulcer Disease	610	0.7	Tuberculosis	526	0.8
19	Mouth and Oropharynx Cancers	944	0.6	Stomach Cancer	579	0.7	Stomach Cancer	419	0.7
20	Peptic Ulcer Disease	929	0.6	HIV	578	0.7	Brain and Other CNS Cancers	410	0.6
	Top 20 diseases	**126073**	**83.9**	**Top 20 diseases**	**72899**	**84.2**	**Top 20 diseases**	**54185**	**84.9**
	All other diseases	*24245*	*16.1*	*All other diseases*	*13633*	*15.8*	*All other diseases*	*9601*	*15.1*
	Total	**150318**	**100.0**	**Total**	**86532**	**100.0**	**Total**	**63786**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 3.6.2: Leading causes of deaths, by sex, 2014



Rank	Age group (years) 0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Low Birth Weight (0.25; 10.3%)	Road Traffic Injuries (0.26; 31.4%)	Road Traffic Injuries (3.00; 61.2%)	Road Traffic Injuries (1.71; 21.3%)	Ischaemic Heart Disease (4.57; 23.9%)	Ischaemic Heart Disease (3.86; 20.6%)	Cerebrovascular Diseases (Stroke) (3.57; 18.2%)	Chronic Obstructive Pulmonary Disease (2.29; 17.9%)
2nd	Lower Respiratory Infections (0.23; 9.4%)	Leukaemia (0.07; 8.1%)	Self-Inflicted Injuries (0.18; 3.6%)	Ischaemic Heart Disease (1.24; 15.4%)	Cerebrovascular Diseases (Stroke) (2.29; 12.0%)	Cerebrovascular Diseases (Stroke) (2.90; 15.5%)	Ischaemic Heart Disease (2.77; 14.1%)	Cerebrovascular Diseases (Stroke) (1.92; 15.0%)
3rd	Congenital Heart Diseases (0.19; 7.9%)	Drowning (0.06; 6.7%)	Lower Respiratory Infections (0.15; 3.0%)	Cerebrovascular Diseases (Stroke) (0.62; 7.7%)	Road Traffic Injuries (1.56; 8.2%)	Lower Respiratory Infections (1.44; 7.7%)	Chronic Obstructive Pulmonary Disease (2.74; 13.9%)	Lower Respiratory Infections (1.77; 13.9%)
4th	Birth Trauma and Asphyxia (0.19; 7.7%)	Lower Respiratory Infections (0.05; 6.3%)	Cerebrovascular Diseases (Stroke) (0.14; 2.9%)	Lower Respiratory Infections (0.44; 5.5%)	Diabetes Mellitus (1.19; 6.2%)	Diabetes Mellitus (1.20; 6.4%)	Lower Respiratory Infections (1.76; 9.0%)	Ischaemic Heart Disease (1.53; 12.0%)
5th	Neonatal Infections (0.13; 5.3%)	Diarrhoeal Diseases (0.04; 4.2%)	Leukaemia (0.11; 2.3%)	HIV (0.37; 4.6%)	Lower Respiratory Infections (1.12; 5.8%)	Chronic Obstructive Pulmonary Disease (1.15; 6.1%)	Diabetes Mellitus (0.96; 4.9%)	Diabetes Mellitus (0.45; 3.5%)
6th	Road Traffic Injuries (0.06; 2.5%)	Brain and Other CNS Cancers (0.03; 4.0%)	Ischaemic Heart Disease (0.09; 1.9%)	Tuberculosis (0.30; 3.7%)	Trachea, Bronchus and Lung Cancers (0.71; 3.7%)	Trachea, Bronchus and Lung Cancers (0.97; 5.2%)	Trachea, Bronchus and Lung Cancers (0.96; 4.9%)	Trachea, Bronchus and Lung Cancers (0.43; 3.4%)
7th	Leukaemia (0.05; 2.0%)	Rheumatic Heart Disease (0.03; 3.1%)	Drowning (0.08; 1.6%)	Diabetes Mellitus (0.28; 3.4%)	Chronic Obstructive Pulmonary Disease (0.45; 2.4%)	Road Traffic Injuries (0.82; 4.4%)	Road Traffic Injuries (0.81; 4.1%)	Road Traffic Injuries (0.38; 3.0%)
8th	Anencephaly (0.05; 1.9%)	Falls (0.02; 2.3%)	Tuberculosis (0.06; 1.2%)	Hypertensive Disease (0.20; 2.5%)	Liver Cancers (0.44; 2.3%)	Nephritis and Nephrosis (0.46; 2.4%)	Colon and Rectum Cancers (0.55; 2.8%)	Nephritis and Nephrosis (0.30; 2.3%)
9th	Drowning (0.04; 1.7%)	Cerebrovascular Diseases (Stroke) (0.02; 2.0%)	Diabetes Mellitus (0.05; 1.0%)	Pericarditis, Endocarditis and Myocarditis (0.11; 1.3%)	Nephritis and Nephrosis (0.42; 2.2%)	Colon and Rectum Cancers (0.44; 2.4%)	Nephritis and Nephrosis (0.37; 1.9%)	Prostate Cancer (0.28; 2.2%)
10th	Diarrhoeal Diseases (0.04; 1.6%)	Epilepsy (0.02; 1.9%)	Nephritis and Nephrosis (0.04; 0.8%)	Leukaemia (0.10; 1.3%)	Tuberculosis (0.39; 2.0%)	Liver Cancers (0.38; 2.0%)	Liver Cancers (0.30; 1.5%)	Colon and Rectum Cancers (0.26; 2.0%)

Figure 3.6.4: Leading causes of death (death '000; percentage %) for males, by age group, 2014

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Lower Respiratory Infections (0.18; 9.5%)	Road Traffic Injuries (0.09; 17.3%)	Road Traffic Injuries (0.52; 29.8%)	Breast Cancer (0.33; 9.2%)	Cerebrovascular Diseases (Stroke) (1.40; 13.5%)	Cerebrovascular Diseases (Stroke) (2.08; 17.9%)	Cerebrovascular Diseases (Stroke) (3.52; 21.8%)	Cerebrovascular Diseases (Stroke) (4.02; 22.4%)
2nd	Low Birth Weight (0.17; 8.6%)	Lower Respiratory Infections (0.05; 8.9%)	Lower Respiratory Infections (0.11; 6.3%)	Cerebrovascular Diseases (Stroke) (0.30; 8.3%)	Ischaemic Heart Disease (1.34; 13.0%)	Ischaemic Heart Disease (1.66; 14.3%)	Ischaemic Heart Disease (2.80; 17.3%)	Lower Respiratory Infections (3.15; 17.5%)
3rd	Congenital Heart Diseases (0.15; 7.7%)	Drowning (0.04; 7.2%)	Cerebrovascular Diseases (Stroke) (0.07; 4.1%)	Road Traffic Injuries (0.29; 8.2%)	Diabetes Mellitus (1.00; 9.7%)	Diabetes Mellitus (1.21; 10.4%)	Lower Respiratory Infections (1.64; 10.1%)	Ischaemic Heart Disease (2.13; 11.9%)
4th	Birth Trauma and Asphyxia (0.12; 6.1%)	Brain and Other CNS Cancers (0.03; 6.1%)	Tuberculosis (0.07; 4.0%)	Ischaemic Heart Disease (0.29; 8.1%)	Breast Cancer (0.95; 9.2%)	Lower Respiratory Infections (0.90; 7.8%)	Diabetes Mellitus (1.18; 7.3%)	Chronic Obstructive Pulmonary Disease (1.17; 6.5%)
5th	Neonatal Infections (0.09; 4.8%)	Leukaemia (0.03; 5.2%)	Leukaemia (0.05; 3.0%)	Diabetes Mellitus (0.27; 7.6%)	Lower Respiratory Infections (0.71; 6.8%)	Breast Cancer (0.55; 4.7%)	Chronic Obstructive Pulmonary Disease (0.90; 5.5%)	Diabetes Mellitus (0.90; 5%)
6th	Road Traffic Injuries (0.07; 3.5%)	Diarrhoeal Diseases (0.02; 4.1%)	Brain and Other CNS Cancers (0.04; 2.5%)	Lower Respiratory Infections (0.26; 7.2%)	Road Traffic Injuries (0.35; 3.4%)	Nephritis and Nephrosis (0.36; 3.1%)	Trachea, Bronchus and Lung Cancers (0.53; 3.3%)	Hypertensive Disease (0.64; 3.5%)
7th	Diarrhoeal Diseases (0.06; 3.2%)	Epilepsy (0.02; 3.5%)	Lymphoma (0.04; 2.4%)	Hypertensive Disease (0.10; 2.8%)	Nephritis and Nephrosis (0.32; 3.1%)	Trachea, Bronchus and Lung Cancers (0.35; 3.0%)	Nephritis and Nephrosis (0.35; 2.2%)	Nephritis and Nephrosis (0.45; 2.5%)
8th	Falls (0.06; 2.8%)	Cerebrovascular Diseases (Stroke) (0.02; 3.5%)	Dengue (0.04; 2.0%)	Cervix Cancer (0.08; 2.2%)	Trachea, Bronchus and Lung Cancers (0.27; 2.6%)	Colon and Rectum Cancers (0.28; 2.4%)	Colon and Rectum Cancers (0.34; 2.1%)	Asthma (0.43; 2.4%)
9th	Brain and Other CNS Cancers (0.03; 1.5%)	Diabetes Mellitus (0.02; 3.3%)	Ischaemic Heart Disease (0.04; 2.0%)	Tuberculosis (0.08; 2.1%)	Colon and Rectum Cancers (0.26; 2.5%)	Chronic Obstructive Pulmonary Disease (0.25; 2.1%)	Falls (0.31; 1.9%)	Skin and subcutaneous diseases (0.37; 2.1%)
10th	Cerebrovascular Diseases (Stroke) (0.03; 1.4%)	Falls (0.02; 3.3%)	Diabetes Mellitus (0.03; 1.8%)	Nephritis and Nephrosis (0.07; 2.0%)	Cervix Cancer (0.25; 2.5%)	Hypertensive Disease (0.20; 1.7%)	Breast Cancer (0.24; 1.5%)	Trachea, Bronchus and Lung Cancers (0.33; 1.9%)

Figure 3.6.5: Leading causes of death (death '000; percentage %) for females, by age group, 2014

4.0 Years Of Life Lost

Malaysia is expected to reach the status of an ageing society soon. This means that Malaysians are dying at older ages, reflecting improvement in overall health outcomes in the population. Fatal burden of disease and injury, expressed as Years of Life Lost (YLL), represents the premature mortality within the population due to diseases and injuries.

4.1 Years of Life Lost (YLL) - 2009

In 2009, a total of 2.72 million years of life were lost due to premature mortality in Malaysia. Males contributed towards 1.65 million YLL (60.5%) and females 1.08 million YLL (39.5%).

4.1.1 Pattern of Years of Life Lost (YLL) by sex

Figure 4.1.1: Percentage (%) of fatal burden (YLL), by disease groups and sex, 2009

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards fatal burden of disease and injury in Malaysia for 2009, followed by Unintentional Injuries and Malignant Neoplasms **[Figure 4.1.1]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest YLL and contributed to more than a quarter of fatal disease and injury burden. For males, Unintentional Injuries contributed to 21.5% of fatal disease and injury burden followed by Malignant Neoplasms at 12.0% and Infectious Diseases at 6.9%. For females, Malignant Neoplasms were the second largest contributor of fatal disease and injury burden with 18.2%, followed by Respiratory Infections at 9.2% and Unintentional Injuries at 8.6% **[Table 4.1.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	YLL (number)	YLL (%)	YLL (number)	YLL (%)	YLL (number)	YLL (%)
INFECTIOUS DISEASES	160118	5.9	113276	6.9	46841	4.4
RESPIRATORY INFECTIONS	203505	7.5	104976	6.4	98529	9.2
MATERNAL CONDITIONS	9199	0.3	0	0.0	9199	0.9
NEONATAL CONDITIONS	125226	4.6	72141	4.4	53084	4.9
NUTRITIONAL DEFICIENCY	1369	0.1	560	0.0	809	0.1
MALIGNANT NEOPLASMS	393661	14.5	197719	12.0	195942	18.2
BENIGN NEOPLASMS	11196	0.4	4725	0.3	6471	0.6
DIABETES MELLITUS	135275	5.0	63243	3.8	72032	6.7
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	16730	0.6	8094	0.5	8635	0.8
MENTAL AND BEHAVIOURAL DISORDER	464	0.0	457	0.0	7	0.0
NEUROLOGICAL CONDITIONS	46987	1.7	29011	1.8	17976	1.7
SENSE ORGAN DISEASES	145	0.0	81	0.0	64	0.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	731711	26.9	442757	26.9	288954	26.9
RESPIRATORY DISEASES	129744	4.8	82777	5.0	46967	4.4
DIGESTIVE DISEASES	102915	3.8	63174	3.8	39741	3.7
GENITO URINARY DISEASE	73653	2.7	36274	2.2	37379	3.5
SKIN DISEASES	19146	0.7	10278	0.6	8868	0.8
MUSCULOSKELETAL DISEASES	16119	0.6	6895	0.4	9224	0.9
CONGENITAL ANOMALIES	72507	2.7	34657	2.1	37851	3.5
ORAL CONDITIONS	581	0.0	397	0.0	183	0.0
UNINTENTIONAL INJURIES	446030	16.4	353595	21.5	92435	8.6
INTENTIONAL INJURIES	24696	0.9	20736	1.3	3960	0.4
TOTAL	**2720976**	**100.0**	**1645823**	**100.0**	**1075153**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 4.1.1: Fatal burden of disease and injury by disease groups and by sex, 2009

4.1.2 Pattern of Years of Life Lost (YLL) by age

Males between the ages of 45 and 59 contributed towards 24.6% of the total YLL, the age group with the highest contribution towards male fatal burden of disease and injury in Malaysia in 2009 **[Figure 4.1.2(a)].** Mortality among males below 5 years of age contributed towards 10.5% of the total fatal burden of disease and injury in Malaysia for 2009. Neonatal Conditions contributed the largest percentage, 41.9%, of the YLL among males below 5 years of age, followed by Congenital Anomalies at 18.2%. Unintentional Injuries were the predominant cause of YLL among males 5 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of fatal burden among males from the age of 45 years and above. Respiratory Diseases had an increasing percentage of contribution towards YLL in males as the age increases **[Figure 4.1.2(b)].**

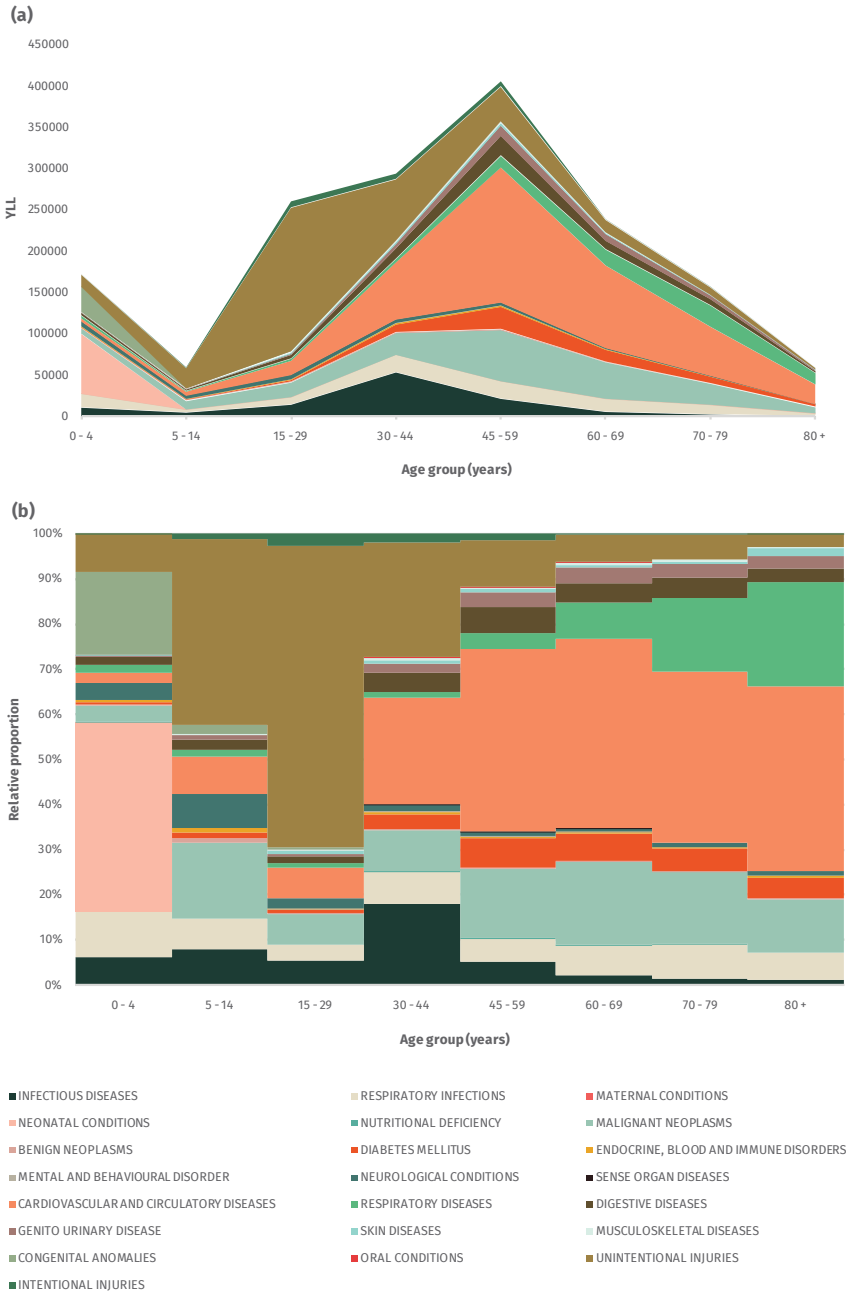


Figure 4.1.2: Number (a) & percentage (b) of fatal burden (YLL), by disease groups & age, males, 2009

Females between the ages of 45 and 59 years contributed towards 22.6% of the total YLL, the age group with the highest contribution towards female fatal burden of disease and injury in Malaysia in 2009 **[Figure 4.1.3(a)]**. Mortality among females below 5 years of age contributed towards 13.4% of the total fatal burden of disease and injury in Malaysia for 2009. Neonatal Conditions contributed the largest percentage, 36.9%, of the YLL among females below 5 years of age, followed by Congenital Anomalies at 24.0%. Unintentional Injuries were the predominant cause of YLL among females 5 to 29 years of age, while Malignant Neoplasms were the predominant cause of YLL among females 30 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of fatal burden among females from the age of 45 years and above, with an increasing percentage of contribution by Respiratory Infections towards YLL in females as the age increases **[Figure 4.1.3(b)]**.

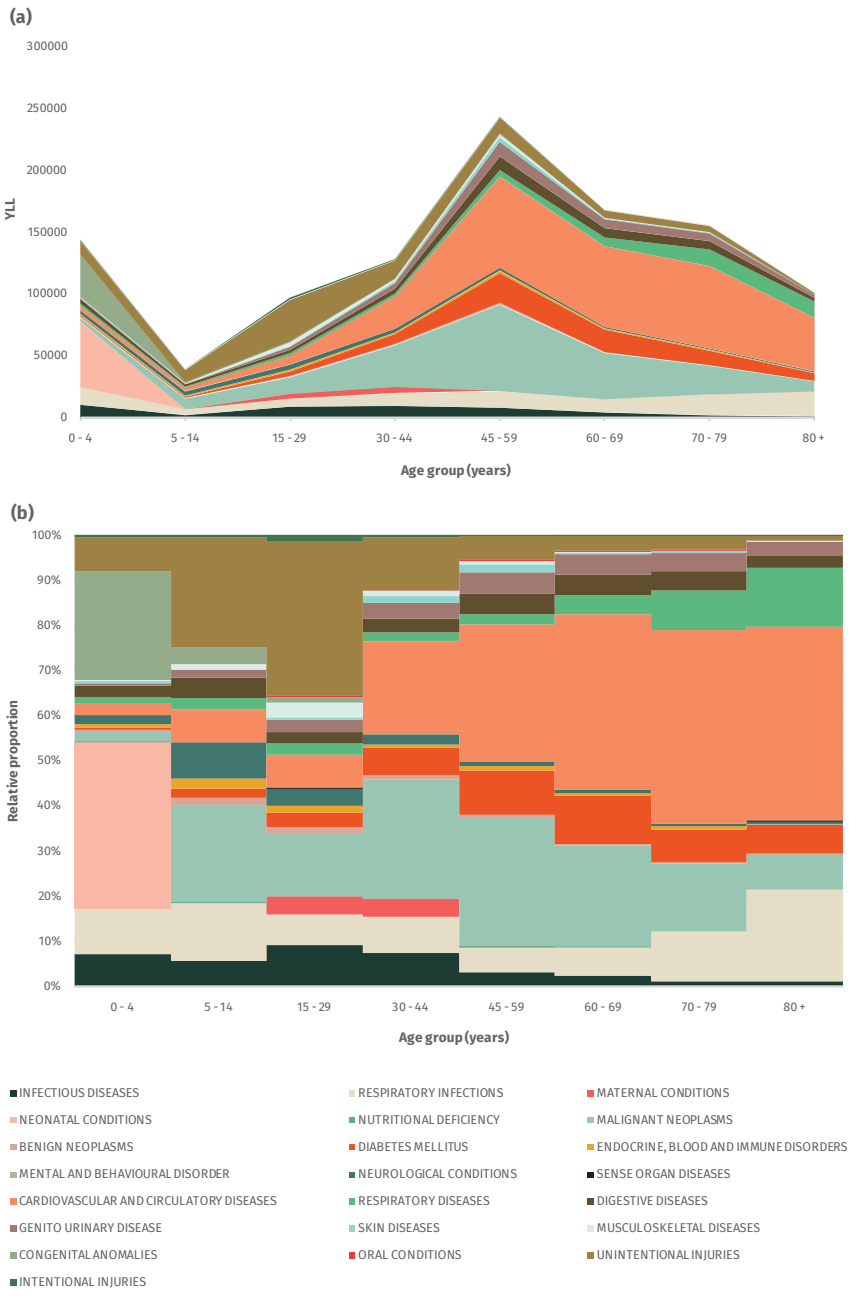


Figure 4.1.3: Number (a) & percentage (b) of fatal burden (YLL), by disease groups & age, females, 2009

4.1.3 Leading Causes of Years of Life Lost (YLL)

Road Traffic Injuries were the leading cause of fatal burden in Malaysia for 2009, contributing to 12.8% of the total YLL. This was followed by Ischaemic Heart Disease, with 11.9%, and Cerebrovascular Diseases, with 10.8% of total YLL. Lower Respiratory Infections, with 7.5% and Diabetes Mellitus with 5.0% make up the five leading causes of fatal burden of disease and injury in 2009.

Among males, Road Traffic Injuries contributed the largest amount of YLL with 17.7%. Ischaemic Heart Disease was the second highest contributor of YLL in males with 13.3% followed by Cerebrovascular Diseases with 9.4%. Lower Respiratory Infections and Diabetes Mellitus make up the fourth and fifth leading causes of YLL among males. Among females, Cerebrovascular Diseases were the leading cause of YLL with 12.8% followed by Ischaemic Heart Disease with 9.7% and Lower Respiratory Infections with 9.2%. Diabetes Mellitus was the fourth and Road Traffic Injuries make up the fifth leading cause of YLL among females **[Table 4.1.2]**.

The leading causes of fatal burden vary according to age. Among males below 5 years of age, Birth Trauma and Asphyxia contributed the highest amount of YLL. Road Traffic Injuries were the leading cause of YLL among males 5 to 44 years of age. Ischaemic Heart Disease was the second highest contributor of YLL among males 30 to 44 years of age. Among males of 45 to 79 years of age, Ischaemic Heart Diseases rises to the leading cause of YLL. Cerebrovascular Diseases were the second leading cause of YLL among males 45 to 79 years of age, and the leading cause of YLL among males 80 years of age and above. Chronic Obstructive Pulmonary Disease was the second highest cause of YLL among those 80 years of age and above. Leukaemia was the leading cancer causing fatal burden among males below 30 years of age while Trachea, Bronchus and Lung Cancers were the leading cancer causing YLL among those 30 years and above **[Figure 4.1.4]**.

Among females below 5 years of age, Lower Respiratory Infections contributed the highest amount of YLL. Road Traffic Injuries were the leading cause of YLL among females 5 to 29 years of age. Breast Cancer was found to contribute the highest YLL among females 30 to 44 years of age. Cerebrovascular Diseases were the second highest contributor of YLL among females 30 to 44 years of age but rises to be the leading cause of YLL among females of 45 years of age and above. Ischaemic Heart Disease was the second leading cause of YLL among females 45 to 79 years of age. Lower Respiratory Infections were the third leading cause of YLL among females 70 to 79 years of age and the second highest cause of YLL among those 80 years of age and above. Breast cancer was the leading cancer causing fatal burden among females 30 to 69 years of age. Trachea, Bronchus and Lung Cancers were the leading cancer causing YLL among females 70 years and above **[Figure 4.1.5]**.

Rank	People	YLL	% of total	Males	YLL	% of total	Females	YLL	% of total
1	Road Traffic Injuries	348993	12.8	Road Traffic Injuries	290907	17.7	Cerebrovascular Diseases (Stroke)	137766	12.8
2	Ischaemic Heart Disease	323821	11.9	Ischaemic Heart Disease	219176	13.3	Ischaemic Heart Disease	104645	9.7
3	Cerebrovascular Diseases (Stroke)	293289	10.8	Cerebrovascular Diseases (Stroke)	155523	9.4	Lower Respiratory Infections	98379	9.2
4	Lower Respiratory Infections	203239	7.5	Lower Respiratory Infections	104860	6.4	Diabetes Mellitus	72032	6.7
5	Diabetes Mellitus	135275	5.0	Diabetes Mellitus	63243	3.8	Road Traffic Injuries	58087	5.4
6	Chronic Obstructive Pulmonary Disease	84879	3.1	Chronic Obstructive Pulmonary Disease	60865	3.7	Breast Cancer	46850	4.4
7	Trachea, Bronchus and Lung Cancers	63383	2.3	Trachea, Bronchus and Lung Cancers	42359	2.6	Nephritis and Nephrosis	24517	2.3
8	Nephritis and Nephrosis	50724	1.9	HIV	37707	2.3	Chronic Obstructive Pulmonary Disease	24014	2.2
9	Breast Cancer	47979	1.8	Tuberculosis	30622	1.9	Trachea, Bronchus and Lung Cancers	21024	2.0
10	HIV	43200	1.6	Nephritis and Nephrosis	26207	1.6	Colon and Rectum Cancers	17467	1.6
11	Tuberculosis	42913	1.6	Leukaemia	24176	1.5	Falls	16012	1.5
12	Colon and Rectum Cancers	39576	1.5	Colon and Rectum Cancers	22109	1.3	Hypertensive Disease	13229	1.2
13	Falls	35718	1.3	Liver Cancers	20255	1.2	Tuberculosis	12292	1.1
14	Leukaemia	34892	1.3	Falls	19706	1.2	Cervix Cancer	12173	1.1
15	Hypertensive Disease	30419	1.1	Birth Trauma and Asphyxia	18053	1.1	Congenital Heart Diseases	12113	1.1
16	Liver Cancers	29916	1.1	Hypertensive Disease	17190	1.0	Diarrhoeal Diseases	12056	1.1
17	Birth Trauma and Asphyxia	29680	1.1	Low Birth Weight	15832	1.0	Low Birth Weight	11703	1.1
18	Low Birth Weight	27535	1.0	Self-Inflicted Injuries	13006	0.8	Brain and Other CNS Cancers	11652	1.1
19	Congenital Heart Diseases	24844	0.9	Congenital Heart Diseases	12731	0.8	Birth Trauma and Asphyxia	11626	1.1
20	Diarrhoeal Diseases	24083	0.9	Drowning	12470	0.8	Leukaemia	10716	1.0
	Top 20 diseases	**2069397**	**76.1**	**Top 20 diseases**	**1299103**	**78.9**	**Top 20 diseases**	**803177**	**74.7**
	All other diseases	*651579*	*23.9*	*All other diseases*	*346720*	*21.1*	*All other diseases*	*271976*	*25.3*
	Total	**2720976**	**100.0**	**Total**	**1645823**	**100.0**	**Total**	**1075153**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 4.1.2: Leading causes of fatal burden (YLL), by sex, 2009

Rank	Age group (years) 0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Birth Trauma and Asphyxia (18.1; 10.5%)	Road Traffic Injuries (17.6; 29.5%)	Road Traffic Injuries (158.5; 60.9%)	Road Traffic Injuries (58.3; 19.8%)	Ischaemic Heart Disease (93.3; 23.0%)	Ischaemic Heart Disease (50.0; 21.0%)	Ischaemic Heart Disease (27.1; 17.3%)	Cerebrovascular Diseases (Stroke) (12.1; 20.4%)
2nd	Lower Respiratory Infections (17.0; 9.9%)	Leukaemia (5.0; 8.3%)	Lower Respiratory Infections (9.4; 3.6%)	Ischaemic Heart Disease (35.4; 12.1%)	Cerebrovascular Diseases (Stroke) (48.7; 12.0%)	Cerebrovascular Diseases (Stroke) (39.2; 16.4%)	Cerebrovascular Diseases (Stroke) (26.8; 17.1%)	Chronic Obstructive Pulmonary Disease (11.8; 20.0%)
3rd	Low Birth Weight (15.8; 9.2%)	Lower Respiratory Infections (4.0; 6.8%)	Cerebrovascular Diseases (Stroke) (6.5; 2.5%)	HIV (27.2; 9.3%)	Road Traffic Injuries (31.2; 7.7%)	Lower Respiratory Infections (16.1; 6.7%)	Chronic Obstructive Pulmonary Disease (22.6; 14.4%)	Ischaemic Heart Disease (9.2; 15.6%)
4th	Neonatal Infections (11.0; 6.4%)	Drowning (4.0; 6.8%)	Leukaemia (5.8; 2.2%)	Lower Respiratory Infections (21.3; 7.2%)	Diabetes Mellitus (26.7; 6.6%)	Chronic Obstructive Pulmonary Disease (15.4; 6.4%)	Lower Respiratory Infections (12.1; 7.7%)	Lower Respiratory Infections (3.6; 6.2%)
5th	Congenital Heart Diseases (10.6; 6.1%)	Brain and Other CNS Cancers (2.6; 4.4%)	Self-Inflicted Injuries (4.6; 1.8%)	Cerebrovascular Diseases (Stroke) (18.5; 6.3%)	Lower Respiratory Infections (21.4; 5.3%)	Diabetes Mellitus (14.2; 5.9%)	Diabetes Mellitus (7.6; 4.9%)	Diabetes Mellitus (2.7; 4.6%)
6th	Road Traffic Injuries (6.5; 3.8%)	Diarrhoeal Diseases (2.3; 3.8%)	HIV (4.4; 1.7%)	Tuberculosis (12.8; 4.3%)	Trachea, Bronchus and Lung Cancers (15.1; 3.7%)	Trachea, Bronchus and Lung Cancers (13.6; 5.7%)	Trachea, Bronchus and Lung Cancers (6.6; 4.2%)	Trachea, Bronchus and Lung Cancers (2.1; 3.6%)
7th	Diarrhoeal Diseases (6.2; 3.6%)	Cerebrovascular Diseases (Stroke) (2.3; 3.8%)	Ischaemic Heart Disease (4.0; 1.5%)	Diabetes Mellitus (9.0; 3.1%)	Liver Cancers (9.4; 2.3%)	Road Traffic Injuries (10.8; 4.5%)	Road Traffic Injuries (6.6; 4.2%)	Colon and Rectum Cancers (1.4; 2.4%)
8th	Leukaemia (4.1; 2.4%)	Meningitis (1.5; 2.4%)	Tuberculosis (4.0; 1.5%)	Hypertensive Disease (6.4; 2.2%)	Nephritis and Nephrosis (9.4; 2.3%)	Colon and Rectum Cancers (6.4; 2.7%)	Colon and Rectum Cancers (3.4; 2.1%)	Road Traffic Injuries (1.3; 2.3%)
9th	Anencephaly (4.0; 2.3%)	Rheumatic Heart Disease (1.4; 2.3%)	Drowning (3.9; 1.5%)	Falls (4.9; 1.7%)	Chronic Obstructive Pulmonary Disease (8.6; 2.1%)	Nephritis and Nephrosis (6.4; 2.7%)	Nephritis and Nephrosis (3.3; 2.1%)	Nephritis and Nephrosis (1.1; 1.8%)
10th	Meningitis (2.7; 1.6%)	Epilepsy (1.0; 1.6%)	Falls (3.6; 1.4%)	Nephritis and Nephrosis (4.1; 1.4%)	Tuberculosis (8.4; 2.1%)	Liver Cancers (5.2; 2.2%)	Lymphoma (2.4; 1.5%)	Skin and subcutaneous diseases (1.0; 1.7%)

Figure 4.1.4: Leading causes of fatal burden (YLL '000; percentage %) for males, by age group, 2009

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Lower Respiratory Infections (14.3; 10.0%)	Road Traffic Injuries (6.4; 16.5%)	Road Traffic Injuries (27.0; 27.9%)	Breast Cancer (12.4; 9.7%)	Cerebrovascular Diseases (Stroke) (31.4; 12.9%)	Cerebrovascular Diseases (Stroke) (33.0; 19.7%)	Cerebrovascular Diseases (Stroke) (33.2; 21.4%)	Cerebrovascular Diseases (Stroke) (23.2; 22.9%)
2nd	Low Birth Weight (11.7; 8.1%)	Lower Respiratory Infections (5.0; 12.7%)	Lower Respiratory Infections (6.5; 6.7%)	Cerebrovascular Diseases (Stroke) (11.1; 8.6%)	Ischaemic Heart Disease (30.1; 12.4%)	Ischaemic Heart Disease (24.9; 14.8%)	Ischaemic Heart Disease (27.5; 17.8%)	Lower Respiratory Infections (20.5; 20.2%)
3rd	Birth Trauma and Asphyxia (11.6; 8.1%)	Brain and Other CNS Cancers (2.8; 7.1%)	Diabetes Mellitus (3.3; 3.4%)	Lower Respiratory Infections (10.4; 8.1%)	Diabetes Mellitus (23.7; 9.8%)	Diabetes Mellitus (18.0; 10.7%)	Lower Respiratory Infections (17.2; 11.1%)	Ischaemic Heart Disease (13.9; 13.7%)
4th	Neonatal Infections (10.2; 7.1%)	Leukaemia (2.3; 5.8%)	Tuberculosis (3.1; 3.2%)	Road Traffic Injuries (8.7; 6.8%)	Breast Cancer (23.0; 9.5%)	Lower Respiratory Infections (10.9; 6.5%)	Diabetes Mellitus (11.6; 7.5%)	Chronic Obstructive Pulmonary Disease (8.6; 8.5%)
5th	Congenital Heart Diseases (10.2; 7.1%)	Drowning (1.7; 4.2%)	Cerebrovascular Diseases (Stroke) (3.0; 3.1%)	Diabetes Mellitus (7.7; 6.0%)	Lower Respiratory Infections (13.6; 5.6%)	Breast Cancer (7.2; 4.3%)	Chronic Obstructive Pulmonary Disease (9.3; 6.0%)	Diabetes Mellitus (6.2; 6.1%)
6th	Diarrhoeal Diseases (7.6; 5.3%)	Cerebrovascular Diseases (Stroke) (1.6; 4.1%)	Leukaemia (3.0; 3.1%)	Ischaemic Heart Disease (7.5; 5.8%)	Nephritis and Nephrosis (7.5; 3.1%)	Trachea, Bronchus and Lung Cancers (5.6; 3.3%)	Trachea, Bronchus and Lung Cancers (4.2; 2.7%)	Asthma (3.2; 3.2%)
7th	Road Traffic Injuries (4.3; 3.0%)	Epilepsy (0.9; 2.3%)	Brain and Other CNS Cancers (2.3; 2.4%)	Hypertensive Disease (4.5; 3.5%)	Road Traffic Injuries (7.1; 2.9%)	Colon and Rectum Cancers (4.5; 2.7%)	Nephritis and Nephrosis (4.1; 2.6%)	Nephritis and Nephrosis (1.9; 1.9%)
8th	Anencephaly (3.4; 2.3%)	Endocrine, Blood and Immune Disorders (0.8; 2.1%)	Falls (2.2; 2.3%)	Falls (3.5; 2.7%)	Trachea, Bronchus and Lung Cancers (6.5; 2.7%)	Nephritis and Nephrosis (4.4; 2.6%)	Colon and Rectum Cancers (3.6; 2.4%)	Trachea, Bronchus and Lung Cancers (1.6; 1.6%)
9th	Fires, Heat and Hot Substances (2.4; 1.6%)	Diabetes Mellitus (0.8; 1.9%)	Nephritis and Nephrosis (1.8; 1.9%)	Nephritis and Nephrosis (3.3; 2.6%)	Colon and Rectum Cancers (5.4; 2.2%)	Chronic Obstructive Pulmonary Disease (3.8; 2.3%)	Falls (2.7; 1.7%)	Hypertensive Disease (1.3; 1.3%)
10th	Meningitis (1.5; 1.1%)	Congenital Heart Diseases (0.7; 1.8%)	HIV (1.5; 1.5%)	Tuberculosis (3.1; 2.4%)	Hypertensive Disease (5.4; 2.2%)	Road Traffic Injuries (2.8; 1.7%)	Liver Cancers (2.1; 1.4%)	Colon and Rectum Cancers (1.2; 1.2%)

Figure 4.1.5: Leading causes of fatal burden (YLL '000; percentage %) for females, by age group, 2009

4.2 Years of Life Lost (YLL) - 2010

In 2010, a total of 2.76 million years of life were lost due to premature mortality in Malaysia. Males contributed towards 1.68 million YLL (60.9%) and females 1.08 million YLL (39.1%).

4.2.1 Pattern of Years of Life Lost (YLL) by sex

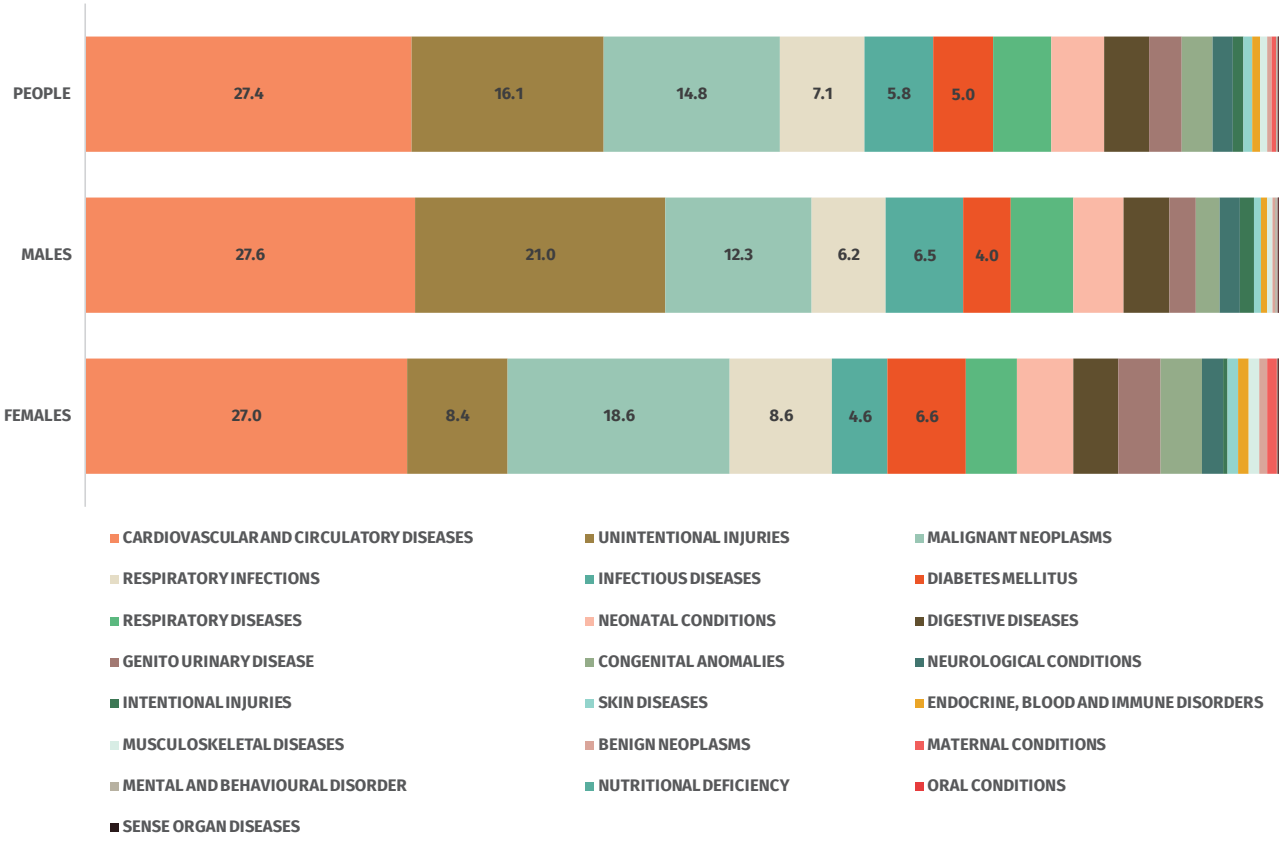


Figure 4.2.1: Percentage (%) of fatal burden (YLL), by disease groups and sex, 2010

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards fatal burden of disease and injury in Malaysia for 2010, followed by Unintentional Injuries and Malignant Neoplasms **[Figure 4.2.1]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest YLL and contributed to more than a quarter of fatal disease and injury burden. For males, Unintentional Injuries contributed more than 20% of fatal disease and injury burden followed by Malignant Neoplasms at 12.3% and Infectious Diseases at 6.5%. For females, Malignant Neoplasms were the second largest contributor of fatal disease and injury burden with 18.6%, followed by Respiratory Infections at 8.6% and Unintentional Injuries at 8.4% **[Table 4.2.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	YLL (number)	YLL (%)	YLL (number)	YLL (%)	YLL (number)	YLL (%)
INFECTIOUS DISEASES	159274	5.8	109647	6.5	49627	4.6
RESPIRATORY INFECTIONS	196940	7.1	104346	6.2	92594	8.6
MATERNAL CONDITIONS	8863	0.3	0	0.0	8863	0.8
NEONATAL CONDITIONS	121848	4.4	70849	4.2	50999	4.7
NUTRITIONAL DEFICIENCY	1176	0.0	479	0.0	697	0.1
MALIGNANT NEOPLASMS	407065	14.8	206099	12.3	200967	18.6
BENIGN NEOPLASMS	10612	0.4	4081	0.2	6531	0.6
DIABETES MELLITUS	137837	5.0	66738	4.0	71098	6.6
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	17520	0.6	8137	0.5	9383	0.9
MENTAL AND BEHAVIOURAL DISORDER	2920	0.1	2811	0.2	109	0.0
NEUROLOGICAL CONDITIONS	48166	1.7	28423	1.7	19743	1.8
SENSE ORGAN DISEASES	157	0.0	22	0.0	136	0.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	755210	27.4	464163	27.6	291047	27.0
RESPIRATORY DISEASES	134527	4.9	88434	5.3	46094	4.3
DIGESTIVE DISEASES	105168	3.8	63989	3.8	41179	3.8
GENITO URINARY DISEASE	75951	2.8	37797	2.2	38154	3.5
SKIN DISEASES	20065	0.7	10237	0.6	9828	0.9
MUSCULOSKELETAL DISEASES	17229	0.6	7078	0.4	10151	0.9
CONGENITAL ANOMALIES	70232	2.5	33145	2.0	37088	3.4
ORAL CONDITIONS	535	0.0	494	0.0	40	0.0
UNINTENTIONAL INJURIES	443800	16.1	352951	21.0	90849	8.4
INTENTIONAL INJURIES	23917	0.9	20578	1.2	3339	0.3
TOTAL	**2759012**	**100.0**	**1680495**	**100.0**	**1078517**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 4.2.1: Fatal burden of disease and injury by disease groups and by sex, 2010

4.2.2 Pattern of Years of Life Lost (YLL) by age

Males between the ages of 45 and 59 contributed towards 24.7% of the total YLL, the age group with the highest contribution towards male fatal burden of disease and injury in Malaysia in 2010 **[Figure 4.2.2(a)].** Mortality among males below 5 years of age contributed towards 9.9% of the total fatal burden of disease and injury in Malaysia for 2010. Neonatal Conditions contributed the largest percentage, 42.6%, of the YLL among males below 5 years of age, followed by Congenital Anomalies at 18.0%. Unintentional Injuries were the predominant cause of YLL among males 5 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of fatal burden among males from the age of 45 years and above. Respiratory Diseases had an increasing percentage of contribution towards YLL in males as the age increases **[Figure 4.2.2(b)].**

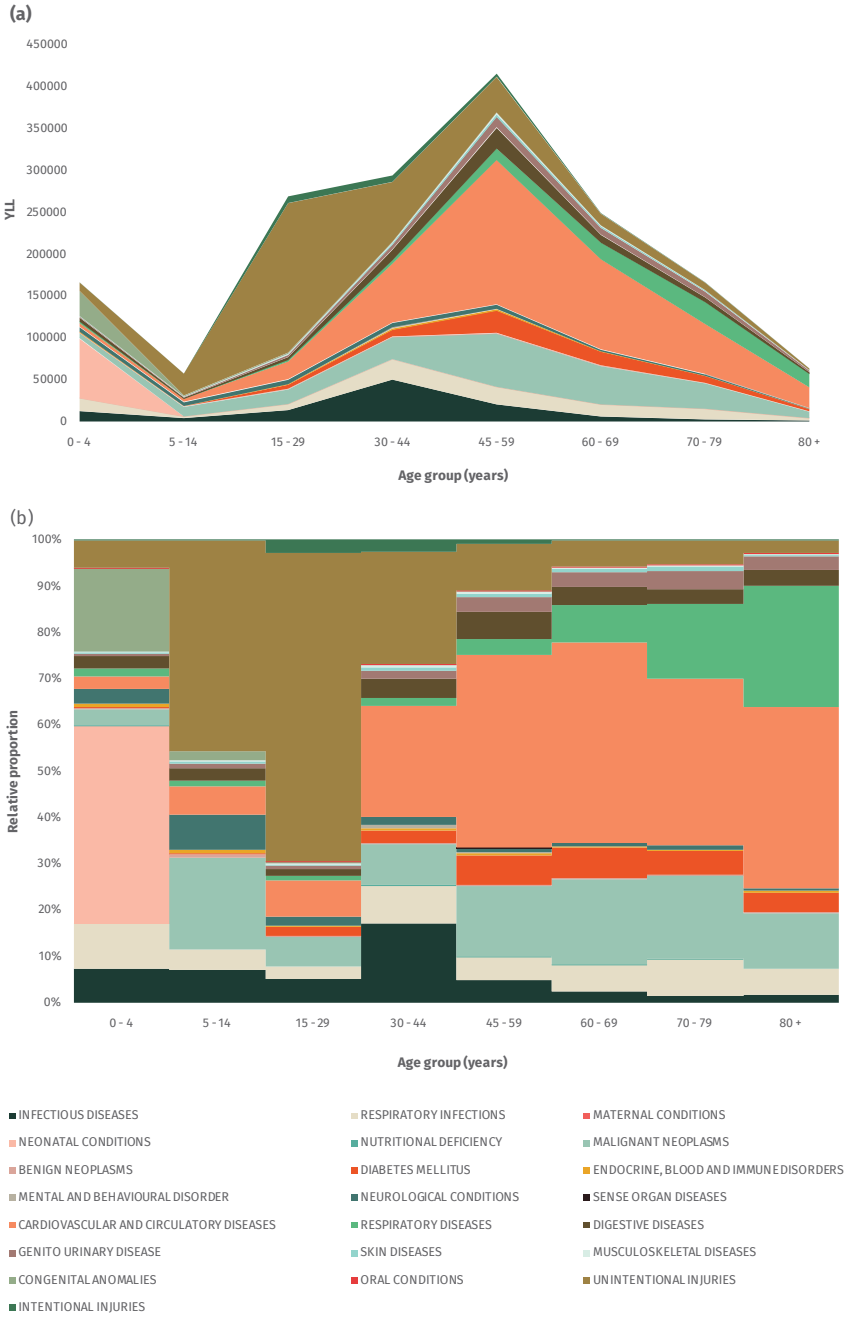


Figure 4.2.2: Number (a) & percentage (b) of fatal burden (YLL), by disease groups & age, males, 2010

Females between the ages of 45 and 59 years contributed towards 23.1% of the total YLL, the age group with the highest contribution towards female fatal burden of disease and injury in Malaysia in 2010 **[Figure 4.2.3(a)]**. Mortality among females below 5 years of age contributed towards 12.7% of the total fatal burden of disease and injury in Malaysia for 2010. Neonatal Conditions contributed the largest percentage, 37.2%, of the YLL among females below 5 years of age, followed by Congenital Anomalies at 24.6%. Unintentional Injuries were the predominant cause of YLL among females 5 to 29 years of age, while Malignant Neoplasms were the predominant cause of YLL among females 30 to 59 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of fatal burden among females from the age of 60 years and above, with an increasing percentage of contribution by Respiratory Infections towards YLL in females as the age increases **[Figure 4.2.3(b)]**.

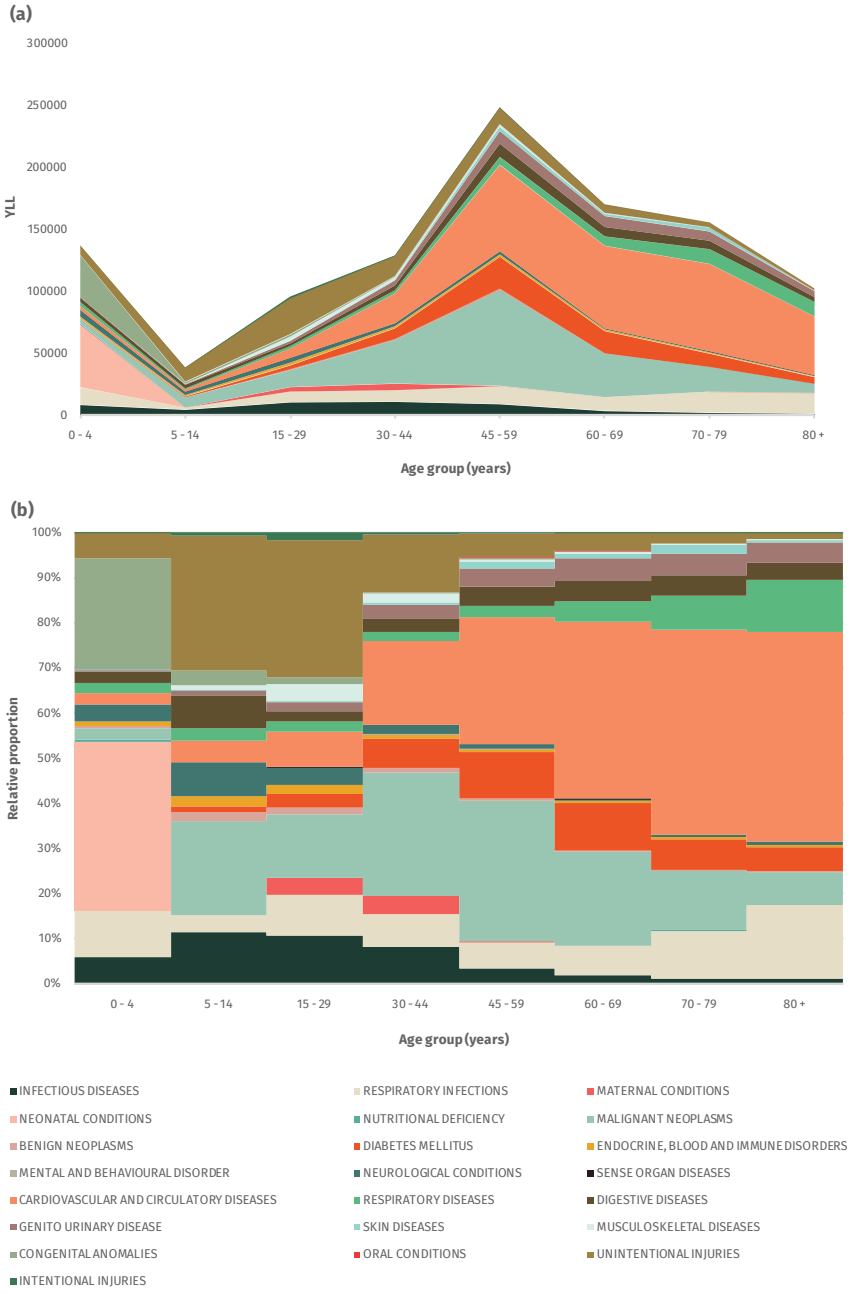


Figure 4.2.3: Number (a) & percentage (b) of fatal burden (YLL), by disease groups & age, females, 2010

4.2.3 Leading Causes of Years of Life Lost (YLL)

Road Traffic Injuries were the leading cause of fatal burden in Malaysia for 2010, contributing to 12.6% of the total YLL. This was followed by Ischaemic Heart Disease, with 12.2%, and Cerebrovascular Diseases, with 11.0% of total YLL. Lower Respiratory Infections, with 7.1% and Diabetes Mellitus with 5.0% make up the five leading causes of fatal burden of disease and injury in 2010.

Among males, Road Traffic Injuries contributed the largest amount of YLL with 17.3%. Ischaemic Heart Disease was the second highest contributor of YLL in males with 13.6% followed by Cerebrovascular Diseases with 9.8%. Lower Respiratory Infections and Diabetes Mellitus make up the fourth and fifth leading causes of YLL among males. Among females, Cerebrovascular Diseases were the leading cause of YLL with 12.7% followed by Ischaemic Heart Disease with 9.9% and Lower Respiratory Infections with 8.6%. Diabetes Mellitus was the fourth and Road Traffic Injuries make up the fifth leading cause of YLL among females **[Table 4.2.2]**.

The leading causes of fatal burden vary according to age. Among males below 5 years of age, Low Birth Weight contributed the highest amount of YLL. Road Traffic Injuries were the leading cause of YLL among males 5 to 44 years of age. Ischaemic Heart Disease was the second highest contributor of YLL among males 30 to 44 years of age. Among males of 45 to 69 years of age, Ischaemic Heart Diseases rises to the leading cause of YLL. Cerebrovascular Diseases were the second leading cause of YLL among males 45 to 69 years of age, and the leading cause of YLL among males 70 to 79 years of age. Chronic Obstructive Pulmonary Disease was the third highest cause of YLL among those 60 to 79 years of age and rises to be the leading cause of YLL in ages 80 years and above. Leukaemia was the leading cancer causing fatal burden among males below 30 years of age while Trachea, Bronchus and Lung Cancers were the leading cancer causing YLL among those 30 years and above **[Figure 4.2.4]**.

Among females below 5 years of age, Lower Respiratory Infections contributed the highest amount of YLL. Road Traffic Injuries were the leading cause of YLL among females 5 to 29 years of age. Breast Cancer was found to contribute the highest YLL among females 30 to 44 years of age. Cerebrovascular Diseases were the second highest contributor of YLL among females 30 to 44 years of age and rises to be the leading cause of YLL in ages 45 years and above. Ischaemic Heart Disease was the second leading cause of YLL among females 45 years and above. Lower Respiratory Infections were the third leading cause of YLL among females 70 years and above. Breast cancer was the leading cancer causing fatal burden among females 30 to 69 years of age. Trachea, Bronchus and Lung Cancers were the leading cancer causing YLL among those 70 years and above **[Figure 4.2.5]**.

Rank	People	YLL	% of total	Males	YLL	% of total	Females	YLL	% of total
1	Road Traffic Injuries	346442	12.6	Road Traffic Injuries	290927	17.3	Cerebrovascular Diseases (Stroke)	137420	12.7
2	Ischaemic Heart Disease	336234	12.2	Ischaemic Heart Disease	229031	13.6	Ischaemic Heart Disease	107203	9.9
3	Cerebrovascular Diseases (Stroke)	302334	11.0	Cerebrovascular Diseases (Stroke)	164914	9.8	Lower Respiratory Infections	92532	8.6
4	Lower Respiratory Infections	196878	7.1	Lower Respiratory Infections	104346	6.2	Diabetes Mellitus	71098	6.6
5	Diabetes Mellitus	137837	5.0	Diabetes Mellitus	66738	4.0	Road Traffic Injuries	55516	5.1
6	Chronic Obstructive Pulmonary Disease	88424	3.2	Chronic Obstructive Pulmonary Disease	64894	3.9	Breast Cancer	47130	4.4
7	Trachea, Bronchus and Lung Cancers	65720	2.4	Trachea, Bronchus and Lung Cancers	44442	2.6	Nephritis and Nephrosis	25568	2.4
8	Nephritis and Nephrosis	53627	1.9	HIV	34230	2.0	Chronic Obstructive Pulmonary Disease	23531	2.2
9	Breast Cancer	48640	1.8	Tuberculosis	28931	1.7	Trachea, Bronchus and Lung Cancers	21278	2.0
10	Tuberculosis	41579	1.5	Nephritis and Nephrosis	28059	1.7	Colon and Rectum Cancers	17988	1.7
11	Colon and Rectum Cancers	41360	1.5	Leukaemia	25261	1.5	Falls	15306	1.4
12	HIV	40165	1.5	Colon and Rectum Cancers	23372	1.4	Tuberculosis	12648	1.2
13	Leukaemia	36101	1.3	Liver Cancers	21311	1.3	Cervix Cancer	12409	1.2
14	Falls	35357	1.3	Falls	20050	1.2	Hypertensive Disease	12381	1.1
15	Liver Cancers	31499	1.1	Low Birth Weight	17191	1.0	Brain and Other CNS Cancers	12286	1.1
16	Low Birth Weight	29213	1.1	Birth Trauma and Asphyxia	16831	1.0	Congenital Heart Diseases	12228	1.1
17	Hypertensive Disease	29118	1.1	Hypertensive Disease	16737	1.0	Low Birth Weight	12022	1.1
18	Birth Trauma and Asphyxia	28317	1.0	Self-Inflicted Injuries	13616	0.8	Birth Trauma and Asphyxia	11486	1.1
19	Congenital Heart Diseases	24009	0.9	Mouth and Oropharynx Cancers	12911	0.8	Diarrhoeal Diseases	11357	1.1
20	Diarrhoeal Diseases	23496	0.9	Drowning	12292	0.7	Leukaemia	10840	1.0
	Top 20 diseases	**2100942**	**76.1**	**Top 20 diseases**	**1331182**	**79.2**	**Top 20 diseases**	**799404**	**74.1**
	All other diseases	*658070*	*23.9*	*All other diseases*	*349313*	*20.8*	*All other diseases*	*279113*	*25.9*
	Total	**2759012**	**100.0**	**Total**	**1680495**	**100.0**	**Total**	**1078517**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 4.2.2: Leading causes of fatal burden (YLL), by sex, 2010

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Low Birth Weight (17.2; 10.3%)	Road Traffic Injuries (18.7; 32.7%)	Road Traffic Injuries (162.2; 60.3%)	Road Traffic Injuries (56.2; 19.1%)	Ischaemic Heart Disease (96.8; 23.3%)	Ischaemic Heart Disease (55.5; 22.3%)	Cerebrovascular Diseases (Stroke) (29.1; 17.5%)	Chronic Obstructive Pulmonary Disease (14.7; 23.2%)
2nd	Birth Trauma and Asphyxia (16.8; 10.1%)	Leukaemia (5.7; 9.9%)	Lower Respiratory Infections (7.8; 2.9%)	Ischaemic Heart Disease (35.8; 12.2%)	Cerebrovascular Diseases (Stroke) (52.2; 12.6%)	Cerebrovascular Diseases (Stroke) (39.9; 16%)	Ischaemic Heart Disease (24.1; 14.5%)	Cerebrovascular Diseases (Stroke) (11.8; 18.6%)
3rd	Lower Respiratory Infections (16.1; 9.7%)	Drowning (4.3; 7.5%)	Cerebrovascular Diseases (Stroke) (7.6; 2.8%)	HIV (25.1; 8.5%)	Road Traffic Injuries (32.1; 7.7%)	Chronic Obstructive Pulmonary Disease (17.0; 6.8%)	Chronic Obstructive Pulmonary Disease (23.1; 13.9%)	Ischaemic Heart Disease (10.8; 17.1%)
4th	Neonatal Infections (10.2; 6.1%)	Brain and Other CNS Cancers (2.9; 5.1%)	Leukaemia (7.0; 2.6%)	Lower Respiratory Infections (24.5; 8.4%)	Diabetes Mellitus (26.5; 6.4%)	Diabetes Mellitus (16.1; 6.5%)	Lower Respiratory Infections (13.4; 8.0%)	Lower Respiratory Infections (3.6; 5.6%)
5th	Congenital Heart Diseases (9.3; 5.6%)	Lower Respiratory Infections (2.6; 4.6%)	Ischaemic Heart Disease (5.5; 2.0%)	Cerebrovascular Diseases (Stroke) (20.9; 7.1%)	Lower Respiratory Infections (21.3; 5.1%)	Lower Respiratory Infections (15.0; 6.0%)	Trachea, Bronchus and Lung Cancers (8.6; 5.2%)	Diabetes Mellitus (2.6; 4.2%)
6th	Diarrhoeal Diseases (6.6; 4.0%)	Diarrhoeal Diseases (1.9; 3.3%)	Self-Inflicted Injuries (5.1; 1.9%)	Tuberculosis (12.4; 4.2%)	Trachea, Bronchus and Lung Cancers (15.7; 3.8%)	Trachea, Bronchus and Lung Cancers (12.9; 5.2%)	Diabetes Mellitus (8.2; 4.9%)	Trachea, Bronchus and Lung Cancers (1.8; 2.9%)
7th	Road Traffic Injuries (4.6; 2.8%)	Cerebrovascular Diseases (Stroke) (1.8; 3.2%)	Diabetes Mellitus (4.7; 1.7%)	Diabetes Mellitus (8.0; 2.7%)	Nephritis and Nephrosis (9.5; 2.3%)	Road Traffic Injuries (10.1; 4.0%)	Road Traffic Injuries (6.0; 3.6%)	Prostate Cancer (1.3; 2.0%)
8th	Anencephaly (3.9; 2.3%)	Congenital Heart Diseases (0.8; 1.4%)	Drowning (4.0; 1.5%)	Falls (5.5; 1.9%)	Liver Cancers (9.5; 2.3%)	Colon and Rectum Cancers (6.3; 2.5%)	Colon and Rectum Cancers (5.3; 3.2%)	Colon and Rectum Cancers (1.3; 2%)
9th	Meningitis (3.4; 2.0%)	Epilepsy (0.8; 1.4%)	Falls (3.7; 1.4%)	Self-Inflicted Injuries (5.0; 1.7%)	Hypertensive Disease (9.1; 2.2%)	Nephritis and Nephrosis (5.7; 2.3%)	Nephritis and Nephrosis (4.7; 2.8%)	Asthma (1.1; 1.7%)
10th	Leukaemia (3.1; 1.9%)	Fires, Heat and Hot Substances (0.7; 1.2%)	HIV (3.5; 1.3%)	Trachea, Bronchus and Lung Cancers (4.3; 1.5%)	Chronic Obstructive Pulmonary Disease (8.9; 2.1%)	Liver Cancers (5.2; 2.1%)	Liver Cancers (2.3; 1.4%)	Road Traffic Injuries (1.0; 1.6%)

Figure 4.2.4: Leading causes of fatal burden (YLL '000; percentage %) for males, by age group, 2010

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Lower Respiratory Infections (14.1; 10.3%)	Road Traffic Injuries (5.8; 15.0%)	Road Traffic Injuries (22.9; 23.8%)	Breast Cancer (12.6; 9.7%)	Cerebrovascular Diseases (Stroke) (31.8; 12.8%)	Cerebrovascular Diseases (Stroke) (29.9; 17.6%)	Cerebrovascular Diseases (Stroke) (36.3; 23.3%)	Cerebrovascular Diseases (Stroke) (23.4; 22.8%)
2nd	Low Birth Weight (12.0; 8.8%)	Brain and Other CNS Cancers (4.1; 10.6%)	Lower Respiratory Infections (8.7; 9.1%)	Cerebrovascular Diseases (Stroke) (11.3; 8.7%)	Ischaemic Heart Disease (27.2; 10.9%)	Ischaemic Heart Disease (29.1; 17.1%)	Ischaemic Heart Disease (24.8; 15.9%)	Ischaemic Heart Disease (17.2; 16.8%)
3rd	Birth Trauma and Asphyxia (11.5; 8.4%)	Drowning (2.8; 7.2%)	Tuberculosis (3.0; 3.1%)	Road Traffic Injuries (10.7; 8.3%)	Diabetes Mellitus (25.6; 10.3%)	Diabetes Mellitus (17.8; 10.4%)	Lower Respiratory Infections (16.8; 10.8%)	Lower Respiratory Infections (16.6; 16.2%)
4th	Congenital Heart Diseases (9.6; 7.0%)	Leukaemia (1.8; 4.7%)	Cerebrovascular Diseases (Stroke) (3.0; 3.1%)	Lower Respiratory Infections (9.4; 7.2%)	Breast Cancer (24.0; 9.6%)	Lower Respiratory Infections (11.0; 6.4%)	Diabetes Mellitus (10.6; 6.8%)	Chronic Obstructive Pulmonary Disease (6.8; 6.7%)
5th	Neonatal Infections (8.3; 6.0%)	Diarrhoeal Diseases (1.6; 4.1%)	Diabetes Mellitus (2.8; 2.9%)	Diabetes Mellitus (8.5; 6.6%)	Lower Respiratory Infections (14.5; 5.8%)	Breast Cancer (7.1; 4.1%)	Chronic Obstructive Pulmonary Disease (7.7; 4.9%)	Diabetes Mellitus (5.3; 5.1%)
6th	Diarrhoeal Diseases (5.4; 3.9%)	Lower Respiratory Infections (1.5; 3.8%)	Leukaemia (2.7; 2.8%)	Ischaemic Heart Disease (7.5; 5.8%)	Road Traffic Injuries (7.8; 3.1%)	Nephritis and Nephrosis (5.9; 3.5%)	Nephritis and Nephrosis (5.1; 3.2%)	Nephritis and Nephrosis (3.5; 3.4%)
7th	Anencephaly (3.3; 2.4%)	Falls (1.2; 3.2%)	HIV (2.2; 2.3%)	Tuberculosis (3.6; 2.8%)	Trachea, Bronchus and Lung Cancers (7.1; 2.8%)	Trachea, Bronchus and Lung Cancers (5.3; 3.1%)	Hypertensive Disease (4.4; 2.8%)	Asthma (3.2; 3.2%)
8th	Road Traffic Injuries (2.8; 2.1%)	Cerebrovascular Diseases (Stroke) (1.0; 2.5%)	Falls (2.1; 2.2%)	Trachea, Bronchus and Lung Cancers (2.7; 2.1%)	Cervix Cancer (6.6; 2.7%)	Chronic Obstructive Pulmonary Disease (4.5; 2.6%)	Trachea, Bronchus and Lung Cancers (4.0; 2.6%)	Trachea, Bronchus and Lung Cancers (1.8; 1.8%)
9th	Chronic Obstructive Pulmonary Disease (1.7; 1.2%)	HIV (0.9; 2.4%)	Lymphoma (2.1; 2.1%)	Colon and Rectum Cancers (2.7; 2.1%)	Colon and Rectum Cancers (6.4; 2.6%)	Colon and Rectum Cancers (4.2; 2.5%)	Skin and subcutaneous diseases (3.1; 2.0%)	Colon and Rectum Cancers (1.4; 1.4%)
10th	Endocrine, Blood and Immune Disorders (1.4; 1.0%)	Congenital Heart Diseases (0.9; 2.3%)	Endocrine, Blood and Immune Disorders (1.9; 2.0%)	Falls (2.6; 2.0%)	Nephritis and Nephrosis (6.3; 2.5%)	Road Traffic Injuries (3.9; 2.3%)	Colon and Rectum Cancers (2.7; 1.7%)	Hypertensive Disease (1.2; 1.2%)

Figure 4.2.5: Leading causes of fatal burden (YLL '000; percentage %) for females, by age group, 2010

4.3 Years of Life Lost (YLL) - 2011

In 2011, a total of 2.80 million years of life were lost due to premature mortality in Malaysia. Males contributed towards 1.70 million YLL (60.7%) and females 1.10 million YLL (39.3%).

4.3.1 Pattern of Years of Life Lost (YLL) by sex

Figure 4.3.1: Percentage (%) of fatal burden (YLL), by disease groups and sex, 2011

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards fatal burden of disease and injury in Malaysia for 2011, followed by Unintentional Injuries and Malignant Neoplasms **[Figure 4.3.1]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest YLL and contributed to more than a quarter of fatal disease and injury burden. For males, Unintentional Injuries contributed to 21.5% of fatal disease and injury burden followed by Malignant Neoplasms at 12.1% and Respiratory Infections at 6.3%. For females, Malignant Neoplasms were the second largest contributor of fatal disease and injury burden with 18.7%, followed by Respiratory Infections at 8.5% and Unintentional Injuries at 8.4% **[Table 4.3.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	YLL (number)	YLL (%)	YLL (number)	YLL (%)	YLL (number)	YLL (%)
INFECTIOUS DISEASES	143284	5.1	99416	5.9	43868	4.0
RESPIRATORY INFECTIONS	200011	7.1	106229	6.3	93782	8.5
MATERNAL CONDITIONS	8466	0.3	0	0.0	8466	0.8
NEONATAL CONDITIONS	116383	4.2	67716	4.0	48667	4.4
NUTRITIONAL DEFICIENCY	1177	0.0	575	0.0	602	0.1
MALIGNANT NEOPLASMS	411319	14.7	205969	12.1	205350	18.7
BENIGN NEOPLASMS	10682	0.4	4374	0.3	6307	0.6
DIABETES MELLITUS	141007	5.0	65186	3.8	75821	6.9
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	17397	0.6	8599	0.5	8798	0.8
MENTAL AND BEHAVIOURAL DISORDER	3809	0.1	3727	0.2	82	0.0
NEUROLOGICAL CONDITIONS	47546	1.7	28220	1.7	19326	1.8
SENSE ORGAN DISEASES	13	0.0	0	0.0	13	0.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	775088	27.7	470208	27.7	304880	27.7
RESPIRATORY DISEASES	139951	5.0	90408	5.3	49543	4.5
DIGESTIVE DISEASES	110022	3.9	67071	3.9	42952	3.9
GENITO URINARY DISEASE	76087	2.7	37899	2.2	38188	3.5
SKIN DISEASES	21527	0.8	10437	0.6	11090	1.0
MUSCULOSKELETAL DISEASES	16631	0.6	7339	0.4	9293	0.8
CONGENITAL ANOMALIES	73892	2.6	36393	2.1	37499	3.4
ORAL CONDITIONS	585	0.0	513	0.0	72	0.0
UNINTENTIONAL INJURIES	457433	16.3	364730	21.5	92704	8.4
INTENTIONAL INJURIES	27318	1.0	23597	1.4	3721	0.3
TOTAL	**2799630**	**100.0**	**1698607**	**100.0**	**1101023**	**100.0**

Table 4.3.1: Fatal burden of disease and injury by disease groups and by sex, 2011

4.3.2 Pattern of Years of Life Lost (YLL) by age

Males between the ages of 45 and 59 contributed towards 25.1% of the total YLL, the age group with the highest contribution towards male fatal burden of disease and injury in Malaysia in 2011 **[Figure 4.3.2(a)].** Mortality among males below 5 years of age contributed towards 9.7% of the total fatal burden of disease and injury in Malaysia for 2011. Neonatal Conditions contributed the largest percentage, 41.0%, of the YLL among males below 5 years of age, followed by Congenital Anomalies at 20.7%. Unintentional Injuries were the predominant cause of YLL among males 5 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of fatal burden among males from the age of 45 years and above. Respiratory Diseases had an increasing percentage of contribution towards YLL in males as the age increases **[Figure 4.3.2(b)].**

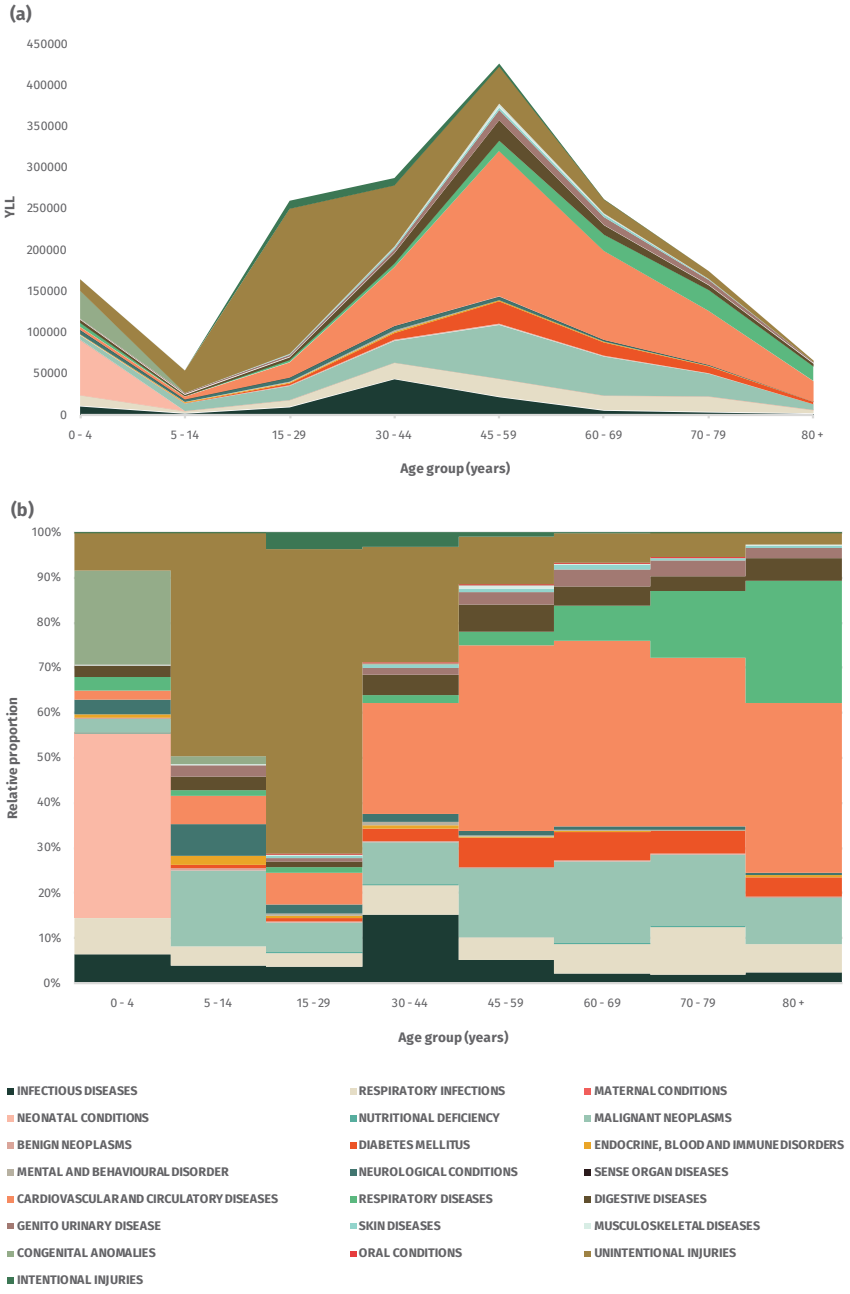


Figure 4.3.2: Number (a) & percentage (b) of fatal burden (YLL), by disease groups & age, males, 2011

Females between the ages of 45 and 59 years contributed towards 22.7% of the total YLL, the age group with the highest contribution towards female fatal burden of disease and injury in Malaysia in 2011 **[Figure 4.3.3(a)]**. Mortality among females below 5 years of age contributed towards 12.5% of the total fatal burden of disease and injury in Malaysia for 2011. Neonatal Conditions contributed the largest percentage, 35.3%, of the YLL among females below 5 years of age, followed by Congenital Anomalies at 25.1%. Unintentional Injuries were the predominant cause of YLL among females 5 to 29 years of age, while Malignant Neoplasms were the predominant cause of YLL among females 30 to 59 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of fatal burden among females from the age of 60 years and above, with an increasing percentage of contribution by Respiratory Infections towards YLL in females as the age increases **[Figure 4.3.3(b)]**.

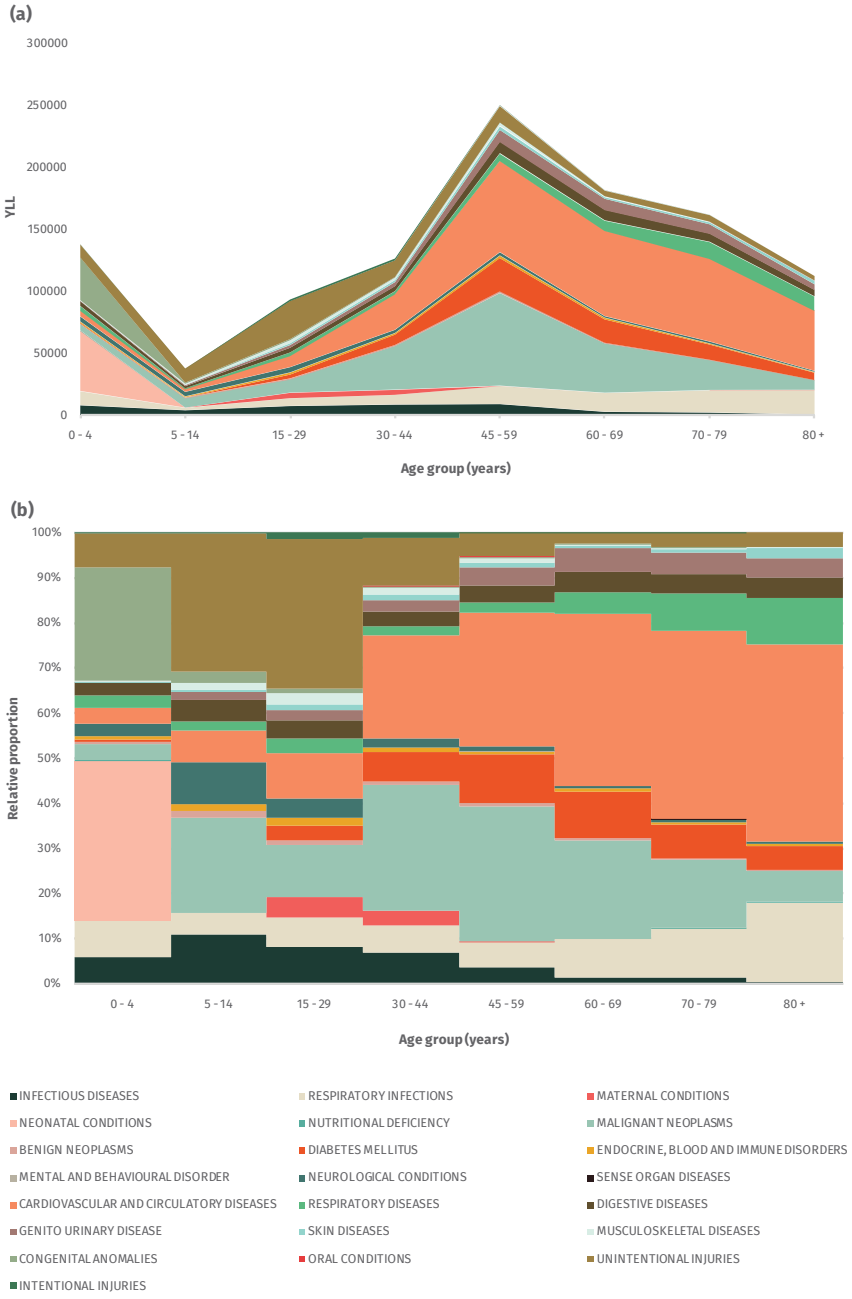


Figure 4.3.3: Number (a) & percentage (b) of fatal burden (YLL), by disease groups & age, females, 2011

4.3.3 Leading Causes of Years of Life Lost (YLL)

Road Traffic Injuries were the leading cause of fatal burden in Malaysia for 2011, contributing to 12.8% of the total YLL. This was followed by Ischaemic Heart Disease, with 12.3%, and Cerebrovascular Diseases, with 11.1% of total YLL. Lower Respiratory Infections, with 7.1% and Diabetes Mellitus with 5.0% make up the five leading causes of fatal burden of disease and injury in 2011.

Among males, Road Traffic Injuries contributed the largest amount of YLL with 17.7%. Ischaemic Heart Disease was the second highest contributor of YLL in males with 13.8% followed by Cerebrovascular Diseases with 9.7%. Lower Respiratory Infections and Chronic Obstructive Pulmonary Disease make up the fourth and fifth leading causes of YLL among males. Among females, Cerebrovascular Diseases were the leading cause of YLL with 13.2% followed by Ischaemic Heart Disease with 10.0% and Lower Respiratory Infections with 8.5%. Diabetes Mellitus was the fourth and Road Traffic Injuries make up the fifth leading cause of YLL among females **[Table 4.3.2]**.

The leading causes of fatal burden vary according to age. Among males below 5 years of age, Low Birth Weight contributed the highest amount of YLL. Road Traffic Injuries were the leading cause of YLL among males 5 to 44 years of age. Ischaemic Heart Disease was the second highest contributor of YLL among males 30 to 44 years of age. Among males of 45 to 69 years of age, Ischaemic Heart Diseases rises to the leading cause of YLL. Cerebrovascular Diseases were the second leading cause of YLL among males 45 to 69 years of age, and the leading cause of YLL among males 70 to 79 years of age. Chronic Obstructive Pulmonary Disease was the third highest cause of YLL among those 70 to 79 years of age and the leading cause of death among males 80 years and above. Leukaemia was the leading cancer causing fatal burden among males below 30 years of age while Trachea, Bronchus and Lung Cancers were the leading cancer causing YLL among those 30 years and above **[Figure 4.3.4]**.

Among females below 5 years of age, Low Birth Weight contributed the highest amount of YLL. Road Traffic Injuries were the leading cause of YLL among females 5 to 29 years of age. Breast Cancer was found to contribute the highest YLL among females 30 to 44 years of age. Road Traffic Injuries were the second highest contributor of YLL among females 30 to 44 years of age. Among females of 45 years of age and above, Cerebrovascular Diseases were the leading cause of YLL. Ischaemic Heart Disease was the second leading cause of YLL among females 45 to 79 years of age. Lower Respiratory Infections were the third leading cause of YLL among females 70 to 79 years of age and the second highest cause of YLL among those 80 years of age and above. Breast cancer was the leading cancer causing fatal burden among females 30 to 69 years of age. Trachea, Bronchus and Lung Cancers were the leading cancer causing YLL among those 70 to 79 years of age **[Figure 4.3.5]**.

Rank	People	YLL	% of total	Males	YLL	% of total	Females	YLL	% of total
1	Road Traffic Injuries	359438	12.8	Road Traffic Injuries	300285	17.7	Cerebrovascular Diseases (Stroke)	145503	13.2
2	Ischaemic Heart Disease	344905	12.3	Ischaemic Heart Disease	234285	13.8	Ischaemic Heart Disease	110620	10.0
3	Cerebrovascular Diseases (Stroke)	310613	11.1	Cerebrovascular Diseases (Stroke)	165111	9.7	Lower Respiratory Infections	93676	8.5
4	Lower Respiratory Infections	199672	7.1	Lower Respiratory Infections	105997	6.2	Diabetes Mellitus	75821	6.9
5	Diabetes Mellitus	141007	5.0	Chronic Obstructive Pulmonary Disease	67031	3.9	Road Traffic Injuries	59153	5.4
6	Chronic Obstructive Pulmonary Disease	92530	3.3	Diabetes Mellitus	65186	3.8	Breast Cancer	48397	4.4
7	Trachea, Bronchus and Lung Cancers	67077	2.4	Trachea, Bronchus and Lung Cancers	45524	2.7	Chronic Obstructive Pulmonary Disease	25500	2.3
8	Nephritis and Nephrosis	52586	1.9	Tuberculosis	30090	1.8	Nephritis and Nephrosis	24809	2.3
9	Breast Cancer	49546	1.8	Nephritis and Nephrosis	27776	1.6	Trachea, Bronchus and Lung Cancers	21553	2.0
10	Colon and Rectum Cancers	42581	1.5	HIV	25636	1.5	Colon and Rectum Cancers	18967	1.7
11	Tuberculosis	41056	1.5	Leukaemia	23634	1.4	Hypertensive Disease	14511	1.3
12	Leukaemia	34454	1.2	Colon and Rectum Cancers	23614	1.4	Falls	13737	1.2
13	Falls	34011	1.2	Liver Cancers	21504	1.3	Low Birth Weight	13510	1.2
14	Low Birth Weight	32188	1.1	Falls	20274	1.2	Brain and Other CNS Cancers	12987	1.2
15	Hypertensive Disease	32103	1.1	Low Birth Weight	18678	1.1	Cervix Cancer	12778	1.2
16	Liver Cancers	31845	1.1	Hypertensive Disease	17591	1.0	Congenital Heart Diseases	11605	1.1
17	HIV	30787	1.1	Self-Inflicted Injuries	16632	1.0	Skin and subcutaneous diseases	11090	1.0
18	Birth Trauma and Asphyxia	25160	0.9	Birth Trauma and Asphyxia	14567	0.9	Tuberculosis	10966	1.0
19	Congenital Heart Diseases	24348	0.9	Mouth and Oropharynx Cancers	12894	0.8	Leukaemia	10821	1.0
20	Brain and Other CNS Cancers	22537	0.8	Drowning	12832	0.8	Birth Trauma and Asphyxia	10593	1.0
	Top 20 diseases	**2130661**	**76.1**	**Top 20 diseases**	**1341813**	**79.0**	**Top 20 diseases**	**826013**	**75.0**
	All other diseases	*668970*	*23.9*	*All other diseases*	*356794*	*21.0*	*All other diseases*	*275010*	*25.0*
	Total	**2799630**	**100.0**	**Total**	**1698607**	**100.0**	**Total**	**1101023**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 4.3.2: Leading causes of fatal burden (YLL), by sex, 2011

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Low Birth Weight (18.7; 11.3%)	Road Traffic Injuries (17.2; 31.5%)	Road Traffic Injuries (160.5; 61.6%)	Road Traffic Injuries (62.3; 21.7%)	Ischaemic Heart Disease (98.5; 23.1%)	Ischaemic Heart Disease (56.9; 21.7%)	Cerebrovascular Diseases (Stroke) (30.6; 17.5%)	Chronic Obstructive Pulmonary Disease (15.8; 23.7%)
2nd	Birth Trauma and Asphyxia (14.6; 8.8%)	Leukaemia (4.8; 8.8%)	Lower Respiratory Infections (8.1; 3.1%)	Ischaemic Heart Disease (36.6; 12.7%)	Cerebrovascular Diseases (Stroke) (53.2; 12.5%)	Cerebrovascular Diseases (Stroke) (39.7; 15.1%)	Ischaemic Heart Disease (27.6; 15.8%)	Cerebrovascular Diseases (Stroke) (12.5; 18.7%)
3rd	Lower Respiratory Infections (13.1; 7.9%)	Drowning (4.6; 8.4%)	Cerebrovascular Diseases (Stroke) (7.5; 2.9%)	Lower Respiratory Infections (20.0; 6.9%)	Road Traffic Injuries (34.7; 8.1%)	Lower Respiratory Infections (17.7; 6.8%)	Chronic Obstructive Pulmonary Disease (22.2; 12.7%)	Ischaemic Heart Disease (9.0; 13.6%)
4th	Congenital Heart Diseases (11.5; 6.9%)	Lower Respiratory Infections (2.3; 4.1%)	Self-Inflicted Injuries (6.7; 2.6%)	HIV (18.3; 6.3%)	Diabetes Mellitus (27.2; 6.4%)	Chronic Obstructive Pulmonary Disease (16.3; 6.2%)	Lower Respiratory Infections (18.8; 10.8%)	Lower Respiratory Infections (4.1; 6.2%)
5th	Neonatal Infections (10.0; 6.1%)	Cerebrovascular Diseases (Stroke) (1.9; 3.5%)	Leukaemia (5.8; 2.2%)	Cerebrovascular Diseases (Stroke) (18.2; 6.3%)	Lower Respiratory Infections (22.0; 5.1%)	Diabetes Mellitus (16.0; 6.1%)	Diabetes Mellitus (8.4; 4.8%)	Diabetes Mellitus (2.7; 4.1%)
6th	Diarrhoeal Diseases (5.8; 3.5%)	Brain and Other CNS Cancers (1.6; 3.0%)	Ischaemic Heart Disease (5.2; 2.0%)	Tuberculosis (12.4; 4.3%)	Trachea, Bronchus and Lung Cancers (16.2; 3.8%)	Trachea, Bronchus and Lung Cancers (14.1; 5.4%)	Trachea, Bronchus and Lung Cancers (8.1; 4.7%)	Hypertensive Disease (1.6; 2.4%)
7th	Road Traffic Injuries (5.2; 3.1%)	Falls (1.5; 2.8%)	Falls (4.4; 1.7%)	Diabetes Mellitus (8.1; 2.8%)	Liver Cancers (9.7; 2.3%)	Road Traffic Injuries (12.4; 4.7%)	Road Traffic Injuries (7.1; 4.0%)	Trachea, Bronchus and Lung Cancers (1.6; 2.4%)
8th	Anencephaly (4.2; 2.5%)	Diarrhoeal Diseases (1.5; 2.7%)	Drowning (3.4; 1.3%)	Self-Inflicted Injuries (6.8; 2.4%)	Nephritis and Nephrosis (9.6; 2.3%)	Colon and Rectum Cancers (7.1; 2.7%)	Colon and Rectum Cancers (4.2; 2.4%)	Colon and Rectum Cancers (1.1; 1.6%)
9th	Chronic Obstructive Pulmonary Disease (3.5; 2.1%)	Nephritis and Nephrosis (1.2; 2.1%)	Interpersonal Violence /Homicide (3.1; 1.2%)	Hypertensive Disease (5.2; 1.8%)	Tuberculosis (9.1; 2.1%)	Nephritis and Nephrosis (7.1; 2.7%)	Nephritis and Nephrosis (4.0; 2.3%)	Asthma (1.1; 1.6%)
10th	Meningitis (3.5; 2.1%)	Endocrine, Blood and Immune Disorders (1.1; 1.9%)	Tuberculosis (2.9; 1.1%)	Trachea, Bronchus and Lung Cancers (4.8; 1.7%)	Colon and Rectum Cancers (7.8; 1.8%)	Liver Cancers (5.1; 2.0%)	Prostate Cancer (2.8; 1.6%)	Tuberculosis (0.9; 1.4%)

Figure 4.3.4: Leading causes of fatal burden (YLL '000; percentage %) for males, by age group, 2011

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Low Birth Weight (13.5; 9.8%)	Road Traffic Injuries (4.7; 12.5%)	Road Traffic Injuries (27.4; 29.3%)	Breast Cancer (12.5; 9.9%)	Cerebrovascular Diseases (Stroke) (33.4; 13.4%)	Cerebrovascular Diseases (Stroke) (33.4; 18.4%)	Cerebrovascular Diseases (Stroke) (34.4; 21.3%)	Cerebrovascular Diseases (Stroke) (26.0; 23.1%)
2nd	Lower Respiratory Infections (11.2; 8.1%)	Brain and Other CNS Cancers (4.0; 10.6%)	Lower Respiratory Infections (6.1; 6.5%)	Road Traffic Injuries (10.6; 8.4%)	Ischaemic Heart Disease (32.9; 13.2%)	Ischaemic Heart Disease (26.6; 14.7%)	Ischaemic Heart Disease (24.5; 15.1%)	Lower Respiratory Infections (19.6; 17.5%)
3rd	Birth Trauma and Asphyxia (10.6; 7.7%)	Falls (2.4; 6.4%)	Cerebrovascular Diseases (Stroke) (4.2; 4.5%)	Cerebrovascular Diseases (Stroke) (10.3; 8.1%)	Diabetes Mellitus (26.9; 10.8%)	Diabetes Mellitus (18.8; 10.4%)	Lower Respiratory Infections (17.9; 11%)	Ischaemic Heart Disease (14.4; 12.8%)
4th	Congenital Heart Diseases (9.7; 7%)	Drowning (1.9; 5.1%)	Diabetes Mellitus (3.0; 3.3%)	Ischaemic Heart Disease (9.2; 7.3%)	Breast Cancer (24.2; 9.7%)	Lower Respiratory Infections (15.0; 8.3%)	Diabetes Mellitus (12.3; 7.6%)	Chronic Obstructive Pulmonary Disease (6.4; 5.7%)
5th	Neonatal Infections (7.1; 5.1%)	Lower Respiratory Infections (1.7; 4.6%)	Tuberculosis (2.9; 3.1%)	Diabetes Mellitus (8.3; 6.6%)	Lower Respiratory Infections (14.5; 5.8%)	Breast Cancer (7.4; 4.1%)	Chronic Obstructive Pulmonary Disease (9.4; 5.8%)	Diabetes Mellitus (5.9; 5.2%)
6th	Diarrhoeal Diseases (4.1; 3.0%)	Leukaemia (1.7; 4.6%)	Leukaemia (2.5; 2.6%)	Lower Respiratory Infections (7.7; 6.0%)	Road Traffic Injuries (10.4; 4.2%)	Nephritis and Nephrosis (5.9; 3.2%)	Nephritis and Nephrosis (5.2; 3.2%)	Nephritis and Nephrosis (3.3; 2.9%)
7th	Anencephaly (3.4; 2.4%)	Fires, Heat and Hot Substances (1.7; 4.6%)	Ischaemic Heart Disease (2.3; 2.5%)	Hypertensive Disease (6.1; 4.9%)	Trachea, Bronchus and Lung Cancers (7.9; 3.2%)	Trachea, Bronchus and Lung Cancers (5.9; 3.2%)	Trachea, Bronchus and Lung Cancers (4.5; 2.8%)	Asthma (3.3; 2.9%)
8th	Road Traffic Injuries (2.9; 2.1%)	Cerebrovascular Diseases (Stroke) (1.5; 3.9%)	Epilepsy (1.7; 1.9%)	Cervix Cancer (3.1; 2.4%)	Colon and Rectum Cancers (6.5; 2.6%)	Chronic Obstructive Pulmonary Disease (4.9; 2.7%)	Colon and Rectum Cancers (4.2; 2.6%)	Falls (3.1; 2.8%)
9th	Meningitis (2.4; 1.8%)	Diarrhoeal Diseases (1.3; 3.5%)	Endocrine, Blood and Immune Disorders (1.5; 1.7%)	Tuberculosis (2.8; 2.2%)	Nephritis and Nephrosis (6.2; 2.5%)	Colon and Rectum Cancers (4.4; 2.4%)	Falls (3.5; 2.1%)	Hypertensive Disease (2.8; 2.5%)
10th	Cerebrovascular Diseases (Stroke) (2.4; 1.7%)	Epilepsy (1.3; 3.4%)	Lymphoma (1.5; 1.6%)	Nephritis and Nephrosis (2.2; 1.7%)	Cervix Cancer (5.1; 2.0%)	Hypertensive Disease (3.2; 1.7%)	Breast Cancer (2.9; 1.8%)	Skin and subcutaneous diseases (2.7; 2.4%)

Figure 4.3.5: Leading causes of fatal burden (YLL '000; percentage %) for females, by age group, 2011

4.4 Years of Life Lost (YLL) - 2012

In 2012, a total of 2.87 million years of life were lost due to premature mortality in Malaysia. Males contributed towards 1.74 million YLL (60.4%) and females 1.14 million YLL (39.6%).

4.4.1 Pattern of Years of Life Lost (YLL) by sex

Figure 4.4.1: Percentage (%) of fatal burden (YLL), by disease groups and sex, 2012

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards fatal burden of disease and injury in Malaysia for 2012, followed by Unintentional Injuries and Malignant Neoplasms **[Figure 4.4.1]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest YLL and contributed to more than a quarter of fatal disease and injury burden. For males, Unintentional Injuries contributed to 21.2% of fatal disease and injury burden followed by Malignant Neoplasms at 12.3% and Respiratory Infections at 6.1%. For females, Malignant Neoplasms were the second largest contributor of fatal disease and injury burden with 18.8%, followed by Respiratory Infections at 8.6% and Unintentional Injuries at 8.3% **[Table 4.4.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	YLL (number)	YLL (%)	YLL (number)	YLL (%)	YLL (number)	YLL (%)
INFECTIOUS DISEASES	142807	5.0	97430	5.6	45377	4.0
RESPIRATORY INFECTIONS	203348	7.1	106069	6.1	97278	8.6
MATERNAL CONDITIONS	9002	0.3	0	0.0	9002	0.8
NEONATAL CONDITIONS	113843	4.0	68845	4.0	44998	4.0
NUTRITIONAL DEFICIENCY	1166	0.0	587	0.0	579	0.1
MALIGNANT NEOPLASMS	425918	14.8	212871	12.3	213047	18.8
BENIGN NEOPLASMS	11060	0.4	4471	0.3	6590	0.6
DIABETES MELLITUS	149344	5.2	68436	3.9	80908	7.1
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	17226	0.6	8642	0.5	8584	0.8
MENTAL AND BEHAVIOURAL DISORDER	4179	0.1	4136	0.2	43	0.0
NEUROLOGICAL CONDITIONS	48008	1.7	28340	1.6	19667	1.7
SENSE ORGAN DISEASES	78	0.0	27	0.0	52	0.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	803972	28.0	487225	28.1	316747	27.9
RESPIRATORY DISEASES	146964	5.1	96128	5.5	50836	4.5
DIGESTIVE DISEASES	113423	4.0	68999	4.0	44424	3.9
GENITO URINARY DISEASE	77432	2.7	38057	2.2	39375	3.5
SKIN DISEASES	23141	0.8	11061	0.6	12080	1.1
MUSCULOSKELETAL DISEASES	15352	0.5	7022	0.4	8330	0.7
CONGENITAL ANOMALIES	75000	2.6	36070	2.1	38930	3.4
ORAL CONDITIONS	645	0.0	572	0.0	72	0.0
UNINTENTIONAL INJURIES	461864	16.1	367260	21.2	94604	8.3
INTENTIONAL INJURIES	26942	0.9	22863	1.3	4079	0.4
TOTAL	**2870713**	**100.0**	**1735111**	**100.0**	**1135601**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 4.4.1: Fatal burden of disease and injury by disease groups and by sex, 2012

4.4.2 Pattern of Years of Life Lost (YLL) by age

Males between the ages of 45 and 59 contributed towards 25.4% of the total YLL, the age group with the highest contribution towards male fatal burden of disease and injury in Malaysia in 2012 **[Figure 4.4.2(a)].** Mortality among males below 5 years of age contributed towards 9.4% of the total fatal burden of disease and injury in Malaysia for 2012. Neonatal Conditions contributed the largest percentage, 42.1%, of the YLL among males below 5 years of age, followed by Congenital Anomalies at 20.4%. Unintentional Injuries were the predominant cause of YLL among males 5 to 29 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of fatal burden among males from the age of 30 years and above. Respiratory Diseases had an increasing percentage of contribution towards YLL in males as the age increases **[Figure 4.4.2(b)].**

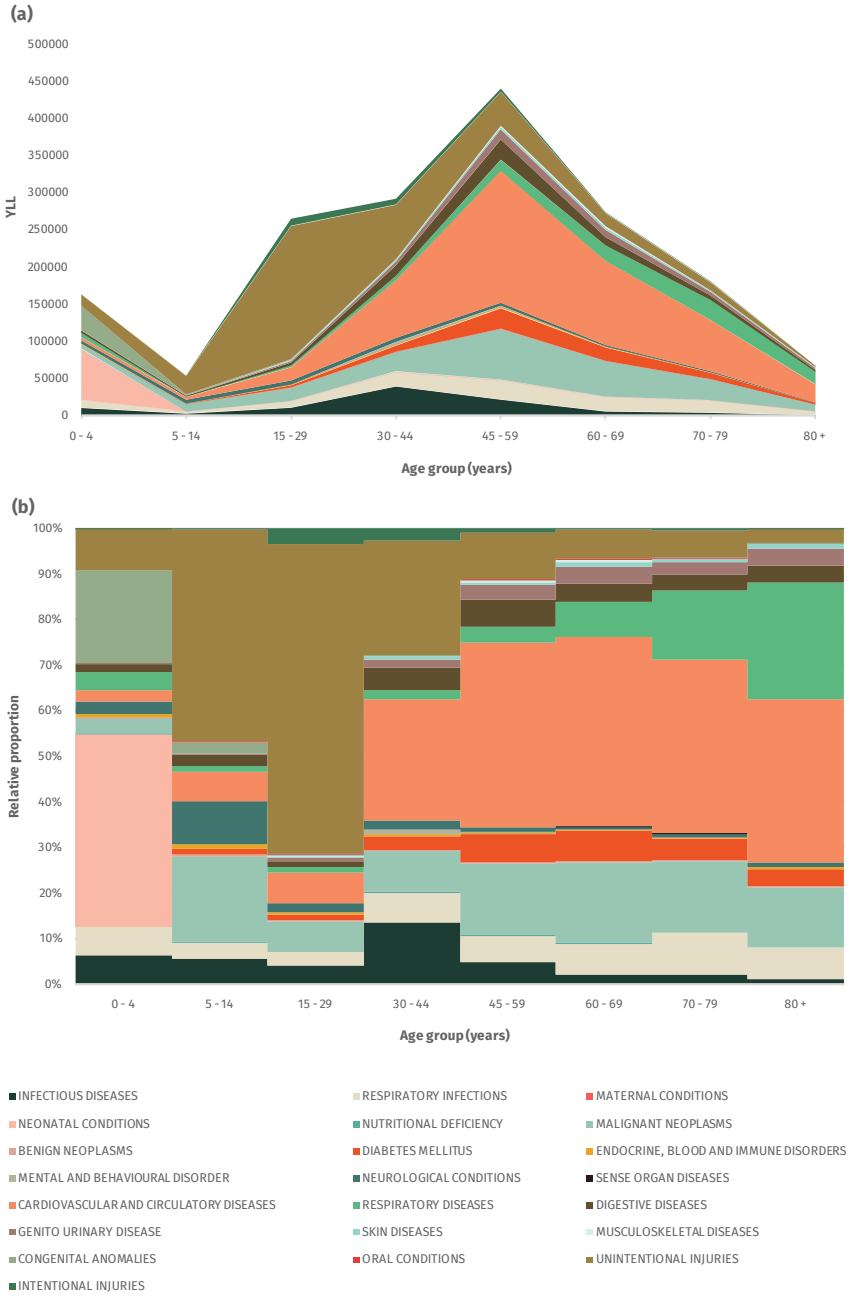


Figure 4.4.2: Number (a) & percentage (b) of fatal burden (YLL), by disease groups & age, males, 2012

Females between the ages of 45 and 59 years contributed towards 23.5% of the total YLL, the age group with the highest contribution towards female fatal burden of disease and injury in Malaysia in 2012 **[Figure 4.4.3(a)]**. Mortality among females below 5 years of age contributed towards 11.8% of the total fatal burden of disease and injury in Malaysia for 2012. Neonatal Conditions contributed the largest percentage, 33.6%, of the YLL among females below 5 years of age, followed by Congenital Anomalies at 27.2%. Unintentional Injuries were the predominant cause of YLL among females 5 to 29 years of age, while Malignant Neoplasms were the predominant cause of YLL among females 30 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of fatal burden among females from the age of 45 years and above, with an increasing percentage of contribution by Respiratory Infections towards YLL in females as the age increases **[Figure 4.4.3(b)]**.

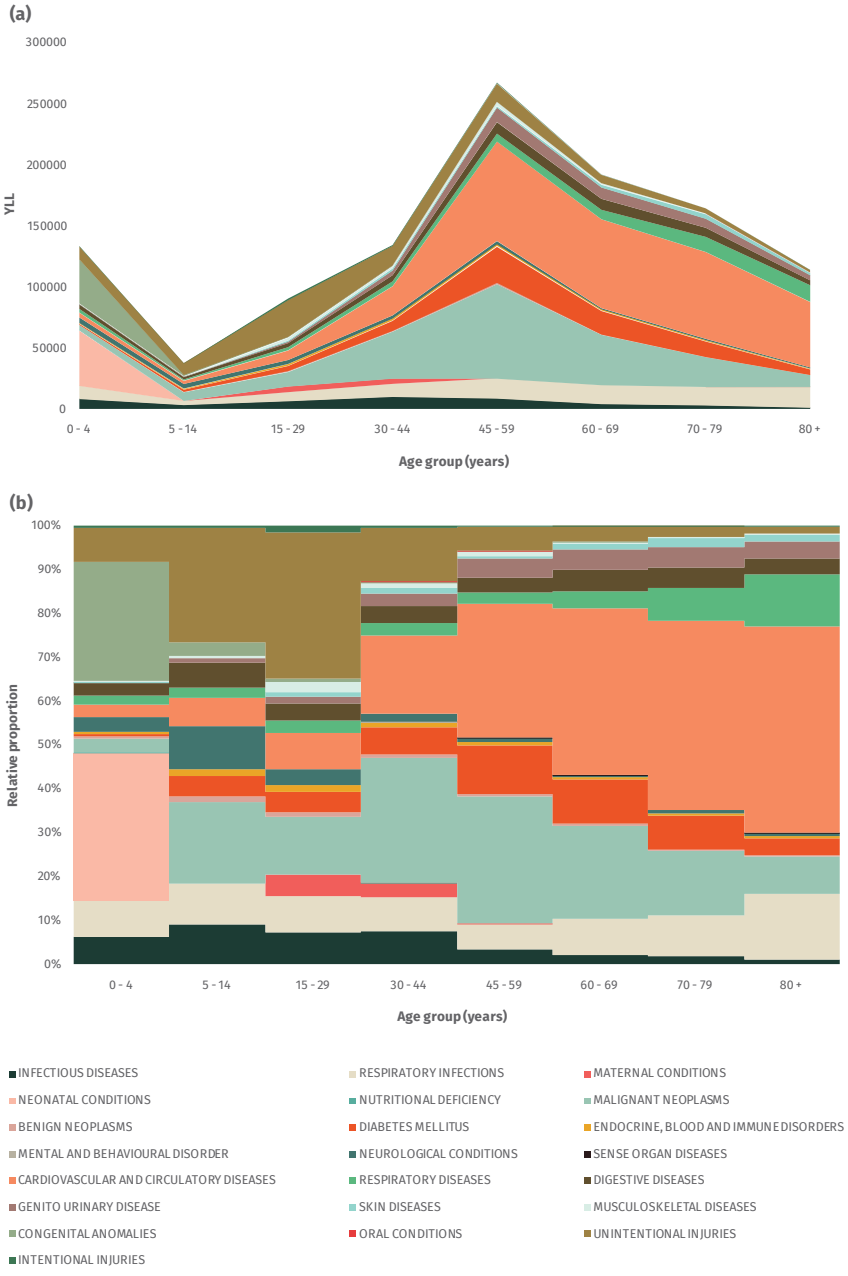


Figure 4.4.3: Number (a) & percentage (b) of fatal burden (YLL), by disease groups & age, females, 2012

4.4.3 Leading Causes of Years of Life Lost (YLL)

Road Traffic Injuries were the leading cause of fatal burden in Malaysia for 2012, contributing to 12.6% of the total YLL. This was followed by Ischaemic Heart Disease, with 12.5%, and Cerebrovascular Diseases, with 11.2% of total YLL. Lower Respiratory Infections, with 7.1% and Diabetes Mellitus with 5.2% make up the five leading causes of fatal burden of disease and injury in 2012.

Among males, Road Traffic Injuries contributed the largest amount of YLL with 17.5%. Ischaemic Heart Disease was the second highest contributor of YLL in males with 14.1% followed by Cerebrovascular Diseases with 9.8%. Lower Respiratory Infections and Chronic Obstructive Pulmonary Disease make up the fourth and fifth leading causes of YLL among males. Among females, Cerebrovascular Diseases were the leading cause of YLL with 13.4% followed by Ischaemic Heart Disease with 10.2% and Lower Respiratory Infections with 8.6%. Diabetes Mellitus was the fourth and Road Traffic Injuries make up the fifth leading cause of YLL among females **[Table 4.4.2]**.

The leading causes of fatal burden vary according to age. Among males below 5 years of age, Low Birth Weight contributed the highest amount of YLL. Road Traffic Injuries were the leading cause of YLL among males 5 to 44 years of age. Ischaemic Heart Disease was the second highest contributor of YLL among males 30 to 44 years of age. Among males of 45 to 69 years of age, Ischaemic Heart Diseases rises to the leading cause of YLL. Cerebrovascular Diseases were the second leading cause of YLL among males 45 to 69 years of age, and the leading cause of YLL among males 70 to 79 years of age. Chronic Obstructive Pulmonary Disease was the third highest cause of YLL among those 70 to 79 years of age and rose to the leading cause of YLL among males 80 years and above. Leukaemia was the leading cancer causing fatal burden among males below 30 years of age while Trachea, Bronchus and Lung Cancers were the leading cancer causing YLL among those 45 years and above **[Figure 4.4.4]**.

Among females below 5 years of age, Low Birth Weight contributed the highest amount of YLL. Road Traffic Injuries were the leading cause of YLL among females 5 to 29 years of age. Breast Cancer was found to contribute the highest YLL among females 30 to 44 years of age. Road Traffic Injuries were the second highest contributor of YLL among females 30 to 44 years of age. Among females of 45 years of age and above, Cerebrovascular Diseases were the leading cause of YLL. Ischaemic Heart Disease was the second leading cause of YLL among females 45 to 79 years of age. Lower Respiratory Infections were the third leading cause of YLL among females 70 to 79 years of age and the second highest cause of YLL among those 80 years of age and above. Breast cancer was the leading cancer causing fatal burden among females 30 to 69 years of age. Trachea, Bronchus and Lung Cancers were the leading cancer causing YLL among those 70 to 79 years of age with Colon and Rectum Cancers the highest among females 80 years and above **[Figure 4.4.5]**.

Rank	People	YLL	% of total	Males	YLL	% of total	Females	YLL	% of total
1	Road Traffic Injuries	362847	12.6	Road Traffic Injuries	303490	17.5	Cerebrovascular Diseases (Stroke)	151920	13.4
2	Ischaemic Heart Disease	359372	12.5	Ischaemic Heart Disease	244057	14.1	Ischaemic Heart Disease	115315	10.2
3	Cerebrovascular Diseases (Stroke)	321484	11.2	Cerebrovascular Diseases (Stroke)	169565	9.8	Lower Respiratory Infections	97148	8.6
4	Lower Respiratory Infections	203048	7.1	Lower Respiratory Infections	105900	6.1	Diabetes Mellitus	80908	7.1
5	Diabetes Mellitus	149344	5.2	Chronic Obstructive Pulmonary Disease	72692	4.2	Road Traffic Injuries	59357	5.2
6	Chronic Obstructive Pulmonary Disease	99301	3.5	Diabetes Mellitus	68436	3.9	Breast Cancer	50635	4.5
7	Trachea, Bronchus and Lung Cancers	69336	2.4	Trachea, Bronchus and Lung Cancers	46710	2.7	Chronic Obstructive Pulmonary Disease	26608	2.3
8	Nephritis and Nephrosis	53963	1.9	Tuberculosis	29385	1.7	Nephritis and Nephrosis	26227	2.3
9	Breast Cancer	50766	1.8	Nephritis and Nephrosis	27736	1.6	Trachea, Bronchus and Lung Cancers	22626	2.0
10	Colon and Rectum Cancers	44046	1.5	HIV	25331	1.5	Colon and Rectum Cancers	20005	1.8
11	Tuberculosis	41908	1.5	Leukaemia	24845	1.4	Falls	14707	1.3
12	Leukaemia	35977	1.3	Colon and Rectum Cancers	24041	1.4	Cervix Cancer	13753	1.2
13	Falls	33596	1.2	Liver Cancers	21855	1.3	Hypertensive Disease	13657	1.2
14	Liver Cancers	32378	1.1	Falls	18889	1.1	Congenital Heart Diseases	12586	1.1
15	Hypertensive Disease	31824	1.1	Hypertensive Disease	18167	1.0	Tuberculosis	12523	1.1
16	HIV	29884	1.0	Low Birth Weight	16832	1.0	Skin and subcutaneous diseases	12080	1.1
17	Low Birth Weight	28062	1.0	Self-Inflicted Injuries	15326	0.9	Brain and Other CNS Cancers	11834	1.0
18	Congenital Heart Diseases	25820	0.9	Birth Trauma and Asphyxia	15315	0.9	Low Birth Weight	11230	1.0
19	Birth Trauma and Asphyxia	24315	0.8	Congenital Heart Diseases	13234	0.8	Leukaemia	11132	1.0
20	Skin and subcutaneous diseases	23141	0.8	Mouth and Oropharynx Cancers	13073	0.8	Liver Cancers	10522	0.9
	Top 20 diseases	**2196759**	**76.5**	**Top 20 diseases**	**1375480**	**79.3**	**Top 20 diseases**	**857221**	**75.5**
	All other diseases	*673953*	*23.5*	*All other diseases*	*359631*	*20.7*	*All other diseases*	*278380*	*24.5*
	Total	**2870713**	**100.0**	**Total**	**1735111**	**100.0**	**Total**	**1135601**	**100.0**

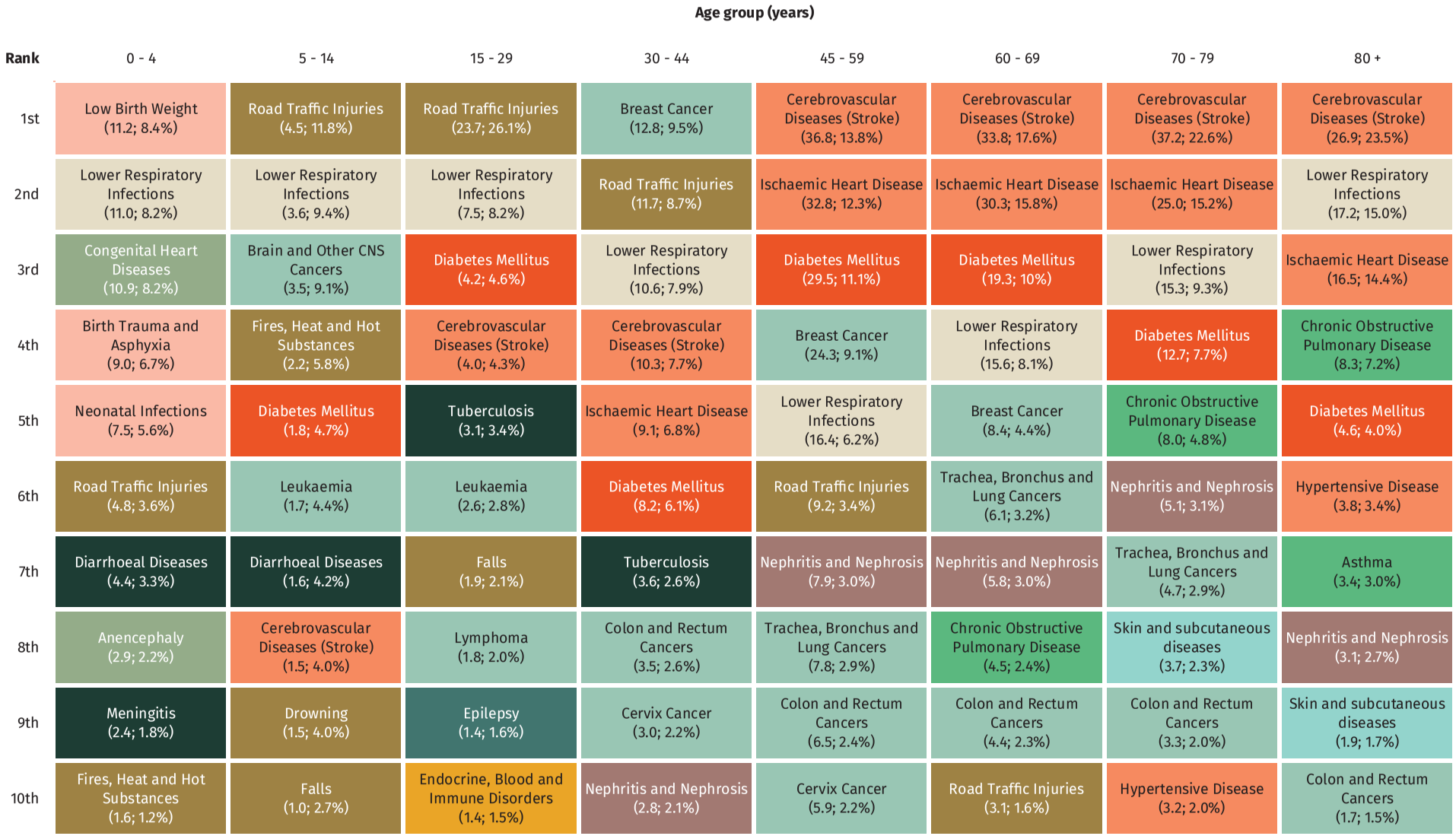
Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 4.4.2: Leading causes of fatal burden (YLL), by sex, 2012

Rank	Age group (years) 0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Low Birth Weight (16.8; 10.3%)	Road Traffic Injuries (18.0; 33.4%)	Road Traffic Injuries (164.5; 62.1%)	Road Traffic Injuries (57.7; 19.8%)	Ischaemic Heart Disease (100.9; 22.9%)	Ischaemic Heart Disease (58.0; 21.2%)	Cerebrovascular Diseases (Stroke) (31.6; 17.6%)	Chronic Obstructive Pulmonary Disease (14.7; 21.8%)
2nd	Birth Trauma and Asphyxia (15.3; 9.4%)	Leukaemia (5.0; 9.2%)	Lower Respiratory Infections (8.1; 3.1%)	Ischaemic Heart Disease (40.8; 14%)	Cerebrovascular Diseases (Stroke) (52.4; 11.9%)	Cerebrovascular Diseases (Stroke) (43.4; 15.9%)	Ischaemic Heart Disease (29.8; 16.5%)	Cerebrovascular Diseases (Stroke) (11.0; 16.3%)
3rd	Congenital Heart Diseases (11.0; 6.8%)	Drowning (4.3; 8.0%)	Cerebrovascular Diseases (Stroke) (6.8; 2.6%)	Cerebrovascular Diseases (Stroke) (21.8; 7.5%)	Road Traffic Injuries (35.5; 8.1%)	Lower Respiratory Infections (19.2; 7.0%)	Chronic Obstructive Pulmonary Disease (23.9; 13.3%)	Ischaemic Heart Disease (10.1; 15.0%)
4th	Lower Respiratory Infections (10.1; 6.2%)	Brain and Other CNS Cancers (2.8; 5.3%)	Self-Inflicted Injuries (6.4; 2.4%)	Lower Respiratory Infections (19.6; 6.7%)	Diabetes Mellitus (27.4; 6.2%)	Diabetes Mellitus (18.1; 6.6%)	Lower Respiratory Infections (16.3; 9.0%)	Lower Respiratory Infections (4.7; 7.0%)
5th	Neonatal Infections (9.8; 6.0%)	Lower Respiratory Infections (1.9; 3.5%)	Leukaemia (6.3; 2.4%)	HIV (17.4; 6.0%)	Lower Respiratory Infections (26.1; 5.9%)	Chronic Obstructive Pulmonary Disease (16.9; 6.2%)	Trachea, Bronchus and Lung Cancers (8.8; 4.9%)	Diabetes Mellitus (2.6; 3.8%)
6th	Road Traffic Injuries (6.0; 3.7%)	Diarrhoeal Diseases (1.6; 3.0%)	Ischaemic Heart Disease (4.0; 1.5%)	Tuberculosis (11.3; 3.9%)	Trachea, Bronchus and Lung Cancers (17.4; 4.0%)	Trachea, Bronchus and Lung Cancers (13.6; 5.0%)	Diabetes Mellitus (8.5; 4.7%)	Trachea, Bronchus and Lung Cancers (2.0; 2.9%)
7th	Diarrhoeal Diseases (5.8; 3.6%)	Rheumatic Heart Disease (1.4; 2.7%)	Drowning (3.7; 1.4%)	Diabetes Mellitus (8.2; 2.8%)	Nephritis and Nephrosis (10.9; 2.5%)	Road Traffic Injuries (12.7; 4.7%)	Road Traffic Injuries (7.8; 4.3%)	Nephritis and Nephrosis (1.6; 2.3%)
8th	Chronic Obstructive Pulmonary Disease (5.1; 3.1%)	Epilepsy (1.0; 1.9%)	Tuberculosis (3.2; 1.2%)	Self-Inflicted Injuries (4.9; 1.7%)	Liver Cancers (9.6; 2.2%)	Nephritis and Nephrosis (7.0; 2.6%)	Colon and Rectum Cancers (4.6; 2.5%)	Colon and Rectum Cancers (1.3; 1.9%)
9th	Anencephaly (4.1; 2.5%)	Congenital Heart Diseases (1.0; 1.8%)	Diabetes Mellitus (3.0; 1.1%)	Hypertensive Disease (4.9; 1.7%)	Tuberculosis (9.5; 2.2%)	Colon and Rectum Cancers (7.0; 2.6%)	Nephritis and Nephrosis (3.1; 1.7%)	Road Traffic Injuries (1.2; 1.7%)
10th	Meningitis (2.6; 1.6%)	Cerebrovascular Diseases (Stroke) (0.8; 1.5%)	Falls (3.0; 1.1%)	Falls (4.8; 1.6%)	Chronic Obstructive Pulmonary Disease (8.9; 2.0%)	Liver Cancers (5.8; 2.1%)	Liver Cancers (2.6; 1.5%)	Prostate Cancer (1.1; 1.7%)

Figure 4.4.4: Leading causes of fatal burden (YLL '000; percentage %) for males, by age group, 2012



Rank	Age group (years) 0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Low Birth Weight (11.2; 8.4%)	Road Traffic Injuries (4.5; 11.8%)	Road Traffic Injuries (23.7; 26.1%)	Breast Cancer (12.8; 9.5%)	Cerebrovascular Diseases (Stroke) (36.8; 13.8%)	Cerebrovascular Diseases (Stroke) (33.8; 17.6%)	Cerebrovascular Diseases (Stroke) (37.2; 22.6%)	Cerebrovascular Diseases (Stroke) (26.9; 23.5%)
2nd	Lower Respiratory Infections (11.0; 8.2%)	Lower Respiratory Infections (3.6; 9.4%)	Lower Respiratory Infections (7.5; 8.2%)	Road Traffic Injuries (11.7; 8.7%)	Ischaemic Heart Disease (32.8; 12.3%)	Ischaemic Heart Disease (30.3; 15.8%)	Ischaemic Heart Disease (25.0; 15.2%)	Lower Respiratory Infections (17.2; 15.0%)
3rd	Congenital Heart Diseases (10.9; 8.2%)	Brain and Other CNS Cancers (3.5; 9.1%)	Diabetes Mellitus (4.2; 4.6%)	Lower Respiratory Infections (10.6; 7.9%)	Diabetes Mellitus (29.5; 11.1%)	Diabetes Mellitus (19.3; 10%)	Lower Respiratory Infections (15.3; 9.3%)	Ischaemic Heart Disease (16.5; 14.4%)
4th	Birth Trauma and Asphyxia (9.0; 6.7%)	Fires, Heat and Hot Substances (2.2; 5.8%)	Cerebrovascular Diseases (Stroke) (4.0; 4.3%)	Cerebrovascular Diseases (Stroke) (10.3; 7.7%)	Breast Cancer (24.3; 9.1%)	Lower Respiratory Infections (15.6; 8.1%)	Diabetes Mellitus (12.7; 7.7%)	Chronic Obstructive Pulmonary Disease (8.3; 7.2%)
5th	Neonatal Infections (7.5; 5.6%)	Diabetes Mellitus (1.8; 4.7%)	Tuberculosis (3.1; 3.4%)	Ischaemic Heart Disease (9.1; 6.8%)	Lower Respiratory Infections (16.4; 6.2%)	Breast Cancer (8.4; 4.4%)	Chronic Obstructive Pulmonary Disease (8.0; 4.8%)	Diabetes Mellitus (4.6; 4.0%)
6th	Road Traffic Injuries (4.8; 3.6%)	Leukaemia (1.7; 4.4%)	Leukaemia (2.6; 2.8%)	Diabetes Mellitus (8.2; 6.1%)	Road Traffic Injuries (9.2; 3.4%)	Trachea, Bronchus and Lung Cancers (6.1; 3.2%)	Nephritis and Nephrosis (5.1; 3.1%)	Hypertensive Disease (3.8; 3.4%)
7th	Diarrhoeal Diseases (4.4; 3.3%)	Diarrhoeal Diseases (1.6; 4.2%)	Falls (1.9; 2.1%)	Tuberculosis (3.6; 2.6%)	Nephritis and Nephrosis (7.9; 3.0%)	Nephritis and Nephrosis (5.8; 3.0%)	Trachea, Bronchus and Lung Cancers (4.7; 2.9%)	Asthma (3.4; 3.0%)
8th	Anencephaly (2.9; 2.2%)	Cerebrovascular Diseases (Stroke) (1.5; 4.0%)	Lymphoma (1.8; 2.0%)	Colon and Rectum Cancers (3.5; 2.6%)	Trachea, Bronchus and Lung Cancers (7.8; 2.9%)	Chronic Obstructive Pulmonary Disease (4.5; 2.4%)	Skin and subcutaneous diseases (3.7; 2.3%)	Nephritis and Nephrosis (3.1; 2.7%)
9th	Meningitis (2.4; 1.8%)	Drowning (1.5; 4.0%)	Epilepsy (1.4; 1.6%)	Cervix Cancer (3.0; 2.2%)	Colon and Rectum Cancers (6.5; 2.4%)	Colon and Rectum Cancers (4.4; 2.3%)	Colon and Rectum Cancers (3.3; 2.0%)	Skin and subcutaneous diseases (1.9; 1.7%)
10th	Fires, Heat and Hot Substances (1.6; 1.2%)	Falls (1.0; 2.7%)	Endocrine, Blood and Immune Disorders (1.4; 1.5%)	Nephritis and Nephrosis (2.8; 2.1%)	Cervix Cancer (5.9; 2.2%)	Road Traffic Injuries (3.1; 1.6%)	Hypertensive Disease (3.2; 2.0%)	Colon and Rectum Cancers (1.7; 1.5%)

Figure 4.4.5: Leading causes of fatal burden (YLL '000; percentage %) for females, by age group, 2012

4.5 Years of Life Lost (YLL) - 2013

In 2013, a total of 2.93 million years of life were lost due to premature mortality in Malaysia. Males contributed towards 1.77 million YLL (60.5%) and females 1.16 million YLL (39.5%).

4.5.1 Pattern of Years of Life Lost (YLL) by sex

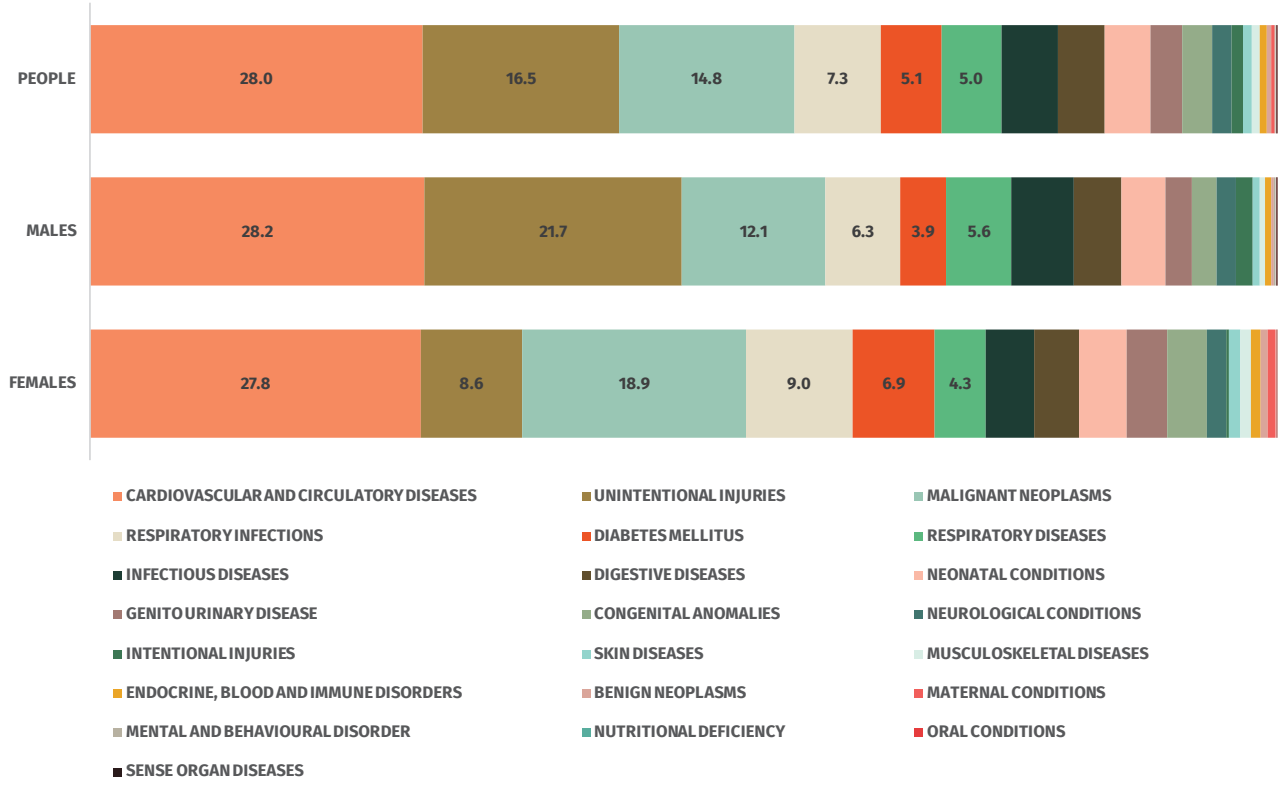


Figure 4.5.1: Percentage (%) of fatal burden (YLL), by disease groups and sex, 2013

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards fatal burden of disease and injury in Malaysia for 2013, followed by Unintentional Injuries and Malignant Neoplasms **[Figure 4.5.1]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest YLL and contributed to more than a quarter of fatal disease and injury burden. For males, Unintentional Injuries contributed more than 20% of fatal disease and injury burden followed by Malignant Neoplasms at 12.1% and Respiratory Infections at 6.3%. For females, Malignant Neoplasms were the second largest contributor of fatal disease and injury burden with 18.9%, followed by Respiratory Infections at 9.0% and Unintentional Injuries at 8.6% **[Table 4.5.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	YLL (number)	YLL (%)	YLL (number)	YLL (%)	YLL (number)	YLL (%)
INFECTIOUS DISEASES	141073	4.8	93097	5.3	47976	4.1
RESPIRATORY INFECTIONS	214792	7.3	111152	6.3	103640	9.0
MATERNAL CONDITIONS	8118	0.3	0	0.0	8118	0.7
NEONATAL CONDITIONS	112253	3.8	66168	3.7	46085	4.0
NUTRITIONAL DEFICIENCY	864	0.0	390	0.0	475	0.0
MALIGNANT NEOPLASMS	432961	14.8	214842	12.1	218119	18.9
BENIGN NEOPLASMS	11650	0.4	4740	0.3	6910	0.6
DIABETES MELLITUS	148825	5.1	68478	3.9	80347	6.9
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	18160	0.6	8981	0.5	9179	0.8
MENTAL AND BEHAVIOURAL DISORDER	2834	0.1	2834	0.2	0	0.0
NEUROLOGICAL CONDITIONS	47659	1.6	28750	1.6	18909	1.6
SENSE ORGAN DISEASES	6	0.0	6	0.0	0	0.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	821129	28.0	499100	28.2	322028	27.8
RESPIRATORY DISEASES	147830	5.0	98475	5.6	49355	4.3
DIGESTIVE DISEASES	114798	3.9	70889	4.0	43909	3.8
GENITO URINARY DISEASE	79012	2.7	39530	2.2	39482	3.4
SKIN DISEASES	21296	0.7	10654	0.6	10642	0.9
MUSCULOSKELETAL DISEASES	18658	0.6	7823	0.4	10835	0.9
CONGENITAL ANOMALIES	74629	2.5	36263	2.0	38366	3.3
ORAL CONDITIONS	567	0.0	431	0.0	136	0.0
UNINTENTIONAL INJURIES	483584	16.5	384188	21.7	99397	8.6
INTENTIONAL INJURIES	28180	1.0	25175	1.4	3005	0.3
TOTAL	**2928878**	**100.0**	**1771966**	**100.0**	**1156912**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 4.5.1: Fatal burden of disease and injury by disease groups and by sex, 2013

4.5.2 Pattern of Years of Life Lost (YLL) by age

Males between the ages of 45 and 59 contributed towards 25.7% of the total YLL, the age group with the highest contribution towards male fatal burden of disease and injury in Malaysia in 2013 **[Figure 4.5.2(a)].** Mortality among males below 5 years of age contributed towards 9.2% of the total fatal burden of disease and injury in Malaysia for 2013. Neonatal Conditions contributed the largest percentage, 40.7%, of the YLL among males below 5 years of age, followed by Congenital Anomalies at 20.7%. Unintentional Injuries were the predominant cause of YLL among males 5 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of fatal burden among males from the age of 45 years and above. Respiratory Diseases had an increasing percentage of contribution towards YLL in males as the age increases **[Figure 4.5.2(b)].**

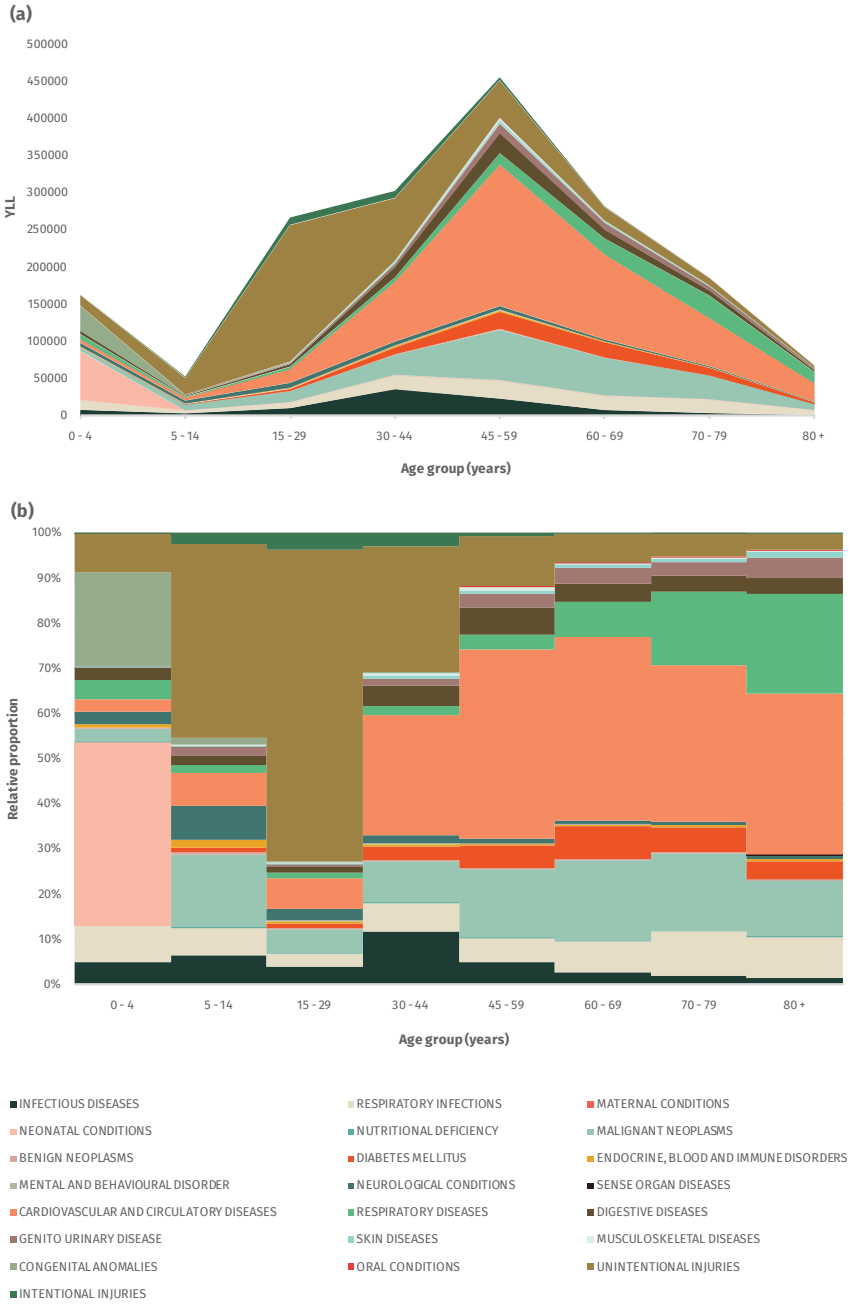


Figure 4.5.2: Number (a) & percentage (b) of fatal burden (YLL), by disease groups & age, males, 2013

Females between the ages of 45 and 59 years contributed towards 23.5% of the total YLL, the age group with the highest contribution towards female fatal burden of disease and injury in Malaysia in 2013 **[Figure 4.5.3(a)]**. Mortality among females below 5 years of age contributed towards 11.5% of the total fatal burden of disease and injury in Malaysia for 2013. Neonatal Conditions contributed the largest percentage, 34.6%, of the YLL among females below 5 years of age, followed by Congenital Anomalies at 26.9%. Unintentional Injuries were the predominant cause of YLL among females 5 to 29 years of age, while Malignant Neoplasms were the predominant cause of YLL among females 30 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of fatal burden among females from the age of 45 years and above, with an increasing percentage of contribution by Respiratory Infections towards YLL in females as the age increases **[Figure 4.5.3(b)]**.

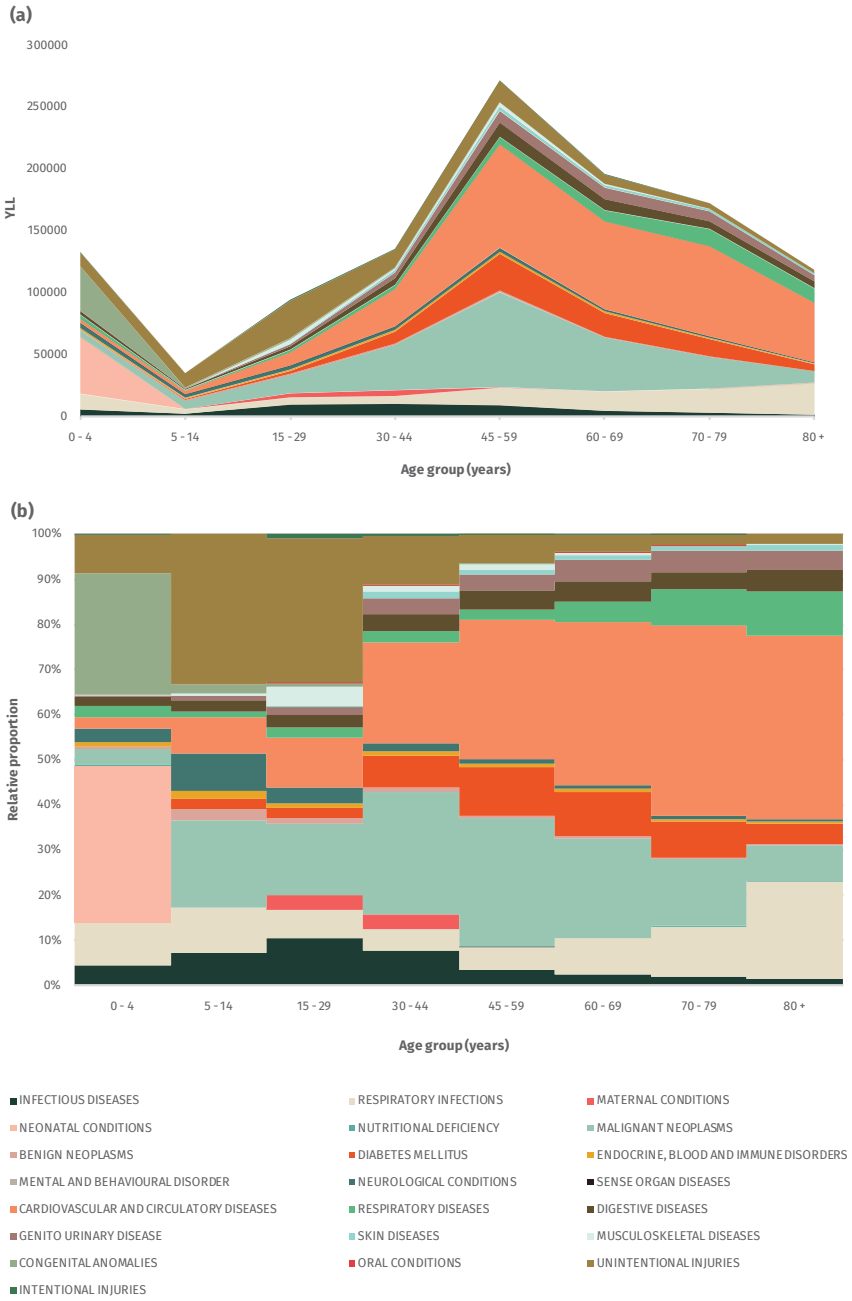


Figure 4.5.3: Number (a) & percentage (b) of fatal burden (YLL), by disease groups & age, females, 2013

4.5.3 Leading Causes of Years of Life Lost (YLL)

Road Traffic Injuries were the leading cause of fatal burden in Malaysia for 2013, contributing to 13.0% of the total YLL. This was followed by Ischaemic Heart Disease, with 12.4%, and Cerebrovascular Diseases, with 11.4% of total YLL. Lower Respiratory Infections, with 7.3% and Diabetes Mellitus with 5.1% make up the five leading causes of fatal burden of disease and injury in 2013.

Among males, Road Traffic Injuries contributed the largest amount of YLL with 17.8%. Ischaemic Heart Disease was the second highest contributor of YLL in males with 13.9% followed by Cerebrovascular Diseases with 10.1%. Lower Respiratory Infections and Chronic Obstructive Pulmonary Disease make up the fourth and fifth leading causes of YLL among males. Among females, Cerebrovascular Diseases were the leading cause of YLL with 13.3% followed by Ischaemic Heart Disease with 10.0% and Lower Respiratory Infections with 9.0%. Diabetes Mellitus was the fourth and Road Traffic Injuries make up the fifth leading cause of YLL among females **[Table 4.5.2]**.

The leading causes of fatal burden vary according to age. Among males below 5 years of age, Low Birth Weight contributed the highest amount of YLL. Road Traffic Injuries were the leading cause of YLL among males 5 to 44 years of age. Ischaemic Heart Disease was the second highest contributor of YLL among males 30 to 44 years of age. Among males of 45 to 69 years of age, Ischaemic Heart Diseases rises to the leading cause of YLL. Cerebrovascular Diseases were the second leading cause of YLL among males 45 to 69 years of age, and the leading cause of YLL among males 70 years of age and above. Chronic Obstructive Pulmonary Disease was the second highest cause of YLL among those 70 years of age and above. Leukaemia was the leading cancer causing fatal burden among males below 30 years of age while Trachea, Bronchus and Lung Cancers were the leading cancer causing YLL among those 30 years and above **[Figure 4.5.4]**.

Among females below 5 years of age, Low Birth Weight contributed the highest amount of YLL. Road Traffic Injuries were the leading cause of YLL among females 5 to 29 years of age. Breast Cancer was found to contribute the highest YLL among females 30 to 44 years of age. Road Traffic Injuries were the second highest contributor of YLL among females 30 to 44 years of age. Among females of 45 years of age and above, Cerebrovascular Diseases were the leading cause of YLL. Ischaemic Heart Disease was the second leading cause of YLL among females 45 to 79 years of age. Lower Respiratory Infections were the third leading cause of YLL among females 70 to 79 years of age and the second highest cause of YLL among those 80 years of age and above. Breast cancer was the leading cancer causing fatal burden among females 30 to 69 years of age. Trachea, Bronchus and Lung Cancers were the leading cancer causing YLL among those 70 to 79 years of age with Colon and Rectum Cancers the highest among females 80 years and above **[Figure 4.5.5]**.

Rank	People	YLL	% of total	Males	YLL	% of total	Females	YLL	% of total
1	Road Traffic Injuries	379499	13.0	Road Traffic Injuries	315366	17.8	Cerebrovascular Diseases (Stroke)	154291	13.3
2	Ischaemic Heart Disease	361972	12.4	Ischaemic Heart Disease	245816	13.9	Ischaemic Heart Disease	116157	10.0
3	Cerebrovascular Diseases (Stroke)	332718	11.4	Cerebrovascular Diseases (Stroke)	178427	10.1	Lower Respiratory Infections	103551	9.0
4	Lower Respiratory Infections	214450	7.3	Lower Respiratory Infections	110899	6.3	Diabetes Mellitus	80347	6.9
5	Diabetes Mellitus	148825	5.1	Chronic Obstructive Pulmonary Disease	74750	4.2	Road Traffic Injuries	64133	5.5
6	Chronic Obstructive Pulmonary Disease	101314	3.5	Diabetes Mellitus	68478	3.9	Breast Cancer	50851	4.4
7	Trachea, Bronchus and Lung Cancers	70861	2.4	Trachea, Bronchus and Lung Cancers	48037	2.7	Chronic Obstructive Pulmonary Disease	26563	2.3
8	Nephritis and Nephrosis	55443	1.9	Nephritis and Nephrosis	29181	1.6	Nephritis and Nephrosis	26262	2.3
9	Breast Cancer	52119	1.8	Tuberculosis	27648	1.6	Trachea, Bronchus and Lung Cancers	22824	2.0
10	Colon and Rectum Cancers	45328	1.5	Colon and Rectum Cancers	25228	1.4	Colon and Rectum Cancers	20100	1.7
11	Tuberculosis	40681	1.4	Leukaemia	23237	1.3	Hypertensive Disease	14438	1.2
12	Leukaemia	35422	1.2	Liver Cancers	22704	1.3	Falls	14053	1.2
13	Falls	33815	1.2	Falls	19762	1.1	Cervix Cancer	13719	1.2
14	Liver Cancers	33640	1.1	Hypertensive Disease	19087	1.1	Tuberculosis	13033	1.1
15	Hypertensive Disease	33525	1.1	HIV	19023	1.1	Brain and Other CNS Cancers	12850	1.1
16	Low Birth Weight	30710	1.0	Low Birth Weight	17862	1.0	Low Birth Weight	12848	1.1
17	Congenital Heart Diseases	26398	0.9	Self-Inflicted Injuries	17358	1.0	Congenital Heart Diseases	12679	1.1
18	HIV	23892	0.8	Birth Trauma and Asphyxia	14246	0.8	Leukaemia	12185	1.1
19	Brain and Other CNS Cancers	23219	0.8	Drowning	13905	0.8	Liver Cancers	10936	0.9
20	Birth Trauma and Asphyxia	22940	0.8	Congenital Heart Diseases	13720	0.8	Skin and subcutaneous diseases	10642	0.9
	Top 20 diseases	**2066770**	**70.6**	**Top 20 diseases**	**1304734**	**73.6**	**Top 20 diseases**	**792460**	**68.5**
	All other diseases	*862108*	*29.4*	*All other diseases*	*467232*	*26.4*	*All other diseases*	*364452*	*31.5*
	Total	**2928878**	**100.0**	**Total**	**1771966**	**100.0**	**Total**	**1156912**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 4.5.2: Leading causes of fatal burden (YLL), by sex, 2013

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Low Birth Weight (17.9; 11%)	Road Traffic Injuries (12.9; 24.8%)	Road Traffic Injuries (168.6; 63.4%)	Road Traffic Injuries (67.1; 22.2%)	Ischaemic Heart Disease (108.6; 23.9%)	Ischaemic Heart Disease (58.5; 20.8%)	Cerebrovascular Diseases (Stroke) (31.9; 17.2%)	Cerebrovascular Diseases (Stroke) (13.4; 19.8%)
2nd	Birth Trauma and Asphyxia (14.2; 8.8%)	Drowning (5.5; 10.5%)	Lower Respiratory Infections (7.5; 2.8%)	Ischaemic Heart Disease (39.3; 13%)	Cerebrovascular Diseases (Stroke) (57.5; 12.6%)	Cerebrovascular Diseases (Stroke) (42.0; 14.9%)	Chronic Obstructive Pulmonary Disease (26.1; 14.1%)	Chronic Obstructive Pulmonary Disease (12.7; 18.8%)
3rd	Lower Respiratory Infections (12.9; 8.0%)	Leukaemia (4.0; 7.7%)	Cerebrovascular Diseases (Stroke) (7.1; 2.7%)	Cerebrovascular Diseases (Stroke) (24.0; 8.0%)	Road Traffic Injuries (39.5; 8.7%)	Diabetes Mellitus (20.4; 7.2%)	Ischaemic Heart Disease (25.6; 13.8%)	Ischaemic Heart Disease (7.8; 11.6%)
4th	Congenital Heart Diseases (12.0; 7.4%)	Lower Respiratory Infections (3.1; 6.0%)	Self-Inflicted Injuries (7.0; 2.6%)	Lower Respiratory Infections (19.2; 6.4%)	Lower Respiratory Infections (24.7; 5.4%)	Lower Respiratory Infections (19.2; 6.8%)	Lower Respiratory Infections (18.0; 9.7%)	Lower Respiratory Infections (6.2; 9.1%)
5th	Neonatal Infections (10.6; 6.5%)	Brain and Other CNS Cancers (2.0; 3.9%)	Ischaemic Heart Disease (6.0; 2.2%)	HIV (13.2; 4.4%)	Diabetes Mellitus (22.9; 5.0%)	Chronic Obstructive Pulmonary Disease (17.5; 6.2%)	Diabetes Mellitus (10.3; 5.5%)	Diabetes Mellitus (2.6; 3.9%)
6th	Chronic Obstructive Pulmonary Disease (5.6; 3.5%)	Diarrhoeal Diseases (1.5; 3.0%)	Leukaemia (5.1; 1.9%)	Tuberculosis (10.4; 3.4%)	Trachea, Bronchus and Lung Cancers (16.5; 3.6%)	Trachea, Bronchus and Lung Cancers (14.6; 5.2%)	Trachea, Bronchus and Lung Cancers (9.9; 5.3%)	Trachea, Bronchus and Lung Cancers (2.0; 2.9%)
7th	Road Traffic Injuries (5.2; 3.2%)	Fires, Heat and Hot Substances (1.4; 2.7%)	Falls (3.7; 1.4%)	Diabetes Mellitus (9.1; 3.0%)	Liver Cancers (10.5; 2.3%)	Road Traffic Injuries (13.1; 4.7%)	Road Traffic Injuries (7.5; 4.1%)	Nephritis and Nephrosis (1.9; 2.8%)
8th	Diarrhoeal Diseases (4.3; 2.6%)	Hypertensive Disease (1.2; 2.4%)	Drowning (3.2; 1.2%)	Self-Inflicted Injuries (6.3; 2.1%)	Nephritis and Nephrosis (10.1; 2.2%)	Colon and Rectum Cancers (7.9; 2.8%)	Colon and Rectum Cancers (5.1; 2.8%)	Road Traffic Injuries (1.4; 2.1%)
9th	Anencephaly (3.0; 1.8%)	Self-Inflicted Injuries (1.2; 2.3%)	Diabetes Mellitus (2.7; 1.0%)	Hypertensive Disease (5.6; 1.9%)	Chronic Obstructive Pulmonary Disease (9.8; 2.2%)	Nephritis and Nephrosis (7.2; 2.6%)	Nephritis and Nephrosis (3.7; 2.0%)	Prostate Cancer (1.3; 1.9%)
10th	Leukaemia (2.7; 1.6%)	Nephritis and Nephrosis (1.1; 2.1%)	Interpersonal Violence /Homicide (2.6; 1.0%)	Trachea, Bronchus and Lung Cancers (4.8; 1.6%)	Tuberculosis (8.0; 1.8%)	Liver Cancers (6.0; 2.1%)	Liver Cancers (2.8; 1.5%)	Colon and Rectum Cancers (1.3; 1.9%)

Figure 4.5.4: Leading causes of fatal burden (YLL '000; percentage %) for males, by age group, 2013

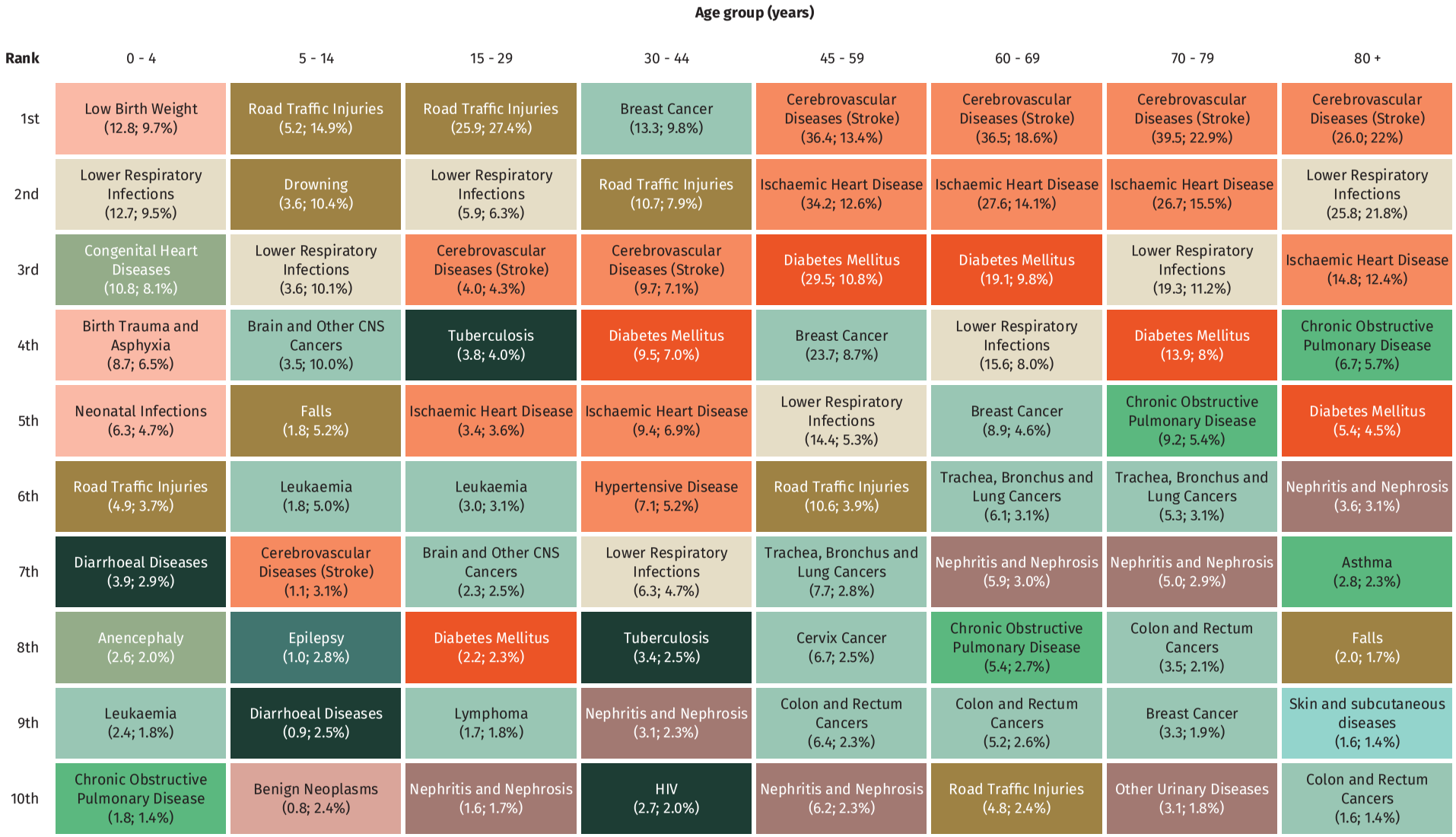


Figure 4.5.5: Leading causes of fatal burden (YLL '000; percentage %) for females, by age group, 2013

4.6 Years of Life Lost (YLL) - 2014

In 2014, a total of 3.11 million years of life were lost due to premature mortality in Malaysia. Males contributed towards 1.86 million YLL (59.9%) and females 1.25 million YLL (40.1%).

4.6.1 Pattern of Years of Life Lost (YLL) by sex

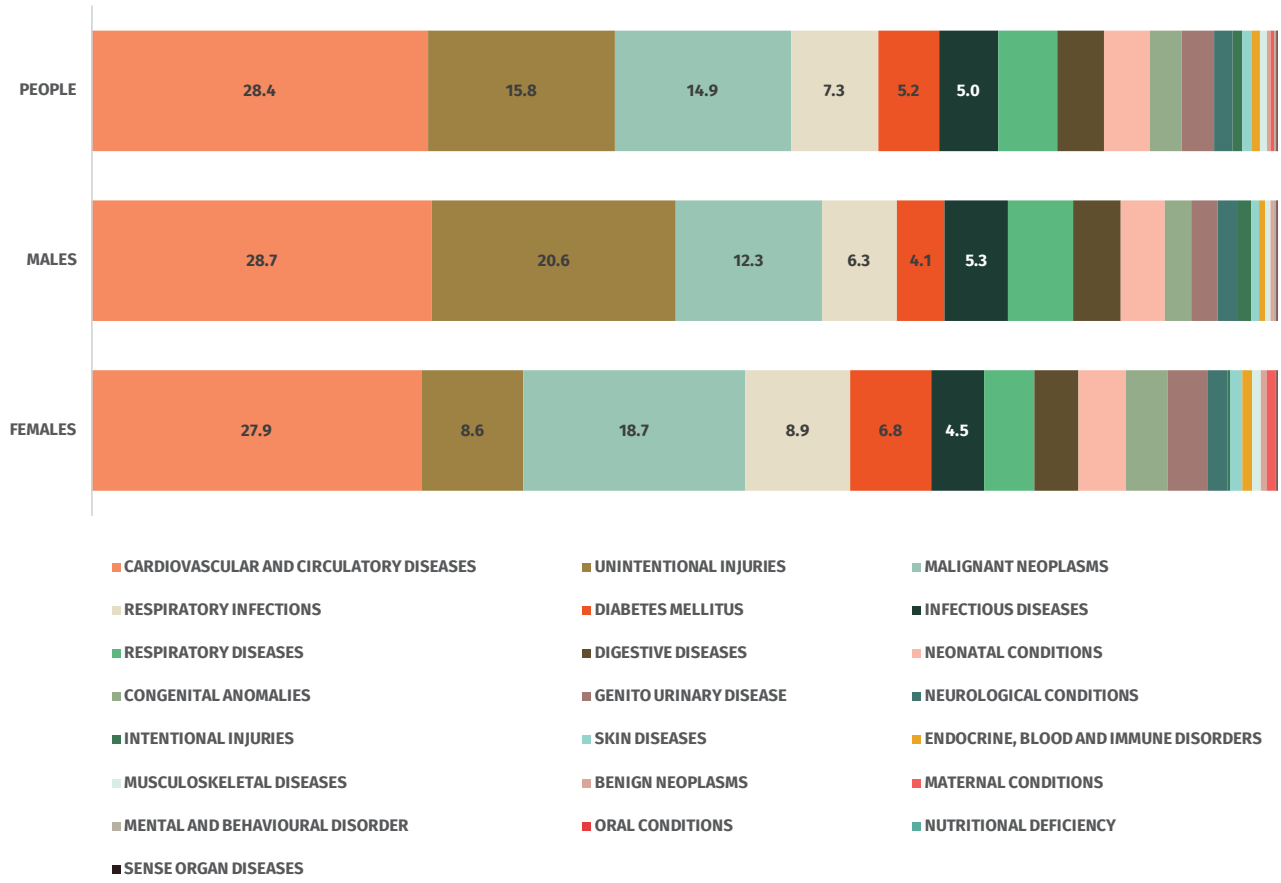


Figure 4.6.1: Percentage (%) of fatal burden (YLL), by disease groups and sex, 2014

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards fatal burden of disease and injury in Malaysia for 2014, followed by Unintentional Injuries and Malignant Neoplasms **[Figure 4.6.1]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest YLL and contributed to more than a quarter of fatal disease and injury burden. For males, Unintentional Injuries contributed more than 20% of fatal disease and injury burden followed by Malignant Neoplasms at 12.3% and Respiratory Infections at 6.3%. For females, Malignant Neoplasms were the second largest contributor of fatal disease and injury burden with 18.7%, followed by Respiratory Infections at 8.9% and Unintentional Injuries at 8.6% **[Table 4.6.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	YLL (number)	YLL (%)	YLL (number)	YLL (%)	YLL (number)	YLL (%)
INFECTIOUS DISEASES	154807	5.0	99117	5.3	55691	4.5
RESPIRATORY INFECTIONS	227808	7.3	117486	6.3	110322	8.9
MATERNAL CONDITIONS	9455	0.3	0	0.0	9455	0.8
NEONATAL CONDITIONS	120416	3.9	70365	3.8	50050	4.0
NUTRITIONAL DEFICIENCY	678	0.0	145	0.0	533	0.0
MALIGNANT NEOPLASMS	463163	14.9	229856	12.3	233307	18.7
BENIGN NEOPLASMS	10869	0.3	4525	0.2	6344	0.5
DIABETES MELLITUS	160397	5.2	75516	4.1	84881	6.8
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	19638	0.6	9432	0.5	10206	0.8
MENTAL AND BEHAVIOURAL DISORDER	4356	0.1	4356	0.2	0	0.0
NEUROLOGICAL CONDITIONS	50255	1.6	29780	1.6	20475	1.6
SENSE ORGAN DISEASES	133	0.0	72	0.0	61	0.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	882406	28.4	535240	28.7	347166	27.9
RESPIRATORY DISEASES	154583	5.0	101880	5.5	52704	4.2
DIGESTIVE DISEASES	121649	3.9	74904	4.0	46746	3.8
GENITO URINARY DISEASE	83990	2.7	41402	2.2	42589	3.4
SKIN DISEASES	25100	0.8	12298	0.7	12801	1.0
MUSCULOSKELETAL DISEASES	18186	0.6	8413	0.5	9773	0.8
CONGENITAL ANOMALIES	84718	2.7	41321	2.2	43397	3.5
ORAL CONDITIONS	757	0.0	615	0.0	142	0.0
UNINTENTIONAL INJURIES	490192	15.8	383274	20.6	106918	8.6
INTENTIONAL INJURIES	25338	0.8	22935	1.2	2403	0.2
TOTAL	**3108896**	**100.0**	**1862931**	**100.0**	**1245964**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 4.6.1: Fatal burden of disease and injury by disease groups and by sex, 2014

4.6.2 Pattern of Years of Life Lost (YLL) by age

Males between the ages of 45 and 59 contributed towards 26.0% of the total YLL, the age group with the highest contribution towards male fatal burden of disease and injury in Malaysia in 2014 **[Figure 4.6.2(a)].** Mortality among males below 5 years of age contributed towards 9.5% of the total fatal burden of disease and injury in Malaysia for 2014. Neonatal Conditions contributed the largest percentage, 39.8%, of the YLL among males below 5 years of age, followed by Congenital Anomalies at 21.9%. Unintentional Injuries were the predominant cause of YLL among males 5 to 29 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of fatal burden among males from the age of 30 years and above. Respiratory Diseases had an increasing percentage of contribution towards YLL in males as the age increases **[Figure 4.6.2(b)].**

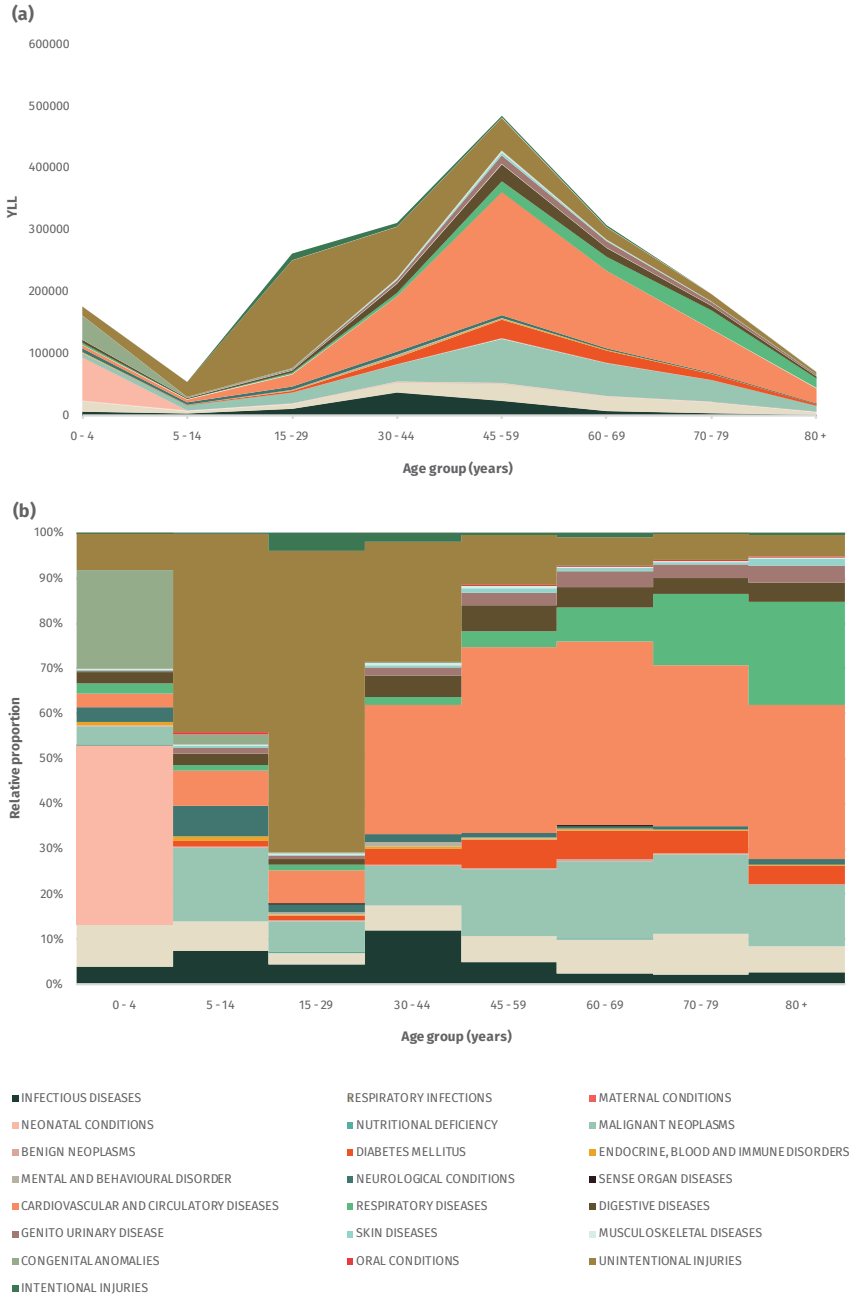


Figure 4.6.2: Number (a) & percentage (b) of fatal burden (YLL), by disease groups & age, males, 2014

Females between the ages of 45 and 59 years contributed towards 23.5% of the total YLL, the age group with the highest contribution towards female fatal burden of disease and injury in Malaysia in 2014 **[Figure 4.6.3(a)]**. Mortality among females below 5 years of age contributed towards 12.0% of the total fatal burden of disease and injury in Malaysia for 2014. Neonatal Conditions contributed the largest percentage, 33.6%, of the YLL among females below 5 years of age, followed by Congenital Anomalies at 26.0%. Unintentional Injuries were the predominant cause of YLL among females 5 to 29 years of age, while Malignant Neoplasms were the predominant cause of YLL among females 30 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of fatal burden among females from the age of 45 years and above, with an increasing percentage of contribution by Respiratory Infections towards YLL in females as the age increases **[Figure 4.6.3(b)]**.

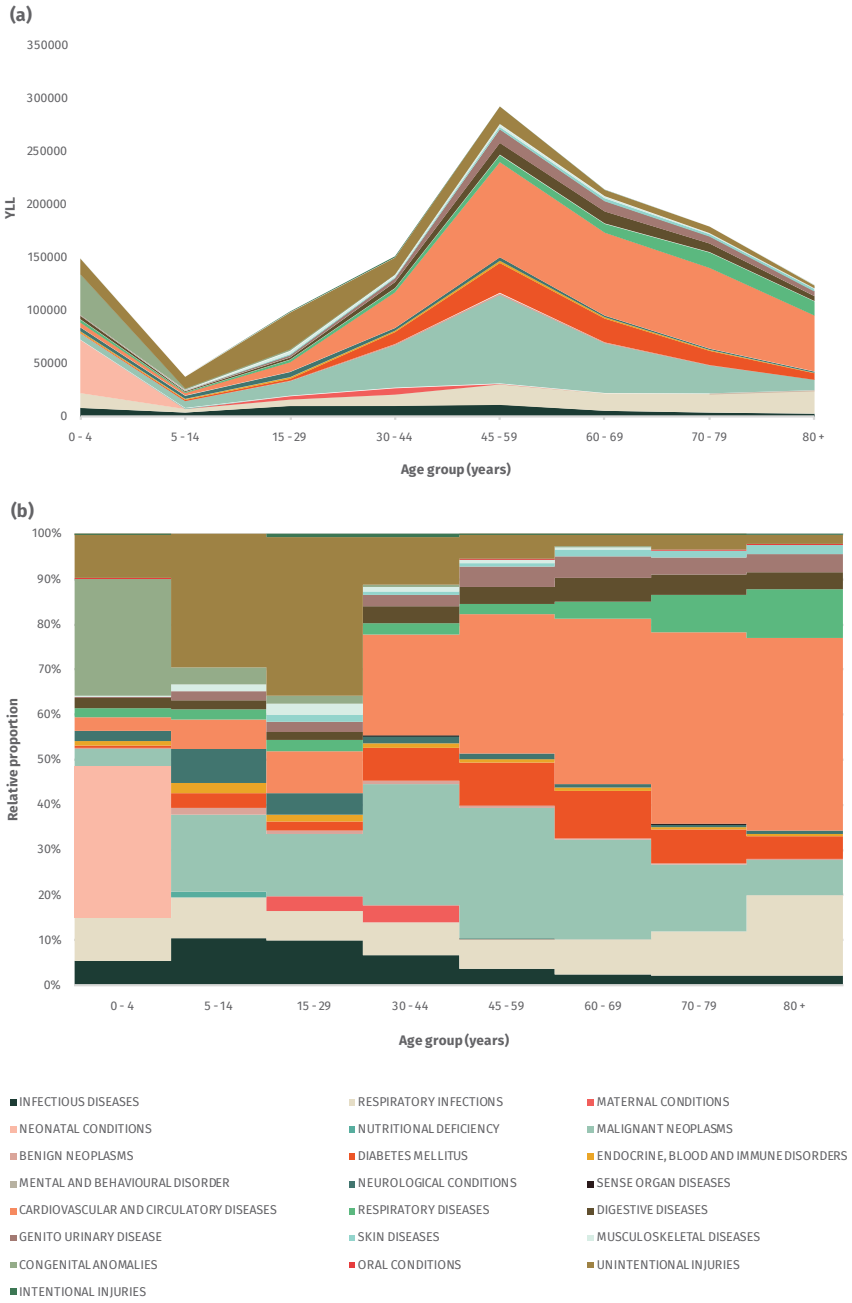


Figure 4.6.3: Number (a) & percentage (b) of fatal burden (YLL), by disease groups & age, females, 2014

4.6.3 Leading Causes of Years of Life Lost (YLL)

Ischaemic Heart Disease, were the leading cause of fatal burden in Malaysia for 2014, contributing to 12.7% of the total YLL. This was followed by Road Traffic Injuries with 12.4%, and Cerebrovascular Diseases, with 11.3% of total YLL. Lower Respiratory Infections, with 7.3% and Diabetes Mellitus with 5.2% make up the five leading causes of fatal burden of disease and injury in 2014.

Among males, Road Traffic Injuries contributed the largest amount of YLL with 17.0%. Ischaemic Heart Disease was the second highest contributor of YLL in males with 14.4% followed by Cerebrovascular Diseases with 10.0%. Lower Respiratory Infections and Chronic Obstructive Pulmonary Disease make up the fourth and fifth leading causes of YLL among males. Among females, Cerebrovascular Diseases were the leading cause of YLL with 13.2% followed by Ischaemic Heart Disease with 10.2% and Lower Respiratory Infections with 8.8%. Diabetes Mellitus was the fourth and Road Traffic Injuries make up the fifth leading cause of YLL among females **[Table 4.6.2]**.

The leading causes of fatal burden vary according to age. Among males below 5 years of age, Low Birth Weight contributed the highest amount of YLL. Road Traffic Injuries were the leading cause of YLL among males 5 to 44 years of age. Ischaemic Heart Disease was the second highest contributor of YLL among males 30 to 44 years of age. Among males of 45 to 69 years of age, Ischaemic Heart Diseases rises to the leading cause of YLL. Cerebrovascular Diseases were the second leading cause of YLL among males 45 to 69 years of age, and the leading cause of YLL among males 70 to 79 years of age. Chronic Obstructive Pulmonary Disease was the highest cause of YLL among those 80 years of age and above. Leukaemia was the leading cancer causing fatal burden among males below 45 years of age while Trachea, Bronchus and Lung Cancers were the leading cancer causing YLL among those 45 years and above **[Figure 4.6.4]**.

Among females below 5 years of age, Lower Respiratory Infections contributed the highest amount of YLL. Road Traffic Injuries were the leading cause of YLL among females 5 to 29 years of age. Breast Cancer was found to contribute the highest YLL among females 30 to 44 years of age. Road Traffic Injuries were the second highest contributor of YLL among females 30 to 44 years of age. Among females of 45 years of age and above, Cerebrovascular Diseases were the leading cause of YLL. Ischaemic Heart Disease was the second leading cause of YLL among females 45 to 79 years of age. Lower Respiratory Infections were the third leading cause of YLL among females 70 to 79 years of age and the second highest cause of YLL among those 80 years of age and above. Breast cancer was the leading cancer causing fatal burden among females 30 to 69 years of age. Trachea, Bronchus and Lung Cancers were the leading cancer causing YLL among those 70 years and above **[Figure 4.6.5]**.

Rank	People	YLL	% of total	Males	YLL	% of total	Females	YLL	% of total
1	Ischaemic Heart Disease	395438	12.7	Road Traffic Injuries	316330	17.0	Cerebrovascular Diseases (Stroke)	163928	13.2
2	Road Traffic Injuries	385149	12.4	Ischaemic Heart Disease	267807	14.4	Ischaemic Heart Disease	127630	10.2
3	Cerebrovascular Diseases (Stroke)	349754	11.3	Cerebrovascular Diseases (Stroke)	185827	10.0	Lower Respiratory Infections	110187	8.8
4	Lower Respiratory Infections	227523	7.3	Lower Respiratory Infections	117336	6.3	Diabetes Mellitus	84881	6.8
5	Diabetes Mellitus	160397	5.2	Chronic Obstructive Pulmonary Disease	76384	4.1	Road Traffic Injuries	68819	5.5
6	Chronic Obstructive Pulmonary Disease	104027	3.3	Diabetes Mellitus	75516	4.1	Breast Cancer	55754	4.5
7	Trachea, Bronchus and Lung Cancers	75314	2.4	Trachea, Bronchus and Lung Cancers	49979	2.7	Nephritis and Nephrosis	28781	2.3
8	Nephritis and Nephrosis	58998	1.9	Tuberculosis	31123	1.7	Chronic Obstructive Pulmonary Disease	27643	2.2
9	Breast Cancer	57436	1.8	Nephritis and Nephrosis	30217	1.6	Trachea, Bronchus and Lung Cancers	25336	2.0
10	Colon and Rectum Cancers	48802	1.6	Colon and Rectum Cancers	27207	1.5	Colon and Rectum Cancers	21596	1.7
11	Tuberculosis	44763	1.4	Leukaemia	25916	1.4	Falls	18076	1.5
12	Leukaemia	38447	1.2	Liver Cancers	23730	1.3	Hypertensive Disease	16195	1.3
13	Falls	37802	1.2	Hypertensive Disease	21088	1.1	Cervix Cancer	14692	1.2
14	Hypertensive Disease	37284	1.2	HIV	20846	1.1	Congenital Heart Diseases	14423	1.2
15	Liver Cancers	35168	1.1	Falls	19725	1.1	Brain and Other CNS Cancers	13730	1.1
16	Low Birth Weight	31030	1.0	Low Birth Weight	18170	1.0	Tuberculosis	13640	1.1
17	Congenital Heart Diseases	30163	1.0	Congenital Heart Diseases	15740	0.8	Low Birth Weight	12859	1.0
18	HIV	26196	0.8	Self-Inflicted Injuries	15372	0.8	Skin and subcutaneous diseases	12801	1.0
19	Brain and Other CNS Cancers	25325	0.8	Mouth and Oropharynx Cancers	14061	0.8	Leukaemia	12531	1.0
20	Skin and subcutaneous diseases	25100	0.8	Drowning	14037	0.8	Diarrhoeal Diseases	12330	1.0
	Top 20 diseases	**2392530**	**77.0**	**Top 20 diseases**	**1477537**	**79.3**	**Top 20 diseases**	**944066**	**75.8**
	All other diseases	*716366*	*23.0*	*All other diseases*	*385394*	*20.7*	*All other diseases*	*301898*	*24.2*
	Total	**3108896**	**100.0**	**Total**	**1862931**	**100.0**	**Total**	**1245964**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 4.6.2: Leading causes of fatal burden (YLL), by sex, 2014

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Low Birth Weight (18.2; 10.3%)	Road Traffic Injuries (17.0; 31.1%)	Road Traffic Injuries (162.1; 62.0%)	Road Traffic Injuries (68.3; 22.0%)	Ischaemic Heart Disease (115.9; 23.9%)	Ischaemic Heart Disease (63.4; 20.7%)	Cerebrovascular Diseases (Stroke) (35.5; 18.1%)	Chronic Obstructive Pulmonary Disease (13.9; 19.6%)
2nd	Lower Respiratory Infections (16.6; 9.4%)	Leukaemia (4.4; 8.1%)	Self-Inflicted Injuries (9.0; 3.5%)	Ischaemic Heart Disease (46.6; 15.0%)	Cerebrovascular Diseases (Stroke) (57.5; 11.9%)	Cerebrovascular Diseases (Stroke) (47.4; 15.4%)	Ischaemic Heart Disease (27.7; 14.1%)	Cerebrovascular Diseases (Stroke) (11.7; 16.5%)
3rd	Congenital Heart Diseases (14.0; 7.9%)	Drowning (3.6; 6.6%)	Lower Respiratory Infections (7.6; 2.9%)	Cerebrovascular Diseases (Stroke) (23.2; 7.5%)	Road Traffic Injuries (40.2; 8.3%)	Lower Respiratory Infections (23.2; 7.6%)	Chronic Obstructive Pulmonary Disease (27.0; 13.7%)	Ischaemic Heart Disease (9.3; 13.1%)
4th	Birth Trauma and Asphyxia (13.5; 7.7%)	Lower Respiratory Infections (3.5; 6.4%)	Cerebrovascular Diseases (Stroke) (7.4; 2.8%)	Lower Respiratory Infections (17.0; 5.5%)	Diabetes Mellitus (29.6; 6.1%)	Diabetes Mellitus (19.7; 6.4%)	Lower Respiratory Infections (17.4; 8.9%)	Lower Respiratory Infections (4.0; 5.6%)
5th	Neonatal Infections (9.3; 5.3%)	Diarrhoeal Diseases (2.3; 4.2%)	Leukaemia (6.1; 2.3%)	HIV (14.4; 4.6%)	Lower Respiratory Infections (28.1; 5.8%)	Chronic Obstructive Pulmonary Disease (18.4; 6.0%)	Trachea, Bronchus and Lung Cancers (9.6; 4.9%)	Diabetes Mellitus (2.7; 3.9%)
6th	Road Traffic Injuries (4.5; 2.5%)	Brain and Other CNS Cancers (2.2; 4.1%)	Ischaemic Heart Disease (4.7; 1.8%)	Tuberculosis (11.5; 3.7%)	Trachea, Bronchus and Lung Cancers (17.5; 3.6%)	Trachea, Bronchus and Lung Cancers (15.9; 5.2%)	Diabetes Mellitus (9.5; 4.9%)	Trachea, Bronchus and Lung Cancers (2.6; 3.7%)
7th	Leukaemia (3.5; 2.0%)	Rheumatic Heart Disease (1.7; 3.0%)	Drowning (4.2; 1.6%)	Diabetes Mellitus (10.6; 3.4%)	Chronic Obstructive Pulmonary Disease (11.4; 2.3%)	Road Traffic Injuries (13.5; 4.4%)	Road Traffic Injuries (8.4; 4.3%)	Road Traffic Injuries (2.3; 3.3%)
8th	Anencephaly (3.3; 1.9%)	Falls (1.3; 2.3%)	Tuberculosis (2.9; 1.1%)	Hypertensive Disease (7.8; 2.5%)	Liver Cancers (11.0; 2.3%)	Nephritis and Nephrosis (7.3; 2.4%)	Colon and Rectum Cancers (5.5; 2.8%)	Nephritis and Nephrosis (1.8; 2.6%)
9th	Drowning (3.0; 1.7%)	Cerebrovascular Diseases (Stroke) (1.1; 2.0%)	Diabetes Mellitus (2.6; 1.0%)	Pericarditis, Endocarditis and Myocarditis (4.2; 1.4%)	Nephritis and Nephrosis (10.6; 2.2%)	Colon and Rectum Cancers (7.2; 2.4%)	Nephritis and Nephrosis (3.8; 1.9%)	Prostate Cancer (1.7; 2.4%)
10th	Diarrhoeal Diseases (2.9; 1.6%)	Epilepsy (1.0; 1.9%)	Nephritis and Nephrosis (2.1; 0.8%)	Leukaemia (4.1; 1.3%)	Tuberculosis (10.1; 2.1%)	Liver Cancers (6.3; 2.1%)	Liver Cancers (3.0; 1.5%)	Colon and Rectum Cancers (1.6; 2.2%)

Figure 4.6.4: Leading causes of fatal burden (YLL '000; percentage %) for males, by age group, 2014

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Lower Respiratory Infections (14.1; 9.5%)	Road Traffic Injuries (6.5; 17.2%)	Road Traffic Injuries (29.8; 30.2%)	Breast Cancer (13.6; 9.0%)	Cerebrovascular Diseases (Stroke) (39.3; 13.4%)	Cerebrovascular Diseases (Stroke) (37.9; 17.7%)	Cerebrovascular Diseases (Stroke) (39.2; 21.9%)	Cerebrovascular Diseases (Stroke) (27.8; 22.4%)
2nd	Low Birth Weight (12.9; 8.6%)	Lower Respiratory Infections (3.4; 8.9%)	Lower Respiratory Infections (6.3; 6.4%)	Road Traffic Injuries (12.4; 8.2%)	Ischaemic Heart Disease (37.9; 13.0%)	Ischaemic Heart Disease (30.6; 14.3%)	Ischaemic Heart Disease (30.5; 17%)	Lower Respiratory Infections (21.7; 17.5%)
3rd	Congenital Heart Diseases (11.5; 7.7%)	Drowning (2.7; 7.2%)	Cerebrovascular Diseases (Stroke) (4.0; 4.1%)	Cerebrovascular Diseases (Stroke) (12.3; 8.1%)	Diabetes Mellitus (28.0; 9.6%)	Diabetes Mellitus (22.4; 10.5%)	Lower Respiratory Infections (17.7; 9.9%)	Ischaemic Heart Disease (14.7; 11.9%)
4th	Birth Trauma and Asphyxia (9.1; 6.1%)	Brain and Other CNS Cancers (2.3; 6.1%)	Tuberculosis (3.9; 4.0%)	Ischaemic Heart Disease (11.9; 7.9%)	Breast Cancer (27.5; 9.4%)	Lower Respiratory Infections (16.4; 7.7%)	Diabetes Mellitus (13.4; 7.5%)	Chronic Obstructive Pulmonary Disease (8.1; 6.5%)
5th	Neonatal Infections (7.2; 4.9%)	Leukaemia (2.0; 5.2%)	Leukaemia (3.0; 3.0%)	Diabetes Mellitus (11.3; 7.5%)	Lower Respiratory Infections (19.6; 6.7%)	Breast Cancer (10.4; 4.9%)	Chronic Obstructive Pulmonary Disease (9.7; 5.4%)	Diabetes Mellitus (6.2; 5.0%)
6th	Road Traffic Injuries (5.2; 3.5%)	Diarrhoeal Diseases (1.6; 4.2%)	Brain and Other CNS Cancers (2.5; 2.5%)	Lower Respiratory Infections (11.0; 7.3%)	Road Traffic Injuries (9.9; 3.4%)	Nephritis and Nephrosis (6.5; 3.0%)	Trachea, Bronchus and Lung Cancers (6.1; 3.4%)	Hypertensive Disease (4.4; 3.5%)
7th	Diarrhoeal Diseases (4.7; 3.2%)	Epilepsy (1.3; 3.6%)	Lymphoma (2.3; 2.4%)	Hypertensive Disease (4.4; 2.9%)	Nephritis and Nephrosis (9.2; 3.1%)	Trachea, Bronchus and Lung Cancers (6.4; 3.0%)	Nephritis and Nephrosis (4.0; 2.2%)	Nephritis and Nephrosis (3.1; 2.5%)
8th	Falls (4.2; 2.8%)	Cerebrovascular Diseases (Stroke) (1.3; 3.5%)	Dengue (2.0; 2.0%)	Cervix Cancer (3.2; 2.1%)	Trachea, Bronchus and Lung Cancers (7.5; 2.5%)	Colon and Rectum Cancers (5.2; 2.4%)	Colon and Rectum Cancers (3.9; 2.2%)	Asthma (2.9; 2.4%)
9th	Brain and Other CNS Cancers (2.3; 1.5%)	Diabetes Mellitus (1.2; 3.2%)	Ischaemic Heart Disease (1.9; 1.9%)	Tuberculosis (3.2; 2.1%)	Cervix Cancer (7.3; 2.5%)	Chronic Obstructive Pulmonary Disease (4.5; 2.1%)	Falls (3.4; 1.9%)	Skin and subcutaneous diseases (2.5; 2.1%)
10th	Cerebrovascular Diseases (Stroke) (2.1; 1.4%)	Falls (1.2; 3.2%)	Diabetes Mellitus (1.8; 1.8%)	Nephritis and Nephrosis (3.0; 2.0%)	Colon and Rectum Cancers (7.0; 2.4%)	Hypertensive Disease (3.5; 1.6%)	Breast Cancer (2.7; 1.5%)	Trachea, Bronchus and Lung Cancers (2.3; 1.9%)

Figure 4.6.5: Leading causes of fatal burden (YLL '000; percentage %) for females, by age group, 2014

5.0 Years Lost Due To Disability

Health loss cannot be measured only by deaths. Living with a disease or injury leads towards substantial impact on the individual's quality of life and exerts burden on the health system. Non-fatal burden of disease and injury, expressed as Years Lost due to Disability (YLD), represents the measure of healthy years lost due to ill health.

5.1 Years Lost due to Disability (YLD) - 2009

In 2009, a total of 1.54 million years of life were lost due to disability in Malaysia. Males contributed towards 0.83 million YLD (53.9%) and females 0.71 million YLD (46.1%).

5.1.1 Pattern of Years Lost due to Disability (YLD) by sex

Figure 5.1.1: Percentage (%) of non-fatal burden (YLD), by disease groups and sex, 2009

Overall, Mental and Behavioural Disorders were the largest contributor towards non-fatal burden of disease and injury in Malaysia for 2009, followed by Diabetes Mellitus and Respiratory Diseases **[Figure 5.1.1]**. For both males and females, Mental and Behavioural Disorders caused the highest YLD and contributed to around 20% of the non-fatal disease and injury burden. For males, Respiratory Diseases contributed to 10.2% of non-fatal disease and injury burden followed by Diabetes Mellitus at 9.6% and Cardiovascular and Circulatory Diseases at 8.4%. For females, Diabetes Mellitus was the second largest contributor of non-fatal disease and injury burden with 10.3%, followed by Neurological Conditions at 9.1% and Respiratory Diseases at 8.3% **[Table 5.1.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	YLD (number)	YLD (%)	YLD (number)	YLD (%)	YLD (number)	YLD (%)
INFECTIOUS DISEASES	72514	4.7	39760	4.8	32753	4.6
RESPIRATORY INFECTIONS	45096	2.9	24277	2.9	20820	2.9
MATERNAL CONDITIONS	11438	0.7	0	0.0	11438	1.6
NEONATAL CONDITIONS	51233	3.3	26755	3.2	24477	3.4
NUTRITIONAL DEFICIENCY	95351	6.2	44388	5.3	50963	7.2
MALIGNANT NEOPLASMS	6890	0.4	3515	0.4	3376	0.5
BENIGN NEOPLASMS	478	0.0	202	0.0	276	0.0
DIABETES MELLITUS	153280	9.9	80132	9.6	73148	10.3
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	21134	1.4	12466	1.5	8668	1.2
MENTAL AND BEHAVIOURAL DISORDER	294720	19.1	152950	18.4	141770	20.0
NEUROLOGICAL CONDITIONS	130459	8.5	66021	7.9	64438	9.1
SENSE ORGAN DISEASES	73276	4.8	37762	4.5	35513	5.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	111379	7.2	70041	8.4	41338	5.8
RESPIRATORY DISEASES	143923	9.3	84922	10.2	59001	8.3
DIGESTIVE DISEASES	31842	2.1	16563	2.0	15279	2.2
GENITO URINARY DISEASE	14940	1.0	11913	1.4	3027	0.4
SKIN DISEASES	33977	2.2	15966	1.9	18011	2.5
MUSCULOSKELETAL DISEASES	42031	2.7	22109	2.7	19922	2.8
CONGENITAL ANOMALIES	42159	2.7	20250	2.4	21909	3.1
ORAL CONDITIONS	62781	4.1	31677	3.8	31105	4.4
UNINTENTIONAL INJURIES	95926	6.2	66557	8.0	29369	4.1
INTENTIONAL INJURIES	6221	0.4	2949	0.4	3272	0.5
TOTAL	**1541049**	**100.0**	**831174**	**100.0**	**709874**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 5.1.2: Leading causes of non-fatal burden (YLD), by sex, 2009

5.1.2 Pattern of Years Lost due to Disability (YLD) by age

Males between 45 and 59 years of age contributed towards 20.7% of the total YLD, the age group with the highest contribution towards male non-fatal burden of disease and injury in Malaysia in 2009 **[Figure 5.1.2(a)]**. Nutritional Deficiency contributed towards the largest percentage of the YLD in males below 5 years of age at 42.8%, while Neurological Conditions was the highest among those 5 to 14 years of age at 22.6%. Infectious Diseases were the second highest among males below 5 years of age at 14.6%, while Unintentional Injuries were the second highest among those 5 to 14 years of age at 12.1%. Mental and Behavioural Disorders were the predominant cause of YLD among males 15 to 59 years of age. Cardiovascular and Circulatory Diseases were the largest contributor of non-fatal disease burden among males aged 60 years and above **[Figure 5.1.2(b)]**.

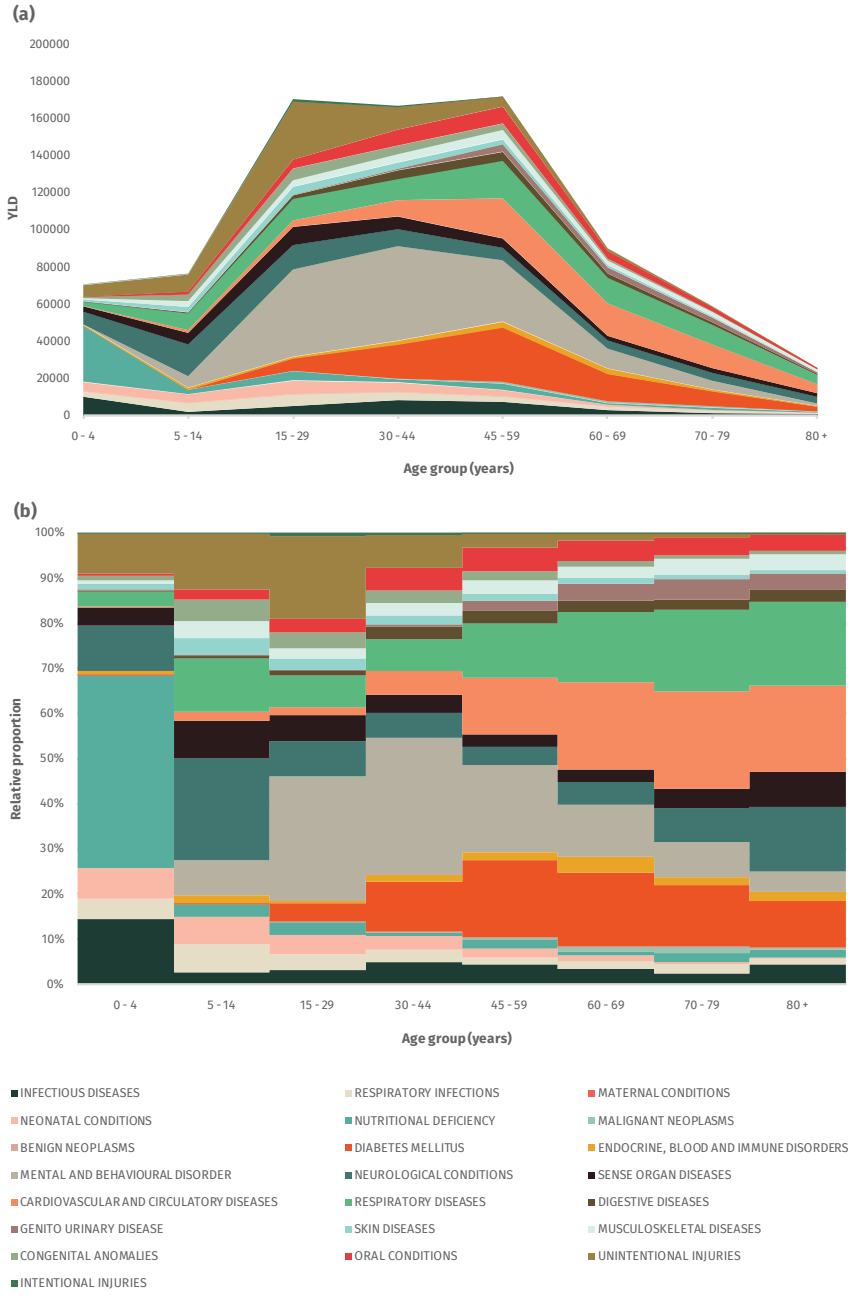


Figure 5.1.2: Number (a) & percentage (b) of non-fatal burden (YLD), by disease groups & age, males, 2009

Females between the ages of 15 to 29 years contributed towards 22.4% of the total YLD, the age group with the highest contribution towards female non-fatal burden of disease and injury in Malaysia in 2009 **[Figure 5.1.3(a)]**. Nutritional Deficiency contributed towards the largest percentage of the YLD in those below 5 years of age at 44.0% while Infectious Diseases were the second highest at 16.1%. Neurological Conditions were the highest among those 5 to 14 years of age at 21.6% while Mental and Behavioural Disorders were the predominant cause of YLD among females 15 to 59 years of age. Diabetes Mellitus was the highest contributor of non-fatal burden among females from 60 to 79 years of age and the second highest among those 30 to 59 years of age. Mental and Behavioural Disorders were the second largest contributor of non-fatal burden among females 60 to 69 years of age, with Cardiovascular and Circulatory Diseases were the second highest among females 70 to 79 years of age. Neurological Conditions and Cardiovascular and Circulatory Diseases were the highest and second highest among females 80 years of age and above respectively **[Figure 5.1.3(b)]**.

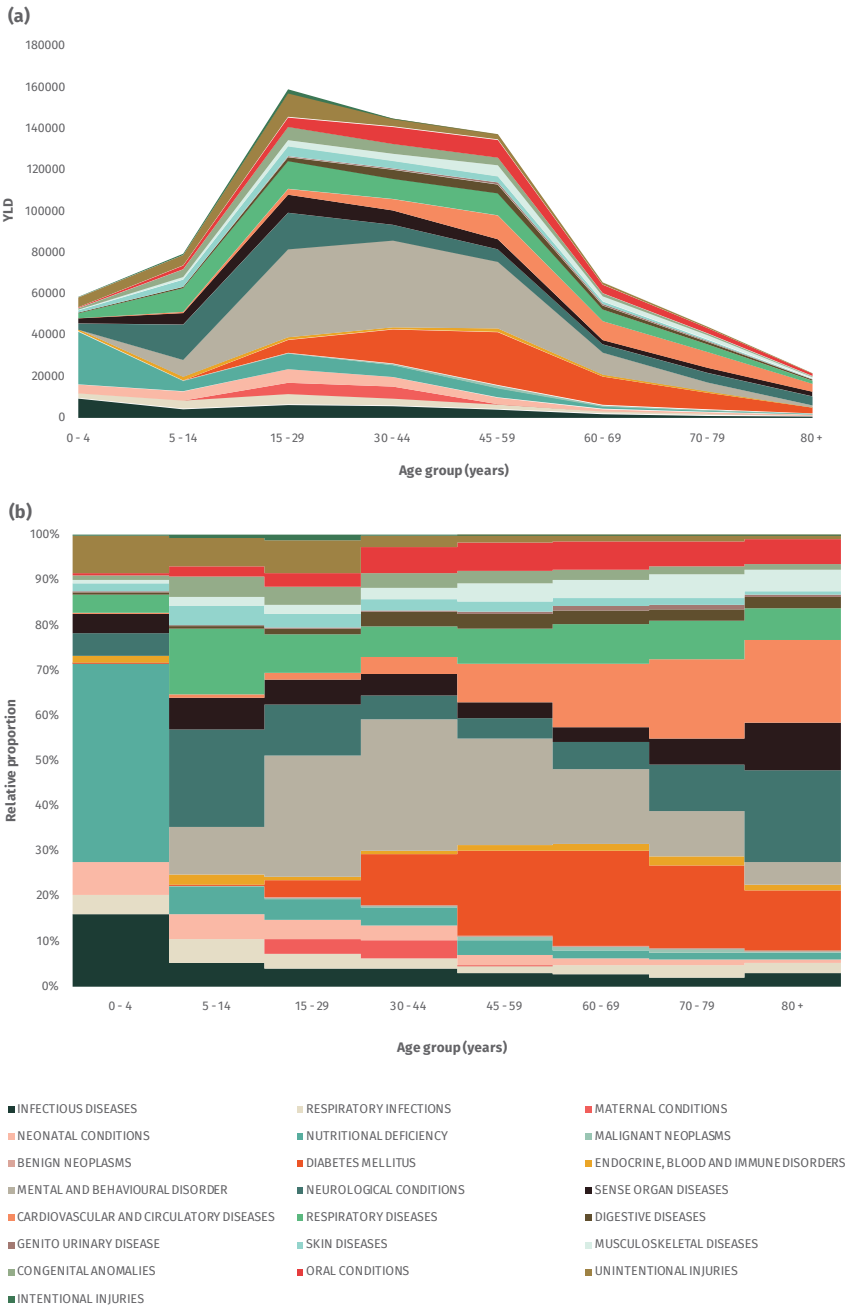


Figure 5.1.3: Number (a) & percentage (b) of non-fatal burden (YLD), by disease groups & age, females, 2009

5.1.3 Leading Causes of Years Lost due to Disability (YLD)

Diabetes Mellitus was the leading cause of non-fatal burden in Malaysia for 2009, contributing 9.9% of the total YLD. This was followed by Asthma, with 4.6%, and Anxiety Disorders, with 4.4% of total YLD. Unipolar Depressive Disorders, with 4.3% and Schizophrenia with 4.0% make up the five leading causes of non-fatal disease and injury burden in 2009.

Among males, Diabetes Mellitus contributed the largest amount of YLD with 9.6%. Ischaemic Heart Disease was the second highest contributor of YLD in males with 4.2% followed by Asthma with 4.0%. Unipolar Depressive Disorder and Schizophrenia make up the fourth and fifth leading causes of YLD among males. Among females, Diabetes Mellitus was also the leading cause of YLD with 10.3% followed by Anxiety Disorders with 6.1% and Asthma with 5.3%. Unipolar Depressive Disorder and Nutritional Anemias was the fourth and the fifth leading cause of YLD among females **[Table 5.1.2]**.

The leading causes of non-fatal burden vary according to age. Among males below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of YLD. Diarrhoeal Diseases was the second leading cause of YLD among males below 5 years of age, while Asthma is the leading cause of YLD among males 5 to 14 years of age. Among males 15 to 29 years of age, Road Traffic Injuries was the leading cause of YLD, followed by Unipolar Depressive Disorders. Among males 30 to 79 years of age, Diabetes Mellitus was the leading cause of YLD. Ischemic Heart Disease was the second leading cause of YLD for males aged 45 to 79 years of age and rises to the leading cause for males aged 80 years and above. Schizophrenia were the second highest contributor to YLD among males 30 to 44 years of age. Unipolar Depressive Disorder was the third leading cause of YLD among males 30 to 44 years of age. Among males 80 years and above, Dementia was the second highest contributor to YLD **[Figure 5.1.4]**.

Among females below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of YLD. Diarrhoeal Diseases was the second leading cause of YLD among females below 5 years of age. Asthma was the leading cause of YLD among females 5 to 14 years of age. Anxiety Disorders were the leading cause among females 15 to 29 years of age, followed by Unipolar Depressive Disorder. Diabetes Mellitus was the largest contributor of YLD among females 30 to 79 years of age. Among females 30 to 59 years of age, Anxiety Disorders was the second leading cause of YLD, followed by Schizophrenia. Ischemic Heart Disease was the second highest contributor to YLD among females 60 to 79 years of age, and further down to fourth among females 80 years and above. Dementia was the third highest contributor to YLD among females 70 to 79 years of age and the highest contributor among females 80 years of age and above **[Figure 5.1.5]**.

Rank	People	YLD	% of total	Males	YLD	% of total	Females	YLD	% of total
1	Diabetes Mellitus	153280	9.9	Diabetes Mellitus	80132	9.6	Diabetes Mellitus	73148	10.3
2	Asthma	70547	4.6	Ischaemic Heart Disease	34584	4.2	Anxiety Disorders	43509	6.1
3	Anxiety Disorders	68507	4.4	Asthma	32968	4.0	Asthma	37579	5.3
4	Unipolar Depressive Disorder	66362	4.3	Unipolar Depressive Disorder	32800	3.9	Unipolar Depressive Disorder	33562	4.7
5	Schizophrenia	61187	4.0	Schizophrenia	32142	3.9	Nutritional Anaemias	30383	4.3
6	Hearing Loss	50524	3.3	Road Traffic Injuries	31763	3.8	Schizophrenia	29045	4.1
7	Ischaemic Heart Disease	49102	3.2	Protein-Energy Malnutrition	26021	3.1	Hearing Loss	24514	3.5
8	Nutritional Anaemias	48648	3.2	Hearing Loss	26010	3.1	Diarrhoeal Diseases	24050	3.4
9	Road Traffic Injuries	46793	3.0	Chronic Obstructive Pulmonary Disease	25853	3.1	Protein-Energy Malnutrition	20499	2.9
10	Protein-Energy Malnutrition	46520	3.0	Anxiety Disorders	24999	3.0	Skin and subcutaneous diseases	18011	2.5
11	Diarrhoeal Diseases	39767	2.6	Epilepsy	20656	2.5	Epilepsy	16681	2.3
12	Chronic Obstructive Pulmonary Disease	38501	2.5	Nutritional Anaemias	18266	2.2	Bipolar Affective Disorder	15991	2.3
13	Epilepsy	37338	2.4	Cerebrovascular Diseases (Stroke)	17955	2.2	Road Traffic Injuries	15029	2.1
14	Skin and subcutaneous diseases	33977	2.2	Skin and subcutaneous diseases	15966	1.9	Ischaemic Heart Disease	14518	2.0
15	Bipolar Affective Disorder	29870	1.9	Diarrhoeal Diseases	15717	1.9	Chronic Obstructive Pulmonary Disease	12647	1.8
16	Cerebrovascular Diseases (Stroke)	27768	1.8	Alcohol Use Disorders	13945	1.7	Periodontitis	11537	1.6
17	Upper Respiratory Infections	24862	1.6	Bipolar Affective Disorder	13880	1.7	Upper Respiratory Infections	11285	1.6
18	Periodontitis	23659	1.5	Drug Use Disorders	13674	1.6	Cerebrovascular Diseases (Stroke)	9813	1.4
19	Endocrine, Blood and Immune Disorders	21134	1.4	Upper Respiratory Infections	13577	1.6	Dementia	9475	1.3
20	Neonatal Infections	18664	1.2	Endocrine, Blood and Immune Disorders	12466	1.5	Neonatal Infections	8875	1.3
	Top 20 diseases	**1032481**	**67.0**	**Top 20 diseases**	**549448**	**66.1**	**Top 20 diseases**	**492962**	**69.4**
	All other diseases	*508568*	*33.0*	*All other diseases*	*281726*	*33.9*	*All other diseases*	*216912*	*30.6*
	Total	**1541049**	**100.0**	**Total**	**831174**	**100.0**	**Total**	**709874**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

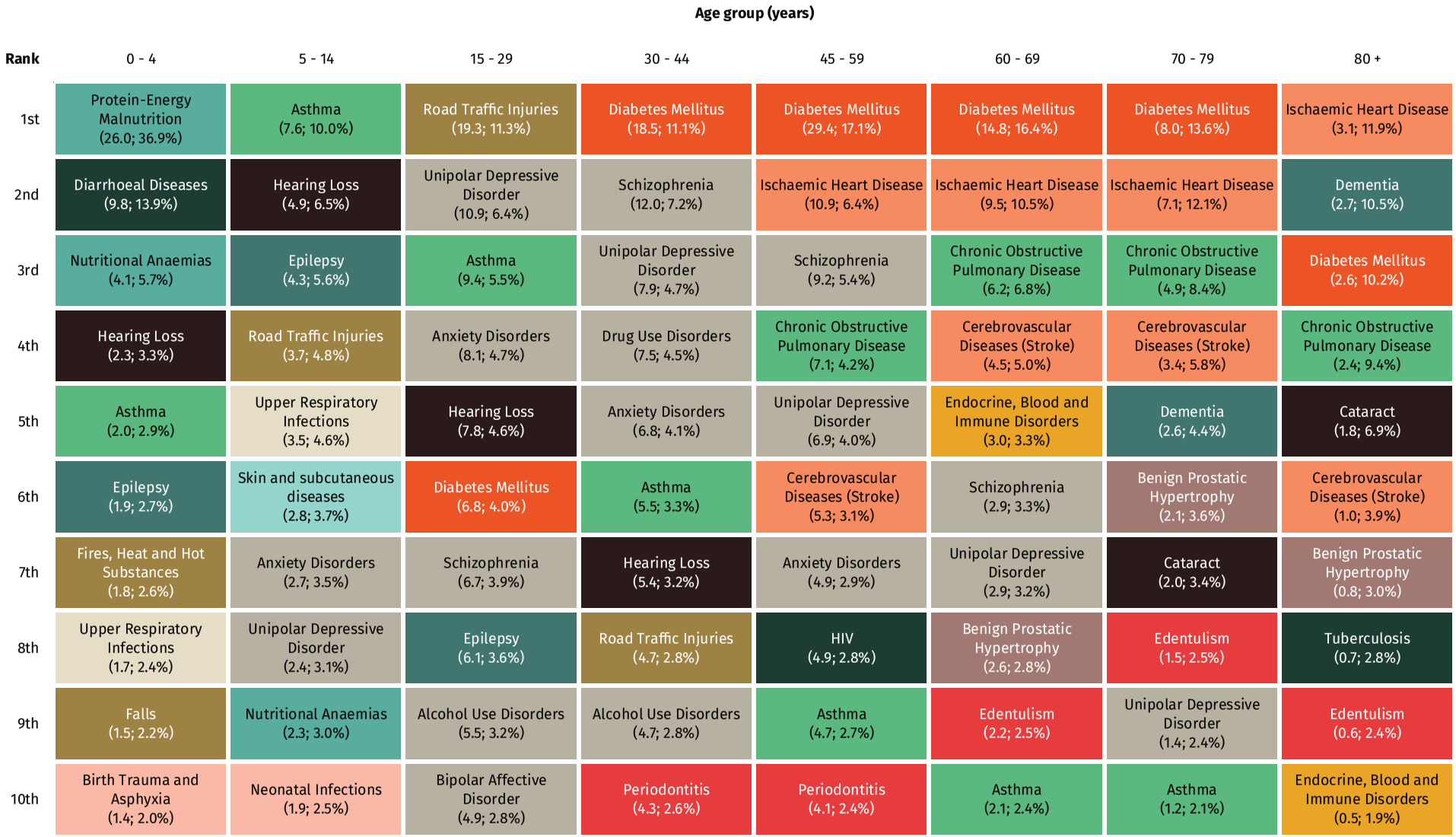


Figure 5.1.5: Leading causes of non-fatal burden (YLD '000; percentage %) for females, by age group, 2009

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Protein-Energy Malnutrition (20.5; 35.1%)	Asthma (8.7; 11.0%)	Anxiety Disorders (13.4; 8.4%)	Diabetes Mellitus (16.5; 11.4%)	Diabetes Mellitus (25.8; 18.8%)	Diabetes Mellitus (13.8; 21.0%)	Diabetes Mellitus (8.0; 18.2%)	Dementia (3.4; 16%)
2nd	Diarrhoeal Diseases (9.1; 15.6%)	Nutritional Anaemias (5.0; 6.4%)	Unipolar Depressive Disorder (11.2; 7.0%)	Anxiety Disorders (11.9; 8.2%)	Anxiety Disorders (9.3; 6.8%)	Ischaemic Heart Disease (4.0; 6.2%)	Ischaemic Heart Disease (3.9; 8.9%)	Diabetes Mellitus (2.8; 13.2%)
3rd	Nutritional Anaemias (5.1; 8.8%)	Hearing Loss (4.7; 5.9%)	Asthma (10.5; 6.6%)	Schizophrenia (10.8; 7.5%)	Schizophrenia (8.2; 6.0%)	Anxiety Disorders (2.9; 4.5%)	Dementia (3.2; 7.4%)	Cataract (2.0; 9.2%)
4th	Hearing Loss (2.2; 3.8%)	Anxiety Disorders (4.4; 5.6%)	Road Traffic Injuries (8.5; 5.3%)	Unipolar Depressive Disorder (7.7; 5.3%)	Unipolar Depressive Disorder (7.0; 5.1%)	Unipolar Depressive Disorder (2.8; 4.3%)	Chronic Obstructive Pulmonary Disease (2.2; 5.0%)	Ischaemic Heart Disease (1.9; 8.6%)
5th	Asthma (2.1; 3.5%)	Diarrhoeal Diseases (3.7; 4.7%)	Nutritional Anaemias (7.7; 4.8%)	Asthma (6.5; 4.5%)	Asthma (5.8; 4.2%)	Chronic Obstructive Pulmonary Disease (2.8; 4.2%)	Cerebrovascular Diseases (Stroke) (2.0; 4.6%)	Chronic Obstructive Pulmonary Disease (1.0; 4.9%)
6th	Epilepsy (1.4; 2.4%)	Epilepsy (3.6; 4.5%)	Hearing Loss (7.2; 4.5%)	Nutritional Anaemias (5.9; 4.0%)	Nutritional Anaemias (4.5; 3.3%)	Schizophrenia (2.7; 4.1%)	Cataract (1.8; 4.0%)	Edentulism (0.8; 3.7%)
7th	Upper Respiratory Infections (1.3; 2.3%)	Skin and subcutaneous diseases (3.4; 4.3%)	Schizophrenia (6.2; 3.9%)	Hearing Loss (5.0; 3.5%)	Periodontitis (3.9; 2.8%)	Cerebrovascular Diseases (Stroke) (2.5; 3.9%)	Edentulism (1.6; 3.7%)	Cerebrovascular Diseases (Stroke) (0.6; 2.9%)
8th	Falls (1.3; 2.2%)	Upper Respiratory Infections (3.0; 3.8%)	Diabetes Mellitus (6.2; 3.9%)	Bipolar Affective Disorder (4.9; 3.4%)	Chronic Obstructive Pulmonary Disease (3.5; 2.6%)	Asthma (2.4; 3.6%)	Unipolar Depressive Disorder (1.4; 3.1%)	Unipolar Depressive Disorder (0.4; 2.0%)
9th	Birth Trauma and Asphyxia (1.3; 2.2%)	Unipolar Depressive Disorder (3.0; 3.8%)	Bipolar Affective Disorder (5.5; 3.5%)	Periodontitis (4.1; 2.8%)	Ischaemic Heart Disease (3.4; 2.5%)	Edentulism (2.2; 3.4%)	Asthma (1.2; 2.8%)	Asthma (0.4; 1.7%)
10th	Fires, Heat and Hot Substances (1.1; 1.8%)	Road Traffic Injuries (2.2; 2.8%)	Skin and subcutaneous diseases (4.9; 3.1%)	Skin and subcutaneous diseases (3.7; 2.6%)	Bipolar Affective Disorder (3.4; 2.5%)	Dementia (1.9; 3.0%)	Anxiety Disorders (1.2; 2.8%)	Lower Respiratory Infections (0.4; 1.7%)

Figure 5.1.4: Leading causes of non-fatal burden (YLD '000; percentage %) for males, by age group, 2009

5.2 Years Lost due to Disability (YLD) – 2010

In 2010, a total of 1.69 million years of life were lost due to disability in Malaysia. Males contributed towards 0.93 million YLD (55.0%) and females 0.76 million YLD (45.0%).

5.2.1 Pattern of Years Lost due to Disability (YLD) by sex

Figure 5.2.1: Percentage (%) of non-fatal burden (YLD), by disease groups and sex, 2010

Overall, Mental and Behavioural Disorders were the largest contributor towards non-fatal burden of disease and injury in Malaysia for 2010, followed by Diabetes Mellitus and Respiratory Diseases **[Figure 5.2.1]**. For both males and females, Mental and Behavioural Disorders caused the highest YLD and contributed to around 20% of the non-fatal disease and injury burden. For males, Diabetes Mellitus contributed to 10.8% of non-fatal disease and injury burden followed by Respiratory Diseases at 9.6% and Cardiovascular and Circulatory Diseases at 8.4%. For females, Diabetes Mellitus was also the second largest contributor of non-fatal disease and injury burden with 11.4%, followed by Neurological Conditions at 8.4% and Respiratory Diseases at 7.9% **[Table 5.2.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	YLD (number)	YLD (%)	YLD (number)	YLD (%)	YLD (number)	YLD (%)
INFECTIOUS DISEASES	81380	4.8	46395	5.0	34986	4.6
RESPIRATORY INFECTIONS	45505	2.7	24547	2.6	20958	2.8
MATERNAL CONDITIONS	11523	0.7	0	0.0	11523	1.5
NEONATAL CONDITIONS	55681	3.3	29189	3.1	26492	3.5
NUTRITIONAL DEFICIENCY	95111	5.6	44430	4.8	50681	6.7
MALIGNANT NEOPLASMS	7135	0.4	3613	0.4	3522	0.5
BENIGN NEOPLASMS	453	0.0	174	0.0	279	0.0
DIABETES MELLITUS	187389	11.1	100893	10.8	86495	11.4
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	21935	1.3	12575	1.4	9360	1.2
MENTAL AND BEHAVIOURAL DISORDER	335209	19.8	188864	20.3	146345	19.2
NEUROLOGICAL CONDITIONS	130213	7.7	65857	7.1	64356	8.4
SENSE ORGAN DISEASES	75039	4.4	38710	4.2	36329	4.8
CARDIOVASCULAR AND CIRCULATORY DISEASES	124447	7.4	77696	8.4	46750	6.1
RESPIRATORY DISEASES	149560	8.8	89047	9.6	60514	7.9
DIGESTIVE DISEASES	34218	2.0	17719	1.9	16499	2.2
GENITO URINARY DISEASE	16180	1.0	12690	1.4	3490	0.5
SKIN DISEASES	34828	2.1	16333	1.8	18494	2.4
MUSCULOSKELETAL DISEASES	71679	4.2	32985	3.5	38694	5.1
CONGENITAL ANOMALIES	39299	2.3	20242	2.2	19057	2.5
ORAL CONDITIONS	64758	3.8	32717	3.5	32041	4.2
UNINTENTIONAL INJURIES	104105	6.2	72322	7.8	31782	4.2
INTENTIONAL INJURIES	6459	0.4	3203	0.3	3256	0.4
TOTAL	**1692107**	**100.0**	**930200**	**100.0**	**761907**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 5.2.1: Non-fatal burden of disease and injury by disease groups and by sex, 2010

5.2.2 Pattern of Years Lost due to Disability (YLD) by age

Males between 30 and 44 years of age contributed towards 21.2% of the total YLD, the age group with the highest contribution towards male non-fatal burden of disease and injury in Malaysia in 2010 **[Figure 5.2.2(a)]**. Nutritional Deficiency contributed towards the largest percentage of the YLD in males below 5 years of age at 42.8% and Neurological Conditions was the highest among those aged 5 to 14 years of age at 22.2%. Infectious Diseases were the second highest among males below 5 years of age at 14.5%, while Unintentional Injuries were the second highest among those 5 to 14 years of age at 13.1%. Mental and Behavioural Disorders were the predominant cause of YLD among males 15 to 59 years of age. Cardiovascular and Circulatory Diseases was the highest contributor of non-fatal burden among males 60 years and above. Diabetes Mellitus was the second largest contributor of non-fatal disease burden among males 30 to 69 years of age, while Respiratory Diseases contributed the second highest among males from the age of 70 years and above **[Figure 5.2.2(b)]**.

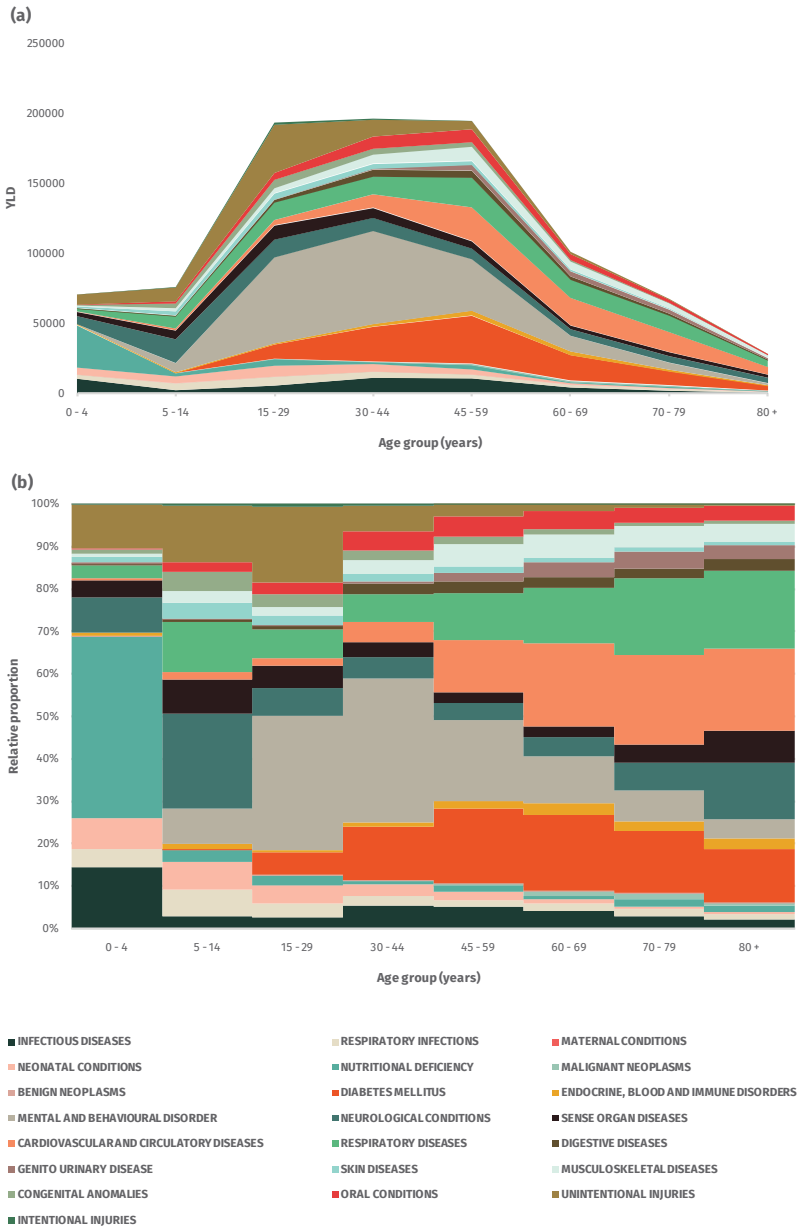


Figure 5.2.2: Number (a) & percentage (b) of non-fatal burden (YLD), by disease groups & age, males, 2010

Females between the ages of 15 to 29 years contributed towards 21.5% of the total YLD, the age group with the highest contribution towards female non-fatal burden of disease and injury in Malaysia in 2010 **[Figure 5.2.3(a)]**. Nutritional Deficiency contributed towards the largest percentage of the YLD in those below 5 years of age at 41.5%. Infectious Diseases were the second highest among females below 5 years of age at 15.3%, while Respiratory Diseases were the second highest among those 5 to 14 years of age at 14.0%. Mental and Behavioural Disorders were the predominant cause of YLD among females 15 to 59 years of age. Diabetes Mellitus were the second largest contributor of non-fatal burden among females 30 to 59 years of age, but rises to become the highest contributor among females 60 to 79 years of age. Neurological Conditions was the highest contributor of non-fatal burden among females 80 years of age and above at 21.8%. Cardiovascular and Circulatory Diseases was the second highest among females 70 years of age and above **[Figure 5.2.3(b)]**.

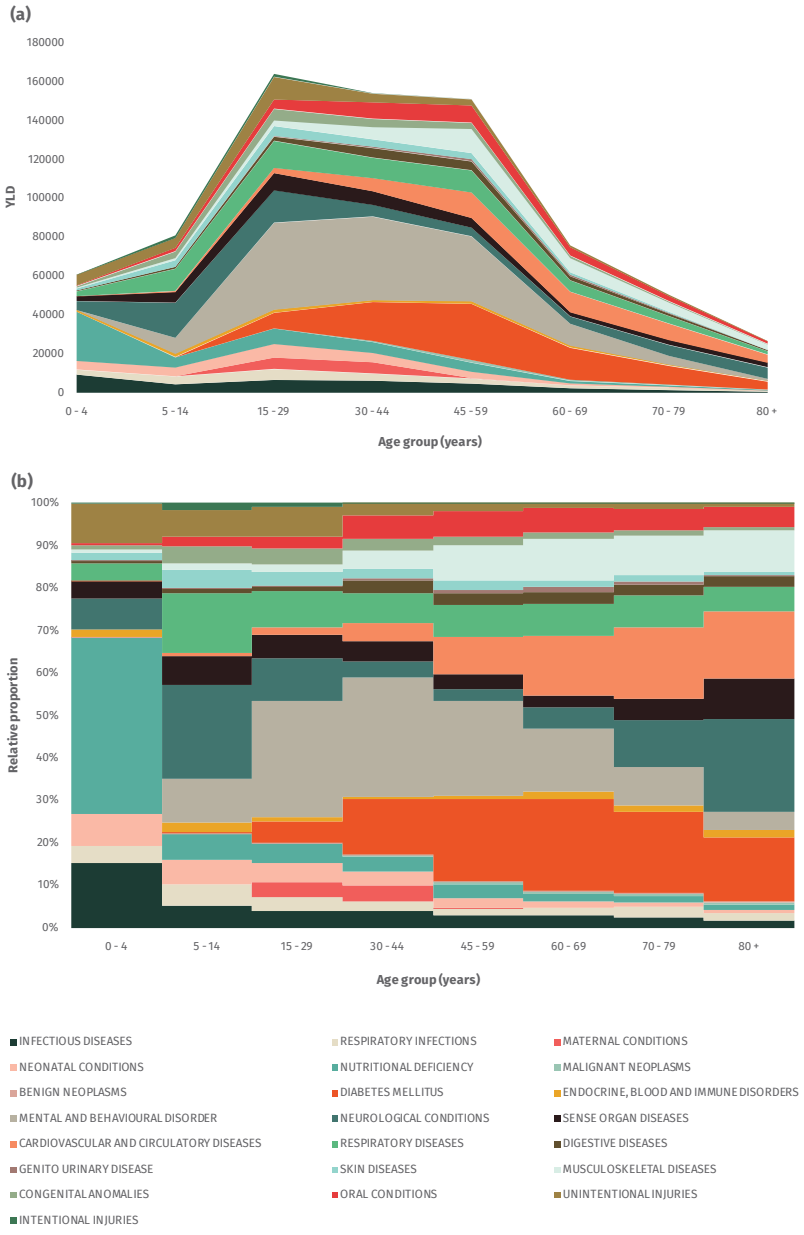


Figure 5.2.3: Number (a) & percentage (b) of non-fatal burden (YLD), by disease groups & age, females, 2010

5.2.3 Leading Causes of Years Lost due to Disability (YLD)

Diabetes Mellitus was the leading cause of non-fatal burden in Malaysia for 2010, contributing 11.1% of the total YLD. This was followed by Asthma, with 4.3%, and Anxiety Disorders, with 4.1% of total YLD. Unipolar Depressive Disorder, with 4.0% and Schizophrenia with 3.7% make up the five leading causes of non-fatal disease and injury burden in 2010.

Among males, Diabetes Mellitus contributed the largest amount of YLD with 10.8%. Drug Use Disorders was the second highest contributor of YLD in males with 5.0% followed by Ischaemic Heart Disease with 4.2%. Road Traffic Injuries and Asthma make up the fourth and fifth leading causes of YLD among males. Among females, Diabetes Mellitus was also the leading cause of YLD with 11.4% followed by Anxiety Disorders with 5.9% and Asthma with 5.2%. Unipolar Depressive Disorder and Nutritional Anemias was the fourth and the fifth leading cause of YLD among females **[Table 5.2.2]**.

The leading causes of non-fatal burden vary according to age. Among males below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of YLD. Diarrhoeal Diseases was the second leading cause of YLD among males below 5 years of age. Asthma was the leading cause of YLD among males 5 to 14 years of age. Road Traffic Injuries was the leading cause of YLD among males 15 to 29 years of age. Among males 30 years of age and above, Diabetes Mellitus rises to the leading cause of YLD. Drug Use Disorders were the second highest contributor to YLD among males 15 to 44 years of age. Unipolar Depressive Disorder was the third leading cause of YLD among males 15 to 29 years of age, while Schizophrenia was the third leading cause among males aged 30 to 59 years. Ischaemic Heart Disease was the second leading cause of YLD among males 45 years and above, while Chronic Obstructive Pulmonary Disease and Dementia was the third leading cause among males 60 to 79 years of age and above 80 years of age respectively **[Figure 5.2.4]**.

Among females below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of YLD. Diarrhoeal Diseases was the second leading cause of YLD among females below 5 years of age. Asthma was the leading cause of YLD among females 5 to 14 years of age, while Nutritional Anemias was the second leading cause. Anxiety Disorders were the leading cause among females 15 to 29 years of age, followed by Unipolar Depressive Disorder. Diabetes Mellitus was the sixth largest contributor of YLD among females 15 to 29 years of age, but rises to the leading cause of YLD among those 30 years of age and above. Anxiety Disorders dropped to the second highest contributor to YLD among females 30 to 59 years of age and further down to fifth among females 60 to 69 years of age. Osteoarthritis was the second leading cause of YLD among females 60 to 69 years of age. Schizophrenia was the third leading cause among females 30 to 59 years of age. Dementia was the third highest contributor to YLD among females 70 to 79 years of age and the second highest contributor among females 80 years of age and above **[Figure 5.2.5]**.

Rank	People	YLD	% of total	Males	YLD	% of total	Females	YLD	% of total
1	Diabetes Mellitus	187389	11.1	Diabetes Mellitus	100893	10.8	Diabetes Mellitus	86495	11.4
2	Asthma	72959	4.3	Drug Use Disorders	46461	5.0	Anxiety Disorders	44631	5.9
3	Anxiety Disorders	70144	4.1	Ischaemic Heart Disease	39147	4.2	Asthma	39279	5.2
4	Unipolar Depressive Disorder	67754	4.0	Road Traffic Injuries	34027	3.7	Unipolar Depressive Disorder	34298	4.5
5	Schizophrenia	62568	3.7	Asthma	33681	3.6	Nutritional Anaemias	30755	4.0
6	Ischaemic Heart Disease	55569	3.3	Unipolar Depressive Disorder	33456	3.6	Schizophrenia	29728	3.9
7	Hearing Loss	51439	3.0	Schizophrenia	32841	3.5	Hearing Loss	24935	3.3
8	Nutritional Anaemias	49123	2.9	Chronic Obstructive Pulmonary Disease	26839	2.9	Diarrhoeal Diseases	23993	3.1
9	Road Traffic Injuries	49042	2.9	Hearing Loss	26504	2.8	Osteoarthritis	20434	2.7
10	Drug Use Disorders	47631	2.8	Protein-Energy Malnutrition	25962	2.8	Protein-Energy Malnutrition	19847	2.6
11	Protein-Energy Malnutrition	45809	2.7	Anxiety Disorders	25513	2.7	Skin and subcutaneous diseases	18494	2.4
12	Diarrhoeal Diseases	39667	2.3	Other Unintentional Injuries	23321	2.5	Bipolar Affective Disorder	16464	2.2
13	Chronic Obstructive Pulmonary Disease	39481	2.3	Cerebrovascular Diseases (Stroke)	21497	2.3	Ischaemic Heart Disease	16422	2.2
14	Epilepsy	37183	2.2	Epilepsy	21006	2.3	Epilepsy	16177	2.1
15	Skin and subcutaneous diseases	34828	2.1	Nutritional Anaemias	18368	2.0	Road Traffic Injuries	15015	2.0
16	Cerebrovascular Diseases (Stroke)	34249	2.0	HIV	16788	1.8	Cerebrovascular Diseases (Stroke)	12752	1.7
17	Osteoarthritis	32980	1.9	Skin and subcutaneous diseases	16333	1.8	Chronic Obstructive Pulmonary Disease	12642	1.7
18	Bipolar Affective Disorder	30699	1.8	Diarrhoeal Diseases	15674	1.7	Periodontitis	11889	1.6
19	Upper Respiratory Infections	24784	1.5	Alcohol Use Disorders	14253	1.5	Upper Respiratory Infections	11282	1.5
20	Periodontitis	24424	1.4	Bipolar Affective Disorder	14235	1.5	Neonatal Infections	10332	1.4
	Top 20 diseases	**1116119**	**66.0**	**Top 20 diseases**	**623281**	**67.0**	**Top 20 diseases**	**524277**	**68.8**
	All other diseases	*575988*	*34.0*	*All other diseases*	*306920*	*33.0*	*All other diseases*	*237629*	*31.2*
	Total	**1692107**	**100.0**	**Total**	**930200**	**100.0**	**Total**	**761907**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 5.2.2: Leading causes of non-fatal burden (YLD), by sex, 2010

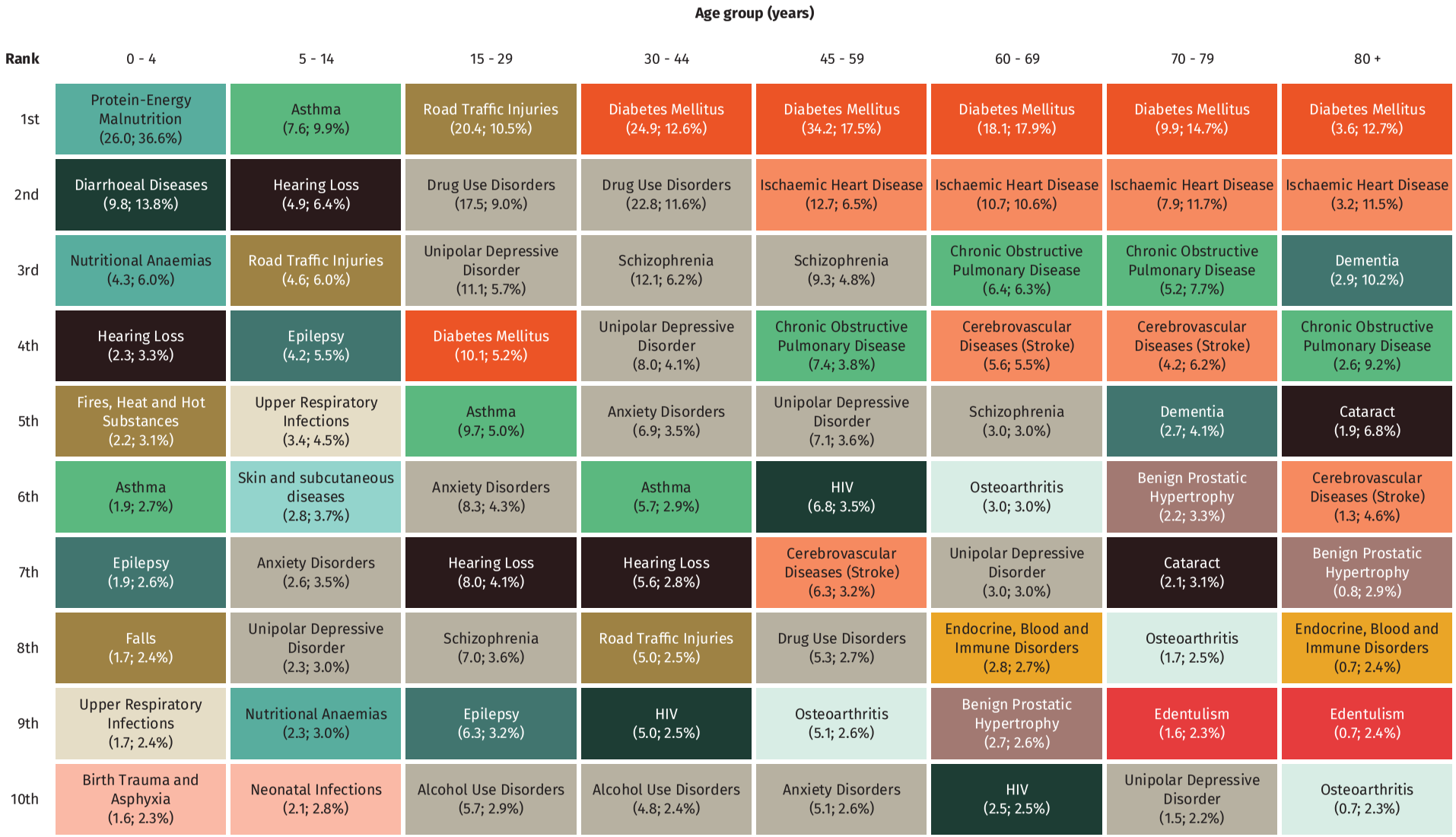


Figure 5.2.4: Leading causes of non-fatal burden (YLD '000; percentage %) for males, by age group, 2010

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Protein-Energy Malnutrition (19.8; 32.7%)	Asthma (8.9; 11.0%)	Anxiety Disorders (13.8; 8.4%)	Diabetes Mellitus (19.9; 13.0%)	Diabetes Mellitus (28.8; 19.1%)	Diabetes Mellitus (16.3; 21.6%)	Diabetes Mellitus (9.5; 19.0%)	Diabetes Mellitus (4.0; 15.2%)
2nd	Diarrhoeal Diseases (9.1; 14.9%)	Nutritional Anaemias (5.2; 6.4%)	Unipolar Depressive Disorder (11.5; 7.0%)	Anxiety Disorders (12.1; 7.8%)	Anxiety Disorders (9.6; 6.4%)	Osteoarthritis (4.8; 6.4%)	Ischaemic Heart Disease (4.3; 8.5%)	Dementia (3.6; 13.6%)
3rd	Nutritional Anaemias (5.2; 8.6%)	Hearing Loss (4.7; 5.8%)	Asthma (11.1; 6.8%)	Schizophrenia (10.9; 7.1%)	Schizophrenia (8.3; 5.5%)	Ischaemic Heart Disease (4.7; 6.3%)	Dementia (3.3; 6.7%)	Cataract (2.1; 8.2%)
4th	Hearing Loss (2.2; 3.6%)	Anxiety Disorders (4.4; 5.5%)	Road Traffic Injuries (8.4; 5.1%)	Unipolar Depressive Disorder (7.7; 5.0%)	Osteoarthritis (7.9; 5.2%)	Cerebrovascular Diseases (Stroke) (3.4; 4.5%)	Osteoarthritis (3.0; 6%)	Ischaemic Heart Disease (1.9; 7.1%)
5th	Asthma (2.1; 3.5%)	Diarrhoeal Diseases (3.7; 4.6%)	Nutritional Anaemias (7.9; 4.8%)	Asthma (6.8; 4.4%)	Unipolar Depressive Disorder (7.2; 4.8%)	Anxiety Disorders (3.1; 4.1%)	Cerebrovascular Diseases (Stroke) (2.6; 5.2%)	Epilepsy (1.5; 5.6%)
6th	Epilepsy (1.7; 2.8%)	Epilepsy (3.6; 4.5%)	Diabetes Mellitus (7.9; 4.8%)	Nutritional Anaemias (5.6; 3.6%)	Asthma (6.1; 4.0%)	Unipolar Depressive Disorder (3.0; 3.9%)	Chronic Obstructive Pulmonary Disease (2.2; 4.3%)	Osteoarthritis (1.4; 5.4%)
7th	Falls (1.7; 2.8%)	Skin and subcutaneous diseases (3.4; 4.2%)	Hearing Loss (7.4; 4.5%)	Hearing Loss (5.1; 3.3%)	Nutritional Anaemias (4.6; 3.1%)	Schizophrenia (2.8; 3.7%)	Cataract (1.8; 3.7%)	Chronic Obstructive Pulmonary Disease (1.1; 4.0%)
8th	Birth Trauma and Asphyxia (1.4; 2.3%)	Unipolar Depressive Disorder (3.0; 3.7%)	Schizophrenia (6.6; 4.0%)	Bipolar Affective Disorder (5.0; 3.2%)	Ischaemic Heart Disease (4.3; 2.8%)	Chronic Obstructive Pulmonary Disease (2.8; 3.7%)	Edentulism (1.7; 3.3%)	Edentulism (0.9; 3.3%)
9th	Fires, Heat and Hot Substances (1.4; 2.2%)	Upper Respiratory Infections (3.0; 3.7%)	Bipolar Affective Disorder (5.7; 3.5%)	Periodontitis (4.1; 2.7%)	Periodontitis (4.0; 2.6%)	Asthma (2.5; 3.3%)	Unipolar Depressive Disorder (1.4; 2.8%)	Cerebrovascular Diseases (Stroke) (0.8; 2.9%)
10th	Upper Respiratory Infections (1.3; 2.2%)	Road Traffic Injuries (2.5; 3.1%)	Epilepsy (5.1; 3.1%)	Skin and subcutaneous diseases (3.8; 2.4%)	Cerebrovascular Diseases (Stroke) (3.6; 2.4%)	Edentulism (2.3; 3.1%)	Asthma (1.3; 2.6%)	Endocrine, Blood and Immune Disorders (0.4; 1.7%)

Figure 5.2.5: Leading causes of non-fatal burden (YLD '000; percentage %) for females, by age group, 2010

5.3 Years Lost due to Disability (YLD) – 2011

In 2011, a total of 1.75 million years of life were lost due to disability in Malaysia. Males contributed towards 0.95 million YLD (54.6%) and females 0.79 million YLD (45.4%).

5.3.1 Pattern of Years Lost due to Disability (YLD) by sex

Figure 5.3.1: Percentage (%) of non-fatal burden (YLD), by disease groups and sex, 2011

Overall, Mental and Behavioural Disorders were the largest contributor towards non-fatal burden of disease and injury in Malaysia for 2011, followed by Diabetes Mellitus and Respiratory Diseases **[Figure 5.3.1]**. For both males and females, Mental and Behavioural Disorders caused the highest YLD and contributed to around 19% of the non-fatal disease and injury burden. For males, Diabetes Mellitus contributed to 11.3% of non-fatal disease and injury burden followed by Respiratory Diseases at 9.7% and Cardiovascular and Circulatory Diseases at 8.8%. For females, Diabetes Mellitus was also the second largest contributor of non-fatal disease and injury burden with 11.4%, followed by Neurological Conditions at 8.3% and Respiratory Diseases at 7.9% and **[Table 5.3.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	YLD (number)	YLD (%)	YLD (number)	YLD (%)	YLD (number)	YLD (%)
INFECTIOUS DISEASES	78047	4.5	43382	4.5	34665	4.4
RESPIRATORY INFECTIONS	45955	2.6	24853	2.6	21102	2.7
MATERNAL CONDITIONS	12745	0.7	0	0.0	12745	1.6
NEONATAL CONDITIONS	58532	3.3	30597	3.2	27935	3.5
NUTRITIONAL DEFICIENCY	94575	5.4	44832	4.7	49742	6.3
MALIGNANT NEOPLASMS	7072	0.4	3597	0.4	3475	0.4
BENIGN NEOPLASMS	456	0.0	187	0.0	270	0.0
DIABETES MELLITUS	198115	11.3	107488	11.3	90626	11.4
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	21818	1.2	13414	1.4	8403	1.1
MENTAL AND BEHAVIOURAL DISORDER	326424	18.7	176552	18.5	149873	18.9
NEUROLOGICAL CONDITIONS	131831	7.5	66088	6.9	65742	8.3
SENSE ORGAN DISEASES	76591	4.4	39531	4.1	37060	4.7
CARDIOVASCULAR AND CIRCULATORY DISEASES	135152	7.7	84378	8.8	50774	6.4
RESPIRATORY DISEASES	155098	8.9	92575	9.7	62522	7.9
DIGESTIVE DISEASES	34784	2.0	18082	1.9	16702	2.1
GENITO URINARY DISEASE	17833	1.0	13497	1.4	4336	0.5
SKIN DISEASES	35759	2.0	16742	1.8	19017	2.4
MUSCULOSKELETAL DISEASES	74725	4.3	34639	3.6	40085	5.0
CONGENITAL ANOMALIES	42592	2.4	22213	2.3	20379	2.6
ORAL CONDITIONS	91627	5.2	46689	4.9	44939	5.7
UNINTENTIONAL INJURIES	103383	5.9	71329	7.5	32054	4.0
INTENTIONAL INJURIES	5052	0.3	3220	0.3	1832	0.2
TOTAL	**1748165**	**100.0**	**953885**	**100.0**	**794280**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 5.3.1: Non-fatal burden of disease and injury by disease groups and by sex, 2011

5.3.2 Pattern of Years Lost due to Disability (YLD) by age

Males between 45 and 59 years of age contributed towards 21.1% of the total YLD, the age group with the highest contribution towards male non-fatal burden of disease and injury in Malaysia in 2011 **[Figure 5.3.2(a)]**. Nutritional Deficiency contributed towards the largest percentage of the YLD in males below 5 years of age. Infectious Diseases were the second highest among males below 5 years of age at 14.4%, while Neurological Conditions were the highest among those 5 to 14 years of age at 19.3%. Mental and Behavioural Disorders were the predominant cause of YLD among males 15 to 59 years of age. Cardiovascular and Circulatory Diseases were the largest contributor of non-fatal disease burden among males from the age of 60 years and above **[Figure 5.3.2(b)]**.

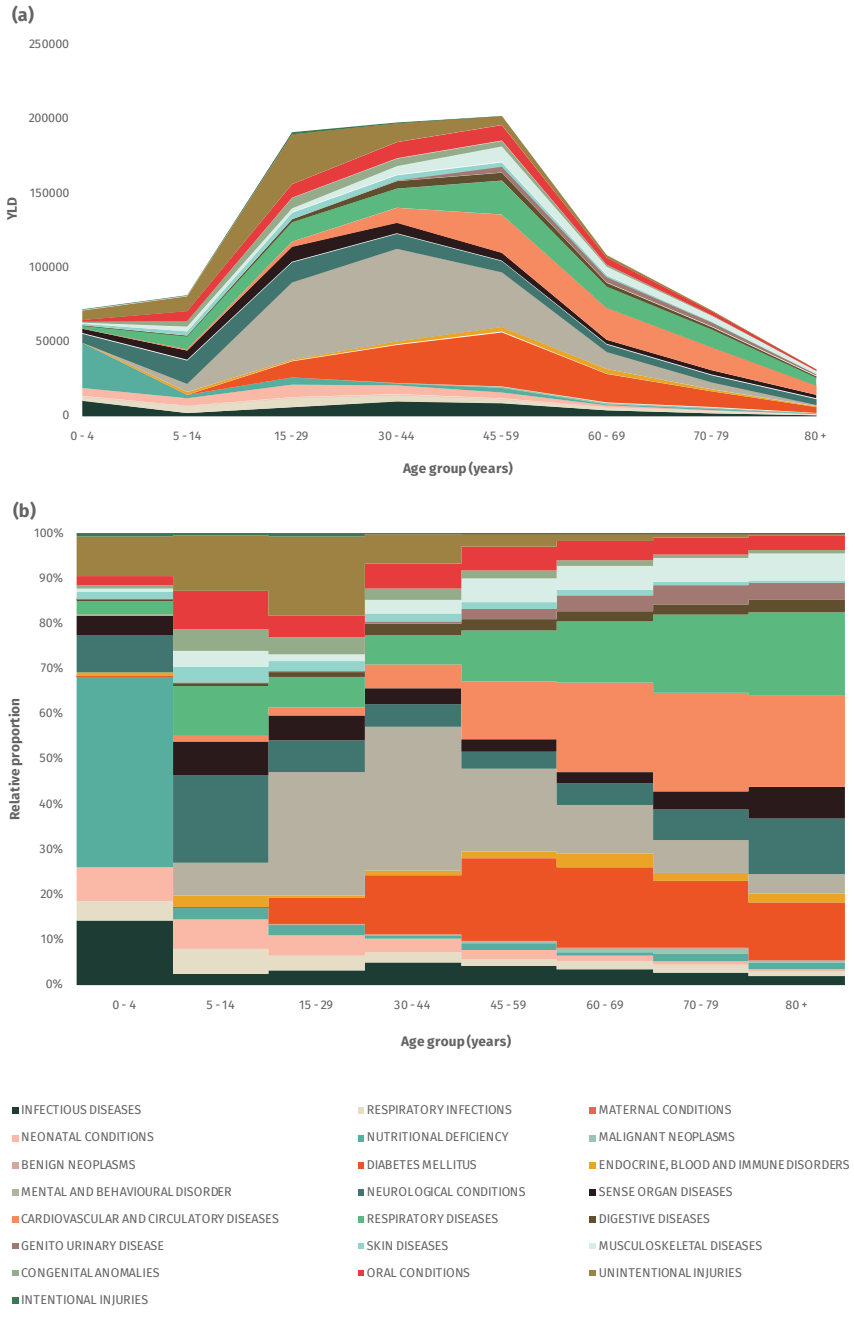


Figure 5.3.2: Number (a) & percentage (b) of non-fatal burden (YLD), by disease groups & age, males, 2011

Females between the ages of 15 and 29 years contributed towards 21.3% of the total YLD, the age group with the highest contribution towards female non-fatal burden of disease and injury in Malaysia in 2011 **[Figure 5.3.3(a)]**. Nutritional Deficiency contributed towards the largest percentage of the YLD in those below 5 years of age. Infectious Diseases were the second highest among females below 5 years of age at 15.6%, while Neurological Conditions were the highest among those 5 to 14 years of age at 20.6%. Mental and Behavioural Disorders were the predominant cause of YLD among females 15 to 59 years of age. Diabetes Mellitus was the highest contributor of non-fatal burden among females 60 to 69 years of age. Mental and Behavioural Disorders were the second largest contributor of non-fatal burden among females 60 to 69 years of age, with Cardiovascular and Circulatory Diseases being the highest among females 70 years of age and above **[Figure 5.3.3(b)]**.

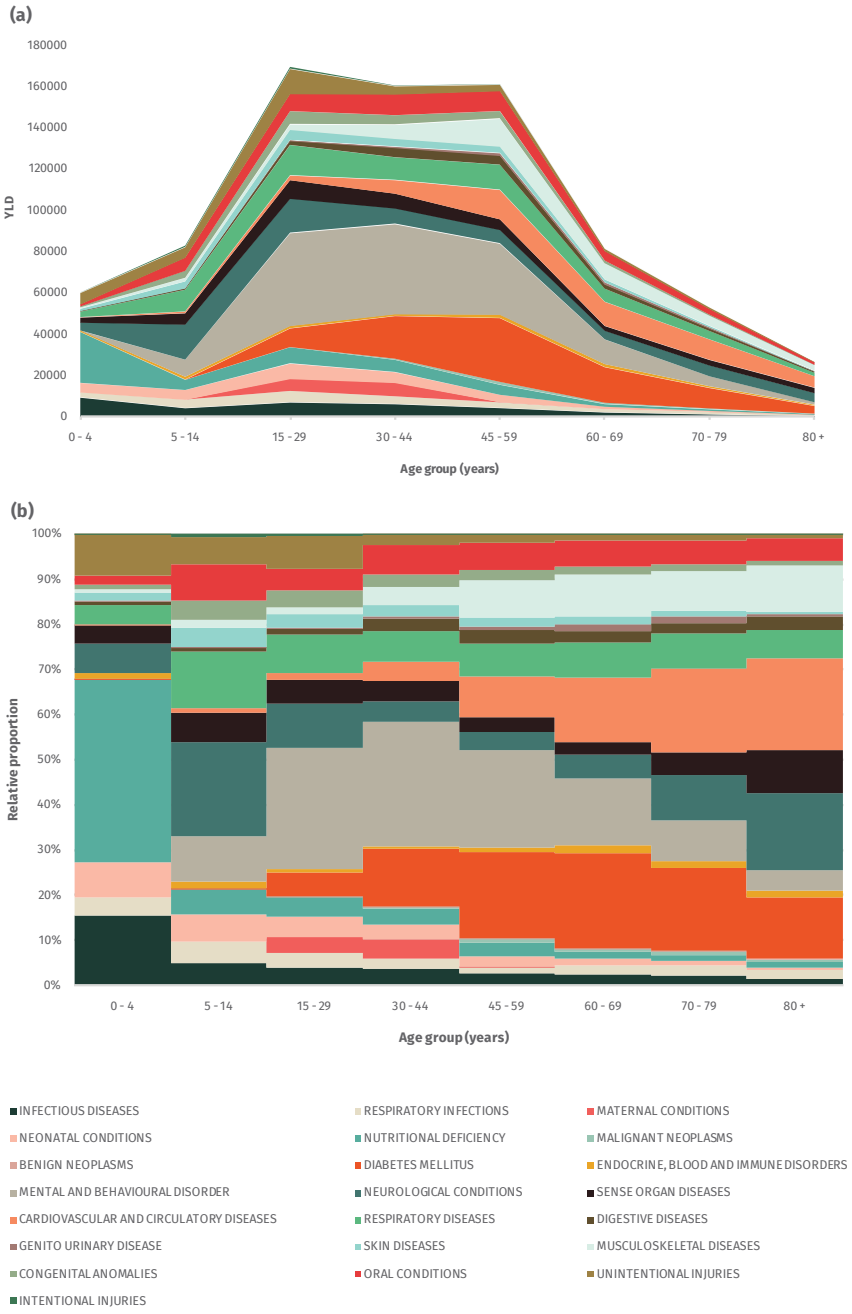


Figure 5.3.3: Number (a) & percentage (b) of non-fatal burden (YLD), by disease groups & age, females, 2011

5.3.3 Leading Causes of Years Lost due to Disability (YLD)

Diabetes Mellitus was the leading cause of non-fatal burden in Malaysia for 2011, contributing 11.3% of the total YLD. This was followed by Asthma, with 4.3%, and Anxiety Disorders, with 4.1% of total YLD. Unipolar Depressive Disorder, with 4.0% and Schizophrenia with 3.7% make up the five leading causes of non-fatal disease and injury burden in 2011.

Among males, Diabetes Mellitus contributed the largest amount of YLD with 11.3%. Ischaemic Heart Disease was the second highest contributor of YLD in males with 4.4% followed by Unipolar Depressive Disorder with 3.6%. Asthma and Schizophrenia make up the fourth and fifth leading causes of YLD among males. Among females, Diabetes Mellitus was also the leading cause of YLD with 11.4% followed by Anxiety Disorders with 5.7% and Asthma with 5.1%. Unipolar Depressive Disorder and Schizophrenia was the fourth and the fifth leading cause of YLD among females **[Table 5.3.2]**.

The leading causes of non-fatal burden vary according to age. Among males below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of YLD. Diarrhoeal Diseases was the second leading cause of YLD among males below 5 years of age. Asthma was the leading cause of YLD among males 5 to 14 years of age while Road Traffic Injuries was the leading cause of YLD among males 15 to 29 years of age. Unipolar Depressive Disorder was the second largest contributor of YLD among males 15 to 29 years of age. Among males 30 years of age and above, Diabetes Mellitus rises to the leading cause of YLD. Drug Use Disorders were the second highest contributor to YLD among males 30 to 44 years of age. Ischemic Heart Disease was the second leading cause of YLD among males 45 years of age and above. Among males 80 years and above, Dementia was the third highest contributor to YLD **[Figure 5.3.4]**.

Among females below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of YLD. Diarrhoeal Diseases was the second leading cause of YLD among females below 5 years of age. Asthma was the leading cause of YLD among females 5 to 14 years of age while Anxiety Disorders were the leading cause among females 15 to 29 years of age, followed by Unipolar Depressive Disorder. Diabetes Mellitus was the fourth largest contributor of YLD among females 15 to 29 years of age and among females 30 to 79 years of age, Diabetes Mellitus rises to the leading cause of YLD. Anxiety Disorders dropped to the second highest contributor to YLD among females 30 to 59 years of age. Schizophrenia was the third leading cause among females 30 to 59 years of age. Dementia was the third highest contributor to YLD among females 70 to 79 years of age and the highest contributor among females 80 years of age and above **[Figure 5.3.5]**.

Rank	People	YLD	% of total	Males	YLD	% of total	Females	YLD	% of total
1	Diabetes Mellitus	198115	11.3	Diabetes Mellitus	107488	11.3	Diabetes Mellitus	90626	11.4
2	Asthma	74428	4.3	Ischaemic Heart Disease	42306	4.4	Anxiety Disorders	45161	5.7
3	Anxiety Disorders	70960	4.1	Unipolar Depressive Disorder	34563	3.6	Asthma	40200	5.1
4	Unipolar Depressive Disorder	70241	4.0	Asthma	34228	3.6	Unipolar Depressive Disorder	35678	4.5
5	Schizophrenia	64814	3.7	Schizophrenia	33982	3.6	Schizophrenia	30832	3.9
6	Ischaemic Heart Disease	61226	3.5	Road Traffic Injuries	33066	3.5	Nutritional Anaemias	30464	3.8
7	Hearing Loss	52293	3.0	Drug Use Disorders	30306	3.2	Hearing Loss	25339	3.2
8	Nutritional Anaemias	49221	2.8	Chronic Obstructive Pulmonary Disease	27937	2.9	Diarrhoeal Diseases	23936	3.0
9	Road Traffic Injuries	48314	2.8	Hearing Loss	26954	2.8	Osteoarthritis	21240	2.7
10	Protein-Energy Malnutrition	45170	2.6	Protein-Energy Malnutrition	25972	2.7	Protein-Energy Malnutrition	19198	2.4
11	Chronic Obstructive Pulmonary Disease	41598	2.4	Anxiety Disorders	25799	2.7	Skin and subcutaneous diseases	19017	2.4
12	Diarrhoeal Diseases	39609	2.3	Cerebrovascular Diseases (Stroke)	23862	2.5	Ischaemic Heart Disease	18920	2.4
13	Epilepsy	39206	2.2	Epilepsy	21469	2.3	Epilepsy	17737	2.2
14	Cerebrovascular Diseases (Stroke)	37584	2.1	Nutritional Anaemias	18758	2.0	Bipolar Affective Disorder	16942	2.1
15	Skin and subcutaneous diseases	35759	2.0	Skin and subcutaneous diseases	16742	1.8	Road Traffic Injuries	15248	1.9
16	Osteoarthritis	34279	2.0	Diarrhoeal Diseases	15673	1.6	Cerebrovascular Diseases (Stroke)	13722	1.7
17	Bipolar Affective Disorder	31520	1.8	Alcohol Use Disorders	14579	1.5	Chronic Obstructive Pulmonary Disease	13662	1.7
18	Drug Use Disorders	30930	1.8	Bipolar Affective Disorder	14578	1.5	Periodontitis	12238	1.5
19	Periodontitis	25121	1.4	Upper Respiratory Infections	13489	1.4	Neonatal Infections	11328	1.4
20	Upper Respiratory Infections	24759	1.4	Endocrine, Blood and Immune Disorders	13414	1.4	Upper Respiratory Infections	11270	1.4
	Top 20 diseases	**1136345**	**65.0**	**Top 20 diseases**	**626683**	**65.7**	**Top 20 diseases**	**543318**	**68.4**
	All other diseases	*611820*	*35.0*	*All other diseases*	*327202*	*34.3*	*All other diseases*	*250962*	*31.6*
	Total	**1748165**	**100.0**	**Total**	**953885**	**100.0**	**Total**	**794280**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 5.3.2: Leading causes of non-fatal burden (YLD), by sex, 2011

Figure 5.3.4: Leading causes of non-fatal burden (YLD '000; percentage %) for males, by age group, 2011

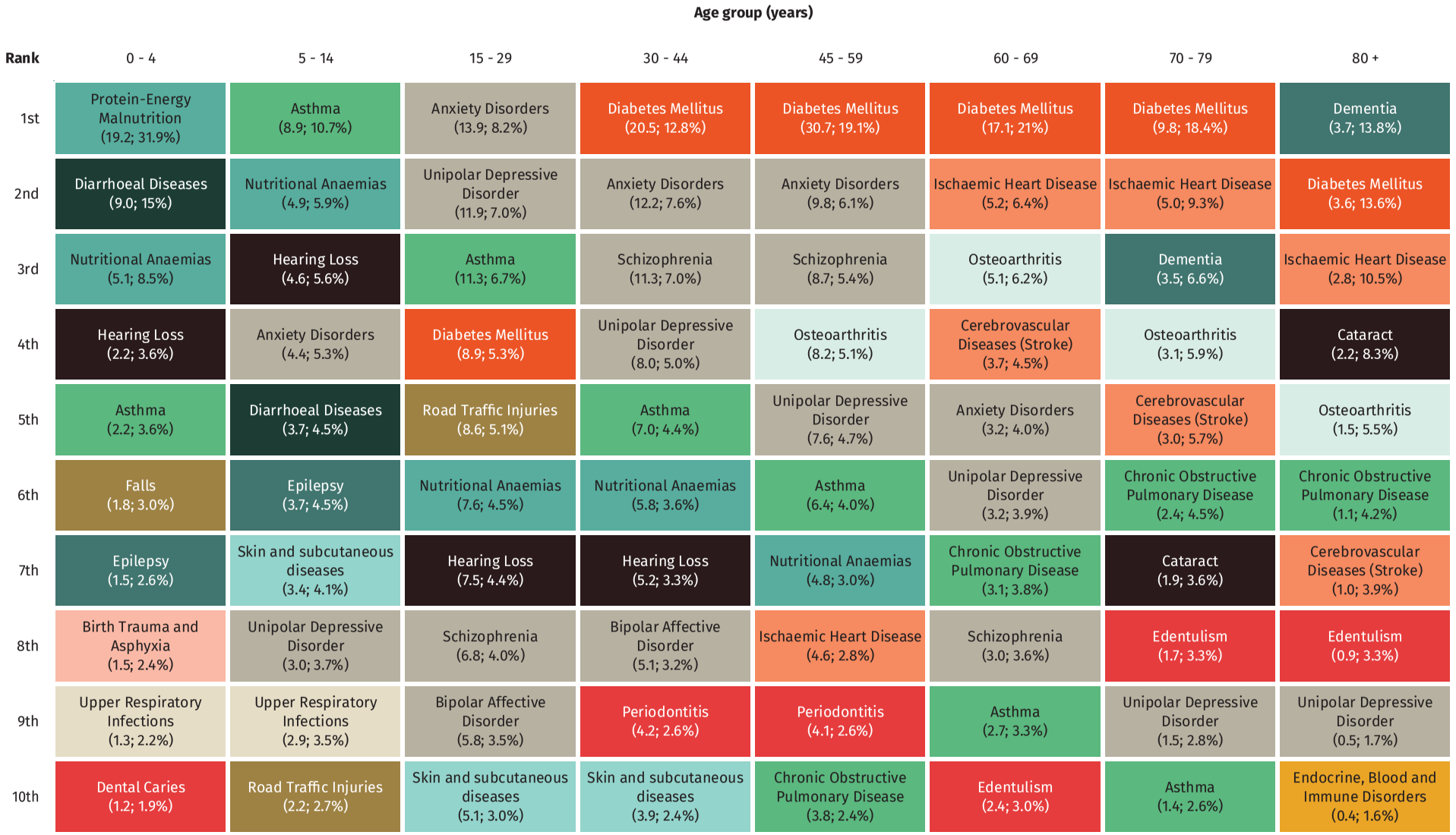


Figure 5.3.5: Leading causes of non-fatal burden (YLD '000; percentage %) for females, by age group, 2011

5.4 Years Lost due to Disability (YLD) – 2012

In 2012, a total of 1.71 million years of life were lost due to disability in Malaysia. Males contributed towards 0.92 million YLD (53.8%) and females 0.79 million YLD (46.2%).

5.4.1 Pattern of Years Lost due to Disability (YLD) by sex

Figure 5.4.1: Percentage (%) of non-fatal burden (YLD), by disease groups and sex, 2012

Overall, Mental and Behavioural Disorders were the largest contributor towards non-fatal burden of disease and injury in Malaysia for 2012, followed by Diabetes Mellitus and Respiratory Diseases **[Figure 5.4.1]**. For both males and females, Mental and Behavioural Disorders caused the highest YLD and contributed to around 20% of the non-fatal disease and injury burden. For males, Diabetes Mellitus contributed to 12.1% of non-fatal disease and injury burden followed by Respiratory Diseases at 10.4% and Neurological Conditions at 7.7%. For females, Diabetes Mellitus was also the second largest contributor of non-fatal disease and injury burden with 12.0%, followed by Neurological Conditions at 8.9% and Respiratory Diseases at 8.1% and **[Table 5.4.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	YLD (number)	YLD (%)	YLD (number)	YLD (%)	YLD (number)	YLD (%)
INFECTIOUS DISEASES	91640	5.4	52338	5.7	39302	5.0
RESPIRATORY INFECTIONS	46642	2.7	24933	2.7	21709	2.7
MATERNAL CONDITIONS	10313	0.6	0	0.0	10313	1.3
NEONATAL CONDITIONS	48707	2.8	25264	2.7	23443	3.0
NUTRITIONAL DEFICIENCY	93076	5.4	43514	4.7	49562	6.3
MALIGNANT NEOPLASMS	7014	0.4	3546	0.4	3468	0.4
BENIGN NEOPLASMS	473	0.0	191	0.0	282	0.0
DIABETES MELLITUS	206447	12.1	111524	12.1	94923	12.0
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	21400	1.3	13106	1.4	8294	1.0
MENTAL AND BEHAVIOURAL DISORDER	329129	19.2	175213	19.0	153916	19.5
NEUROLOGICAL CONDITIONS	141331	8.3	71216	7.7	70115	8.9
SENSE ORGAN DISEASES	76591	4.5	39531	4.3	37060	4.7
CARDIOVASCULAR AND CIRCULATORY DISEASES	96654	5.7	59006	6.4	37648	4.8
RESPIRATORY DISEASES	159847	9.3	95451	10.4	64396	8.1
DIGESTIVE DISEASES	35860	2.1	18389	2.0	17470	2.2
GENITO URINARY DISEASE	20094	1.2	15205	1.7	4889	0.6
SKIN DISEASES	36619	2.1	17121	1.9	19498	2.5
MUSCULOSKELETAL DISEASES	74856	4.4	33873	3.7	40983	5.2
CONGENITAL ANOMALIES	43026	2.5	21580	2.3	21446	2.7
ORAL CONDITIONS	93572	5.5	47661	5.2	45911	5.8
UNINTENTIONAL INJURIES	74951	4.4	50292	5.5	24659	3.1
INTENTIONAL INJURIES	2373	0.1	1434	0.2	939	0.1
TOTAL	**1710616**	**100.0**	**920389**	**100.0**	**790227**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 5.4.1: Non-fatal burden of disease and injury by disease groups and by sex, 2012

5.4.2 Pattern of Years Lost due to Disability (YLD) by age

Males between 45 and 59 years of age contributed towards 21.9% of the total YLD, the age group with the highest contribution towards male non-fatal burden of disease and injury in Malaysia in 2012 **[Figure 5.4.2(a)]**. Nutritional Deficiency contributed towards the largest percentage of the YLD in males below 5 years of age. Infectious Diseases were the second highest among males below 5 years of age at 15.4%, and Neurological Conditions were the highest among those 5 to 14 years of age at 25.8%. Mental and Behavioural Disorders were the predominant cause of YLD among males 15 to 59 years of age. Diabetes Mellitus was the highest contributor of non-fatal burden among males 60 to 69 years of age. Respiratory Diseases were the largest contributor of non-fatal disease burden among males from the age of 70 years and above **[Figure 5.4.2(b)]**.

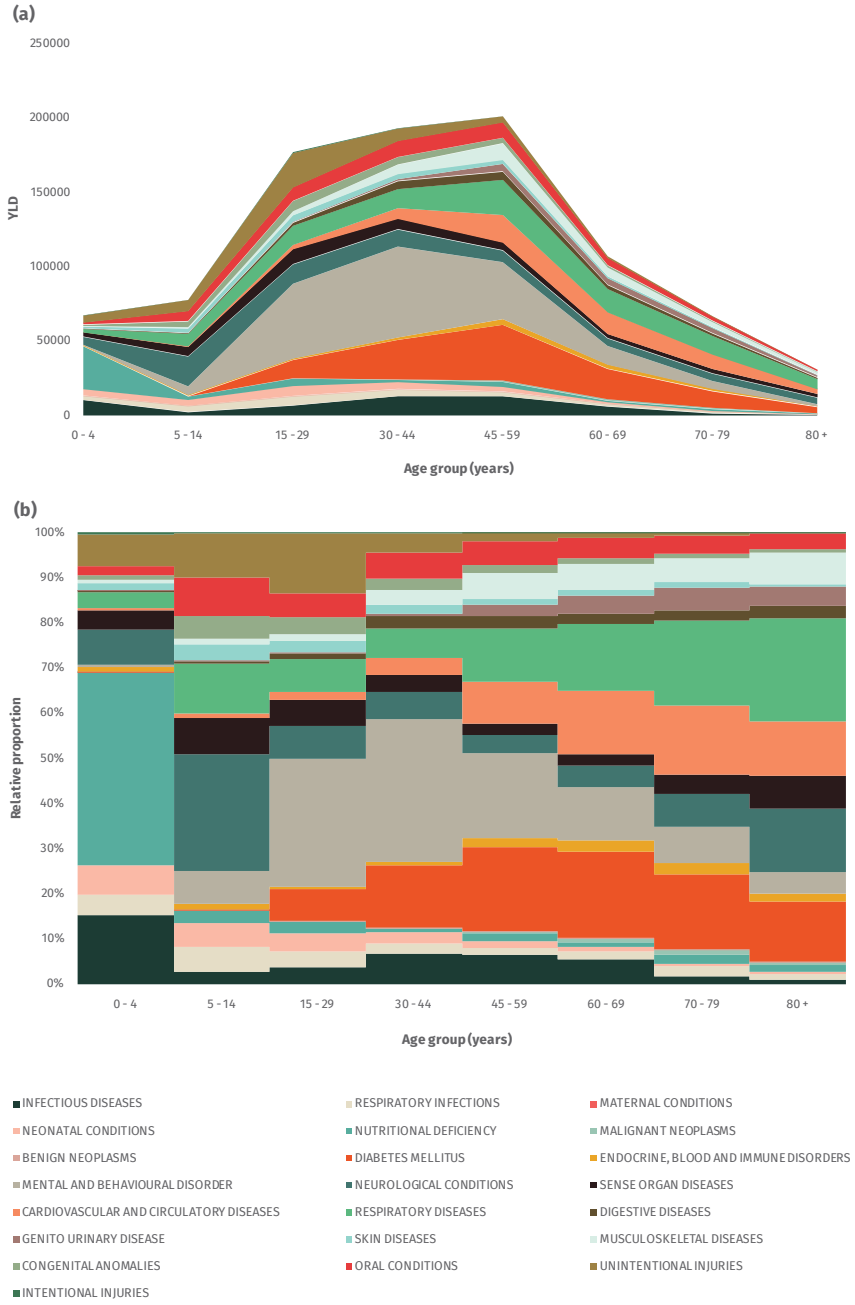


Figure 5.4.2: Number (a) & percentage (b) of non-fatal burden (YLD), by disease groups & age, males, 2012

Females between the ages of 45 and 59 years contributed towards 20.7% of the total YLD, the age group with the highest contribution towards female non-fatal burden of disease and injury in Malaysia in 2012 **[Figure 5.4.3(a)]**. Nutritional Deficiency contributed towards the largest percentage of the YLD in those below 5 years of age. Infectious Diseases were the second highest among females below 5 years of age at 16.0%, while Neurological Conditions were the highest among those 5 to 14 years of age at 26.2%. Mental and Behavioural Disorders were the predominant cause of YLD among females 15 to 59 years of age. Diabetes Mellitus was the highest contributor of non-fatal burden among females from 60 to 79 years of age. Neurological Conditions were the highest among females 80 years of age and above **[Figure 5.4.3(b)]**.

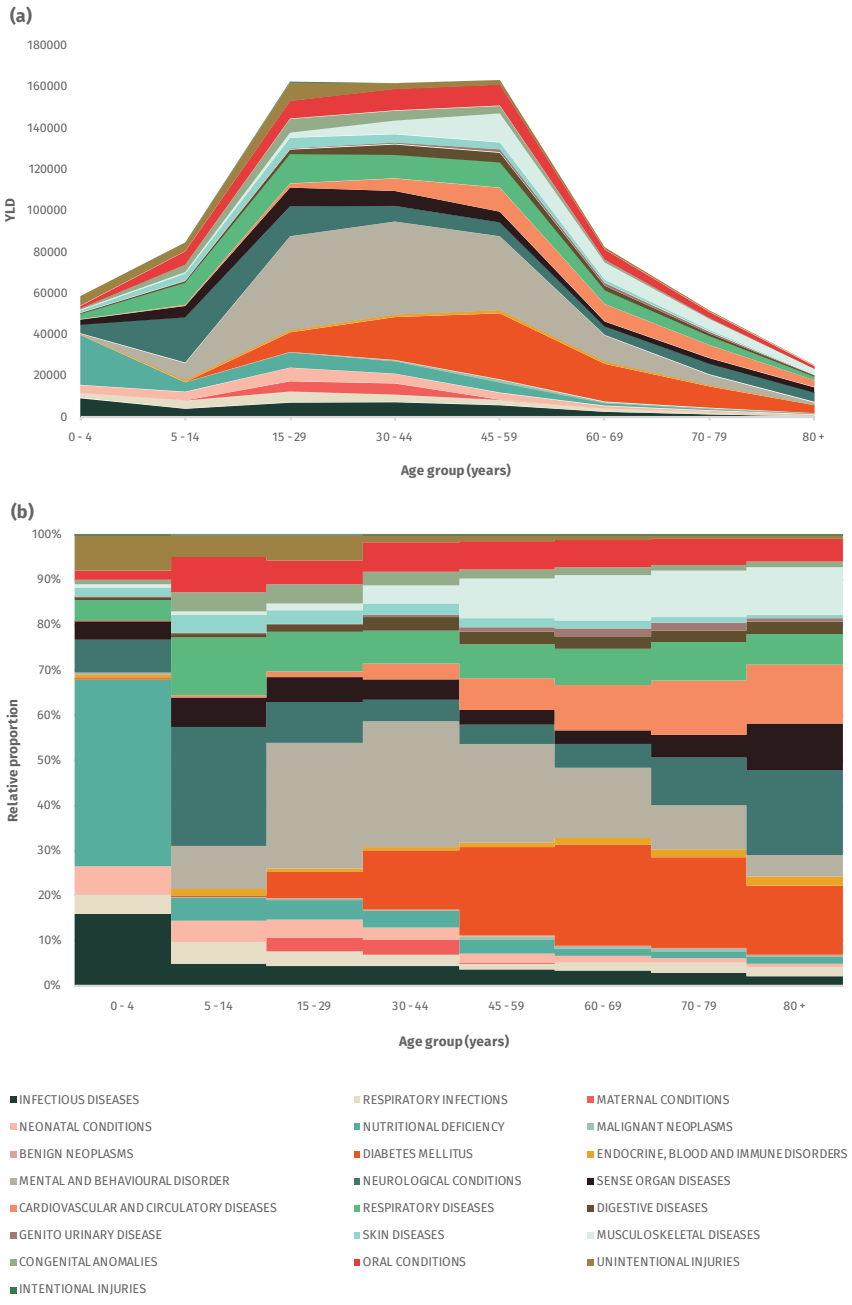


Figure 5.4.3: Number (a) & percentage (b) of non-fatal burden (YLD), by disease groups & age, females, 2012

5.4.3 Leading Causes of Years Lost due to Disability (YLD)

Diabetes Mellitus was the leading cause of non-fatal burden in Malaysia for 2012, contributing 12.1% of the total YLD. This was followed by Asthma, with 4.5%, and Unipolar Depressive Disorder, with 4.3% of total YLD, Anxiety Disorders with 4.2% and Schizophrenia with 3.9% make up the five leading causes of non-fatal disease and injury burden in 2012.

Among males, Diabetes Mellitus contributed the largest amount of YLD with 12.1%. Unipolar Depressive Disorder was the second highest contributor of YLD in males with 3.9% followed by Schizophrenia with 3.8%. Asthma and Ischaemic Heart Disease make up the fourth and fifth leading causes of YLD among males. Among females, Diabetes Mellitus was also the leading cause of YLD with 12.0% followed by Anxiety Disorders with 5.8% and Asthma with 5.2%. Unipolar Depressive Disorder and Schizophrenia was the fourth and the fifth leading cause of YLD among females **[Table 5.4.2]**.

The leading causes of non-fatal burden vary according to age. Among males below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of YLD. Diarrhoeal Diseases was the second leading cause of YLD among males below 5 years of age. Asthma was the leading cause of YLD among males 5 to 14 years of age. Diabetes Mellitus was the leading cause of YLD among males 15 years of age and above. Unipolar Depressive Disorder was the second largest contributor of YLD among males 15 to 29 years of age. Drug Use Disorders were the second highest contributor to YLD among males 30 to 44 years of age. Ischemic Heart Disease was the third leading cause of YLD among males 45 to 59 years of age and rise up to the second leading cause among those 60 to 79 years of age. Among males 80 years and above, Dementia was the second highest contributor to YLD **[Figure 5.4.4]**.

Among females below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of YLD. Diarrhoeal Diseases was the second leading cause of YLD among females below 5 years of age. Asthma was the leading cause of YLD among females 5 to 14 years of age. Anxiety Disorders were the leading cause among females 15 to 29 years of age, followed by Unipolar Depressive Disorder. Diabetes Mellitus was the fourth largest contributor of YLD among females 15 to 29 years of age and among females 30 years of age and above, Diabetes Mellitus was the leading cause of YLD. Anxiety Disorders dropped to the second highest contributor to YLD among females 30 to 59 years of age. Dementia was the second highest contributor to YLD among females 70 years of age and above **[Figure 5.4.5]**.

Rank	People	YLD	% of total	Males	YLD	% of total	Females	YLD	% of total
1	Diabetes Mellitus	206447	12.1	Diabetes Mellitus	111524	12.1	Diabetes Mellitus	94923	12.0
2	Asthma	76141	4.5	Unipolar Depressive Disorder	35701	3.9	Anxiety Disorders	45715	5.8
3	Unipolar Depressive Disorder	72785	4.3	Schizophrenia	35099	3.8	Asthma	41206	5.2
4	Anxiety Disorders	71850	4.2	Asthma	34935	3.8	Unipolar Depressive Disorder	37084	4.7
5	Schizophrenia	67051	3.9	Ischaemic Heart Disease	29530	3.2	Schizophrenia	31952	4.0
6	Hearing Loss	52293	3.1	Chronic Obstructive Pulmonary Disease	29111	3.2	Nutritional Anaemias	30289	3.8
7	Nutritional Anaemias	49403	2.9	Hearing Loss	26954	2.9	Hearing Loss	25339	3.2
8	Protein-Energy Malnutrition	43485	2.5	Anxiety Disorders	26135	2.8	Diarrhoeal Diseases	24079	3.0
9	Chronic Obstructive Pulmonary Disease	43400	2.5	Drug Use Disorders	25115	2.7	Osteoarthritis	22022	2.8
10	Ischaemic Heart Disease	42284	2.5	Protein-Energy Malnutrition	24294	2.6	Skin and subcutaneous diseases	19498	2.5
11	Epilepsy	40238	2.4	Epilepsy	22263	2.4	Protein-Energy Malnutrition	19191	2.4
12	Diarrhoeal Diseases	39896	2.3	HIV	20330	2.2	Epilepsy	17974	2.3
13	Skin and subcutaneous diseases	36619	2.1	Road Traffic Injuries	19184	2.1	Bipolar Affective Disorder	17434	2.2
14	Osteoarthritis	35527	2.1	Nutritional Anaemias	19114	2.1	Chronic Obstructive Pulmonary Disease	14290	1.8
15	Bipolar Affective Disorder	32385	1.9	Skin and subcutaneous diseases	17121	1.9	Ischaemic Heart Disease	12754	1.6
16	Road Traffic Injuries	28852	1.7	Diarrhoeal Diseases	15817	1.7	Periodontitis	12576	1.6
17	HIV	26466	1.5	Bipolar Affective Disorder	14951	1.6	Upper Respiratory Infections	11349	1.4
18	Periodontitis	25790	1.5	Alcohol Use Disorders	14884	1.6	Dementia	10622	1.3
19	Drug Use Disorders	25663	1.5	Upper Respiratory Infections	13606	1.5	Road Traffic Injuries	9668	1.2
20	Upper Respiratory Infections	24955	1.5	Osteoarthritis	13505	1.5	Edentulism	9137	1.2
	Top 20 diseases	**1126629**	**65.9**	**Top 20 diseases**	**604876**	**65.7**	**Top 20 diseases**	**549384**	**69.5**
	All other diseases	*583987*	*34.1*	*All other diseases*	*315513*	*34.3*	*All other diseases*	*240843*	*30.5*
	Total	**1710616**	**100.0**	**Total**	**920389**	**100.0**	**Total**	**790227**	**100.0**

Colour legend:

>5%	4-5%	3-4%	2-3%	0-2%

Table 5.4.2: Leading causes of non-fatal burden (YLD), by sex, 2012

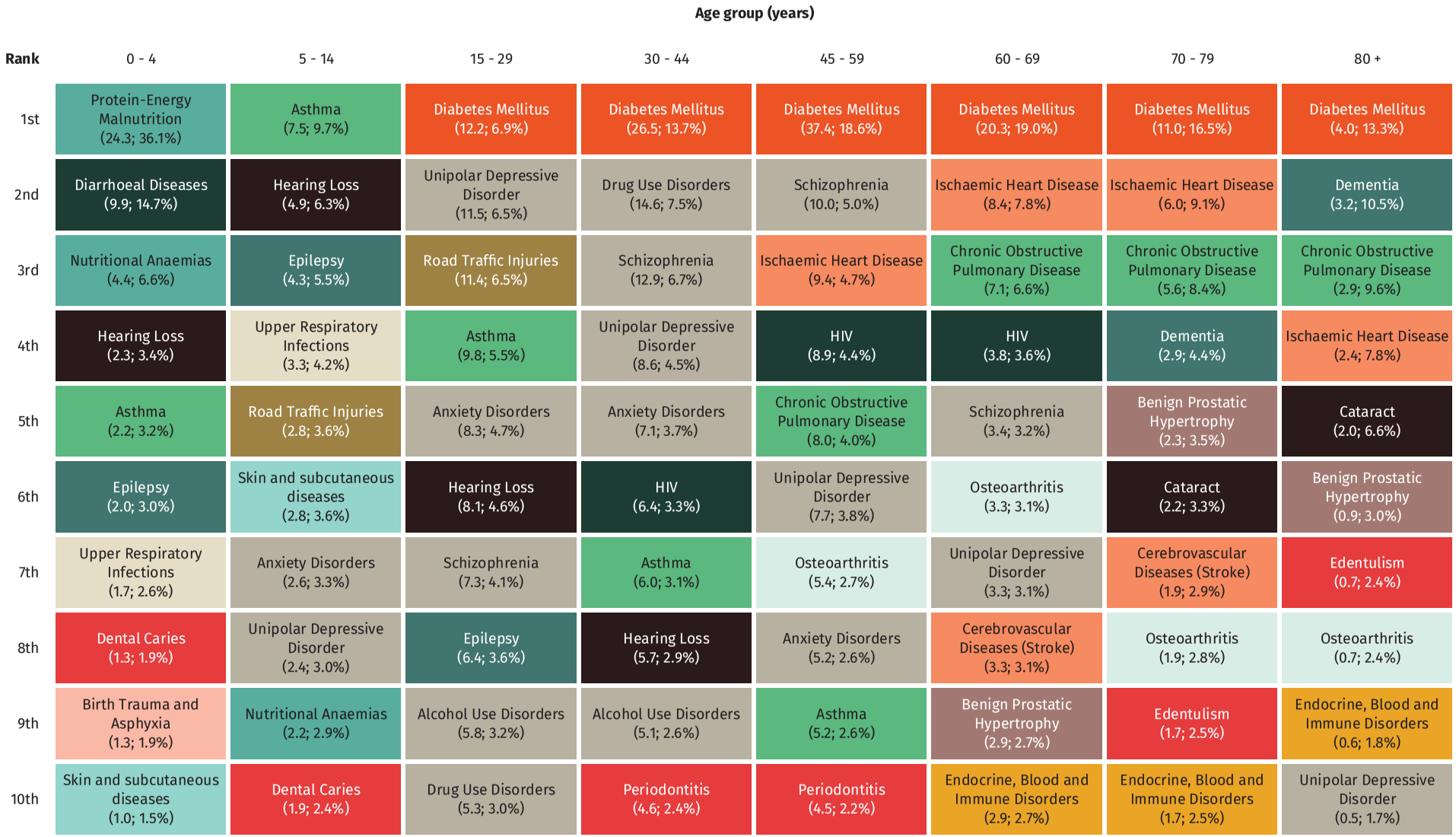
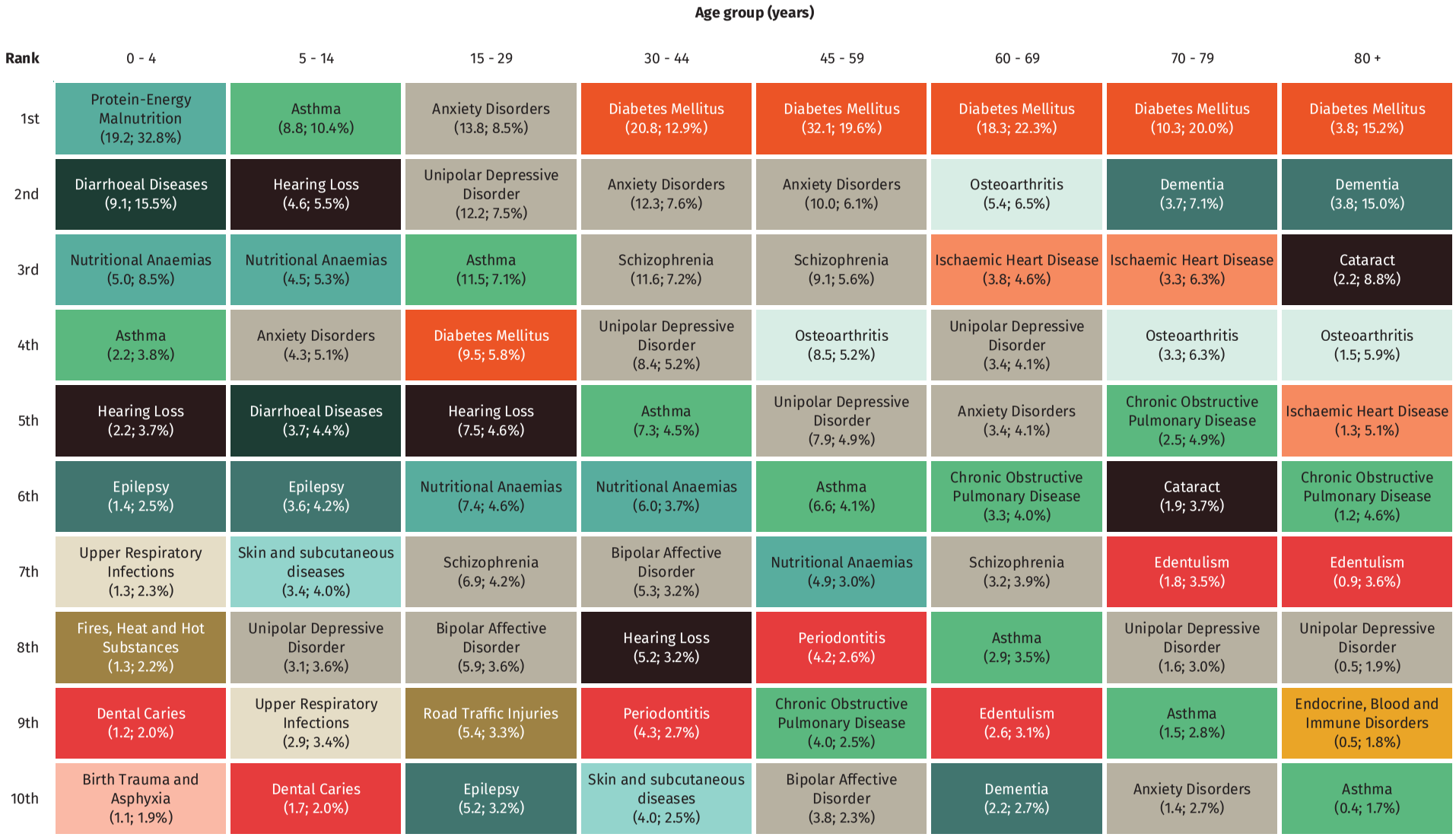


Figure 5.4.4: Leading causes of non-fatal burden (YLD '000; percentage %) for males, by age group, 2012



Rank	Age group (years) 0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Protein-Energy Malnutrition (19.2; 32.8%)	Asthma (8.8; 10.4%)	Anxiety Disorders (13.8; 8.5%)	Diabetes Mellitus (20.8; 12.9%)	Diabetes Mellitus (32.1; 19.6%)	Diabetes Mellitus (18.3; 22.3%)	Diabetes Mellitus (10.3; 20.0%)	Diabetes Mellitus (3.8; 15.2%)
2nd	Diarrhoeal Diseases (9.1; 15.5%)	Hearing Loss (4.6; 5.5%)	Unipolar Depressive Disorder (12.2; 7.5%)	Anxiety Disorders (12.3; 7.6%)	Anxiety Disorders (10.0; 6.1%)	Osteoarthritis (5.4; 6.5%)	Dementia (3.7; 7.1%)	Dementia (3.8; 15.0%)
3rd	Nutritional Anaemias (5.0; 8.5%)	Nutritional Anaemias (4.5; 5.3%)	Asthma (11.5; 7.1%)	Schizophrenia (11.6; 7.2%)	Schizophrenia (9.1; 5.6%)	Ischaemic Heart Disease (3.8; 4.6%)	Ischaemic Heart Disease (3.3; 6.3%)	Cataract (2.2; 8.8%)
4th	Asthma (2.2; 3.8%)	Anxiety Disorders (4.3; 5.1%)	Diabetes Mellitus (9.5; 5.8%)	Unipolar Depressive Disorder (8.4; 5.2%)	Osteoarthritis (8.5; 5.2%)	Unipolar Depressive Disorder (3.4; 4.1%)	Osteoarthritis (3.3; 6.3%)	Osteoarthritis (1.5; 5.9%)
5th	Hearing Loss (2.2; 3.7%)	Diarrhoeal Diseases (3.7; 4.4%)	Hearing Loss (7.5; 4.6%)	Asthma (7.3; 4.5%)	Unipolar Depressive Disorder (7.9; 4.9%)	Anxiety Disorders (3.4; 4.1%)	Chronic Obstructive Pulmonary Disease (2.5; 4.9%)	Ischaemic Heart Disease (1.3; 5.1%)
6th	Epilepsy (1.4; 2.5%)	Epilepsy (3.6; 4.2%)	Nutritional Anaemias (7.4; 4.6%)	Nutritional Anaemias (6.0; 3.7%)	Asthma (6.6; 4.1%)	Chronic Obstructive Pulmonary Disease (3.3; 4.0%)	Cataract (1.9; 3.7%)	Chronic Obstructive Pulmonary Disease (1.2; 4.6%)
7th	Upper Respiratory Infections (1.3; 2.3%)	Skin and subcutaneous diseases (3.4; 4.0%)	Schizophrenia (6.9; 4.2%)	Bipolar Affective Disorder (5.3; 3.2%)	Nutritional Anaemias (4.9; 3.0%)	Schizophrenia (3.2; 3.9%)	Edentulism (1.8; 3.5%)	Edentulism (0.9; 3.6%)
8th	Fires, Heat and Hot Substances (1.3; 2.2%)	Unipolar Depressive Disorder (3.1; 3.6%)	Bipolar Affective Disorder (5.9; 3.6%)	Hearing Loss (5.2; 3.2%)	Periodontitis (4.2; 2.6%)	Asthma (2.9; 3.5%)	Unipolar Depressive Disorder (1.6; 3.0%)	Unipolar Depressive Disorder (0.5; 1.9%)
9th	Dental Caries (1.2; 2.0%)	Upper Respiratory Infections (2.9; 3.4%)	Road Traffic Injuries (5.4; 3.3%)	Periodontitis (4.3; 2.7%)	Chronic Obstructive Pulmonary Disease (4.0; 2.5%)	Edentulism (2.6; 3.1%)	Asthma (1.5; 2.8%)	Endocrine, Blood and Immune Disorders (0.5; 1.8%)
10th	Birth Trauma and Asphyxia (1.1; 1.9%)	Dental Caries (1.7; 2.0%)	Epilepsy (5.2; 3.2%)	Skin and subcutaneous diseases (4.0; 2.5%)	Bipolar Affective Disorder (3.8; 2.3%)	Dementia (2.2; 2.7%)	Anxiety Disorders (1.4; 2.7%)	Asthma (0.4; 1.7%)

Figure 5.4.5: Leading causes of non-fatal burden (YLD '000; percentage %) for females, by age group, 2012

5.5 Years Lost due to Disability (YLD) – 2013

In 2013, a total of 1.77 million years of life were lost due to disability in Malaysia. Males contributed towards 0.96 million YLD (54.6%) and females 0.80 million YLD (45.4%).

5.5.1 Pattern of Years Lost due to Disability (YLD) by sex

Figure 5.5.1: Percentage (%) of non-fatal burden (YLD), by disease groups and sex, 2013

Overall, Mental and Behavioural Disorders were the largest contributor towards non-fatal burden of disease and injury in Malaysia for 2013, followed by Diabetes Mellitus and Respiratory Diseases **[Figure 5.5.1]**. For both males and females, Mental and Behavioural Disorders caused the highest YLD and contributed to around 20% of the non-fatal disease and injury burden. For males, Diabetes Mellitus contributed to 12.1% of non-fatal disease and injury burden followed by Respiratory Diseases at 10.2% and Cardiovascular and Circulatory Diseases at 7.7%. For females, Diabetes Mellitus was also the second largest contributor of non-fatal disease and injury burden with 13.2%, followed by Neurological Conditions at 8.2% and Respiratory Diseases at 8.1% **[Table 5.5.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	YLD (number)	YLD (%)	YLD (number)	YLD (%)	YLD (number)	YLD (%)
INFECTIOUS DISEASES	88227	5.0	51565	5.3	36662	4.6
RESPIRATORY INFECTIONS	47761	2.7	25842	2.7	21918	2.7
MATERNAL CONDITIONS	10558	0.6	0	0.0	10558	1.3
NEONATAL CONDITIONS	55125	3.1	28944	3.0	26181	3.3
NUTRITIONAL DEFICIENCY	91864	5.2	42297	4.4	49568	6.2
MALIGNANT NEOPLASMS	7287	0.4	3662	0.4	3625	0.5
BENIGN NEOPLASMS	471	0.0	199	0.0	272	0.0
DIABETES MELLITUS	222279	12.6	116744	12.1	105536	13.2
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	23387	1.3	14442	1.5	8945	1.1
MENTAL AND BEHAVIOURAL DISORDER	354238	20.1	196014	20.3	158224	19.7
NEUROLOGICAL CONDITIONS	135123	7.6	69641	7.2	65482	8.2
SENSE ORGAN DISEASES	80213	4.5	41496	4.3	38716	4.8
CARDIOVASCULAR AND CIRCULATORY DISEASES	120147	6.8	73873	7.7	46275	5.8
RESPIRATORY DISEASES	163514	9.3	98829	10.2	64685	8.1
DIGESTIVE DISEASES	37010	2.1	19074	2.0	17936	2.2
GENITO URINARY DISEASE	21493	1.2	15869	1.6	5624	0.7
SKIN DISEASES	37430	2.1	17480	1.8	19950	2.5
MUSCULOSKELETAL DISEASES	77975	4.4	35652	3.7	42323	5.3
CONGENITAL ANOMALIES	41364	2.3	21476	2.2	19888	2.5
ORAL CONDITIONS	70331	4.0	35529	3.7	34802	4.3
UNINTENTIONAL INJURIES	77365	4.4	54448	5.6	22917	2.9
INTENTIONAL INJURIES	3443	0.2	1472	0.2	1971	0.2
TOTAL	**1766606**	**100.0**	**964546**	**100.0**	**802060**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 5.5.1: Non-fatal burden of disease and injury by disease groups and by sex, 2013

5.5.2 Pattern of Years Lost due to Disability (YLD) by age

Males between 45 and 59 years of age contributed towards 21.9% of the total YLD, the age group with the highest contribution towards male non-fatal burden of disease and injury in Malaysia in 2013 **[Figure 5.5.2(a)]**. Nutritional Deficiency contributed towards the largest percentage of the YLD in males below 5 years of age. Infectious Diseases were the second highest among males below 5 years of age at 15.3%. Neurological Conditions were the highest among those 5 to 14 years of age at 22.2%. Mental and Behavioural Disorders were the predominant cause of YLD among males 15 to 59 years of age. Diabetes Mellitus was the highest contributor of non-fatal burden among males 60 to 69 years of age. Respiratory Diseases contributed the highest non-fatal disease burden among males from the age of 70 years and above **[Figure 5.5.2(b)]**.

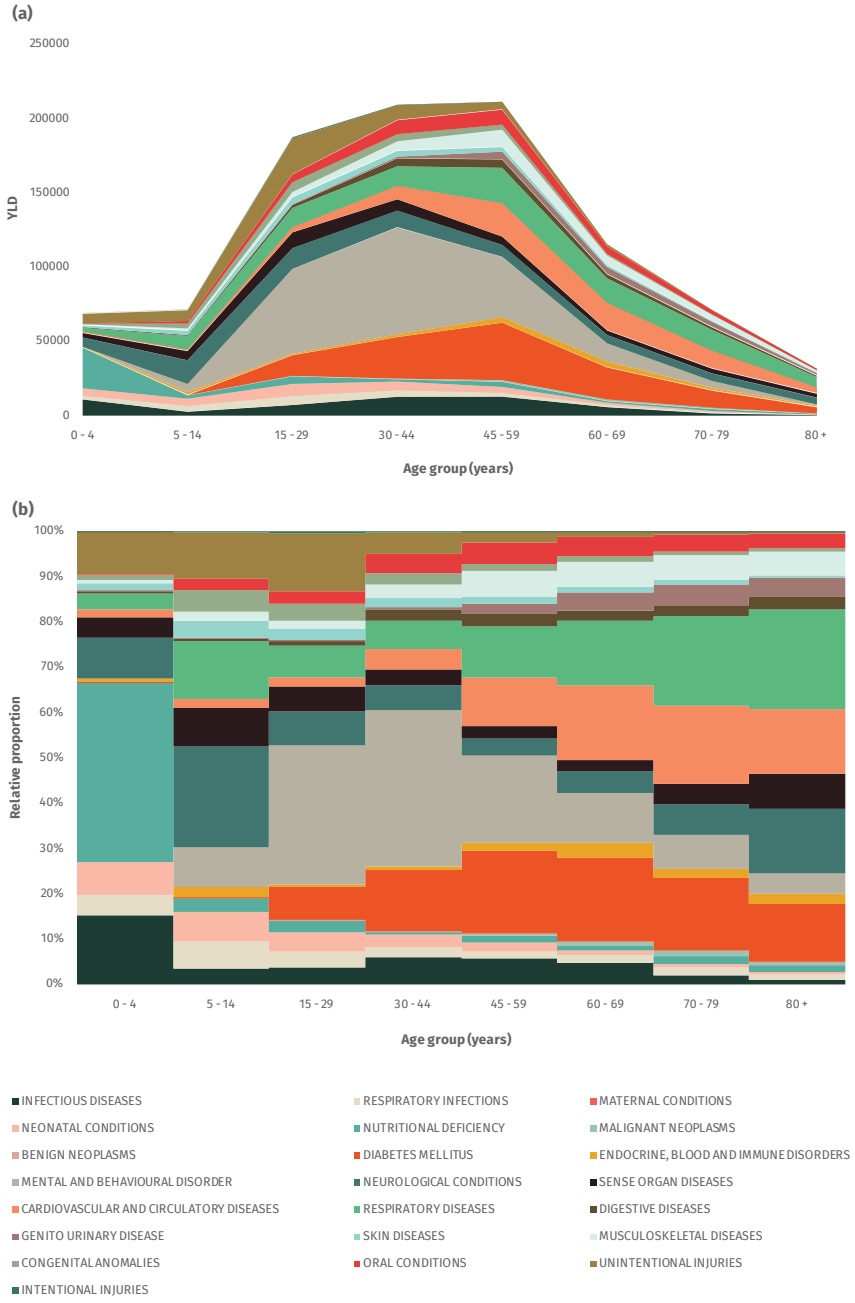


Figure 5.5.2: Number (a) & percentage (b) of non-fatal burden (YLD), by disease groups & age, males, 2013

Females between the ages of 45 and 59 years contributed towards 21.2% of the total YLD, the age group with the highest contribution towards female non-fatal burden of disease and injury in Malaysia in 2013 **[Figure 5.5.3(a)]**. Nutritional Deficiency contributed towards the largest percentage of the YLD in those below 5 years of age at 40.9%. Infectious Diseases were the second highest among females below 5 years of age at 15.9%. Neurological Conditions were the highest among females 5 to 14 years of age at 21.7%. Mental and Behavioural Disorders were the predominant cause of YLD among females 15 to 59 years of age. Diabetes Mellitus was the highest contributor of non-fatal burden among females 60 to 79 years of age. Neurological Conditions were the largest contributor of non-fatal burden among females 80 years of age and above **[Figure 5.5.3(b)]**.

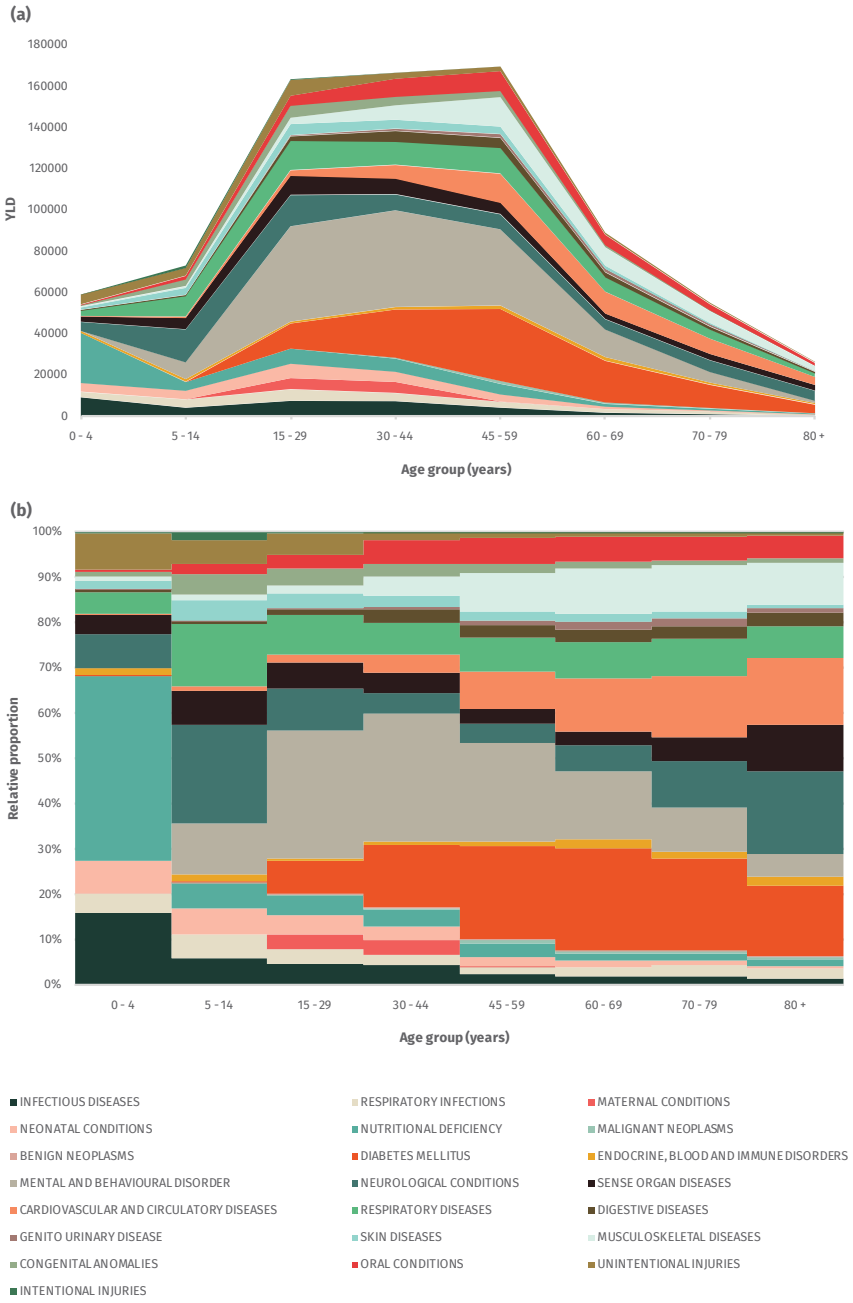


Figure 5.5.3: Number (a) & percentage (b) of non-fatal burden (YLD), by disease groups & age, females, 2013

5.5.3 Leading Causes of Years Lost due to Disability (YLD)

Diabetes Mellitus was the leading cause of non-fatal burden in Malaysia for 2013, contributing 12.6% of the total YLD. This was followed by Asthma, with 4.4%, and Unipolar Depressive Disorder, with 4.3% of total YLD. Anxiety Disorders, with 4.1% and Schizophrenia with 3.9% make up the five leading causes of non-fatal disease and injury burden in 2013.

Among males, Diabetes Mellitus contributed the largest amount of YLD with 12.1%. Drug use disorder was the second highest contributor of YLD in males with 4.4% followed by Unipolar Depressive Disorders with 3.8%. Schizophrenia and Ischaemic Heart Disease make up the fourth and fifth leading causes of YLD among males. Among females, Diabetes Mellitus was also the leading cause of YLD with 13.2% followed by Anxiety Disorders with 5.7% and Asthma with 5.3%. Unipolar Depressive Disorder was the fourth and Schizophrenia the fifth leading cause of YLD among females **[Table 5.5.2]**.

The leading causes of non-fatal burden vary according to age. Among males below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of YLD. Diarrhoeal Diseases was the second leading cause of YLD among males below 5 years of age. The leading cause of YLD among males 5 to 14 years of age was Asthma. Diabetes Mellitus was the largest contributor of YLD among males 15 years of age and above. Drug Use Disorders were the second highest contributor to YLD among males 30 to 44 years of age. Ischaemic Heart Disease was the second leading cause of YLD among males 45 to 79 years of age. Chronic Obstructive Pulmonary Disease rises from the fourth leading cause of YLD among males 45 to 59 years of age, to the third leading cause among males 60 years of age and above. Among males 80 years and above, Dementia was the second highest contributor to YLD **[Figure 5.5.4]**.

Among females below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of YLD. Diarrhoeal Diseases was the second leading cause of YLD among females below 5 years of age. Asthma were the leading cause among females 5 to 14 years of age, followed by Hearing Loss. Anxiety Disorders was the leading cause of YLD among females 15 to 29 years of age and drops to the second leading cause among females 30 to 59 years of age. Diabetes Mellitus was the third largest contributor of YLD among females 15 to 29 years of age. Among females 30 years of age and above, Diabetes Mellitus rises to the leading cause of YLD. Osteoarthritis was the second leading cause of YLD among females 60 to 69 years of age with Ischaemic Heart Disease the third largest contributor of YLD among females 60 to 79 years of age. Dementia was the second highest contributor to YLD among females 70 years of age and above **[Figure 5.5.5]**.

Rank	People	YLD	% of total	Males	YLD	% of total	Females	YLD	% of total
1	Diabetes Mellitus	222279	12.6	Diabetes Mellitus	116744	12.1	Diabetes Mellitus	105536	13.2
2	Asthma	77680	4.4	Drug Use Disorders	42684	4.4	Anxiety Disorders	45869	5.7
3	Unipolar Depressive Disorder	75092	4.3	Unipolar Depressive Disorder	36744	3.8	Asthma	42211	5.3
4	Anxiety Disorders	72096	4.1	Schizophrenia	36052	3.7	Unipolar Depressive Disorder	38348	4.8
5	Schizophrenia	69071	3.9	Ischaemic Heart Disease	35738	3.7	Schizophrenia	33019	4.1
6	Hearing Loss	54367	3.1	Asthma	35469	3.7	Nutritional Anaemias	30220	3.8
7	Ischaemic Heart Disease	50579	2.9	Chronic Obstructive Pulmonary Disease	30303	3.1	Hearing Loss	26288	3.3
8	Nutritional Anaemias	49652	2.8	Hearing Loss	28079	2.9	Diarrhoeal Diseases	24325	3.0
9	Chronic Obstructive Pulmonary Disease	45222	2.6	Anxiety Disorders	26227	2.7	Osteoarthritis	22903	2.9
10	Drug Use Disorders	44078	2.5	Protein-Energy Malnutrition	22759	2.4	Skin and subcutaneous diseases	19950	2.5
11	Protein-Energy Malnutrition	42022	2.4	Epilepsy	22730	2.4	Protein-Energy Malnutrition	19264	2.4
12	Epilepsy	41165	2.3	Road Traffic Injuries	20252	2.1	Epilepsy	18435	2.3
13	Diarrhoeal Diseases	40411	2.3	Nutritional Anaemias	19432	2.0	Bipolar Affective Disorder	17818	2.2
14	Skin and subcutaneous diseases	37430	2.1	HIV	18354	1.9	Chronic Obstructive Pulmonary Disease	14919	1.9
15	Osteoarthritis	36961	2.1	Cerebrovascular Diseases (Stroke)	17517	1.8	Ischaemic Heart Disease	14841	1.9
16	Bipolar Affective Disorder	33036	1.9	Skin and subcutaneous diseases	17480	1.8	Periodontitis	12998	1.6
17	Road Traffic Injuries	30199	1.7	Diarrhoeal Diseases	16086	1.7	Upper Respiratory Infections	11521	1.4
18	Cerebrovascular Diseases (Stroke)	27276	1.5	Bipolar Affective Disorder	15218	1.6	Dementia	11130	1.4
19	Periodontitis	26680	1.5	Alcohol Use Disorders	15159	1.6	Road Traffic Injuries	9946	1.2
20	Upper Respiratory Infections	25410	1.4	Endocrine, Blood and Immune Disorders	14442	1.5	Cerebrovascular Diseases (Stroke)	9759	1.2
	Top 20 diseases	**1167660**	**66.1**	**Top 20 diseases**	**639861**	**66.3**	**Top 20 diseases**	**560584**	**69.9**
	All other diseases	*598946*	*33.9*	*All other diseases*	*324685*	*33.7*	*All other diseases*	*241476*	*30.1*
	Total	**1766606**	**100.0**	**Total**	**964546**	**100.0**	**Total**	**802060**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 5.5.2: Leading causes of non-fatal burden (YLD), by sex, 2013

Figure 5.5.4: Leading causes of non-fatal burden (YLD '000; percentage %) for males, by age group, 2013

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Protein-Energy Malnutrition (19.3; 32.6%)	Asthma (8.8; 12.0%)	Anxiety Disorders (13.7; 8.4%)	Diabetes Mellitus (23.3; 14.0%)	Diabetes Mellitus (34.8; 20.5%)	Diabetes Mellitus (20.1; 22.6%)	Diabetes Mellitus (11.1; 20.2%)	Diabetes Mellitus (4.1; 15.5%)
2nd	Diarrhoeal Diseases (9.2; 15.5%)	Hearing Loss (4.6; 6.2%)	Unipolar Depressive Disorder (12.5; 7.6%)	Anxiety Disorders (12.4; 7.5%)	Anxiety Disorders (10.2; 6.0%)	Osteoarthritis (5.7; 6.4%)	Dementia (3.9; 7.0%)	Dementia (3.9; 15.0%)
3rd	Nutritional Anaemias (4.8; 8.2%)	Anxiety Disorders (4.3; 5.8%)	Diabetes Mellitus (12.1; 7.4%)	Schizophrenia (12.0; 7.2%)	Schizophrenia (9.4; 5.6%)	Ischaemic Heart Disease (4.5; 5.1%)	Ischaemic Heart Disease (3.9; 7.0%)	Cataract (2.3; 9.0%)
4th	Asthma (2.4; 4.0%)	Nutritional Anaemias (4.2; 5.7%)	Asthma (11.6; 7.1%)	Unipolar Depressive Disorder (8.7; 5.2%)	Osteoarthritis (8.8; 5.2%)	Unipolar Depressive Disorder (3.6; 4.1%)	Osteoarthritis (3.4; 6.2%)	Ischaemic Heart Disease (1.6; 6.0%)
5th	Hearing Loss (2.2; 3.8%)	Diarrhoeal Diseases (3.8; 5.2%)	Hearing Loss (7.7; 4.7%)	Asthma (7.5; 4.5%)	Unipolar Depressive Disorder (8.3; 4.9%)	Anxiety Disorders (3.5; 4.0%)	Chronic Obstructive Pulmonary Disease (2.7; 4.8%)	Osteoarthritis (1.5; 5.8%)
6th	Epilepsy (1.6; 2.7%)	Epilepsy (3.6; 5.0%)	Nutritional Anaemias (7.3; 4.4%)	Nutritional Anaemias (6.3; 3.8%)	Asthma (6.9; 4.0%)	Chronic Obstructive Pulmonary Disease (3.5; 3.9%)	Cataract (2.1; 3.8%)	Chronic Obstructive Pulmonary Disease (1.2; 4.7%)
7th	Upper Respiratory Infections (1.4; 2.3%)	Skin and subcutaneous diseases (3.3; 4.6%)	Schizophrenia (7.0; 4.3%)	Hearing Loss (5.5; 3.3%)	Nutritional Anaemias (5.1; 3.0%)	Schizophrenia (3.4; 3.8%)	Edentulism (1.9; 3.4%)	Edentulism (0.9; 3.5%)
8th	Birth Trauma and Asphyxia (1.3; 2.2%)	Unipolar Depressive Disorder (3.1; 4.3%)	Bipolar Affective Disorder (6.0; 3.7%)	Bipolar Affective Disorder (5.4; 3.3%)	Periodontitis (4.4; 2.6%)	Asthma (3.1; 3.5%)	Unipolar Depressive Disorder (1.6; 3.0%)	Endocrine, Blood and Immune Disorders (0.6; 2.1%)
9th	Falls (1.1; 1.9%)	Upper Respiratory Infections (2.8; 3.9%)	Road Traffic Injuries (5.3; 3.2%)	Periodontitis (4.4; 2.7%)	Chronic Obstructive Pulmonary Disease (4.2; 2.4%)	Edentulism (2.7; 3.1%)	Asthma (1.5; 2.8%)	Unipolar Depressive Disorder (0.5; 1.9%)
10th	Skin and subcutaneous diseases (1.1; 1.9%)	Road Traffic Injuries (1.8; 2.4%)	Skin and subcutaneous diseases (5.3; 3.2%)	Skin and subcutaneous diseases (4.2; 2.5%)	Bipolar Affective Disorder (3.9; 2.3%)	Cerebrovascular Diseases (Stroke) (2.7; 3.0%)	Anxiety Disorders (1.4; 2.6%)	Hypertensive Disease (0.5; 1.8%)

Figure 5.5.5: Leading causes of non-fatal burden (YLD '000; percentage %) for females, by age group, 2013

5.6 Years Lost due to Disability (YLD) – 2014

In 2014, a total of 1.89 million years of life were lost due to disability in Malaysia. Males contributed towards 1.03 million YLD (54.5%) and females 0.86 million YLD (45.5%).

5.6.1 Pattern of Years Lost due to Disability (YLD) by sex

Figure 5.6.1: Percentage (%) of non-fatal burden (YLD), by disease groups and sex, 2014

Overall, Mental and Behavioural Disorders were the largest contributor towards non-fatal burden of disease and injury in Malaysia for 2014, followed by Diabetes Mellitus and Respiratory Diseases **[Figure 5.6.1]**. For both males and females, Mental and Behavioural Disorders caused the highest YLD and contributed to around 20% of the non-fatal disease and injury burden. For males, Diabetes Mellitus contributed to 11.7% of non-fatal disease and injury burden followed by Respiratory Diseases at 9.9% and Cardiovascular and Circulatory Diseases at 9.6%. For females, Diabetes Mellitus was also the second largest contributor of non-fatal disease and injury burden with 12.9%, followed by Neurological Conditions at 8.1% and Respiratory Diseases at 7.9% **[Table 5.6.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	YLD (number)	YLD (%)	YLD (number)	YLD (%)	YLD (number)	YLD (%)
INFECTIOUS DISEASES	99722	5.3	56809	5.5	42913	5.0
RESPIRATORY INFECTIONS	48658	2.6	26333	2.6	22325	2.6
MATERNAL CONDITIONS	12068	0.6	0	0.0	12068	1.4
NEONATAL CONDITIONS	69466	3.7	36140	3.5	33326	3.9
NUTRITIONAL DEFICIENCY	90154	4.8	40649	3.9	49505	5.7
MALIGNANT NEOPLASMS	7365	0.4	3698	0.4	3666	0.4
BENIGN NEOPLASMS	464	0.0	193	0.0	271	0.0
DIABETES MELLITUS	231474	12.2	120557	11.7	110918	12.9
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	24620	1.3	14498	1.4	10123	1.2
MENTAL AND BEHAVIOURAL DISORDER	355243	18.8	196069	19.0	159174	18.5
NEUROLOGICAL CONDITIONS	140187	7.4	70137	6.8	70050	8.1
SENSE ORGAN DISEASES	81878	4.3	42385	4.1	39493	4.6
CARDIOVASCULAR AND CIRCULATORY DISEASES	158129	8.3	99303	9.6	58826	6.8
RESPIRATORY DISEASES	170712	9.0	102417	9.9	68295	7.9
DIGESTIVE DISEASES	38575	2.0	19727	1.9	18848	2.2
GENITO URINARY DISEASE	23364	1.2	17226	1.7	6138	0.7
SKIN DISEASES	38230	2.0	17837	1.7	20393	2.4
MUSCULOSKELETAL DISEASES	81354	4.3	37015	3.6	44339	5.1
CONGENITAL ANOMALIES	44967	2.4	22487	2.2	22480	2.6
ORAL CONDITIONS	70692	3.7	35728	3.5	34964	4.1
UNINTENTIONAL INJURIES	103284	5.5	70324	6.8	32959	3.8
INTENTIONAL INJURIES	3161	0.2	1757	0.2	1404	0.2
TOTAL	**1893767**	**100.0**	**1031288**	**100.0**	**862479**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 5.6.1: Non-fatal burden of disease and injury by disease groups and by sex, 2014

5.6.2 Pattern of Years Lost due to Disability (YLD) by age

Males between 45 and 59 years of age contributed towards 21.7% of the total YLD, the age group with the highest contribution towards male non-fatal burden of disease and injury in Malaysia in 2014 **[Figure 5.6.2(a)]**. Nutritional Deficiency contributed towards the largest percentage of the YLD in males below 5 years of age. Infectious Diseases were the second highest among males below 5 years of age at 15.0%, while Neurological Conditions were the highest among those 5 to 14 years of age at 19.9%. Mental and Behavioural Disorders were the predominant cause of YLD among males 15 to 59 years of age. Cardiovascular and Circulatory Diseases were the largest contributor of non-fatal disease burden among males 60 years of age and above while Respiratory Diseases contributed the same percentage of non-fatal burden, at 19.5%, among males from the age of 80 years and above **[Figure 5.6.2(b)]**.

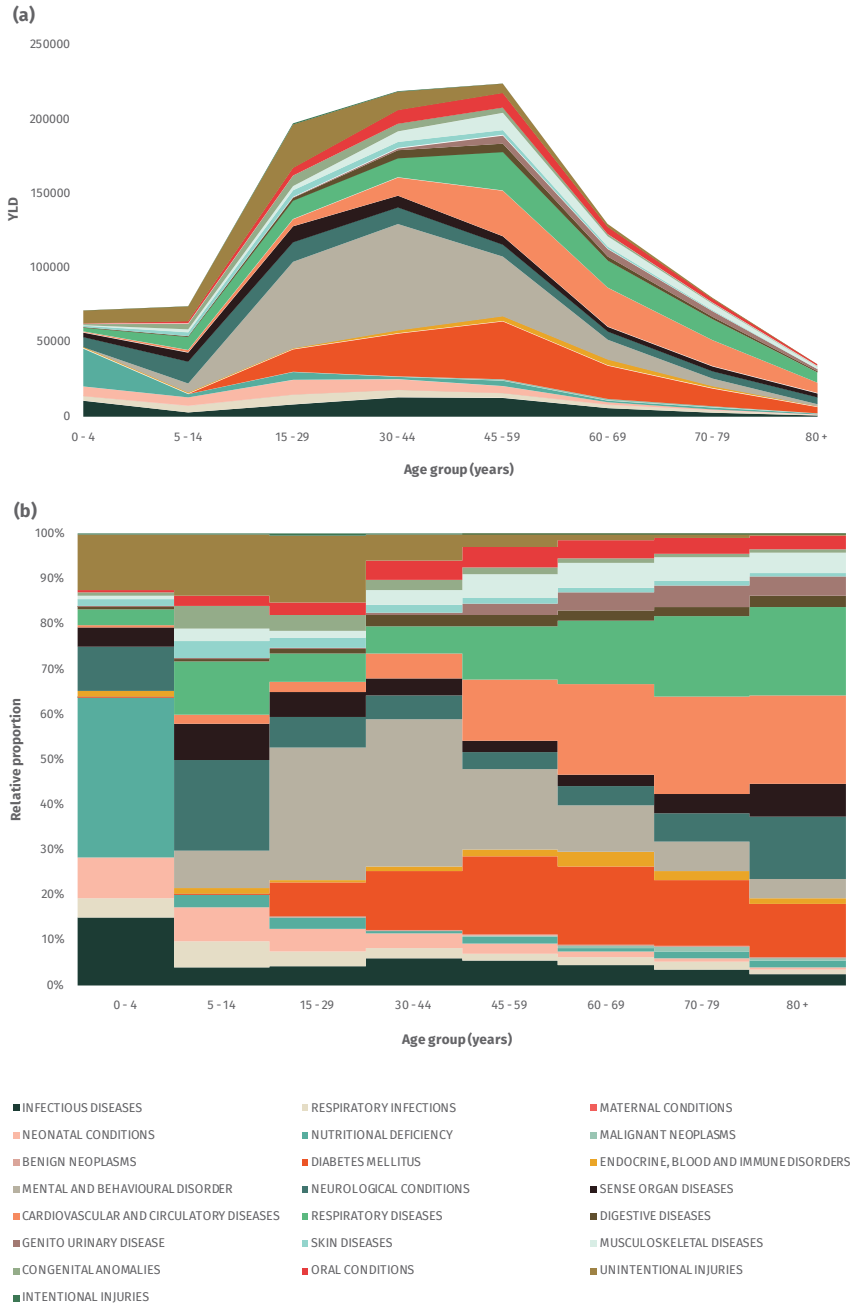


Figure 5.6.2: Number (a) & percentage (b) of non-fatal burden (YLD), by disease groups & age, males, 2014

Females between the ages of 45 and 59 years contributed towards 21.0% of the total YLD, the age group with the highest contribution towards female non-fatal burden of disease and injury in Malaysia in 2014 **[Figure 5.6.3(a)]**. Nutritional Deficiency contributed towards the largest percentage of the YLD in those below 5 years of age. Infectious Diseases were the second highest among females below 5 years of age at 15.4%, while Neurological Conditions were the highest among those 5 to 14 years of age at 18.5%. Mental and Behavioural Disorders were the predominant cause of YLD among females 15 to 44 years of age. Diabetes Mellitus was the highest contributor of non-fatal burden among females from the age of 45 to 79 years of age. Mental and Behavioural Disorders were the second largest contributor of non-fatal burden among females 45 to 69 years of age, with Neurological Conditions and Cardiovascular and Circulatory Diseases being the first and second highest among females 80 years of age and above respectively. **[Figure 5.6.3(b)]**.

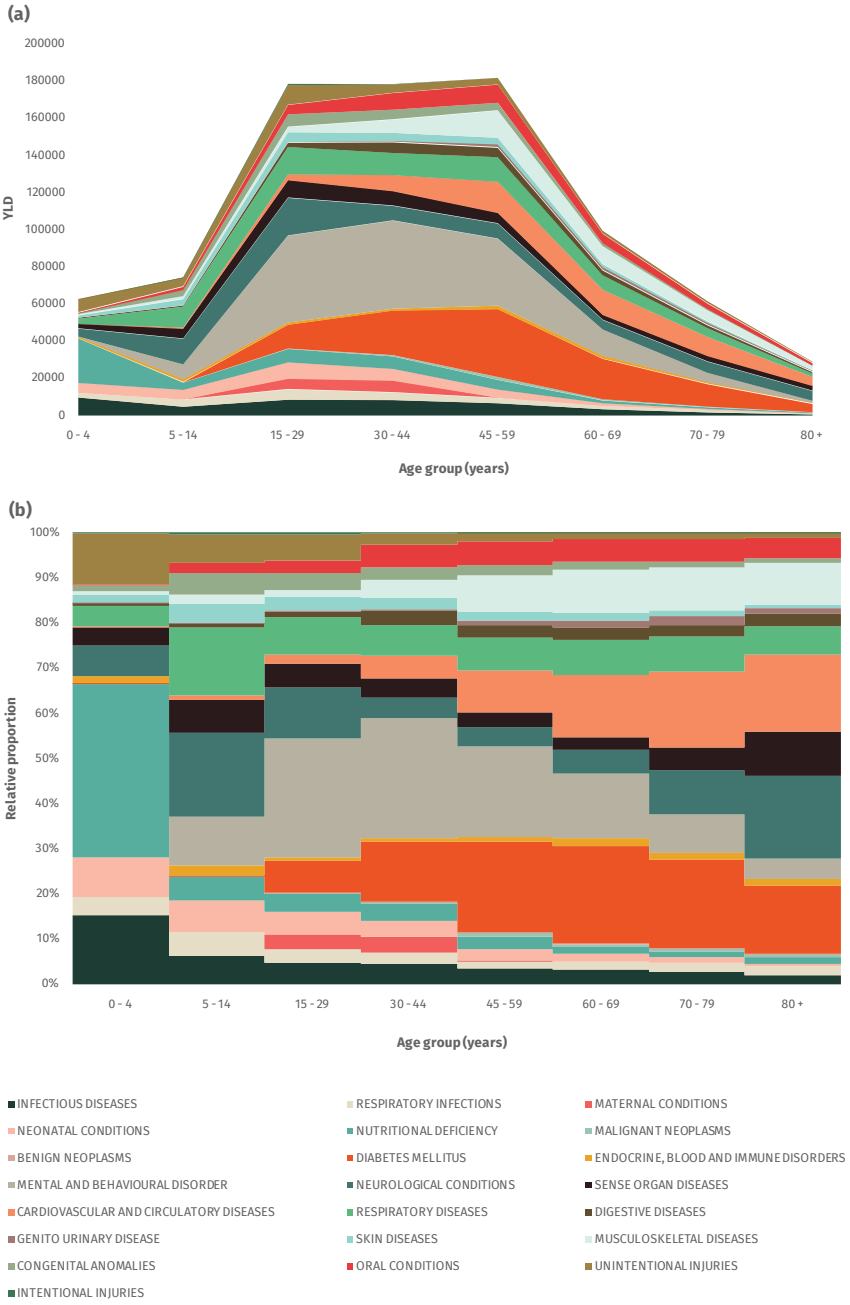


Figure 5.6.3: Number (a) & percentage (b) of non-fatal burden (YLD), by disease groups & age, females, 2014

5.6.3 Leading Causes of Years Lost due to Disability (YLD)

Diabetes Mellitus was the leading cause of non-fatal burden in Malaysia for 2014, contributing 12.2% of the total YLD. This was followed by Asthma, with 4.2%, and Unipolar Depressive Disorder, with 4.1% of total YLD. Schizophrenia, with 3.8% and Anxiety Disorders with 3.6% make up the five leading causes of non-fatal disease and injury burden in 2014.

Among males, Diabetes Mellitus contributed the largest amount of YLD with 11.7%. Ischaemic Heart Disease was the second highest contributor of YLD in males with 4.7% followed by Drug Use Disorders with 3.9%. Unipolar Depressive Disorder and Schizophrenia make up the fourth and fifth leading causes of YLD among males. Among females, Diabetes Mellitus was also the leading cause of YLD with 12.9% followed by Anxiety Disorders with 5.0% and Asthma with 5.0%. Unipolar Depressive Disorder and Schizophrenia was the fourth and the fifth leading cause of YLD among females **[Table 5.6.2]**.

The leading causes of non-fatal burden vary according to age. Among males below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of YLD. Diarrhoeal Diseases was the second leading cause of YLD among males below 5 years of age and Asthma was the leading cause of YLD among males 5 to 14 years of age. Diabetes Mellitus was the largest contributor of YLD among males 15 years of age and above. Drug Use Disorders were the second highest contributor to YLD among males 15 to 44 years of age. Ischaemic Heart Disease was the second leading cause of YLD among males 45 years of age and above. Cerebrovascular Diseases (Stroke) rises from the fourth leading cause of YLD among males 45 to 59 years of age, to the third leading cause among males 60 to 69 years of age. Among males 80 years and above, Dementia was the third highest contributor to YLD **[Figure 5.6.4]**.

Among females below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of YLD. Diarrhoeal Diseases was the second leading cause of YLD among females below 5 years of age while Asthma was the leading cause of YLD among females 5 to 14 years of age. Anxiety Disorders were the leading cause among females 15 to 29 years of age, followed by Diabetes Mellitus. Among females 30 years of age and above, Diabetes Mellitus rises to the leading cause of YLD. Schizophrenia was the second leading cause among females 30 to 59 years of age. Ischaemic Heart Disease was the third highest contributor to YLD among females 60 to 69 years of age and further rises to second highest among females 70 to 79 years of age. Dementia was the third highest contributor to YLD among females 70 to 79 years of age and the second highest contributor among females 80 years of age and above **[Figure 5.6.5]**.

Rank	People	YLD	% of total	Males	YLD	% of total	Females	YLD	% of total
1	Diabetes Mellitus	231474	12.2	Diabetes Mellitus	120557	11.7	Diabetes Mellitus	110918	12.9
2	Asthma	78853	4.2	Ischaemic Heart Disease	48648	4.7	Anxiety Disorders	43391	5.0
3	Unipolar Depressive Disorder	77496	4.1	Drug Use Disorders	40633	3.9	Asthma	43044	5.0
4	Schizophrenia	71215	3.8	Unipolar Depressive Disorder	37825	3.7	Unipolar Depressive Disorder	39671	4.6
5	Anxiety Disorders	68479	3.6	Schizophrenia	37097	3.6	Schizophrenia	34118	4.0
6	Ischaemic Heart Disease	68306	3.6	Asthma	35809	3.5	Nutritional Anaemias	30282	3.5
7	Hearing Loss	55260	2.9	Chronic Obstructive Pulmonary Disease	30517	3.0	Hearing Loss	26708	3.1
8	Nutritional Anaemias	50016	2.6	Cerebrovascular Diseases (Stroke)	30294	2.9	Diarrhoeal Diseases	24396	2.8
9	Cerebrovascular Diseases (Stroke)	47025	2.5	Hearing Loss	28552	2.8	Osteoarthritis	23741	2.8
10	Chronic Obstructive Pulmonary Disease	45941	2.4	Anxiety Disorders	25088	2.4	Skin and subcutaneous diseases	20393	2.4
11	Drug Use Disorders	42101	2.2	Epilepsy	22496	2.2	Ischaemic Heart Disease	19658	2.3
12	Epilepsy	41320	2.2	Road Traffic Injuries	22049	2.1	Protein-Energy Malnutrition	19141	2.2
13	Diarrhoeal Diseases	40582	2.1	Protein-Energy Malnutrition	20810	2.0	Epilepsy	18824	2.2
14	Protein-Energy Malnutrition	39951	2.1	HIV	20227	2.0	Bipolar Affective Disorder	18238	2.1
15	Osteoarthritis	38295	2.0	Nutritional Anaemias	19734	1.9	Cerebrovascular Diseases (Stroke)	16730	1.9
16	Skin and subcutaneous diseases	38230	2.0	Skin and subcutaneous diseases	17837	1.7	Chronic Obstructive Pulmonary Disease	15424	1.8
17	Bipolar Affective Disorder	33766	1.8	Diarrhoeal Diseases	16187	1.6	Low Birth Weight	15260	1.8
18	Road Traffic Injuries	31987	1.7	Low Birth Weight	15816	1.5	Periodontitis	12998	1.5
19	Low Birth Weight	31076	1.6	Bipolar Affective Disorder	15528	1.5	Upper Respiratory Infections	11665	1.4
20	Periodontitis	26680	1.4	Alcohol Use Disorders	15437	1.5	Dementia	11622	1.3
	Top 20 diseases	**1241296**	**65.5**	**Top 20 diseases**	**686852**	**66.6**	**Top 20 diseases**	**589435**	**68.3**
	All other diseases	*652471*	*34.5*	*All other diseases*	*344435*	*33.4*	*All other diseases*	*273044*	*31.7*
	Total	**1893767**	**100.0**	**Total**	**1031288**	**100.0**	**Total**	**862479**	**100.0**

Colour legend:

>5%	4-5%	3-4%	2-3%	0-2%

Table 5.6.2: Leading causes of non-fatal burden (YLD), by sex, 2014

Figure 5.6.4: Leading causes of non-fatal burden (YLD '000; percentage %) for males, by age group, 2014

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Protein-Energy Malnutrition (19.1; 30.7%)	Asthma (8.7; 11.7%)	Anxiety Disorders (13.8; 7.7%)	Diabetes Mellitus (24.0; 13.5%)	Diabetes Mellitus (36.4; 20.1%)	Diabetes Mellitus (21.6; 21.8%)	Diabetes Mellitus (11.9; 19.6%)	Diabetes Mellitus (4.3; 15.1%)
2nd	Diarrhoeal Diseases (9.2; 14.8%)	Hearing Loss (4.5; 6.1%)	Diabetes Mellitus (12.7; 7.2%)	Schizophrenia (12.4; 7.0%)	Schizophrenia (9.8; 5.4%)	Osteoarthritis (6.0; 6.1%)	Ischaemic Heart Disease (5.0; 8.2%)	Dementia (4.1; 14.3%)
3rd	Nutritional Anaemias (4.6; 7.5%)	Anxiety Disorders (4.1; 5.5%)	Unipolar Depressive Disorder (12.7; 7.1%)	Anxiety Disorders (12.0; 6.7%)	Osteoarthritis (9.0; 5.0%)	Ischaemic Heart Disease (5.9; 6.0%)	Dementia (4.0; 6.6%)	Cataract (2.4; 8.5%)
4th	Asthma (2.4; 3.9%)	Nutritional Anaemias (3.9; 5.2%)	Asthma (11.6; 6.5%)	Unipolar Depressive Disorder (9.1; 5.1%)	Unipolar Depressive Disorder (8.6; 4.8%)	Cerebrovascular Diseases (Stroke) (4.7; 4.7%)	Osteoarthritis (3.5; 5.8%)	Ischaemic Heart Disease (2.3; 8.0%)
5th	Hearing Loss (2.2; 3.6%)	Diarrhoeal Diseases (3.8; 5.1%)	Hearing Loss (7.8; 4.4%)	Asthma (7.8; 4.4%)	Anxiety Disorders (8.4; 4.6%)	Unipolar Depressive Disorder (3.9; 3.9%)	Cerebrovascular Diseases (Stroke) (3.3; 5.4%)	Osteoarthritis (1.6; 5.5%)
6th	Epilepsy (1.6; 2.5%)	Epilepsy (3.6; 4.8%)	Nutritional Anaemias (7.2; 4.0%)	Nutritional Anaemias (6.7; 3.8%)	Asthma (7.1; 3.9%)	Chronic Obstructive Pulmonary Disease (3.8; 3.9%)	Chronic Obstructive Pulmonary Disease (2.7; 4.4%)	Chronic Obstructive Pulmonary Disease (1.2; 4.1%)
7th	Birth Trauma and Asphyxia (1.6; 2.5%)	Skin and subcutaneous diseases (3.3; 4.4%)	Schizophrenia (7.1; 4.0%)	Hearing Loss (5.7; 3.2%)	Nutritional Anaemias (5.2; 2.9%)	Anxiety Disorders (3.7; 3.7%)	Cataract (2.2; 3.6%)	Edentulism (0.9; 3.2%)
8th	Upper Respiratory Infections (1.4; 2.2%)	Unipolar Depressive Disorder (3.1; 4.2%)	Bipolar Affective Disorder (6.0; 3.4%)	Bipolar Affective Disorder (5.6; 3.1%)	Ischaemic Heart Disease (5.0; 2.8%)	Schizophrenia (3.6; 3.6%)	Edentulism (1.9; 3.1%)	Cerebrovascular Diseases (Stroke) (0.8; 2.9%)
9th	Low Birth Weight (1.3; 2.1%)	Upper Respiratory Infections (2.8; 3.7%)	Road Traffic Injuries (5.4; 3.0%)	Periodontitis (4.4; 2.5%)	Cerebrovascular Diseases (Stroke) (4.9; 2.7%)	Asthma (3.3; 3.3%)	Unipolar Depressive Disorder (1.7; 2.8%)	Unipolar Depressive Disorder (0.5; 1.8%)
10th	Fires, Heat and Hot Substances (1.2; 2.0%)	Low Birth Weight (2.6; 3.6%)	Skin and subcutaneous diseases (5.3; 3.0%)	Skin and subcutaneous diseases (4.4; 2.5%)	Periodontitis (4.4; 2.4%)	Edentulism (2.7; 2.8%)	Asthma (1.6; 2.7%)	Asthma (0.5; 1.6%)

Figure 5.6.5: Leading causes of non-fatal burden (YLD '000; percentage %) for females, by age group, 2014

6.0 Disability-Adjusted Life Years

The effect of ill-health is not limited by a fatal outcome as a resultant of the disease or injury. Living with a disease, injury, impairment or any deviation from health affects the health of an individual. Total burden of disease and injury, expressed as Disability-Adjusted Life Years (DALY), represents the total burden of a disease or injury and health impact on a population.

6.1 Disability-Adjusted Life Years (DALYS) – 2009

In 2009, a total of 4.25 million years of life were lost due to ill-health in Malaysia. Males contributed towards 2.47 million DALYs (58.1%) and females 1.78 million DALYs (41.9%).

6.1.1 Pattern of Years of Life Lost (YLL) vs Years Lost due to Disability (YLD)

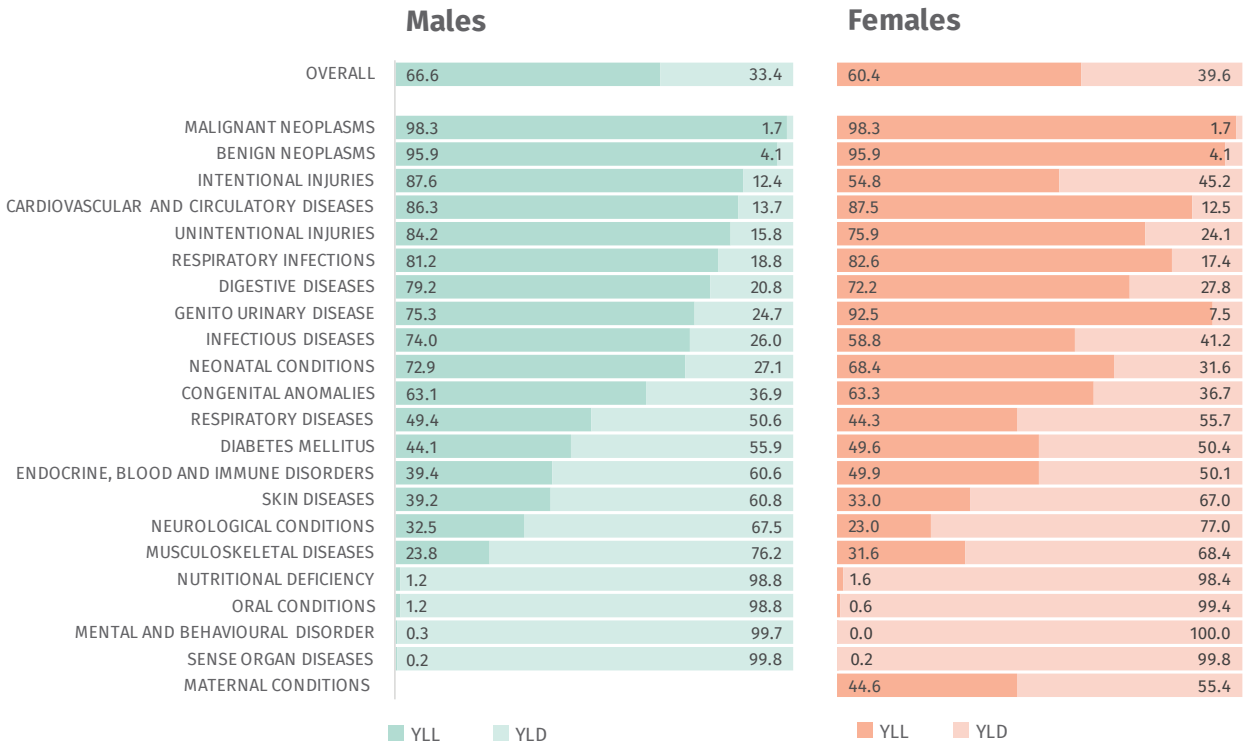


Figure 6.1.1: Percentage (%) of DALYs by YLL vs YLD for males and females, by disease group, 2009

Overall, fatal burden (YLL) contributed towards 66.6% of the total burden of disease and injury among males, with the remaining 33.4% contributed by non-fatal burden (YLD). Among females, fatal burden (YLL) contributed towards 60.4% of the total burden of disease and injury, with the remaining 39.6% contributed by non-fatal burden (YLD). For both males and females, the burden of Malignant Neoplasms and Benign Neoplasms are largely contributed by mortality. On the other hand, burden from Nutritional Deficiency, Oral Conditions, Mental and Behavioural Disorders and Sense Organ Diseases are largely contributed by morbidity. Intentional Injuries contributed mainly towards fatal burden among males, with a larger component of non-fatal among females **[Figure 6.1.1]**.

6.1.2 Pattern of Disability-Adjusted Life Years (DALYs) by sex

Figure 6.1.2: Percentage (%) of total burden (DALYs), by disease groups and sex, 2009

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards total burden of disease and injury in Malaysia for 2009, followed by Unintentional Injuries and Malignant Neoplasms **[Figure 6.1.2]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest DALYs and contributed to around 20% of the total disease and injury burden. For males, Unintentional Injuries contributed to 17.0% of total disease and injury burden followed by Malignant Neoplasms at 8.1% and Respiratory Diseases at 6.8%. For females, Malignant Neoplasms were the second largest contributor of total disease and injury burden, with 11.2%, followed by Diabetes Mellitus at 8.2% and Mental and Behavioural Disorders at 8.0% **[Table 6.1.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	DALYs (number)	DALYs (%)	DALYs (number)	DALYs (%)	DALYs (number)	DALYs (%)
INFECTIOUS DISEASES	232631	5.5	153036	6.2	79595	4.5
RESPIRATORY INFECTIONS	248601	5.8	129253	5.2	119349	6.7
MATERNAL CONDITIONS	20637	0.5	0	0.0	20637	1.2
NEONATAL CONDITIONS	176458	4.2	98897	4.0	77561	4.4
NUTRITIONAL DEFICIENCY	96720	2.3	44948	1.8	51772	2.9
MALIGNANT NEOPLASMS	400551	9.4	201233	8.1	199318	11.2
BENIGN NEOPLASMS	11675	0.3	4927	0.2	6748	0.4
DIABETES MELLITUS	288556	6.8	143376	5.8	145180	8.2
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	37864	0.9	20560	0.8	17303	1.0
MENTAL AND BEHAVIOURAL DISORDER	295184	6.9	153407	6.2	141777	8.0
NEUROLOGICAL CONDITIONS	167347	3.9	89335	3.6	78012	4.4
SENSE ORGAN DISEASES	73420	1.7	37843	1.5	35577	2.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	843090	19.8	512798	20.8	330292	18.5
RESPIRATORY DISEASES	273667	6.4	167699	6.8	105968	6.0
DIGESTIVE DISEASES	134757	3.2	79737	3.2	55020	3.1
GENITO URINARY DISEASE	88593	2.1	48187	1.9	40406	2.3
SKIN DISEASES	53123	1.2	26244	1.1	26879	1.5
MUSCULOSKELETAL DISEASES	58149	1.4	29003	1.2	29146	1.6
CONGENITAL ANOMALIES	114666	2.7	54906	2.2	59760	3.4
ORAL CONDITIONS	63362	1.5	32074	1.3	31288	1.8
UNINTENTIONAL INJURIES	541956	12.7	420152	17.0	121804	6.8
INTENTIONAL INJURIES	30917	0.7	23685	1.0	7232	0.4
TOTAL	**4251924**	**100.0**	**2471300**	**100.0**	**1780624**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 6.1.1: Total burden of disease and injury by disease groups and by sex, 2009

6.1.3 Pattern of Disability-Adjusted Life Years (DALYs) by age

Males between 45 and 59 years of age contributed towards 23.3% of the total DALYs, the age group with the highest contribution towards male total burden of disease and injury in Malaysia in 2009 **[Figure 6.1.3(a)]**. Neonatal Conditions contributed towards the largest percentage of the DALYs in males below 5 years of age. Congenital Anomalies were the second highest among males below 5 years of age at 13.2%. Unintentional Injuries were the predominant cause of DALYs among males 5 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of total burden among males from age 45 years and above. Malignant Neoplasms were the second highest contributor of total disease burden among males 45 to 69 years of age and Respiratory Diseases contributed the second highest among males from the age of 70 years and above **[Figure 6.1.3(b)]**.

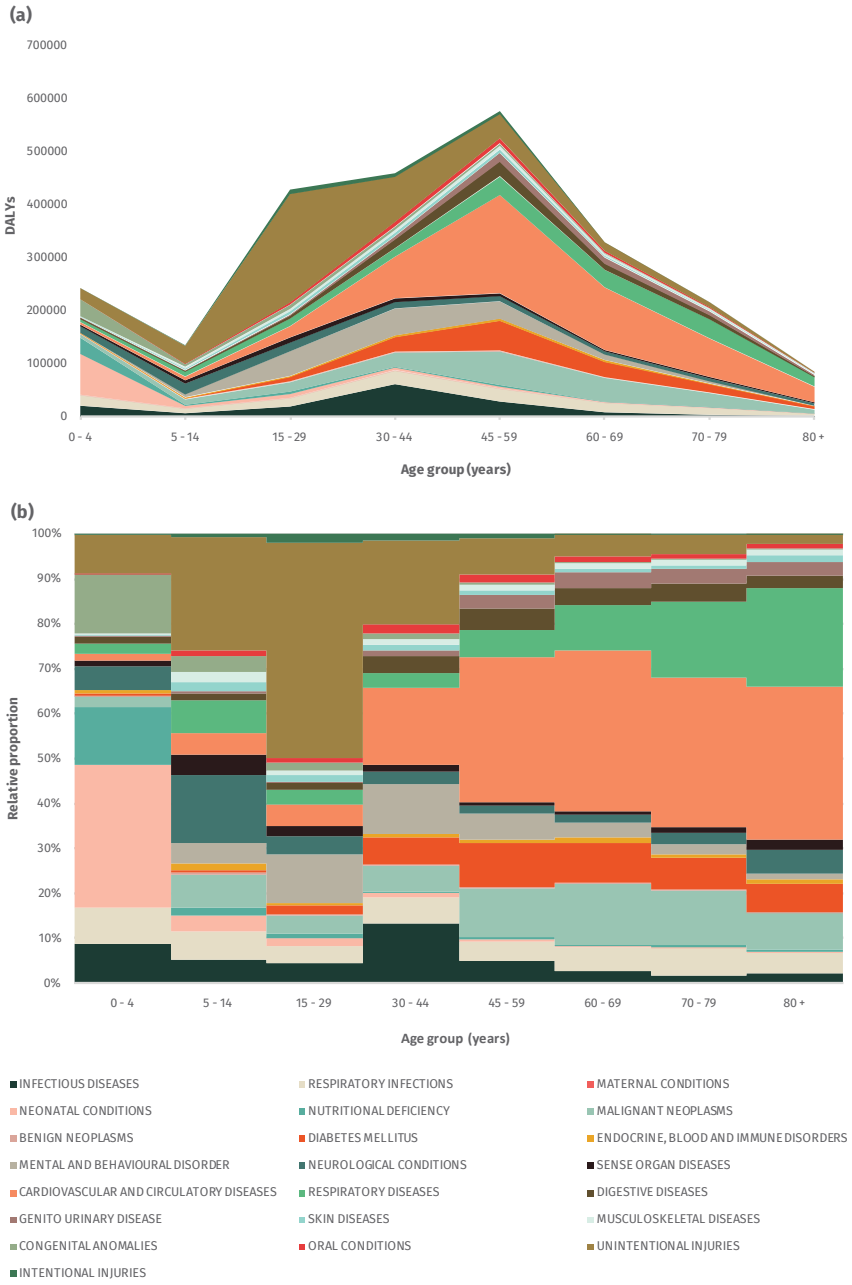


Figure 6.1.3: Number (a) & percentage (b) of total burden (DALYs), by disease groups & age, males, 2009

Females between the ages of 45 and 59 years contributed towards 21.3% of the total DALYs, the age group with the highest contribution towards female total burden of disease and injury in Malaysia

in 2009 **[Figure 6.1.4(a)]**. Neonatal Conditions contributed towards the largest percentage of the DALYs in females below 5 years of age. Neurological Conditions were the highest contributor of DALYs among females 5 to 14 years of age at 16.6%. Mental and Behavioural Disorders were the predominant cause of DALYs among females 30 to 44 years of age. Cardiovascular and Circulatory Diseases was the highest contributor of total burden among females 45 years and above. Malignant Neoplasms was the second largest contributor of total burden among females 30 to 79 years of age, with Respiratory Infections being the second highest among females 80 years of age and above **[Figure 6.1.4(b)]**.

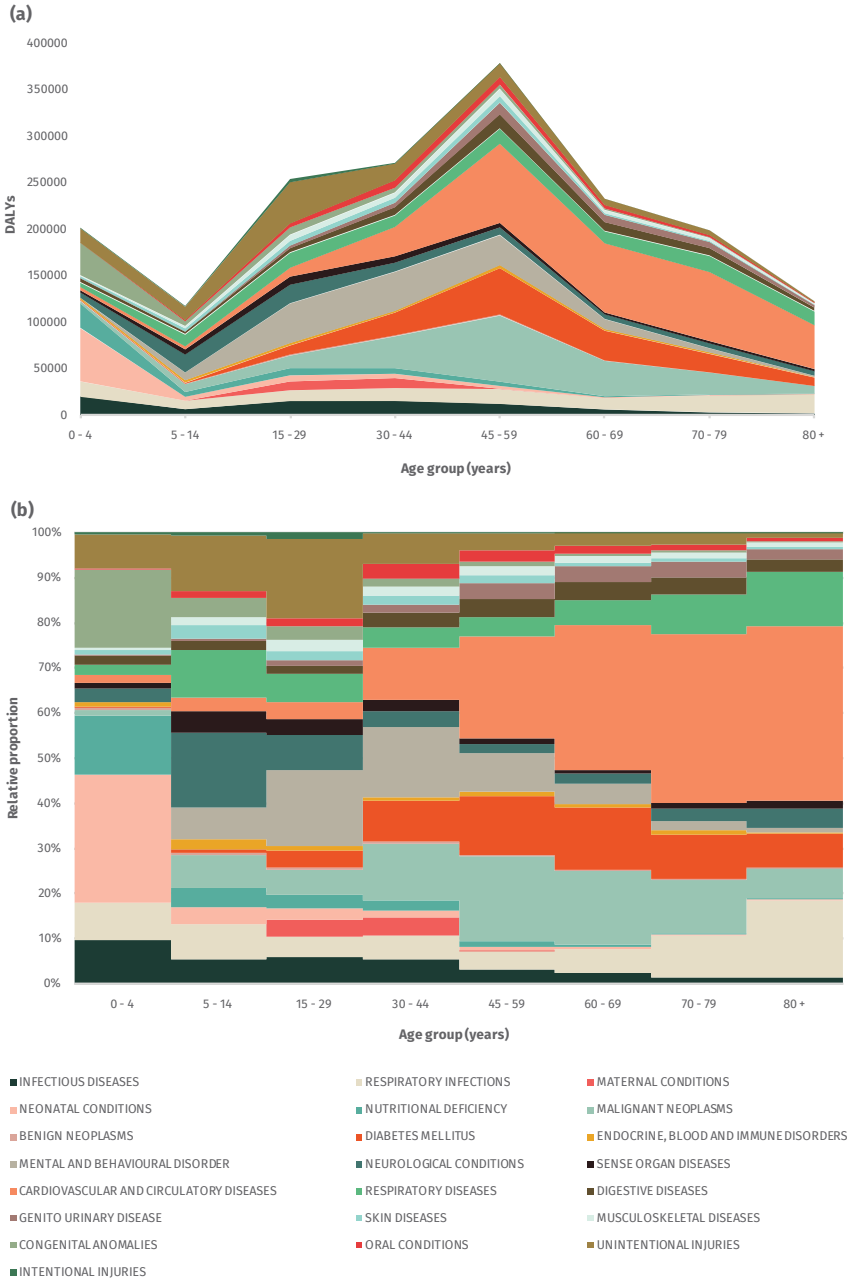


Figure 6.1.4: Number (a) & percentage (b) of total burden (DALYs), by disease groups & age, females, 2009

6.1.4 Leading Causes of Disability-Adjusted Life Years (DALYs)

Road Traffic Injuries was the leading cause of total burden in Malaysia for 2009, contributing 9.3% of the total DALYs. This was followed by Ischaemic Heart Disease, with 8.8%, and Cerebrovascular Diseases, with 7.6% of total DALYs. Diabetes Mellitus, with 6.8% and Lower Respiratory Infections with 5.0% make up the five leading causes of total disease and injury burden in 2009.

Among males, Road Traffic Injuries contributed the largest amount of DALYs with 13.1%. Ischaemic Heart Disease was the second highest contributor of DALYs in males with 10.3% followed by Cerebrovascular Diseases with 7.0%. Diabetes Mellitus and Lower Respiratory Infections make up the fourth and fifth leading causes of DALYs among males. Among females, Cerebrovascular Diseases was the leading cause of DALYs with 8.3% followed by Diabetes Mellitus with 8.2% and Ischaemic Heart Diseases with 6.7%. Lower Respiratory Infections was the fourth and Road Traffic Injuries the fifth leading cause of DALYs among females **[Table 6.1.2]**.

The leading causes of total burden vary according to age. Among males below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of DALYs. Birth Trauma and Asphyxia was the second leading cause of DALYs among males below 5 years of age. Road Traffic Injuries was the leading cause of DALYs among males 5 to 44 years of age. Asthma was the second largest contributor of DALYs among males 5 to 14 years of age, while Unipolar Depressive Disorder was the second highest among males 15 to 29 years of age. Among males 30 to 44 years of age, Ischaemic Heart Disease was the second highest contributor to DALYs and rises to the leading cause of DALYs among males 45 to 79 years of age. Cerebrovascular Diseases were the second highest contributor to DALYs among males 60 years of age and above. Among males 80 years of age and above, Chronic Obstructive Pulmonary Disease becomes the leading cause of DALYs. Ischaemic Heart Disease was the third leading cause of DALYs among males 80 years and above **[Figure 6.1.5]**.

Among females below 5 years of age, Protein-Energy Malnutrition contributed to the highest amount of DALYs, followed by Diarrhoeal Diseases. Asthma was the leading cause of DALYs among females 5 to 14 years of age and Road Traffic Injuries were the leading cause among females 15 to 29 years of age. Road Traffic Injuries was the second highest contributor to DALYs among females 5 to 14 years of age, while Anxiety Disorders was the second highest among females 15 to 29 years of age. Diabetes Mellitus was the largest contributor of DALYs among females 30 to 59 years of age. Breast Cancer was the second highest contributor to DALYs among females 30 to 44 years of age. Among females 45 to 59 years of age, Cerebrovascular Diseases was the second leading cause of DALYs, and rises to be the leading cause of DALYs among females age 60 years and above. Ischaemic Heart Disease was the second leading cause of DALYs among females 70 to 79 years of age, with Lower Respiratory Infections the second highest contributor to DALYs among females 80 years of age and above **[Figure 6.1.6]**.

Rank	People	DALYs	% of total	Males	DALYs	% of total	Females	DALYs	% of total
1	Road Traffic Injuries	395786	9.3	Road Traffic Injuries	322670	13.1	Cerebrovascular Diseases (Stroke)	147580	8.3
2	Ischaemic Heart Disease	372922	8.8	Ischaemic Heart Disease	253759	10.3	Diabetes Mellitus	145180	8.2
3	Cerebrovascular Diseases (Stroke)	321057	7.6	Cerebrovascular Diseases (Stroke)	173477	7.0	Ischaemic Heart Disease	119163	6.7
4	Diabetes Mellitus	288556	6.8	Diabetes Mellitus	143376	5.8	Lower Respiratory Infections	102316	5.7
5	Lower Respiratory Infections	211960	5.0	Lower Respiratory Infections	109644	4.4	Road Traffic Injuries	73116	4.1
6	Chronic Obstructive Pulmonary Disease	123380	2.9	Chronic Obstructive Pulmonary Disease	86718	3.5	Breast Cancer	47965	2.7
7	Asthma	86507	2.0	HIV	50049	2.0	Asthma	47195	2.7
8	Anxiety Disorders	68514	1.6	Trachea, Bronchus and Lung Cancers	42631	1.7	Anxiety Disorders	43515	2.4
9	Unipolar Depressive Disorder	66362	1.6	Asthma	39313	1.6	Chronic Obstructive Pulmonary Disease	36662	2.1
10	Diarrhoeal Diseases	63849	1.5	Tuberculosis	35527	1.4	Diarrhoeal Diseases	36105	2.0
11	Trachea, Bronchus and Lung Cancers	63775	1.5	Unipolar Depressive Disorder	32800	1.3	Unipolar Depressive Disorder	33562	1.9
12	Schizophrenia	61263	1.4	Schizophrenia	32218	1.3	Nutritional Anaemias	30383	1.7
13	HIV	58197	1.4	Nephritis and Nephrosis	28725	1.2	Schizophrenia	29045	1.6
14	Nephritis and Nephrosis	55432	1.3	Diarrhoeal Diseases	27744	1.1	Skin and subcutaneous diseases	26879	1.5
15	Skin and subcutaneous diseases	53123	1.2	Falls	27352	1.1	Nephritis and Nephrosis	26707	1.5
16	Hearing Loss	50524	1.2	Protein-Energy Malnutrition	26564	1.1	Hearing Loss	24514	1.4
17	Tuberculosis	50420	1.2	Epilepsy	26530	1.1	Protein-Energy Malnutrition	21308	1.2
18	Breast Cancer	49097	1.2	Skin and subcutaneous diseases	26244	1.1	Trachea, Bronchus and Lung Cancers	21144	1.2
19	Nutritional Anaemias	48648	1.1	Hearing Loss	26010	1.1	Epilepsy	20763	1.2
20	Falls	48113	1.1	Anxiety Disorders	24999	1.0	Falls	20761	1.2
	Top 20 diseases	**2694487**	**63.4**	**Top 20 diseases**	**1641163**	**66.4**	**Top 20 diseases**	**1129448**	**63.4**
	All other diseases	*1557438*	*36.6*	*All other diseases*	*830137*	*33.6*	*All other diseases*	*651177*	*36.6*
	Total	**4251924**	**100.0**	**Total**	**2471300**	**100.0**	**Total**	**1780624**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 6.1.2: Leading causes of total burden (DALYs), by sex, 2009

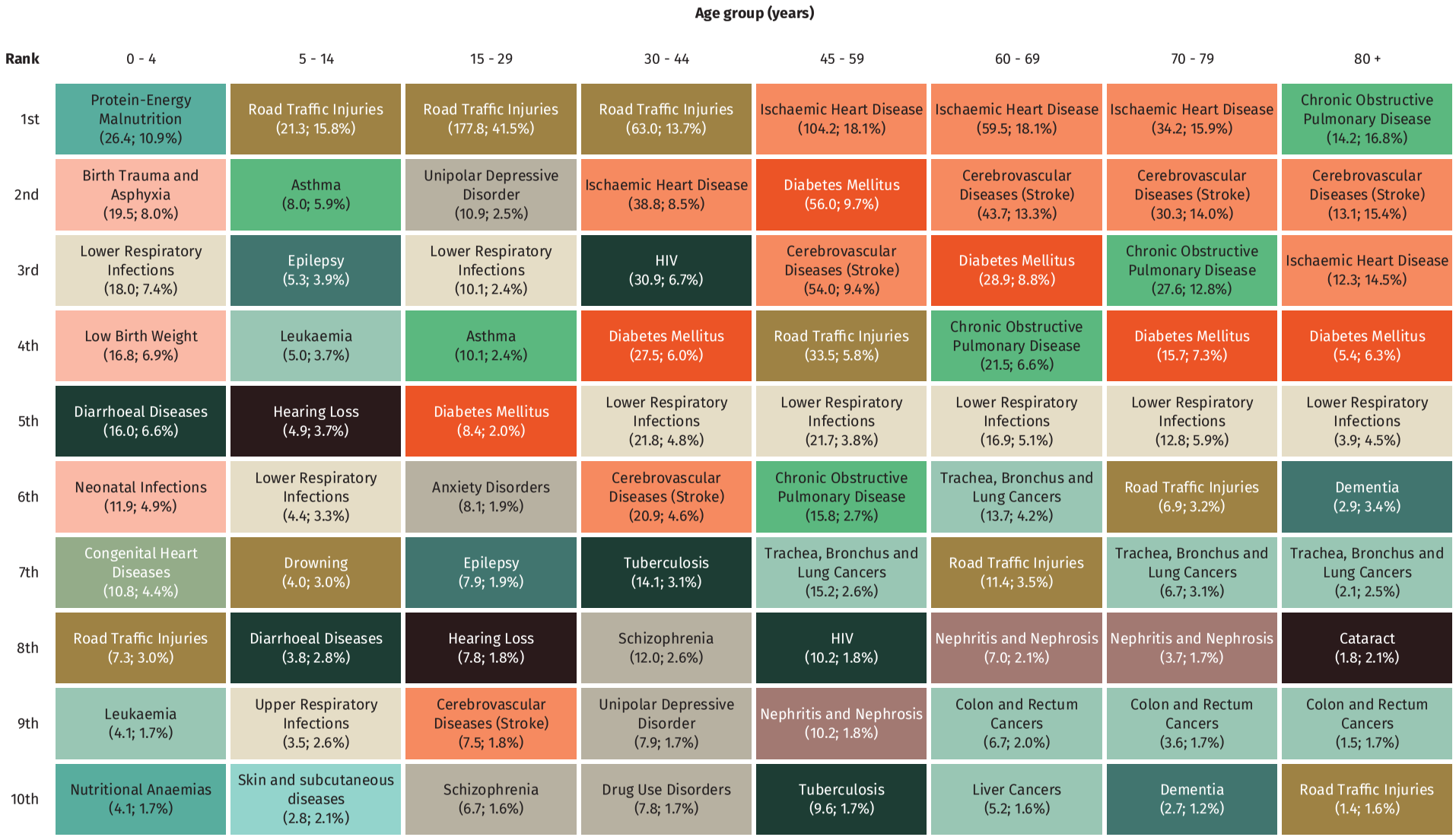


Figure 6.1.5: Leading causes of total burden (DALYs '000; percentage %) for males, by age group, 2009

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Protein-Energy Malnutrition (20.9; 10.3%)	Asthma (8.9; 7.6%)	Road Traffic Injuries (35.6; 14.0%)	Diabetes Mellitus (24.3; 8.9%)	Diabetes Mellitus (49.5; 13.0%)	Cerebrovascular Diseases (Stroke) (35.6; 15.3%)	Cerebrovascular Diseases (Stroke) (35.2; 17.7%)	Cerebrovascular Diseases (Stroke) (23.8; 19.4%)
2nd	Diarrhoeal Diseases (16.7; 8.3%)	Road Traffic Injuries (8.7; 7.4%)	Anxiety Disorders (13.4; 5.3%)	Breast Cancer (12.7; 4.7%)	Cerebrovascular Diseases (Stroke) (34.1; 9.0%)	Diabetes Mellitus (31.8; 13.6%)	Ischaemic Heart Disease (31.5; 15.8%)	Lower Respiratory Infections (20.8; 17.0%)
3rd	Lower Respiratory Infections (15.1; 7.5%)	Lower Respiratory Infections (5.4; 4.6%)	Asthma (11.3; 4.4%)	Cerebrovascular Diseases (Stroke) (12.2; 4.5%)	Ischaemic Heart Disease (33.5; 8.8%)	Ischaemic Heart Disease (28.9; 12.4%)	Diabetes Mellitus (19.6; 9.8%)	Ischaemic Heart Disease (15.7; 12.8%)
4th	Birth Trauma and Asphyxia (12.9; 6.4%)	Nutritional Anaemias (5.0; 4.3%)	Unipolar Depressive Disorder (11.2; 4.4%)	Anxiety Disorders (11.9; 4.4%)	Breast Cancer (23.5; 6.2%)	Lower Respiratory Infections (11.5; 4.9%)	Lower Respiratory Infections (18.0; 9.1%)	Chronic Obstructive Pulmonary Disease (9.7; 7.9%)
5th	Low Birth Weight (12.6; 6.3%)	Hearing Loss (4.7; 4.0%)	Diabetes Mellitus (9.5; 3.7%)	Schizophrenia (10.8; 4.0%)	Lower Respiratory Infections (13.8; 3.6%)	Breast Cancer (7.4; 3.2%)	Chronic Obstructive Pulmonary Disease (11.5; 5.8%)	Diabetes Mellitus (9.0; 7.3%)
6th	Neonatal Infections (11.1; 5.5%)	Epilepsy (4.5; 3.8%)	Nutritional Anaemias (7.7; 3.0%)	Road Traffic Injuries (10.8; 4.0%)	Anxiety Disorders (9.3; 2.5%)	Chronic Obstructive Pulmonary Disease (6.6; 2.8%)	Nephritis and Nephrosis (4.6; 2.3%)	Asthma (3.6; 3.0%)
7th	Congenital Heart Diseases (10.3; 5.1%)	Anxiety Disorders (4.4; 3.8%)	Hearing Loss (7.2; 2.8%)	Lower Respiratory Infections (10.7; 3.9%)	Schizophrenia (8.2; 2.2%)	Trachea, Bronchus and Lung Cancers (5.6; 2.4%)	Trachea, Bronchus and Lung Cancers (4.3; 2.1%)	Dementia (3.4; 2.8%)
8th	Road Traffic Injuries (5.2; 2.6%)	Diarrhoeal Diseases (4.1; 3.5%)	Lower Respiratory Infections (7.0; 2.8%)	Ischaemic Heart Disease (8.5; 3.1%)	Nephritis and Nephrosis (8.2; 2.2%)	Nephritis and Nephrosis (5.0; 2.1%)	Colon and Rectum Cancers (3.8; 1.9%)	Cataract (2.0; 1.6%)
9th	Nutritional Anaemias (5.1; 2.5%)	Skin and subcutaneous diseases (3.4; 2.9%)	Schizophrenia (6.2; 2.5%)	Unipolar Depressive Disorder (7.7; 2.8%)	Road Traffic Injuries (8.1; 2.1%)	Colon and Rectum Cancers (4.7; 2.0%)	Dementia (3.3; 1.6%)	Nephritis and Nephrosis (2.0; 1.6%)
10th	Fires, Heat and Hot Substances (3.4; 1.7%)	Upper Respiratory Infections (3.0; 2.6%)	Epilepsy (6.0; 2.3%)	Asthma (7.5; 2.7%)	Asthma (7.2; 1.9%)	Asthma (3.4; 1.5%)	Asthma (3.1; 1.5%)	Trachea, Bronchus and Lung Cancers (1.6; 1.3%)

Figure 6.1.6: Leading causes of total burden (DALYs '000; percentage %) for females, by age group, 2009

6.2 Disability-Adjusted Life Years (DALYs) – 2010

In 2010, a total of 4.44 million years of life were lost due to ill-health in Malaysia. Males contributed towards 2.61 million DALYs (58.7%) and females 1.84 million DALYs (41.3%).

6.2.1 Pattern of Years of Life Lost (YLL) vs Years Lost due to Disability (YLD)

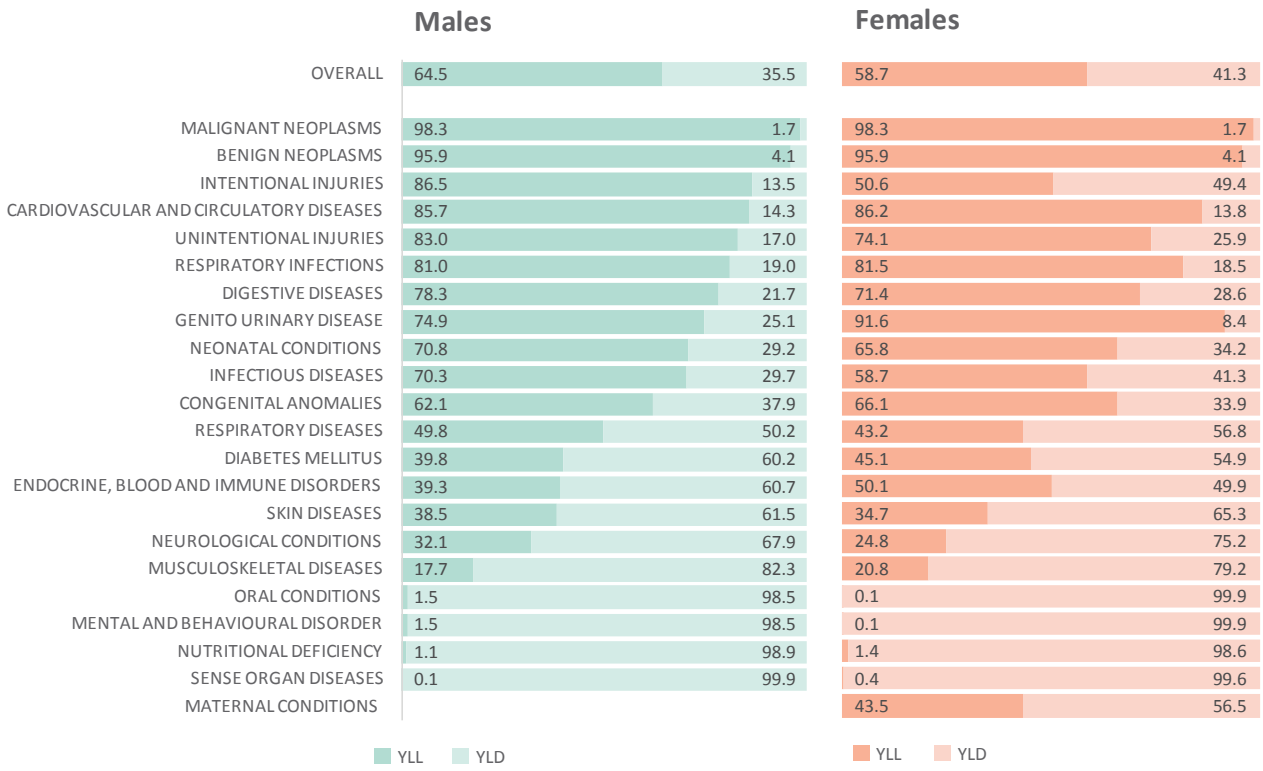


Figure 6.2.1: Percentage (%) of DALYs by YLL vs YLD for males and females, by disease group, 2010

Overall, fatal burden (YLL) contributed towards 64.5% of the total burden of disease and injury among males, with the remaining 35.5% contributed by non-fatal burden (YLD). Among females, fatal burden (YLL) contributed towards 58.7% of the total burden of disease and injury, with the remaining 41.3% contributed by non-fatal burden (YLD). For both males and females, the burden of Malignant Neoplasms and Benign Neoplasms are largely contributed by mortality. On the other hand, burden from Oral Conditions, Mental and Behavioural Disorders, Nutritional Deficiency and Sense Organ Diseases are largely contributed by morbidity. Intentional Injuries contributed mainly towards fatal burden among males, with a larger component of non-fatal among females **[Figure 6.2.1]**.

6.2.2 Pattern of Disability-Adjusted Life Years (DALYs) by sex

Figure 6.2.2: Percentage (%) of total burden (DALYs), by disease groups and sex, 2010

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards total burden of disease and injury in Malaysia for 2010, followed by Unintentional Injuries and Malignant Neoplasms **[Figure 6.2.2]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest DALYs and contributed to around 20% of the total disease and injury burden. For males, Unintentional Injuries contributed to 16.3% of total disease and injury burden followed by Malignant Neoplasms at 8.1% and Mental and Behavioural Disorders at 7.4%. For females, Malignant Neoplasms were the second largest contributor of total disease and injury burden, with 11.1%, followed by Diabetes Mellitus at 8.6% and Mental and Behavioural Disorders at 8.0% **[Table 6.2.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	DALYs (number)	DALYs (%)	DALYs (number)	DALYs (%)	DALYs (number)	DALYs (%)
INFECTIOUS DISEASES	240654	5.4	156041	6.0	84613	4.6
RESPIRATORY INFECTIONS	242445	5.5	128892	4.9	113552	6.2
MATERNAL CONDITIONS	20387	0.5	0	0.0	20387	1.1
NEONATAL CONDITIONS	177530	4.0	100038	3.8	77492	4.2
NUTRITIONAL DEFICIENCY	96287	2.2	44909	1.7	51378	2.8
MALIGNANT NEOPLASMS	414200	9.3	209711	8.1	204489	11.1
BENIGN NEOPLASMS	11065	0.2	4255	0.2	6810	0.4
DIABETES MELLITUS	325225	7.3	167631	6.4	157594	8.6
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	39455	0.9	20712	0.8	18743	1.0
MENTAL AND BEHAVIOURAL DISORDER	338129	7.6	191675	7.4	146455	8.0
NEUROLOGICAL CONDITIONS	168341	3.8	88642	3.4	79699	4.3
SENSE ORGAN DISEASES	75197	1.7	38732	1.5	36465	2.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	879656	19.8	541859	20.8	337797	18.4
RESPIRATORY DISEASES	284088	6.4	177480	6.8	106607	5.8
DIGESTIVE DISEASES	139386	3.1	81708	3.1	57678	3.1
GENITO URINARY DISEASE	92131	2.1	50487	1.9	41644	2.3
SKIN DISEASES	54893	1.2	26570	1.0	28322	1.5
MUSCULOSKELETAL DISEASES	88908	2.0	40063	1.5	48846	2.7
CONGENITAL ANOMALIES	109531	2.5	53386	2.0	56144	3.1
ORAL CONDITIONS	65293	1.5	33211	1.3	32081	1.7
UNINTENTIONAL INJURIES	547905	12.3	425273	16.3	122631	6.7
INTENTIONAL INJURIES	30375	0.7	23780	0.9	6595	0.4
TOTAL	**4441081**	**100.0**	**2605057**	**100.0**	**1836023**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 6.2.1: Total burden of disease and injury by disease groups and by sex, 2010

6.2.3 Pattern of Disability-Adjusted Life Years (DALYs) by age

Males between 45 and 59 years of age contributed towards 23.4% of the total DALYs, the age group with the highest contribution towards male total burden of disease and injury in Malaysia in 2010 **[Figure 6.2.3(a)]**. Neonatal Conditions contributed towards the largest percentage of the DALYs in males below 5 years of age. Nutritional Deficiency and Congenital Anomalies were both the second highest among males below 5 years of age at 12.9%. Unintentional Injuries were the predominant cause of DALYs among males 5 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of total burden among males from age 45 years and above. Malignant Neoplasms were the second highest contributor of total disease burden among males 45 to 69 years of age and Respiratory Diseases contributed the second highest among males from the age of 70 years and above **[Figure 6.2.3(b)]**.

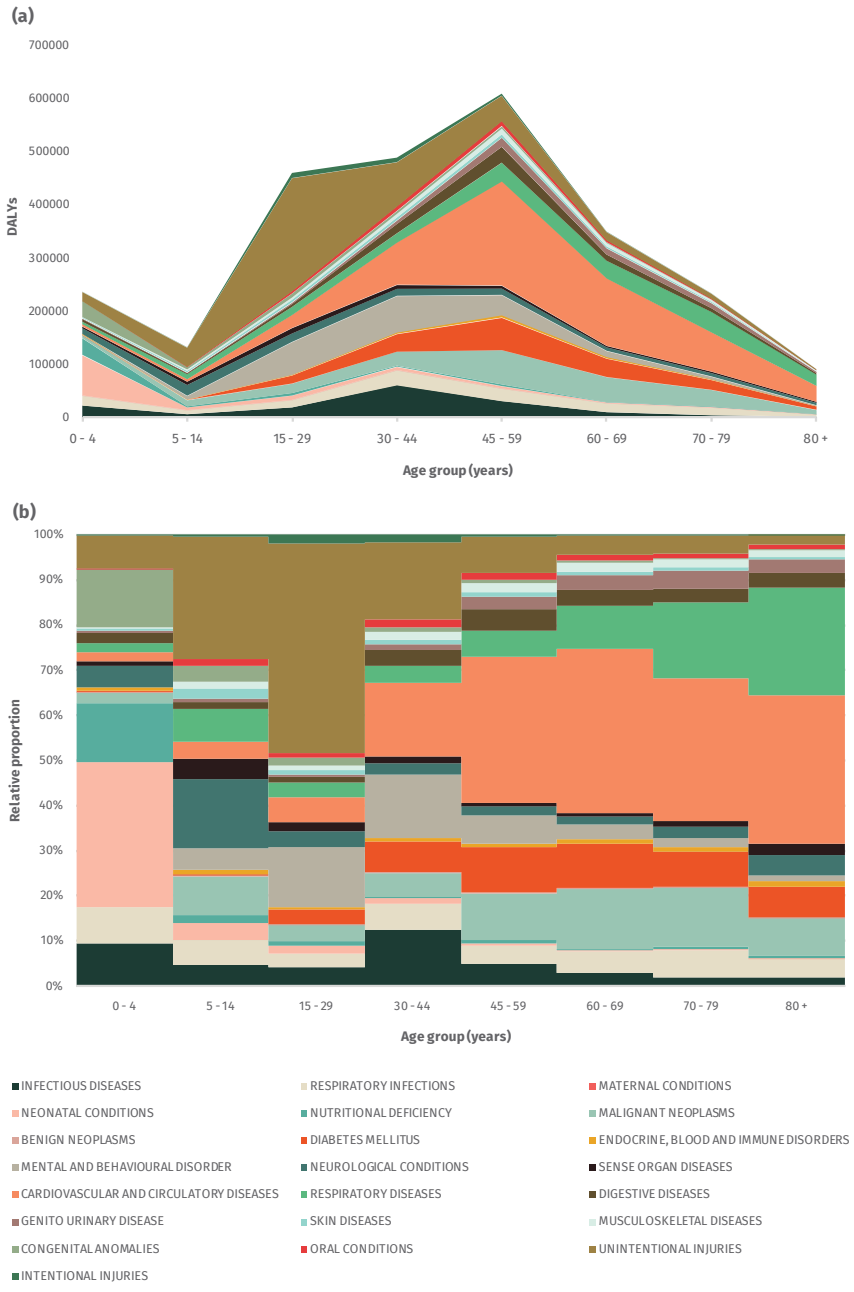


Figure 6.2.3: Number (a) & percentage (b) of total burden (DALYs), by disease groups & age, males, 2010

Females between the ages of 45 and 59 years contributed towards 21.7% of the total DALYs, the age group with the highest contribution towards female total burden of disease and injury in Malaysia in 2010 **[Figure 6.2.4(a)]**. Neonatal Conditions contributed towards the largest percentage of the DALYs in females below 5 years of age. Neurological Conditions were the highest contributor of DALYs among females 5 to 14 years of age at 16.8%. Mental and Behavioural Disorders were the predominant cause of DALYs among females 15 to 44 years of age. Cardiovascular and Circulatory Diseases was the highest contributor of total burden among females 45 years and above. Malignant Neoplasms was the second largest contributor of total burden among females 30 to 79 years of age, with Respiratory Infections being the second highest among females 80 years of age and above **[Figure 6.2.4(b)]**.

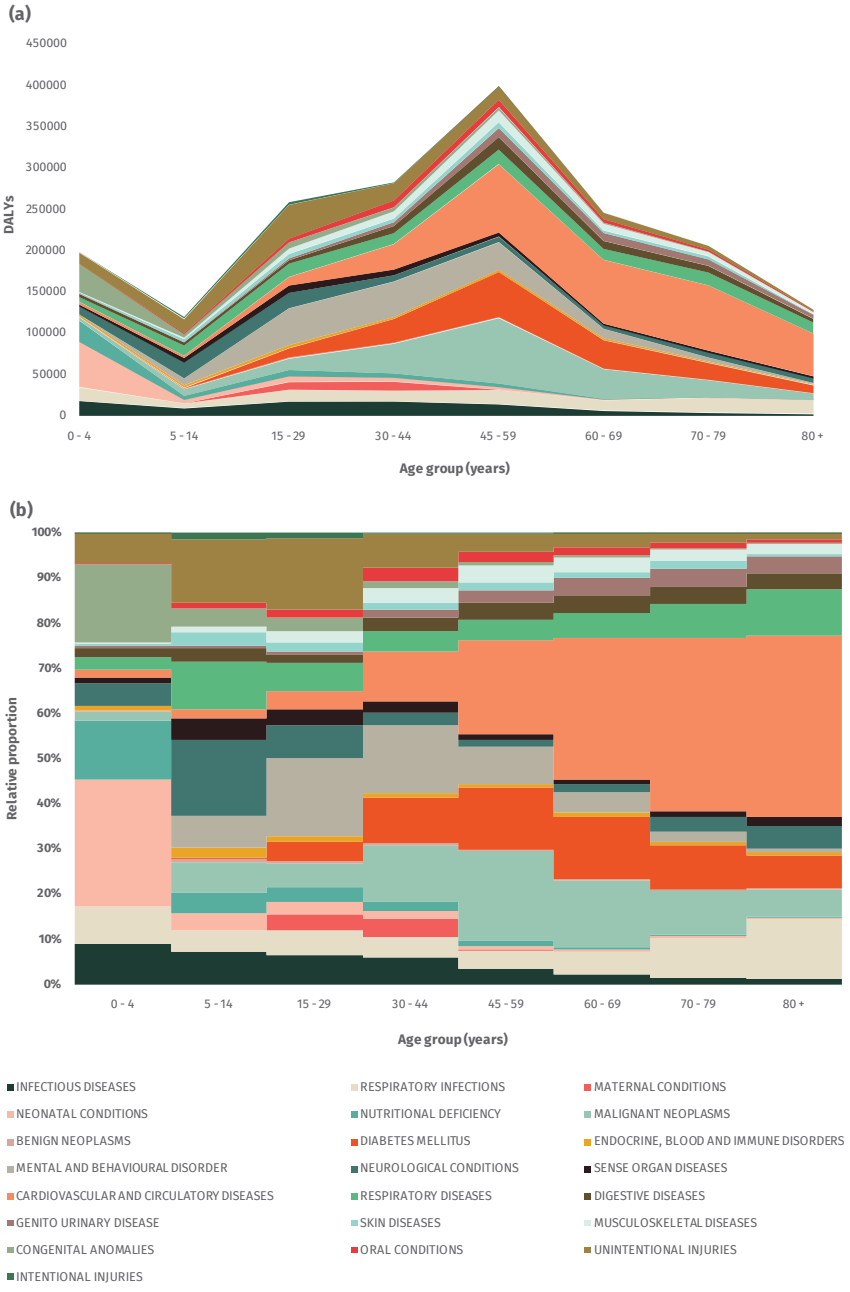


Figure 6.2.4: Number (a) & percentage (b) of total burden (DALYs), by disease groups & age, females, 2010

6.2.4 Leading Causes of Disability-Adjusted Life Years (DALYs)

Road Traffic Injuries was the leading cause of total burden in Malaysia for 2010, contributing 8.9% of the total DALYs. This was followed by Ischaemic Heart Disease, with 8.8%, and Cerebrovascular Diseases, with 7.6% of total DALYs. Diabetes Mellitus, with 7.3% and Lower Respiratory Infections with 4.6% make up the five leading causes of total disease and injury burden in 2010.

Among males, Road Traffic Injuries contributed the largest amount of DALYs with 12.5%. Ischaemic Heart Disease was the second highest contributor of DALYs in males with 10.3% followed by Cerebrovascular Diseases with 7.2%. Diabetes Mellitus and Lower Respiratory Infections make up the fourth and fifth leading causes of DALYs among males. Among females, Diabetes Mellitus was the leading cause of DALYs with 8.6% followed by Cerebrovascular Diseases with 8.2% and Ischaemic Heart Diseases with 6.7%. Lower Respiratory Infections was the fourth and Road Traffic Injuries the fifth leading cause of DALYs among females **[Table 6.2.2]**.

The leading causes of total burden vary according to age. Among males below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of DALYs. Birth Trauma and Asphyxia was the second leading cause of DALYs among males below 5 years of age. Road Traffic Injuries was the leading cause of DALYs among males 5 to 44 years of age. Asthma was the second largest contributor of DALYs among males 5 to 14 years of age, while Drug Use Disorder was the second highest among males 15 to 29 years of age. Among males 30 to 44 years of age, Ischaemic Heart Disease was the second highest contributor to DALYs and rises to the leading cause of DALYs among males 45 to 69 years of age. Cerebrovascular Diseases were the second highest contributor to DALYs among males 60 to 69 years of age, and rises to the leading cause of DALYs among males 70 to 79 years of age years of age. Among males 80 years of age and above, Chronic Obstructive Pulmonary Disease becomes the leading cause of DALYs. Ischaemic Heart Disease was the second leading cause of DALYs among males 70 years and above **[Figure 6.2.5]**.

Among females below 5 years of age, Protein-Energy Malnutrition contributed to the highest amount of DALYs, followed by Lower Respiratory Infections. Asthma was the leading cause of DALYs among females 5 to 14 years of age and Road Traffic Injuries were the leading cause among females 15 to 29 years of age. Road Traffic Injuries was the second highest contributor to DALYs among females 5 to 14 years of age, while Anxiety Disorders was the second highest among females 15 to 29 years of age. Diabetes Mellitus was the largest contributor of DALYs among females 30 to 69 years of age. Breast Cancer was the second highest contributor to DALYs among females 30 to 44 years of age. Among females 45 to 59 years of age, Cerebrovascular Diseases was the second leading cause of DALYs, and rises to be the leading cause of DALYs among females 70 years of age and above. Ischaemic Heart Disease was the second leading cause of DALYs among females 60 years of age and above, with Lower Respiratory Infections the third highest contributor to DALYs among females 80 years of age and above **[Figure 6.2.6]**.

Rank	People	DALYs	% of total	Males	DALYs	% of total	Females	DALYs	% of total
1	Road Traffic Injuries	395484	8.9	Road Traffic Injuries	324954	12.5	Diabetes Mellitus	157594	8.6
2	Ischaemic Heart Disease	391803	8.8	Ischaemic Heart Disease	268178	10.3	Cerebrovascular Diseases (Stroke)	150171	8.2
3	Cerebrovascular Diseases (Stroke)	336582	7.6	Cerebrovascular Diseases (Stroke)	186411	7.2	Ischaemic Heart Disease	123625	6.7
4	Diabetes Mellitus	325225	7.3	Diabetes Mellitus	167631	6.4	Lower Respiratory Infections	96492	5.3
5	Lower Respiratory Infections	205825	4.6	Lower Respiratory Infections	109333	4.2	Road Traffic Injuries	70530	3.8
6	Chronic Obstructive Pulmonary Disease	127905	2.9	Chronic Obstructive Pulmonary Disease	91732	3.5	Asthma	48997	2.7
7	Asthma	89531	2.0	HIV	51017	2.0	Breast Cancer	48312	2.6
8	Anxiety Disorders	70144	1.6	Drug Use Disorders	48745	1.9	Anxiety Disorders	44631	2.4
9	Unipolar Depressive Disorder	67754	1.5	Trachea, Bronchus and Lung Cancers	44712	1.7	Chronic Obstructive Pulmonary Disease	36173	2.0
10	Trachea, Bronchus and Lung Cancers	66112	1.5	Asthma	40533	1.6	Diarrhoeal Diseases	35350	1.9
11	Diarrhoeal Diseases	63163	1.4	Tuberculosis	35842	1.4	Unipolar Depressive Disorder	34298	1.9
12	Schizophrenia	62679	1.4	Unipolar Depressive Disorder	33456	1.3	Nutritional Anaemias	30768	1.7
13	HIV	61105	1.4	Schizophrenia	32884	1.3	Schizophrenia	29794	1.6
14	Nephritis and Nephrosis	59387	1.3	Nephritis and Nephrosis	31088	1.2	Skin and subcutaneous diseases	28322	1.5
15	Skin and subcutaneous diseases	54893	1.2	Falls	28150	1.1	Nephritis and Nephrosis	28299	1.5
16	Hearing Loss	51439	1.2	Diarrhoeal Diseases	27813	1.1	Hearing Loss	24935	1.4
17	Tuberculosis	51439	1.2	Epilepsy	26675	1.0	Trachea, Bronchus and Lung Cancers	21400	1.2
18	Drug Use Disorders	49915	1.1	Skin and subcutaneous diseases	26570	1.0	Epilepsy	20807	1.1
19	Breast Cancer	49825	1.1	Hearing Loss	26504	1.0	Protein-Energy Malnutrition	20531	1.1
20	Nutritional Anaemias	49135	1.1	Protein-Energy Malnutrition	26335	1.0	Osteoarthritis	20447	1.1
	Top 20 diseases	**2796128**	**63.0**	**Top 20 diseases**	**1738416**	**66.7**	**Top 20 diseases**	**1153346**	**62.8**
	All other diseases	*1644953*	*37.0*	*All other diseases*	*866641*	*33.3*	*All other diseases*	*682677*	*37.2*
	Total	**4441081**	**100.0**	**Total**	**2605057**	**100.0**	**Total**	**1836023**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 6.2.2: Leading causes of total burden (DALYs), by sex, 2010

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Protein-Energy Malnutrition (26.2; 11.1%)	Road Traffic Injuries (23.3; 17.6%)	Road Traffic Injuries (182.5; 39.6%)	Road Traffic Injuries (61.2; 12.5%)	Ischaemic Heart Disease (109.6; 18.0%)	Ischaemic Heart Disease (66.3; 18.9%)	Cerebrovascular Diseases (Stroke) (33.2; 14.2%)	Chronic Obstructive Pulmonary Disease (17.3; 18.9%)
2nd	Birth Trauma and Asphyxia (18.5; 7.8%)	Asthma (7.7; 5.9%)	Drug Use Disorders (17.5; 3.8%)	Ischaemic Heart Disease (39.8; 8.1%)	Diabetes Mellitus (60.7; 10.0%)	Cerebrovascular Diseases (Stroke) (45.4; 13.0%)	Ischaemic Heart Disease (32.0; 13.7%)	Ischaemic Heart Disease (14.1; 15.4%)
3rd	Low Birth Weight (18.2; 7.7%)	Leukaemia (5.7; 4.3%)	Diabetes Mellitus (14.8; 3.2%)	Diabetes Mellitus (32.9; 6.7%)	Cerebrovascular Diseases (Stroke) (58.5; 9.6%)	Diabetes Mellitus (34.3; 9.8%)	Chronic Obstructive Pulmonary Disease (28.3; 12.1%)	Cerebrovascular Diseases (Stroke) (13.1; 14.3%)
4th	Lower Respiratory Infections (17.0; 7.2%)	Epilepsy (5.0; 3.7%)	Unipolar Depressive Disorder (11.1; 2.4%)	HIV (30.1; 6.1%)	Road Traffic Injuries (34.5; 5.6%)	Chronic Obstructive Pulmonary Disease (23.4; 6.7%)	Diabetes Mellitus (18.1; 7.7%)	Diabetes Mellitus (6.2; 6.8%)
5th	Diarrhoeal Diseases (16.4; 6.9%)	Hearing Loss (4.9; 3.7%)	Asthma (10.3; 2.2%)	Lower Respiratory Infections (25.2; 5.1%)	Lower Respiratory Infections (21.7; 3.6%)	Lower Respiratory Infections (15.9; 4.5%)	Lower Respiratory Infections (14.2; 6.1%)	Lower Respiratory Infections (3.8; 4.2%)
6th	Neonatal Infections (11.2; 4.7%)	Drowning (4.3; 3.3%)	Cerebrovascular Diseases (Stroke) (8.7; 1.9%)	Drug Use Disorders (24.4; 5.0%)	Chronic Obstructive Pulmonary Disease (16.2; 2.7%)	Trachea, Bronchus and Lung Cancers (13.0; 3.7%)	Trachea, Bronchus and Lung Cancers (8.7; 3.7%)	Dementia (2.9; 3.2%)
7th	Congenital Heart Diseases (9.5; 4.0%)	Diarrhoeal Diseases (3.4; 2.6%)	Lower Respiratory Infections (8.4; 1.8%)	Cerebrovascular Diseases (Stroke) (23.6; 4.8%)	Trachea, Bronchus and Lung Cancers (15.8; 2.6%)	Road Traffic Injuries (10.7; 3.0%)	Road Traffic Injuries (6.2; 2.7%)	Cataract (1.9; 2.1%)
8th	Road Traffic Injuries (5.5; 2.3%)	Upper Respiratory Infections (3.4; 2.6%)	Anxiety Disorders (8.3; 1.8%)	Tuberculosis (15.0; 3.1%)	HIV (11.5; 1.9%)	Nephritis and Nephrosis (6.5; 1.9%)	Colon and Rectum Cancers (5.4; 2.3%)	Trachea, Bronchus and Lung Cancers (1.9; 2.0%)
9th	Nutritional Anaemias (4.3; 1.8%)	Lower Respiratory Infections (3.1; 2.4%)	Hearing Loss (8.0; 1.7%)	Schizophrenia (12.2; 2.5%)	Nephritis and Nephrosis (10.5; 1.7%)	Colon and Rectum Cancers (6.5; 1.9%)	Nephritis and Nephrosis (5.2; 2.2%)	Asthma (1.5; 1.6%)
10th	Anencephaly (3.9; 1.6%)	Skin and subcutaneous diseases (3.1; 2.3%)	Epilepsy (7.6; 1.7%)	Unipolar Depressive Disorder (8.0; 1.6%)	Tuberculosis (10.3; 1.7%)	Liver Cancers (5.3; 1.5%)	Dementia (3.0; 1.3%)	Colon and Rectum Cancers (1.3; 1.5%)

Figure 6.2.5: Leading causes of total burden (DALYs '000; percentage %) for males, by age group, 2010

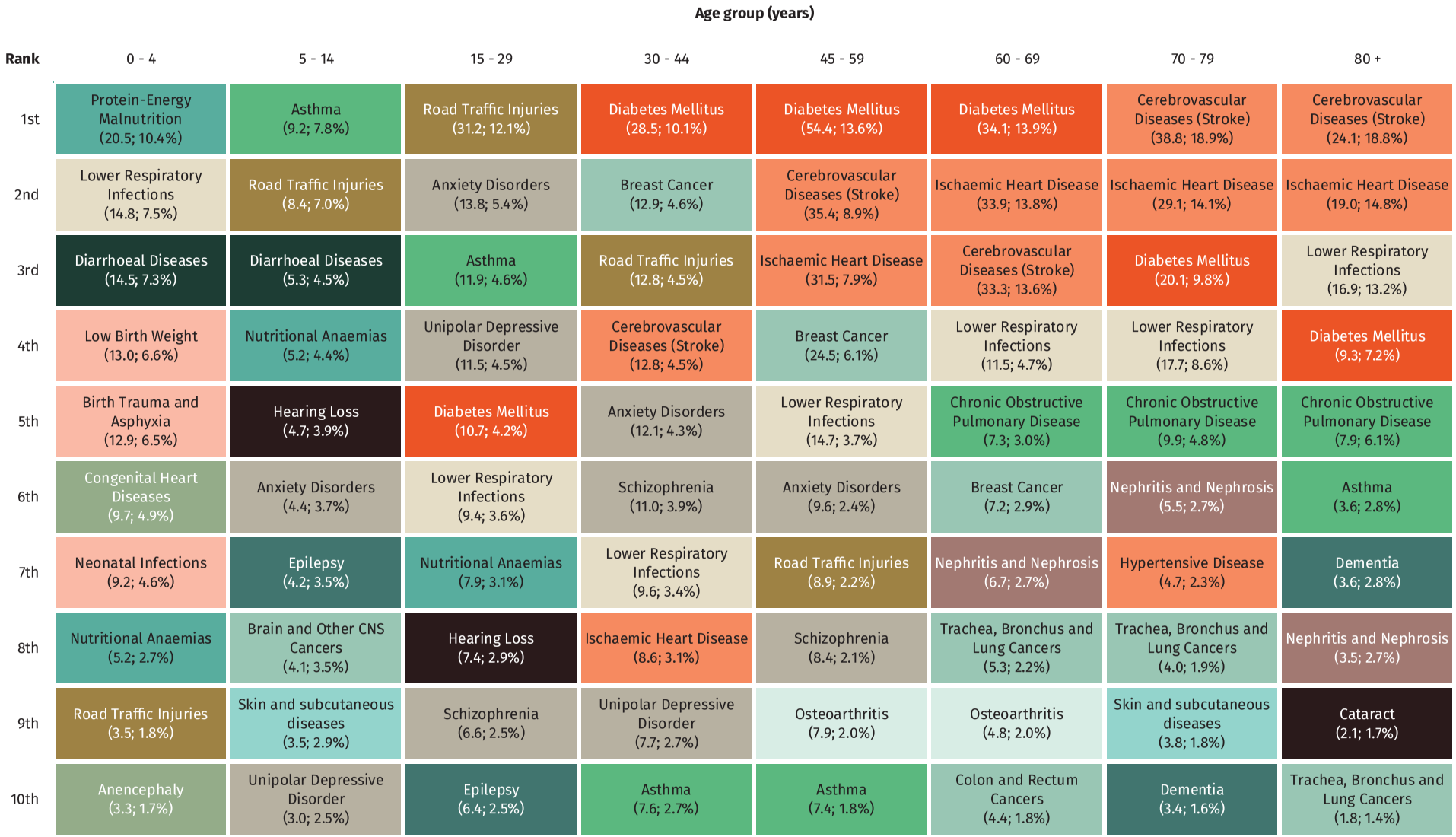


Figure 6.2.5: Leading causes of total burden (DALYs '000; percentage %) for males, by age group, 2010

6.3 Disability-Adjusted Life Years (DALYs) – 2011

In 2011, a total of 4.54 million years of life were lost due to ill-health in Malaysia. Males contributed towards 2.65 million DALYs (58.3%) and females 1.89 million DALYs (41.7%).

6.3.1 Pattern of Years of Life Lost (YLL) vs Years Lost due to Disability (YLD)

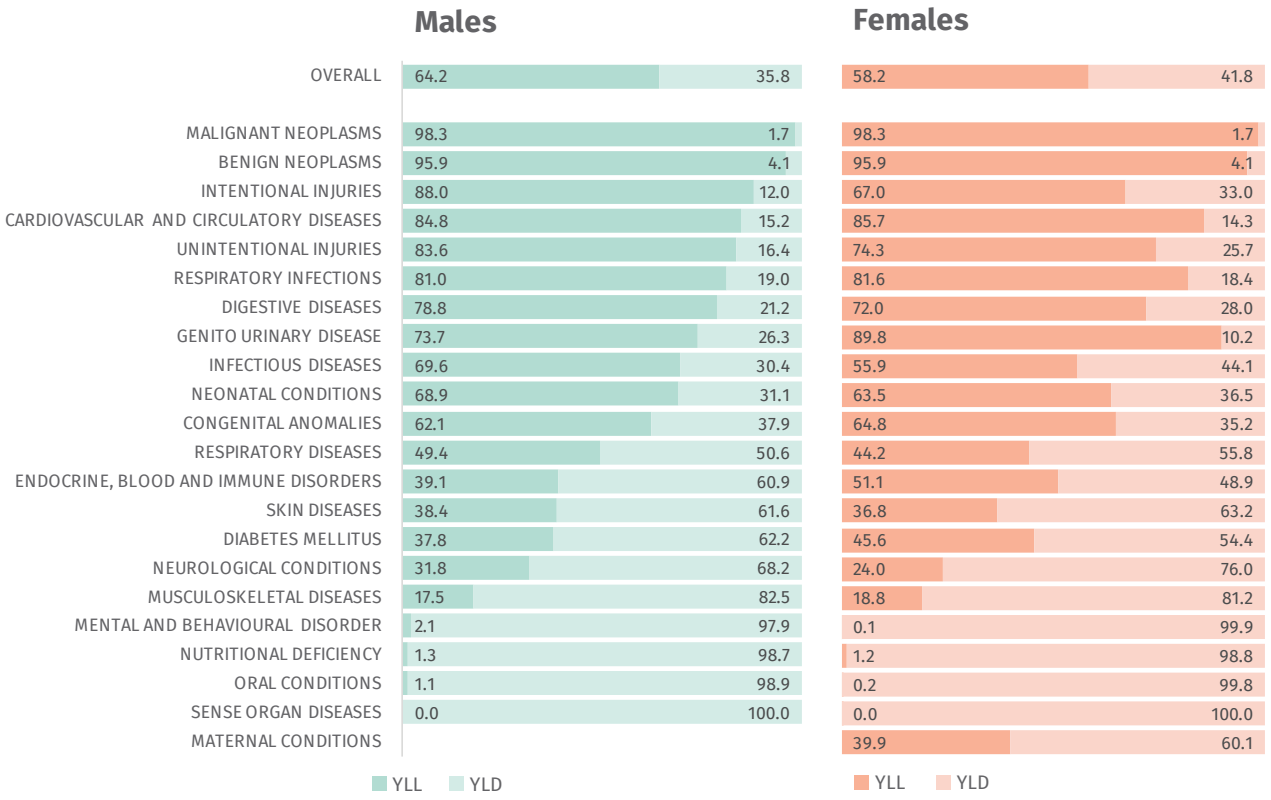


Figure 6.3.1: Percentage (%) of DALYs by YLL vs YLD for males and females, by disease group, 2011

Overall, fatal burden (YLL) contributed towards 64.2% of the total burden of disease and injury among males, with the remaining 35.8% contributed by non-fatal burden (YLD). Among females, fatal burden (YLL) contributed towards 58.2% of the total burden of disease and injury, with the remaining 41.8% contributed by non-fatal burden (YLD). For both males and females, the burden of Malignant Neoplasms and Benign Neoplasms are largely contributed by mortality. On the other hand, burden from Mental and Behavioural Disorders, Nutritional Deficiency, Oral Conditions and Sense Organ Diseases are largely contributed by morbidity. Intentional Injuries contributed mainly towards fatal burden among males, with a larger component of non-fatal among females **[Figure 6.3.1]**.

6.3.2 Pattern of Disability-Adjusted Life Years (DALYs) by sex

Figure 6.3.2: Percentage (%) of total burden (DALYs), by disease groups and sex, 2011

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards total burden of disease and injury in Malaysia for 2011, followed by Unintentional Injuries and Malignant Neoplasms **[Figure 6.3.2]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest DALYs and contributed to around 20% of the total disease and injury burden. For males, Unintentional Injuries contributed to 16.5% of total disease and injury burden followed by Malignant Neoplasms at 7.9% and Respiratory Diseases at 6.9%. For females, Malignant Neoplasms and Diabetes Mellitus were the second and third largest contributor of total disease and injury burden, with 11.0% and 8.8% respectively, followed by Mental and Behavioural Disorders at 7.9% **[Table 6.3.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	DALYs (number)	DALYs (%)	DALYs (number)	DALYs (%)	DALYs (number)	DALYs (%)
INFECTIOUS DISEASES	221332	4.9	142798	5.4	78533	4.2
RESPIRATORY INFECTIONS	245966	5.4	131083	5.0	114884	6.1
MATERNAL CONDITIONS	21211	0.5	0	0.0	21211	1.1
NEONATAL CONDITIONS	174915	3.9	98313	3.7	76602	4.1
NUTRITIONAL DEFICIENCY	95752	2.1	45407	1.7	50345	2.7
MALIGNANT NEOPLASMS	418390	9.2	209565	7.9	208825	11.0
BENIGN NEOPLASMS	11138	0.2	4561	0.2	6577	0.3
DIABETES MELLITUS	339122	7.5	172674	6.5	166448	8.8
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	39214	0.9	22013	0.8	17201	0.9
MENTAL AND BEHAVIOURAL DISORDER	330234	7.3	180279	6.8	149955	7.9
NEUROLOGICAL CONDITIONS	169245	3.7	88607	3.3	80638	4.3
SENSE ORGAN DISEASES	76604	1.7	39531	1.5	37073	2.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	910240	20.1	554586	21.0	355654	18.8
RESPIRATORY DISEASES	295048	6.5	182983	6.9	112065	5.9
DIGESTIVE DISEASES	144807	3.2	85153	3.2	59654	3.2
GENITO URINARY DISEASE	93920	2.1	51396	1.9	42524	2.2
SKIN DISEASES	57287	1.3	27179	1.0	30107	1.6
MUSCULOSKELETAL DISEASES	91356	2.0	41978	1.6	49378	2.6
CONGENITAL ANOMALIES	116484	2.6	58606	2.2	57878	3.1
ORAL CONDITIONS	92213	2.0	47202	1.8	45010	2.4
UNINTENTIONAL INJURIES	560817	12.4	436059	16.5	124758	6.6
INTENTIONAL INJURIES	32370	0.7	26817	1.0	5553	0.3
TOTAL	**4537664**	**100.0**	**2646790**	**100.0**	**1890873**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 6.3.1: Total burden of disease and injury by disease groups and by sex, 2011

6.3.3 Pattern of Disability-Adjusted Life Years (DALYs) by age

Males between 45 and 59 years of age contributed towards 23.7% of the total DALYs, the age group with the highest contribution towards male total burden of disease and injury in Malaysia in 2011 **[Figure 6.3.3(a)]**. Neonatal Conditions contributed towards the largest percentage of the DALYs in males below 5 years of age. Congenital Anomalies were the second highest among males below 5 years of age at 14.7%. Unintentional Injuries were the predominant cause of DALYs among males 5 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of total burden among males from age 45 years and above. Malignant Neoplasms were the second highest contributor of total disease burden among males 45 to 69 years of age and Respiratory Diseases contributed the second highest among males 70 years of age and above **[Figure 6.3.3(b)]**.

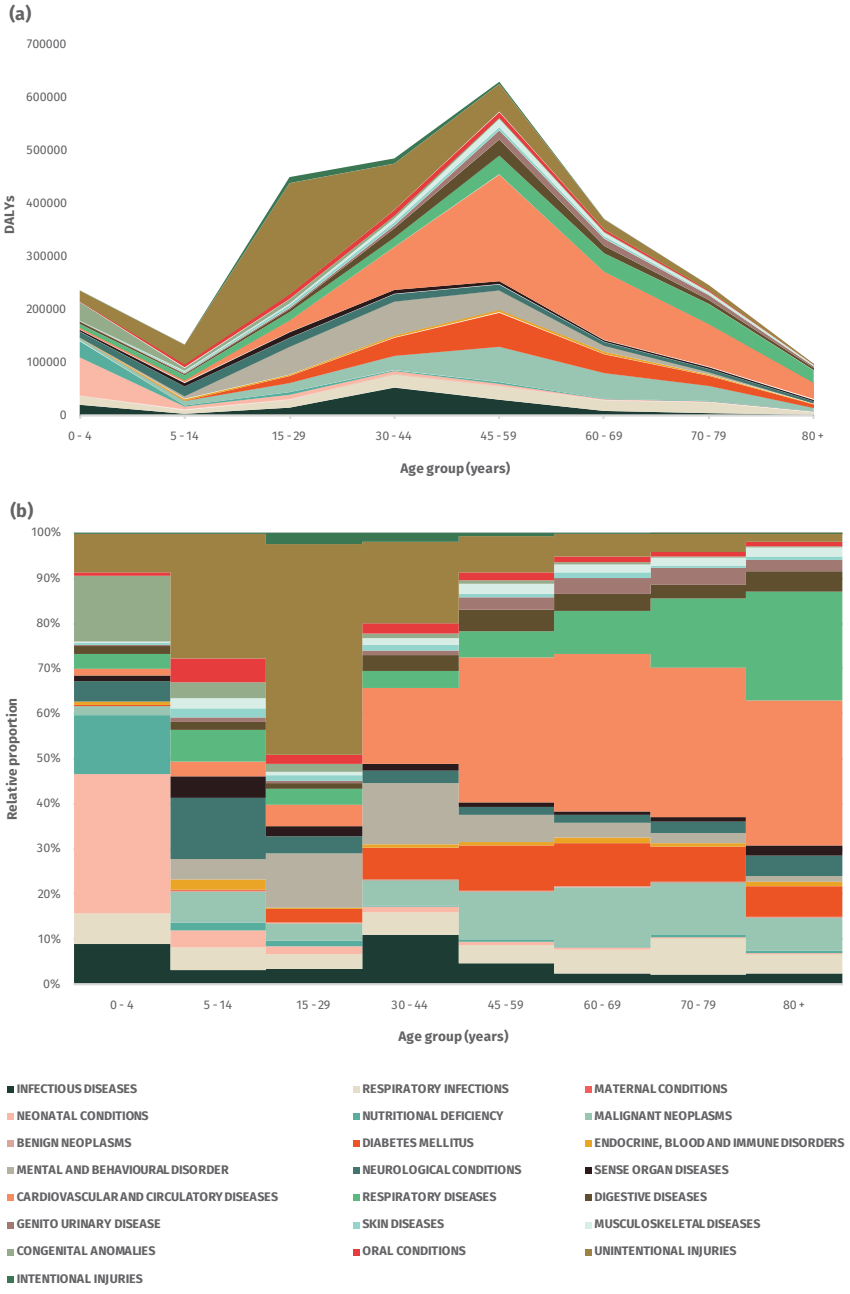


Figure 6.3.3: Number (a) & percentage (b) of total burden (DALYs), by disease groups & age, males, 2011

Females between the ages of 45 and 59 years contributed towards 21.7% of the total DALYs, the age group with the highest contribution towards female total burden of disease and injury in Malaysia in 2011 **[Figure 6.3.4(a)]**. Neonatal Conditions contributed towards the largest percentage of the DALYs in females below 5 years of age. Neurological Conditions were the highest contributor of DALYs among females 5 to 14 years of age at 16.5%. Mental and Behavioural Disorders were the predominant cause of DALYs among females 15 to 44 years of age. Cardiovascular and Circulatory Diseases was the highest contributor of total burden among females 45 years of age and above. Malignant Neoplasms was the second largest contributor of total burden among females 45 to 79 years of age, with Respiratory Infections being the second highest among females 80 years of age and above **[Figure 6.3.4(b)]**.

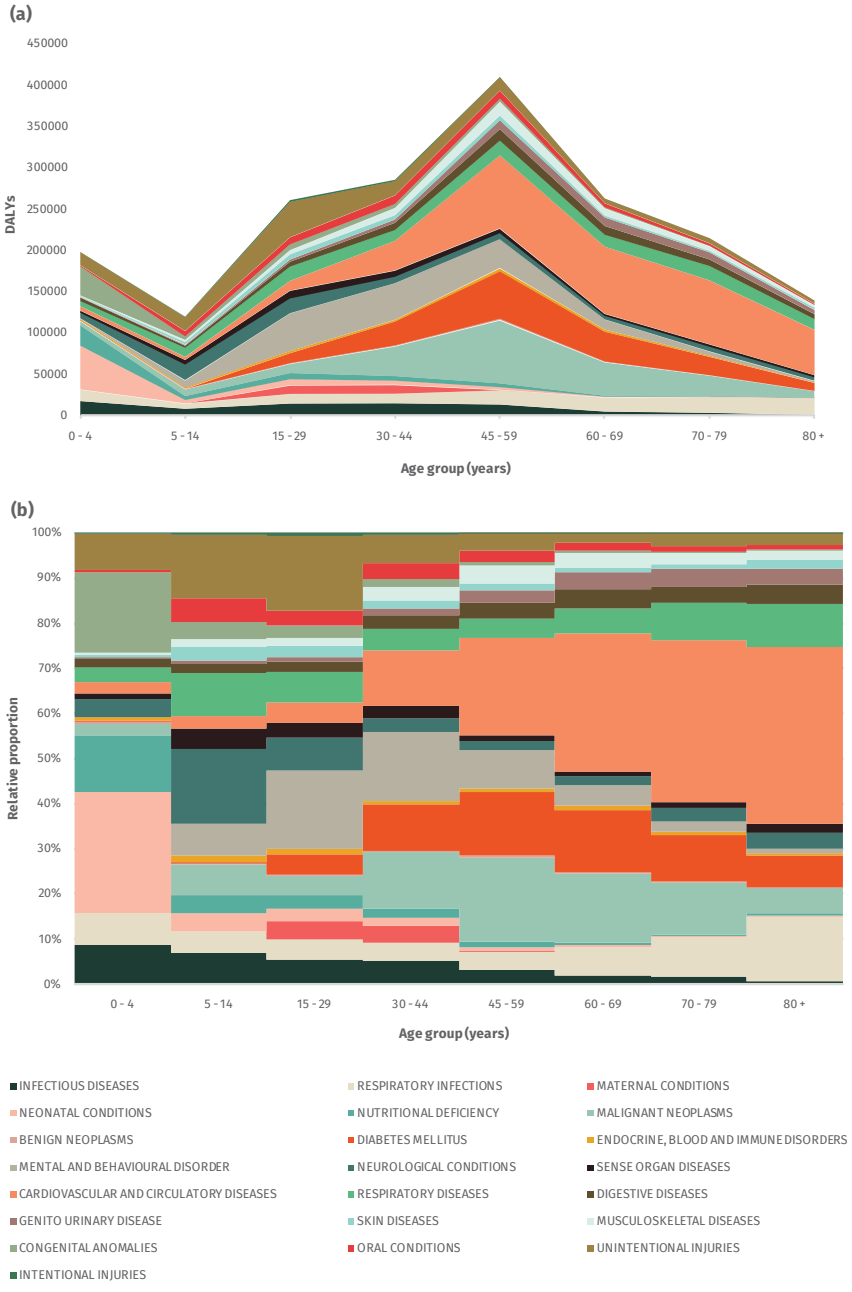


Figure 6.3.4: Number (a) & percentage (b) of total burden (DALYs), by disease groups & age, females, 2011

6.3.4 Leading Causes of Disability-Adjusted Life Years (DALYs)

Road Traffic Injuries was the leading cause of total burden in Malaysia for 2011, contributing 9.0% of the total DALYs. This was followed by Ischaemic Heart Disease, with 9.0%, and Cerebrovascular Diseases, with 7.7% of total DALYs. Diabetes Mellitus, with 7.5% and Lower Respiratory Infections with 4.6% make up the five leading causes of total disease and injury burden in 2011.

Among males, Road Traffic Injuries contributed the largest amount of DALYs with 12.6%. Ischaemic Heart Disease was the second highest contributor of DALYs in males with 10.5% followed by Cerebrovascular Diseases with 7.1%. Diabetes Mellitus and Lower Respiratory Infections make up the fourth and fifth leading causes of DALYs among males. Among females, Diabetes Mellitus was also the leading cause of DALYs with 8.8% followed by Cerebrovascular Diseases with 8.4% and Ischaemic Heart Diseases with 6.9%. Lower Respiratory Infections was the fourth and Road Traffic Injuries the fifth leading cause of DALYs among females **[Table 6.3.2]**.

The leading causes of total burden vary according to age. Among males below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of DALYs. Low Birth Weight was the second leading cause of DALYs among males below 5 years of age. Road Traffic Injuries was the leading cause of DALYs among males 5 to 44 years of age. Diabetes Mellitus was the second largest contributor of DALYs among males 15 to 29 years of age. Among males 30 to 44 years of age, Ischaemic Heart Disease was the second highest contributor to DALYs and rises to the leading cause of DALYs among males 45 to 79 years of age. Cerebrovascular Diseases were the second highest contributor to DALYs among males 60 years of age and above. Chronic Obstructive Pulmonary Disease was the third leading cause of DALYs among males 70 to 79 years of age, and rise to the leading cause among males age 80 years of age and above **[Figure 6.3.5]**.

Among females below 5 years of age, Protein-Energy Malnutrition contributed to the highest amount of DALYs, followed by Low Birth Weight. Asthma was to the leading cause of DALYs among females 5 to 14 years of age and Road Traffic Injuries were the leading cause among females 15 to 29 years of age. Anxiety Disorders was the second highest contributor to DALYs among females 15 to 29 years of age. Diabetes Mellitus was the largest contributor of DALYs among females 30 to 59 years of age. Among females 60 years of age and above, Cerebrovascular Diseases was the leading cause of DALYs. Ischaemic Heart Disease was the second leading cause of DALYs among females 70 to 79 years of age, with Lower Respiratory Infections the second highest contributor to DALYs among females 80 years of age and above **[Figure 6.3.6]**.

Rank	People	DALYs	% of total	Males	DALYs	% of total	Females	DALYs	% of total
1	Road Traffic Injuries	407752	9.0	Road Traffic Injuries	333351	12.6	Diabetes Mellitus	166448	8.8
2	Ischaemic Heart Disease	406131	9.0	Ischaemic Heart Disease	276591	10.5	Cerebrovascular Diseases (Stroke)	159224	8.4
3	Cerebrovascular Diseases (Stroke)	348197	7.7	Cerebrovascular Diseases (Stroke)	188973	7.1	Ischaemic Heart Disease	129540	6.9
4	Diabetes Mellitus	339122	7.5	Diabetes Mellitus	172674	6.5	Lower Respiratory Infections	97671	5.2
5	Lower Respiratory Infections	208849	4.6	Lower Respiratory Infections	111178	4.2	Road Traffic Injuries	74401	3.9
6	Chronic Obstructive Pulmonary Disease	134129	3.0	Chronic Obstructive Pulmonary Disease	94967	3.6	Asthma	50073	2.6
7	Asthma	90771	2.0	Trachea, Bronchus and Lung Cancers	45786	1.7	Breast Cancer	49593	2.6
8	Anxiety Disorders	70960	1.6	Asthma	40697	1.5	Anxiety Disorders	45161	2.4
9	Unipolar Depressive Disorder	70256	1.5	HIV	38832	1.5	Chronic Obstructive Pulmonary Disease	39162	2.1
10	Trachea, Bronchus and Lung Cancers	67456	1.5	Tuberculosis	38109	1.4	Unipolar Depressive Disorder	35678	1.9
11	Schizophrenia	64873	1.4	Unipolar Depressive Disorder	34578	1.3	Diarrhoeal Diseases	33572	1.8
12	Diarrhoeal Diseases	61099	1.3	Schizophrenia	34012	1.3	Schizophrenia	30861	1.6
13	Nephritis and Nephrosis	59686	1.3	Drug Use Disorders	32661	1.2	Nutritional Anaemias	30464	1.6
14	Skin and subcutaneous diseases	57287	1.3	Nephritis and Nephrosis	31309	1.2	Skin and subcutaneous diseases	30107	1.6
15	Tuberculosis	53656	1.2	Falls	27934	1.1	Nephritis and Nephrosis	28378	1.5
16	Hearing Loss	52293	1.2	Low Birth Weight	27715	1.0	Hearing Loss	25339	1.3
17	Breast Cancer	50744	1.1	Diarrhoeal Diseases	27527	1.0	Epilepsy	22499	1.2
18	Epilepsy	49839	1.1	Epilepsy	27340	1.0	Low Birth Weight	22058	1.2
19	Low Birth Weight	49773	1.1	Skin and subcutaneous diseases	27179	1.0	Trachea, Bronchus and Lung Cancers	21670	1.1
20	Nutritional Anaemias	49221	1.1	Hearing Loss	26954	1.0	Osteoarthritis	21240	1.1
	Top 20 diseases	**2865674**	**63.2**	**Top 20 diseases**	**1750457**	**66.1**	**Top 20 diseases**	**1189831**	**62.9**
	All other diseases	*1671990*	*36.8*	*All other diseases*	*896333*	*33.9*	*All other diseases*	*701043*	*37.1*
	Total	**4537664**	**100.0**	**Total**	**2646790**	**100.0**	**Total**	**1890873**	**100.0**

Colour legend:

>5%	4-5%	3-4%	2-3%	0-2%

Table 6.3.2: Leading causes of total burden (DALYs), by sex, 2011

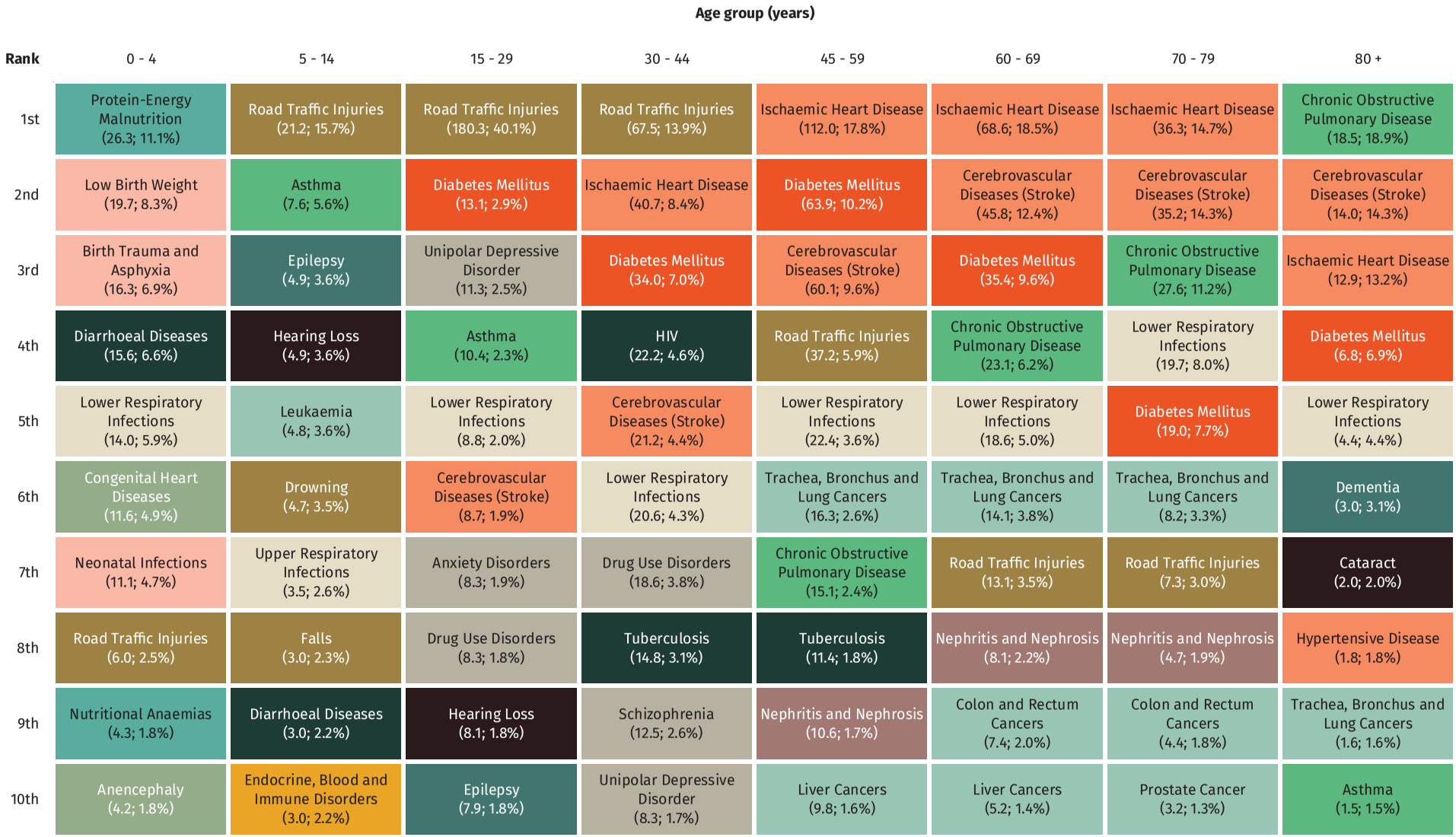


Figure 6.3.5: Leading causes of total burden (DALYs '000; percentage %) for males, by age group, 2011

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Protein-Energy Malnutrition (19.5; 9.9%)	Asthma (9.0; 7.5%)	Road Traffic Injuries (36.1; 13.8%)	Diabetes Mellitus (28.8; 10.1%)	Diabetes Mellitus (57.6; 14.0%)	Cerebrovascular Diseases (Stroke) (37.1; 14.1%)	Cerebrovascular Diseases (Stroke) (37.4; 17.4%)	Cerebrovascular Diseases (Stroke) (27.0; 19.4%)
2nd	Low Birth Weight (14.5; 7.3%)	Road Traffic Injuries (6.9; 5.8%)	Anxiety Disorders (13.9; 5.3%)	Road Traffic Injuries (12.8; 4.5%)	Ischaemic Heart Disease (37.5; 9.1%)	Diabetes Mellitus (35.9; 13.7%)	Ischaemic Heart Disease (29.4; 13.7%)	Lower Respiratory Infections (20.1; 14.4%)
3rd	Diarrhoeal Diseases (13.2; 6.7%)	Diarrhoeal Diseases (5.0; 4.2%)	Asthma (12.2; 4.7%)	Breast Cancer (12.8; 4.5%)	Cerebrovascular Diseases (Stroke) (37.2; 9.1%)	Ischaemic Heart Disease (31.9; 12.1%)	Diabetes Mellitus (22.0; 10.3%)	Ischaemic Heart Disease (17.2; 12.4%)
4th	Birth Trauma and Asphyxia (12.1; 6.1%)	Epilepsy (5.0; 4.2%)	Diabetes Mellitus (12.0; 4.6%)	Anxiety Disorders (12.2; 4.3%)	Breast Cancer (24.7; 6.0%)	Lower Respiratory Infections (15.7; 6.0%)	Lower Respiratory Infections (18.6; 8.7%)	Diabetes Mellitus (9.5; 6.9%)
5th	Lower Respiratory Infections (11.9; 6.0%)	Nutritional Anaemias (4.9; 4.1%)	Unipolar Depressive Disorder (11.9; 4.6%)	Cerebrovascular Diseases (Stroke) (11.7; 4.1%)	Lower Respiratory Infections (14.7; 3.6%)	Chronic Obstructive Pulmonary Disease (8.0; 3.1%)	Chronic Obstructive Pulmonary Disease (11.8; 5.5%)	Chronic Obstructive Pulmonary Disease (7.5; 5.4%)
6th	Congenital Heart Diseases (9.9; 5.0%)	Hearing Loss (4.6; 3.9%)	Nutritional Anaemias (7.6; 2.9%)	Schizophrenia (11.3; 3.9%)	Road Traffic Injuries (11.5; 2.8%)	Breast Cancer (7.6; 2.9%)	Nephritis and Nephrosis (5.9; 2.7%)	Dementia (3.7; 2.6%)
7th	Neonatal Infections (8.1; 4.1%)	Anxiety Disorders (4.4; 3.7%)	Hearing Loss (7.5; 2.9%)	Ischaemic Heart Disease (10.4; 3.6%)	Anxiety Disorders (9.8; 2.4%)	Nephritis and Nephrosis (6.9; 2.6%)	Trachea, Bronchus and Lung Cancers (4.5; 2.1%)	Asthma (3.7; 2.6%)
8th	Nutritional Anaemias (5.1; 2.6%)	Brain and Other CNS Cancers (4.0; 3.4%)	Epilepsy (6.8; 2.6%)	Unipolar Depressive Disorder (8.0; 2.8%)	Schizophrenia (8.7; 2.1%)	Trachea, Bronchus and Lung Cancers (5.9; 2.2%)	Colon and Rectum Cancers (4.3; 2.0%)	Nephritis and Nephrosis (3.4; 2.5%)
9th	Road Traffic Injuries (3.7; 1.9%)	Skin and subcutaneous diseases (3.6; 3.0%)	Schizophrenia (6.8; 2.6%)	Asthma (7.9; 2.8%)	Osteoarthritis (8.2; 2.0%)	Osteoarthritis (5.1; 1.9%)	Falls (3.8; 1.8%)	Falls (3.3; 2.4%)
10th	Anencephaly (3.4; 1.7%)	Falls (3.3; 2.7%)	Lower Respiratory Infections (6.6; 2.5%)	Lower Respiratory Infections (7.9; 2.8%)	Trachea, Bronchus and Lung Cancers (7.9; 1.9%)	Colon and Rectum Cancers (4.6; 1.7%)	Dementia (3.5; 1.6%)	Hypertensive Disease (3.0; 2.1%)

Figure 6.3.6: Leading causes of total burden (DALYs '000; percentage %) for females, by age group, 2011

6.4 Disability-Adjusted Life Years (DALYs) – 2012

In 2012, a total of 4.57 million years of life were lost due to ill-health in Malaysia. Males contributed towards 2.65 million DALYs (58.0%) and females 1.92 million DALYs (42.0%).

6.4.1 Pattern of Years of Life Lost (YLL) vs Years Lost due to Disability (YLD)

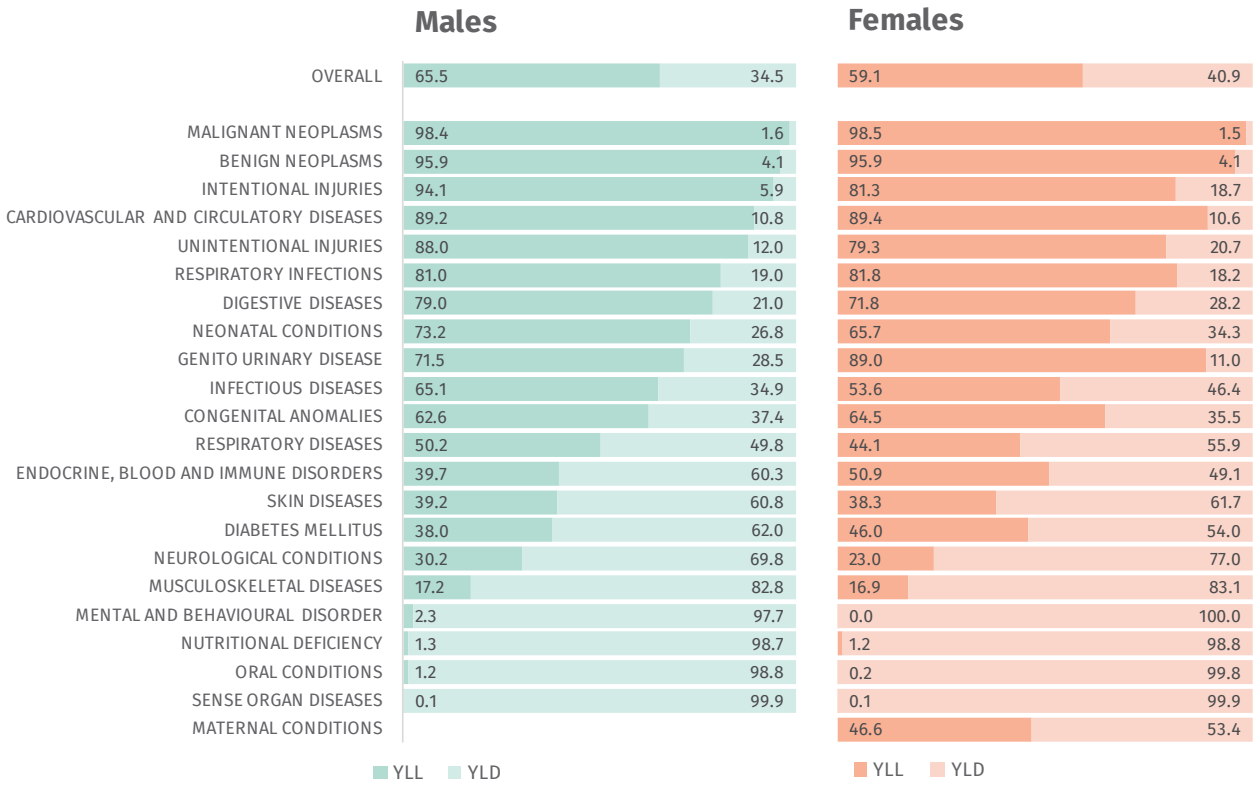


Figure 6.4.1: Percentage (%) of DALYs by YLL vs YLD for males and females, by disease group, 2012

Overall, fatal burden (YLL) contributed towards 65.5% of the total burden of disease and injury among males, with the remaining 34.5% contributed by non-fatal burden (YLD). Among females, fatal burden (YLL) contributed towards 59.1% of the total burden of disease and injury, with the remaining 40.9% contributed by non-fatal burden (YLD). For both males and females, the burden of Malignant Neoplasms and Benign Neoplasms are largely contributed by mortality. On the other hand, burden from Mental and Behavioural Disorders, Nutritional Deficiency, Oral Conditions and Sense Organ Diseases are largely contributed by morbidity. Intentional Injuries contributed mainly towards fatal burden among males, with a larger component of non-fatal among females **[Figure 6.4.1]**.

6.4.2 Pattern of Disability-Adjusted Life Years (DALYs) by sex

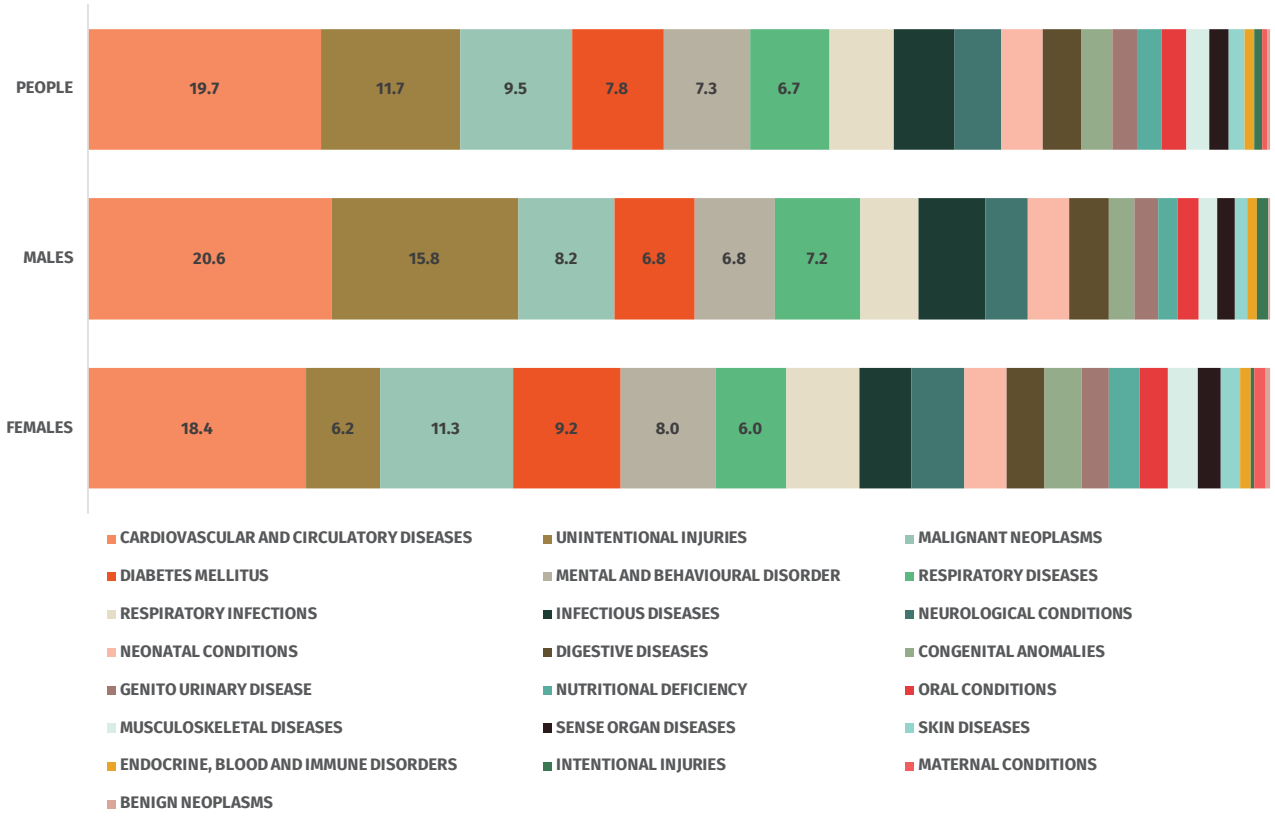


Figure 6.4.2: Percentage (%) of total burden (DALYs), by disease groups and sex, 2012

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards total burden of disease and injury in Malaysia for 2012, followed by Unintentional Injuries and Malignant Neoplasms **[Figure 6.4.2]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest DALYs and contributed to around 20% of the total disease and injury burden. For males, Unintentional Injuries contributed to 15.8% of total disease and injury burden followed by Malignant Neoplasms at 8.2% and Respiratory Diseases at 7.2%. For females, Malignant Neoplasms and Diabetes Mellitus were the second and third largest contributor of total disease and injury burden, with 11.3% and 9.2% respectively, followed by Mental and Behavioural Disorders at 8.0% **[Table 6.4.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	DALYs (number)	DALYs (%)	DALYs (number)	DALYs (%)	DALYs (number)	DALYs (%)
INFECTIOUS DISEASES	234447	5.1	149767	5.7	84679	4.4
RESPIRATORY INFECTIONS	249990	5.5	131003	4.9	118987	6.2
MATERNAL CONDITIONS	19315	0.4	0	0.0	19315	1.0
NEONATAL CONDITIONS	162550	3.6	94109	3.6	68441	3.6
NUTRITIONAL DEFICIENCY	94242	2.1	44101	1.7	50141	2.6
MALIGNANT NEOPLASMS	432803	9.5	216417	8.2	216386	11.3
BENIGN NEOPLASMS	11533	0.3	4662	0.2	6871	0.4
DIABETES MELLITUS	355791	7.8	179960	6.8	175831	9.2
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	38626	0.8	21749	0.8	16878	0.9
MENTAL AND BEHAVIOURAL DISORDER	333308	7.3	179349	6.8	153959	8.0
NEUROLOGICAL CONDITIONS	179226	3.9	93895	3.5	85331	4.4
SENSE ORGAN DISEASES	76669	1.7	39557	1.5	37112	1.9
CARDIOVASCULAR AND CIRCULATORY DISEASES	900626	19.7	546231	20.6	354395	18.4
RESPIRATORY DISEASES	306811	6.7	191579	7.2	115232	6.0
DIGESTIVE DISEASES	149282	3.3	87388	3.3	61894	3.2
GENITO URINARY DISEASE	97527	2.1	53263	2.0	44264	2.3
SKIN DISEASES	59760	1.3	28182	1.1	31578	1.6
MUSCULOSKELETAL DISEASES	90209	2.0	40895	1.5	49313	2.6
CONGENITAL ANOMALIES	118025	2.6	57650	2.2	60375	3.1
ORAL CONDITIONS	94217	2.1	48233	1.8	45984	2.4
UNINTENTIONAL INJURIES	536815	11.7	417552	15.8	119263	6.2
INTENTIONAL INJURIES	29315	0.6	24297	0.9	5018	0.3
TOTAL	**4571087**	**100.0**	**2649839**	**100.0**	**1921248**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 6.4.1: Total burden of disease and injury by disease groups and by sex, 2012

6.4.3 Pattern of Disability-Adjusted Life Years (DALYs) by age

Males between 45 and 59 years of age contributed towards 24.2% of the total DALYs, the age group with the highest contribution towards male total burden of disease and injury in Malaysia in 2012 **[Figure 6.4.3(a)]**. Neonatal Conditions contributed towards the largest percentage of the DALYs in males below 5 years of age. Congenital Anomalies were the second highest among males below 5 years of age at 14.8%. Unintentional Injuries were the predominant cause of DALYs among males 5 to 29 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of total burden among males from age 30 years and above. Malignant Neoplasms were the second highest contributor of total disease burden among males 45 to 69 years of age and Respiratory Diseases contributed the second highest among males from the age of 70 years and above **[Figure 6.4.3(b)]**.

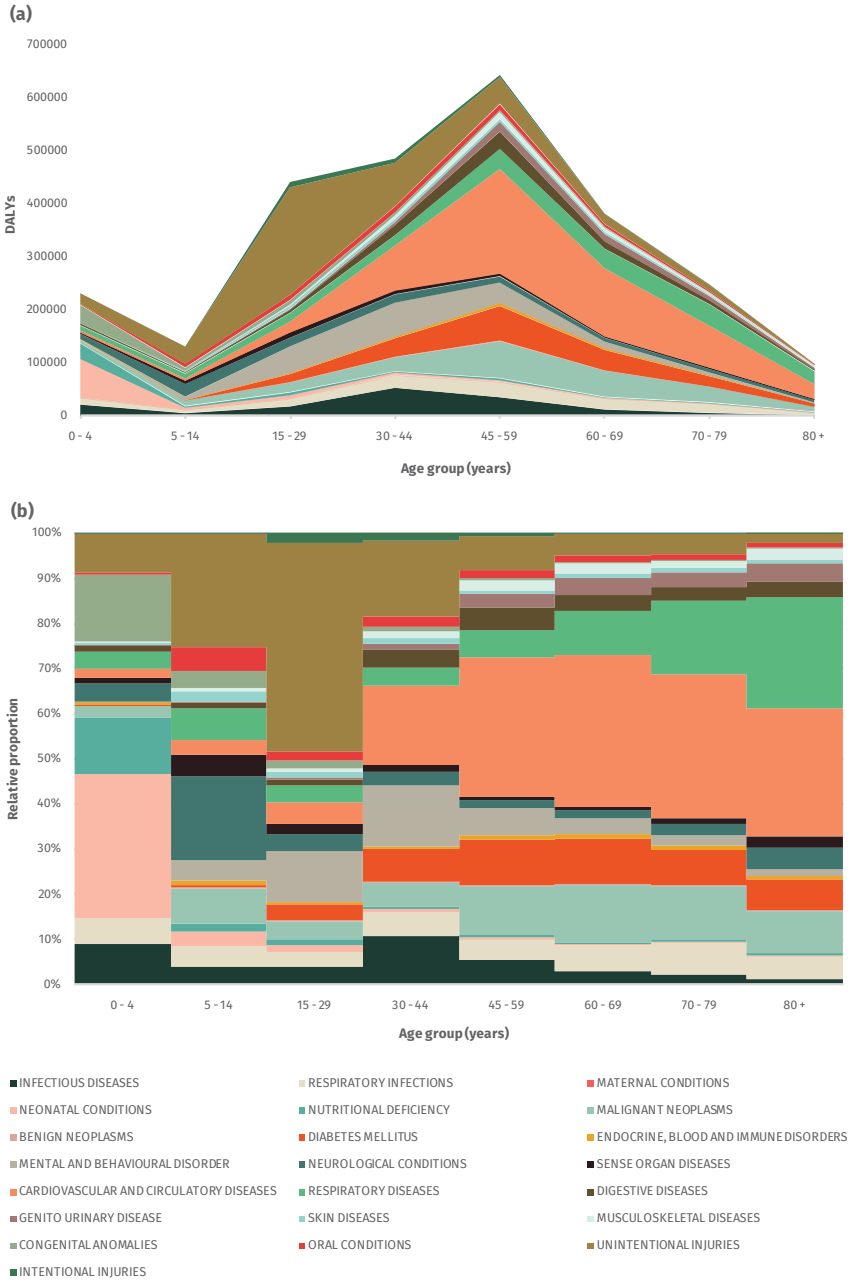


Figure 6.4.3: Number (a) & percentage (b) of total burden (DALYs), by disease groups & age, males, 2012

Females between the ages of 45 and 59 years contributed towards 22.4% of the total DALYs, the age group with the highest contribution towards female total burden of disease and injury in Malaysia in 2012 **[Figure 6.4.4(a)]**. Neonatal Conditions contributed towards the largest percentage of the DALYs in females below 5 years of age. Neurological Conditions were the highest contributor of DALYs among females 5 to 14 years of age at 20.6%. Mental and Behavioural Disorders were the predominant cause of DALYs among females 15 to 44 years of age. Cardiovascular and Circulatory Diseases was the highest contributor of total burden among females 45 years and above. Malignant Neoplasms was the second largest contributor of total burden among females 30 to 79 years of age, with Respiratory Infections being the second highest among females 80 years of age and above **[Figure 6.4.4(b)]**.

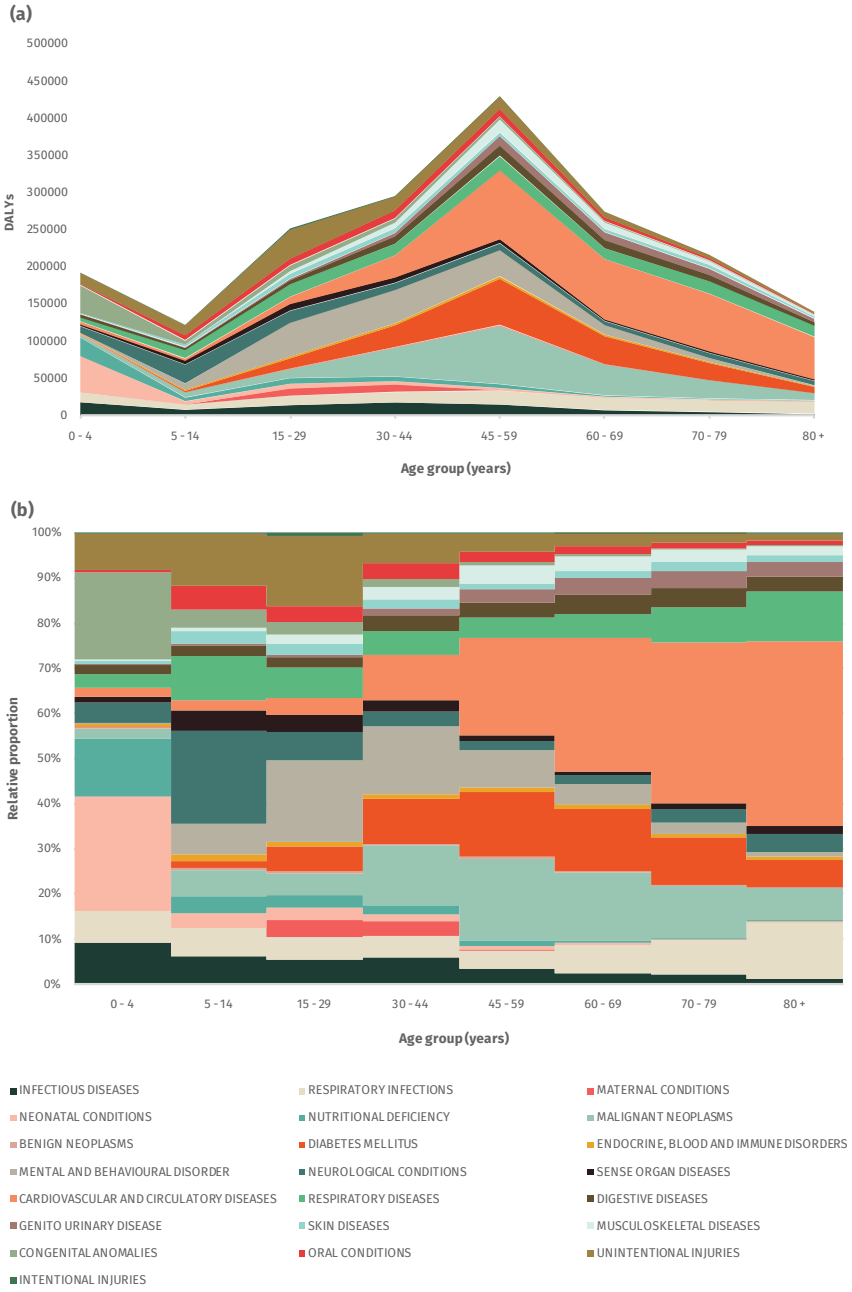


Figure 6.4.4: Number (a) & percentage (b) of total burden (DALYs), by disease groups & age, females, 2012

6.4.4 Leading Causes of Disability-Adjusted Life Years (DALYs)

Ischaemic Heart Disease was the leading cause of total burden in Malaysia for 2012, contributing 8.8% of the total DALYs. This was followed by Road Traffic Injuries, with 8.6%, and Diabetes Mellitus, with 7.8% of total DALYs. Cerebrovascular Diseases, with 7.5% and Lower Respiratory Infections with 4.6% make up the five leading causes of total disease and injury burden in 2012.

Among males, Road Traffic Injuries contributed the largest amount of DALYs with 12.2%. Ischaemic Heart Disease was the second highest contributor of DALYs in males with 10.3% followed by Cerebrovascular Diseases with 6.9%. Diabetes Mellitus and Lower Respiratory Infections make up the fourth and fifth leading causes of DALYs among males. Among females, Diabetes Mellitus was also the leading cause of DALYs with 9.2% followed by Cerebrovascular Diseases with 8.3% and Ischaemic Heart Diseases with 6.7%. Lower Respiratory Infections was the fourth and Road Traffic Injuries the fifth leading cause of DALYs among females **[Table 6.4.2]**.

The leading causes of total burden vary according to age. Among males below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of DALYs. Low Birth Weight was the second leading cause of DALYs among males below 5 years of age. Road Traffic Injuries was the leading cause of DALYs among males 5 to 44 years of age. Diabetes Mellitus was the second largest contributor of DALYs among males 15 to 29 years of age. Among males 30 to 44 years of age, Ischaemic Heart Disease was the second highest contributor to DALYs and rises to the leading cause of DALYs among males 45 to 79 years of age. Cerebrovascular Diseases were the second highest contributor to DALYs among males 60 to 79 years of age. Chronic Obstructive Pulmonary Disease was the third leading cause of DALYs among males 70 to 79 years of age, and rise to the leading cause among males age 80 years and above **[Figure 6.4.5]**.

Among females below 5 years of age, Protein-Energy Malnutrition contributed to the highest amount of DALYs, followed by Diarrhoeal Diseases. Asthma was to the leading cause of DALYs among females 5 to 14 years of age. Road Traffic Injuries were the leading cause and Anxiety Disorders was the second highest contributor to DALYs among females 15 to 29 years of age. Diabetes Mellitus was the largest contributor of DALYs among females 30 to 69 years of age. Among females 70 years of age and above, Cerebrovascular Diseases was the leading cause of DALYs. Ischaemic Heart Disease was the second leading cause of DALYs among females 70 years of age and above, with Lower Respiratory Infections the third highest contributor to DALYs among females 80 years of age and above **[Figure 6.4.6]**.

Rank	People	DALYs	% of total	Males	DALYs	% of total	Females	DALYs	% of total
1	Ischaemic Heart Disease	401656	8.8	Road Traffic Injuries	322674	12.2	Diabetes Mellitus	175831	9.2
2	Road Traffic Injuries	391699	8.6	Ischaemic Heart Disease	273587	10.3	Cerebrovascular Diseases (Stroke)	158854	8.3
3	Diabetes Mellitus	355791	7.8	Cerebrovascular Diseases (Stroke)	182437	6.9	Ischaemic Heart Disease	128069	6.7
4	Cerebrovascular Diseases (Stroke)	341291	7.5	Diabetes Mellitus	179960	6.8	Lower Respiratory Infections	101555	5.3
5	Lower Respiratory Infections	212479	4.6	Lower Respiratory Infections	110924	4.2	Road Traffic Injuries	69025	3.6
6	Chronic Obstructive Pulmonary Disease	142701	3.1	Chronic Obstructive Pulmonary Disease	101803	3.8	Breast Cancer	51874	2.7
7	Asthma	93744	2.1	Trachea, Bronchus and Lung Cancers	46964	1.8	Asthma	51638	2.7
8	Unipolar Depressive Disorder	72785	1.6	HIV	45661	1.7	Anxiety Disorders	45715	2.4
9	Anxiety Disorders	71850	1.6	Asthma	42106	1.6	Chronic Obstructive Pulmonary Disease	40898	2.1
10	Trachea, Bronchus and Lung Cancers	69705	1.5	Tuberculosis	37934	1.4	Unipolar Depressive Disorder	37084	1.9
11	Schizophrenia	67051	1.5	Unipolar Depressive Disorder	35701	1.3	Diarrhoeal Diseases	34496	1.8
12	Nephritis and Nephrosis	63171	1.4	Schizophrenia	35099	1.3	Schizophrenia	31952	1.7
13	Diarrhoeal Diseases	62113	1.4	Nephritis and Nephrosis	32706	1.2	Skin and subcutaneous diseases	31578	1.6
14	Skin and subcutaneous diseases	59760	1.3	Skin and subcutaneous diseases	28182	1.1	Nephritis and Nephrosis	30465	1.6
15	HIV	56349	1.2	Epilepsy	28010	1.1	Nutritional Anaemias	30289	1.6
16	Tuberculosis	55698	1.2	Diarrhoeal Diseases	27617	1.0	Hearing Loss	25339	1.3
17	Hearing Loss	52293	1.1	Drug Use Disorders	27521	1.0	Trachea, Bronchus and Lung Cancers	22741	1.2
18	Breast Cancer	52006	1.1	Hearing Loss	26954	1.0	Epilepsy	22433	1.2
19	Epilepsy	50443	1.1	Anxiety Disorders	26135	1.0	Osteoarthritis	22022	1.1
20	Nutritional Anaemias	49403	1.1	Low Birth Weight	25546	1.0	Colon and Rectum Cancers	20587	1.1
	Top 20 diseases	**2903795**	**63.5**	**Top 20 diseases**	**1760587**	**66.4**	**Top 20 diseases**	**1218086**	**63.4**
	All other diseases	*1667292*	*36.5*	*All other diseases*	*889253*	*33.6*	*All other diseases*	*703162*	*36.6*
	Total	**4571087**	**100.0**	**Total**	**2649839**	**100.0**	**Total**	**1921248**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 6.4.2: Leading causes of total burden (DALYs), by sex, 2012

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Protein-Energy Malnutrition (24.6; 10.7%)	Road Traffic Injuries (20.8; 15.9%)	Road Traffic Injuries (175.9; 40.0%)	Road Traffic Injuries (60.3; 12.5%)	Ischaemic Heart Disease (110.3; 17.2%)	Ischaemic Heart Disease (66.4; 17.5%)	Ischaemic Heart Disease (35.8; 14.5%)	Chronic Obstructive Pulmonary Disease (17.6; 18.0%)
2nd	Low Birth Weight (17.6; 7.6%)	Asthma (8.0; 6.1%)	Diabetes Mellitus (15.2; 3.5%)	Ischaemic Heart Disease (43.7; 9.0%)	Diabetes Mellitus (64.9; 10.1%)	Cerebrovascular Diseases (Stroke) (46.6; 12.3%)	Cerebrovascular Diseases (Stroke) (33.6; 13.6%)	Ischaemic Heart Disease (12.5; 12.8%)
3rd	Birth Trauma and Asphyxia (16.6; 7.2%)	Epilepsy (5.3; 4.1%)	Unipolar Depressive Disorder (11.5; 2.6%)	Diabetes Mellitus (34.8; 7.2%)	Cerebrovascular Diseases (Stroke) (56.4; 8.8%)	Diabetes Mellitus (38.4; 10.1%)	Chronic Obstructive Pulmonary Disease (29.5; 12.0%)	Cerebrovascular Diseases (Stroke) (11.4; 11.7%)
4th	Diarrhoeal Diseases (15.7; 6.8%)	Leukaemia (5.0; 3.8%)	Asthma (10.4; 2.4%)	HIV (23.8; 4.9%)	Road Traffic Injuries (36.8; 5.7%)	Chronic Obstructive Pulmonary Disease (23.9; 6.3%)	Diabetes Mellitus (19.4; 7.9%)	Diabetes Mellitus (6.6; 6.7%)
5th	Congenital Heart Diseases (11.2; 4.9%)	Hearing Loss (4.9; 3.7%)	Lower Respiratory Infections (8.8; 2.0%)	Cerebrovascular Diseases (Stroke) (23.8; 4.9%)	Lower Respiratory Infections (26.5; 4.1%)	Lower Respiratory Infections (20.2; 5.3%)	Lower Respiratory Infections (17.2; 7.0%)	Lower Respiratory Infections (5.0; 5.1%)
6th	Lower Respiratory Infections (10.9; 4.7%)	Drowning (4.3; 3.3%)	Anxiety Disorders (8.3; 1.9%)	Lower Respiratory Infections (20.2; 4.2%)	Trachea, Bronchus and Lung Cancers (17.5; 2.7%)	Trachea, Bronchus and Lung Cancers (13.7; 3.6%)	Trachea, Bronchus and Lung Cancers (8.9; 3.6%)	Dementia (3.2; 3.3%)
7th	Neonatal Infections (10.5; 4.6%)	Upper Respiratory Infections (3.3; 2.5%)	Epilepsy (8.3; 1.9%)	Drug Use Disorders (16.3; 3.4%)	Chronic Obstructive Pulmonary Disease (16.9; 2.6%)	Road Traffic Injuries (13.1; 3.4%)	Road Traffic Injuries (8.0; 3.2%)	Trachea, Bronchus and Lung Cancers (2.0; 2.0%)
8th	Road Traffic Injuries (6.6; 2.9%)	Diarrhoeal Diseases (3.2; 2.4%)	Hearing Loss (8.1; 1.8%)	Tuberculosis (14.0; 2.9%)	HIV (13.7; 2.1%)	Nephritis and Nephrosis (8.4; 2.2%)	Colon and Rectum Cancers (4.7; 1.9%)	Cataract (2.0; 2.0%)
9th	Chronic Obstructive Pulmonary Disease (5.1; 2.2%)	Brain and Other CNS Cancers (2.9; 2.2%)	Cerebrovascular Diseases (Stroke) (7.9; 1.8%)	Schizophrenia (12.9; 2.7%)	Nephritis and Nephrosis (12.3; 1.9%)	Colon and Rectum Cancers (7.2; 1.9%)	Nephritis and Nephrosis (4.0; 1.6%)	Nephritis and Nephrosis (2.0; 2.0%)
10th	Nutritional Anaemias (4.4; 1.9%)	Skin and subcutaneous diseases (2.8; 2.1%)	Schizophrenia (7.3; 1.7%)	Unipolar Depressive Disorder (8.6; 1.8%)	Tuberculosis (11.9; 1.9%)	Liver Cancers (5.9; 1.5%)	Dementia (3.1; 1.2%)	Asthma (1.5; 1.5%)

Figure 6.4.5: Leading causes of total burden (DALYs '000; percentage %) for males, by age group, 2012

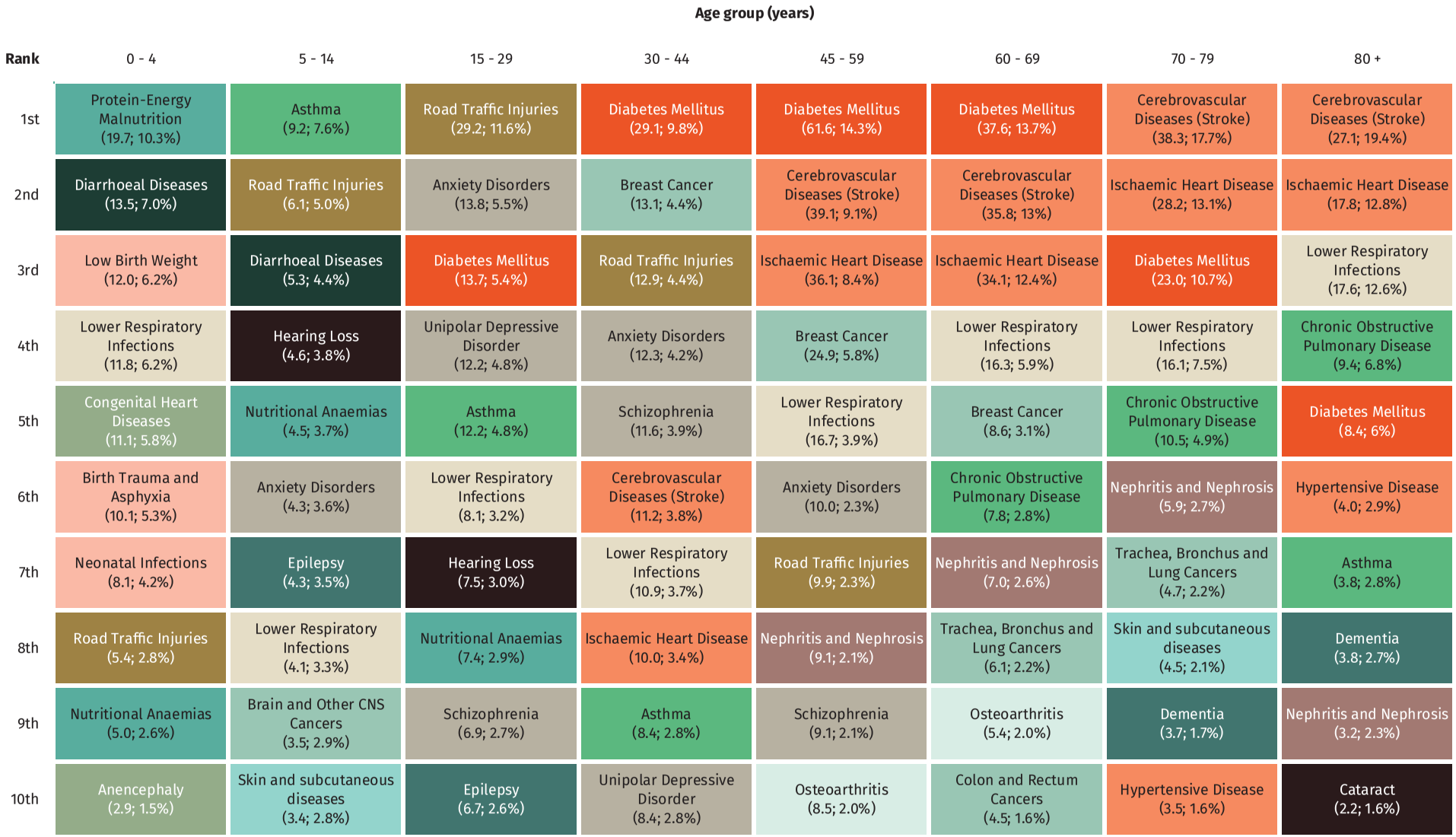


Figure 6.4.6: Leading causes of total burden (DALYs '000; percentage %) for females, by age group, 2012

6.5 Disability-Adjusted Life Years (DALYs) - 2013

In 2013, a total of 4.69 million years of life were lost due to ill-health in Malaysia. Males contributed towards 2.73 million DALYs (58.3%) and females 1.95 million DALYs (41.7%).

6.5.1 Pattern of Years of Life Lost (YLL) vs Years Lost due to Disability (YLD)

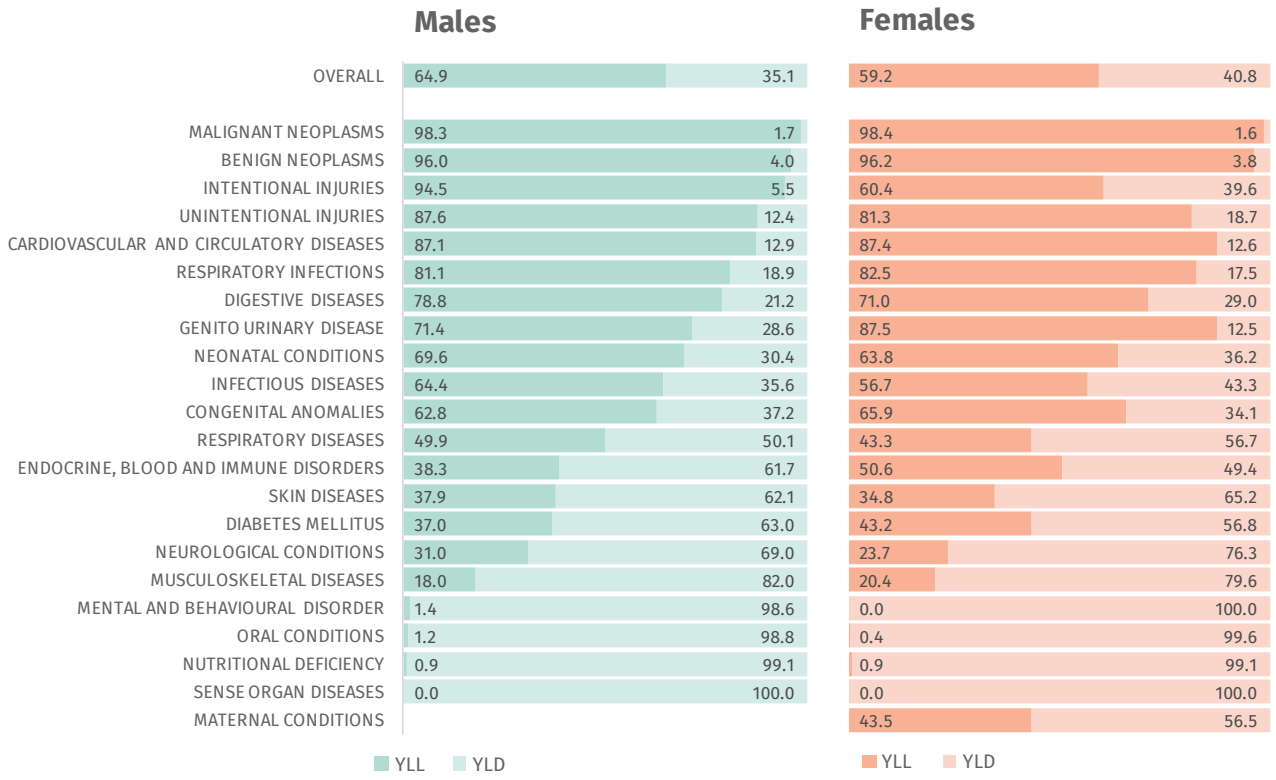


Figure 6.5.1: Percentage (%) of DALYs by YLL vs YLD for males and females, by disease group, 2013

Overall, fatal burden (YLL) contributed towards 64.9% of the total burden of disease and injury among males, with the remaining 35.1% contributed by non-fatal burden (YLD). Among females, fatal burden (YLL) contributed towards 59.2% of the total burden of disease and injury, with the remaining 40.8% contributed by non-fatal burden (YLD). For both males and females, the burden of Malignant Neoplasms and Benign Neoplasms are largely contributed by mortality. On the other hand, burden from Mental and Behavioural Disorders, Oral Conditions, Nutritional Deficiency and Sense Organ Diseases are largely contributed by morbidity. Intentional Injuries contributed mainly towards fatal burden among males, with a larger component of non-fatal burden among females **[Figure 6.5.1]**.

6.5.2 Pattern of Disability-Adjusted Life Years (DALYs) by sex

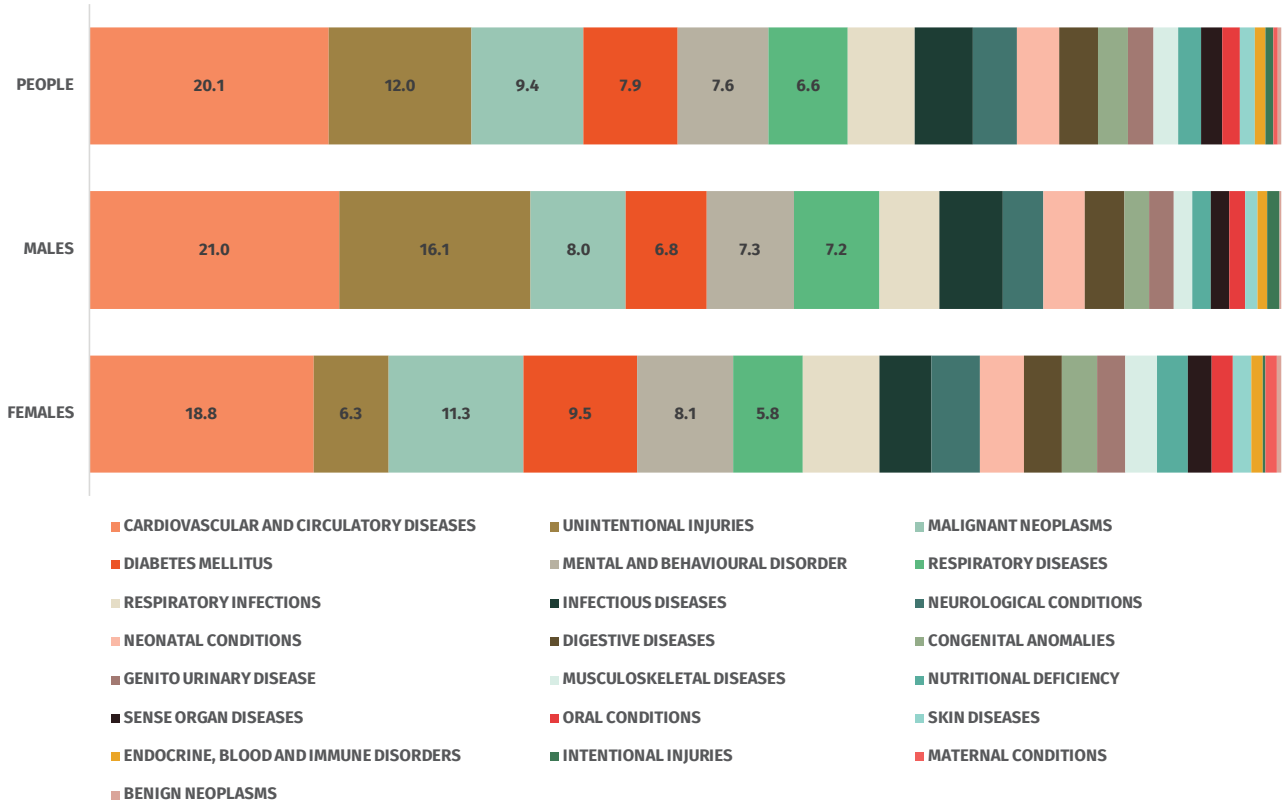


Figure 6.5.2: Percentage (%) of total burden (DALYs), by disease groups and sex, 2013

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards total burden of disease and injury in Malaysia for 2013, followed by Unintentional Injuries and Malignant Neoplasms **[Figure 6.5.2]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest DALYs and contributed to around 20% of the total disease and injury burden. For males, Unintentional Injuries contributed to 16.1% of total disease and injury burden followed by Malignant Neoplasms at 8.0% and Mental and Behavioural Disorders at 7.3%. For females, Malignant Neoplasms were the second largest contributor of total disease and injury burden at 11.3%, followed by Diabetes Mellitus at 9.5% and Mental and Behavioural Disorders at 8.1% **[Table 6.5.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	DALYs (number)	DALYs (%)	DALYs (number)	DALYs (%)	DALYs (number)	DALYs (%)
INFECTIOUS DISEASES	229300	4.9	144662	5.3	84639	4.3
RESPIRATORY INFECTIONS	262553	5.6	136995	5.0	125558	6.4
MATERNAL CONDITIONS	18676	0.4	0	0.0	18676	1.0
NEONATAL CONDITIONS	167378	3.6	95112	3.5	72266	3.7
NUTRITIONAL DEFICIENCY	92729	2.0	42686	1.6	50042	2.6
MALIGNANT NEOPLASMS	440248	9.4	218504	8.0	221744	11.3
BENIGN NEOPLASMS	12121	0.3	4939	0.2	7182	0.4
DIABETES MELLITUS	371104	7.9	185222	6.8	185883	9.5
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	41547	0.9	23423	0.9	18124	0.9
MENTAL AND BEHAVIOURAL DISORDER	357071	7.6	198847	7.3	158224	8.1
NEUROLOGICAL CONDITIONS	172683	3.7	92743	3.4	79940	4.1
SENSE ORGAN DISEASES	80219	1.7	41502	1.5	38716	2.0
CARDIOVASCULAR AND CIRCULATORY DISEASES	941276	20.1	572973	21.0	368303	18.8
RESPIRATORY DISEASES	311344	6.6	197304	7.2	114040	5.8
DIGESTIVE DISEASES	151808	3.2	89963	3.3	61845	3.2
GENITO URINARY DISEASE	100504	2.1	55399	2.0	45106	2.3
SKIN DISEASES	58726	1.3	28134	1.0	30592	1.6
MUSCULOSKELETAL DISEASES	96633	2.1	43475	1.6	53159	2.7
CONGENITAL ANOMALIES	115993	2.5	57739	2.1	58255	3.0
ORAL CONDITIONS	70899	1.5	35961	1.3	34938	1.8
UNINTENTIONAL INJURIES	560950	12.0	438636	16.1	122314	6.3
INTENTIONAL INJURIES	31623	0.7	26647	1.0	4976	0.3
TOTAL	**4685386**	**100.0**	**2730864**	**100.0**	**1954521**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 6.5.1: Total burden of disease and injury by disease groups and by sex, 2013

6.5.3 Pattern of Disability-Adjusted Life Years (DALYs) by age

Males between 45 and 59 years of age contributed towards 24.4% of the total DALYs, the age group with the highest contribution towards male total burden of disease and injury in Malaysia in 2013 **[Figure 6.5.3(a)]**. Neonatal Conditions contributed towards the largest percentage of the DALYs in males below 5 years of age. Congenital Anomalies were the second highest among males below 5 years of age at 14.9%. Unintentional Injuries were the predominant cause of DALYs among males 5 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of total burden among males from age 45 years and above. Malignant Neoplasms were the second highest contributor of total disease burden among males 45 to 69 years of age and Respiratory Diseases contributed the second highest among males from the age of 70 years and above **[Figure 6.5.3(b)]**.

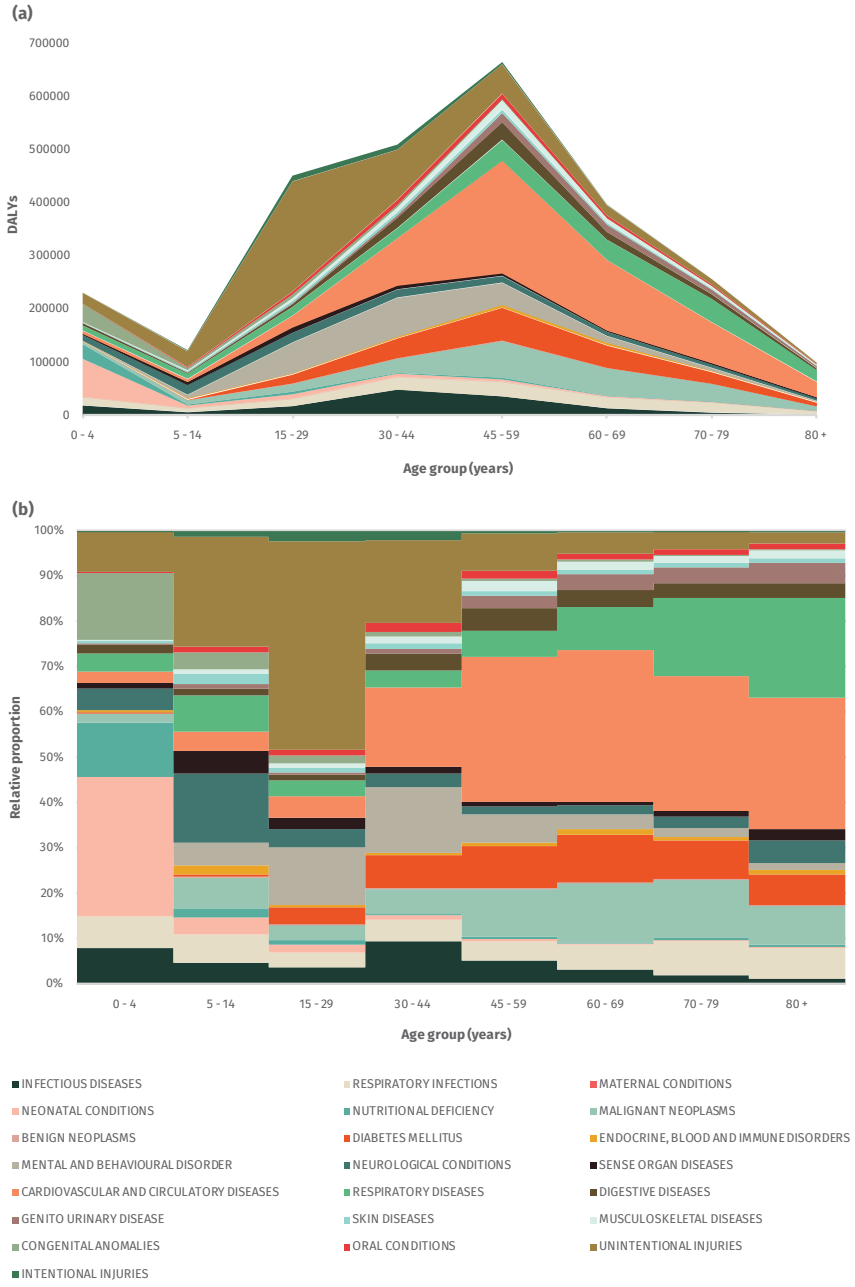


Figure 6.5.3: Number (a) & percentage (b) of total burden (DALYs), by disease groups & age, males, 2013

Females between the ages of 45 and 59 years contributed towards 22.6% of the total DALYs, the age group with the highest contribution towards female total burden of disease and injury in Malaysia in 2013 **[Figure 6.5.4(a)]**. Neonatal Conditions contributed towards the largest percentage of the DALYs in females below 5 years of age. Neurological Conditions were the highest contributor of DALYs among females 5 to 14 years of age at 16.7%. Mental and Behavioural Disorders were the predominant cause of DALYs among females 15 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributors to DALYs among females age 45 years and above. Malignant Neoplasms were the second largest contributor of total burden among females 45 to 79 years of age, with Respiratory Infections being the second highest among females 80 years of age and above **[Figure 6.5.4(b)]**.

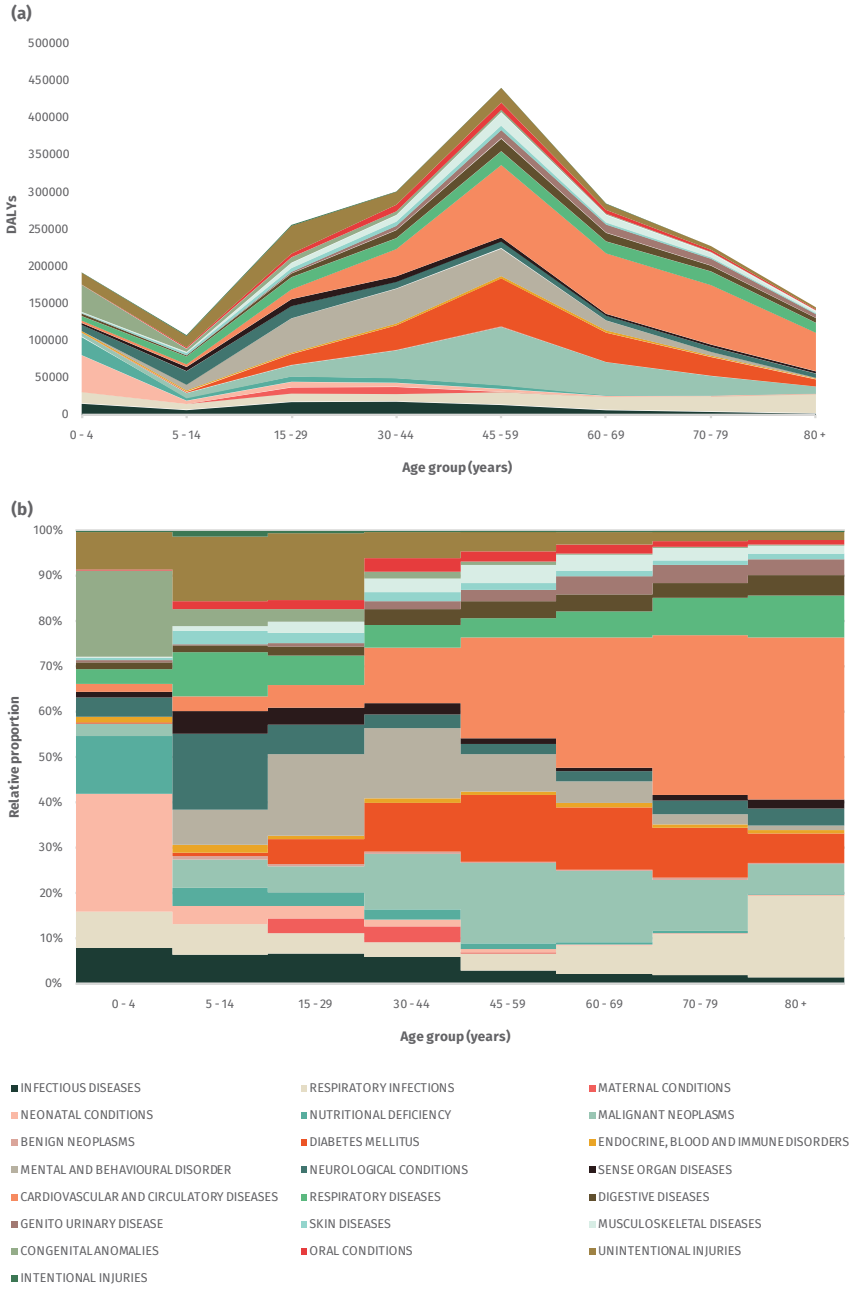


Figure 6.5.4: Number (a) & percentage (b) of total burden (DALYs), by disease groups & age, females, 2013

6.5.4 Leading Causes of Disability-Adjusted Life Years (DALYs)

Ischaemic Heart Disease was the leading cause of total burden in Malaysia for 2013, contributing 8.8% of the total DALYs. This was followed by Road Traffic Injuries, with 8.7%, and Diabetes Mellitus, with 7.9% of total DALYs. Cerebrovascular Diseases, with 7.7% and Lower Respiratory Infections with 4.8% make up the five leading causes of total disease and injury burden in 2013.

Among males, Road Traffic Injuries contributed the largest amount of DALYs with 12.3%. Ischaemic Heart Disease was the second highest contributor of DALYs in males with 10.3% followed by Cerebrovascular Diseases with 7.2%. Diabetes Mellitus and Lower Respiratory Infections make up the fourth and fifth leading causes of DALYs among males. Among females, Diabetes Mellitus was also the leading cause of DALYs with 9.5% followed by Cerebrovascular Diseases with 8.4% and Ischaemic Heart Diseases with 6.7%. Lower Respiratory Infections was the fourth and Road Traffic Injuries the fifth leading cause of DALYs among females **[Table 6.5.2]**.

The leading causes of total burden vary according to age. Among males below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of DALYs. Low Birth Weight was the second leading cause of DALYs among males below 5 years of age. Road Traffic Injuries was the leading cause of DALYs among males 5 to 44 years of age. Diabetes Mellitus was the second largest contributor of DALYs among males 15 to 29 years of age. Among males 30 to 44 years of age, Ischaemic Heart Disease was the second highest contributor to DALYs and rises to the leading cause of DALYs among males 45 to 69 years of age. Cerebrovascular Diseases were the second highest contributor to DALYs among males 45 to 69 years of age and rises to the leading cause of DALYs among males 70 to 79 years of age. Ischaemic Heart Disease was the second leading cause of DALYs among males 70 to 79 years of age, with Chronic Obstructive Pulmonary Disease the highest among males age 80 years and above **[Figure 6.5.5]**.

Among females below 5 years of age, Protein-Energy Malnutrition contributed to the highest amount of DALYs, followed by Low Birth Weight. Asthma was to the leading cause of DALYs among females 5 to 14 years of age and Road Traffic Injuries were the leading cause among females 15 to 29 years of age. Diabetes Mellitus was the second highest contributor to DALYs among females 15 to 29 years of age and rises to the largest contributor of DALYs among females 30 to 69 years of age. Among females 45 to 69 years of age, Cerebrovascular Diseases was the second leading cause of DALYs, and rises to be the leading cause of DALYs among females age 70 years and above. Ischaemic Heart Disease was the second leading cause of DALYs among females 70 to 79 years of age, with Lower Respiratory Infections the second highest contributor to DALYs among females 80 years of age and above **[Figure 6.5.6]**.

Rank	People	DALYs	% of total	Males	DALYs	% of total	Females	DALYs	% of total
1	Ischaemic Heart Disease	412552	8.8	Road Traffic Injuries	335618	12.3	Diabetes Mellitus	185883	9.5
2	Road Traffic Injuries	409698	8.7	Ischaemic Heart Disease	281554	10.3	Cerebrovascular Diseases (Stroke)	164049	8.4
3	Diabetes Mellitus	371104	7.9	Cerebrovascular Diseases (Stroke)	195945	7.2	Ischaemic Heart Disease	130997	6.7
4	Cerebrovascular Diseases (Stroke)	359994	7.7	Diabetes Mellitus	185222	6.8	Lower Respiratory Infections	107839	5.5
5	Lower Respiratory Infections	224204	4.8	Lower Respiratory Infections	116365	4.3	Road Traffic Injuries	74079	3.8
6	Chronic Obstructive Pulmonary Disease	146536	3.1	Chronic Obstructive Pulmonary Disease	105053	3.8	Breast Cancer	52139	2.7
7	Asthma	94404	2.0	Trachea, Bronchus and Lung Cancers	48285	1.8	Asthma	51833	2.7
8	Unipolar Depressive Disorder	75092	1.6	Drug Use Disorders	45091	1.7	Anxiety Disorders	45869	2.3
9	Anxiety Disorders	72096	1.5	Asthma	42572	1.6	Chronic Obstructive Pulmonary Disease	41482	2.1
10	Trachea, Bronchus and Lung Cancers	71220	1.5	HIV	37378	1.4	Unipolar Depressive Disorder	38348	2.0
11	Schizophrenia	69085	1.5	Unipolar Depressive Disorder	36744	1.3	Diarrhoeal Diseases	34895	1.8
12	Nephritis and Nephrosis	65624	1.4	Tuberculosis	36082	1.3	Schizophrenia	33019	1.7
13	Diarrhoeal Diseases	61427	1.3	Schizophrenia	36066	1.3	Nephritis and Nephrosis	31202	1.6
14	Skin and subcutaneous diseases	58726	1.3	Nephritis and Nephrosis	34423	1.3	Skin and subcutaneous diseases	30592	1.6
15	Hearing Loss	54367	1.2	Epilepsy	28670	1.0	Nutritional Anaemias	30220	1.5
16	Tuberculosis	53709	1.1	Skin and subcutaneous diseases	28134	1.0	Hearing Loss	26288	1.3
17	Breast Cancer	53409	1.1	Hearing Loss	28079	1.0	Epilepsy	22941	1.2
18	Epilepsy	51611	1.1	Low Birth Weight	27399	1.0	Trachea, Bronchus and Lung Cancers	22936	1.2
19	Nutritional Anaemias	49688	1.1	Diarrhoeal Diseases	26532	1.0	Osteoarthritis	22903	1.2
20	Low Birth Weight	49112	1.0	Anxiety Disorders	26227	1.0	Low Birth Weight	21713	1.1
	Top 20 diseases	**2990134**	**63.8**	**Top 20 diseases**	**1827617**	**66.9**	**Top 20 diseases**	**1248984**	**63.9**
	All other diseases	*1695252*	*36.2*	*All other diseases*	*903247*	*33.1*	*All other diseases*	*705538*	*36.1*
	Total	**4685386**	**100.0**	**Total**	**2730864**	**100.0**	**Total**	**1954521**	**100.0**

Colour legend:

>5%	4-5%	3-4%	2-3%	0-2%

Table 6.5.2: Leading causes of total burden (DALYs), by sex, 2013

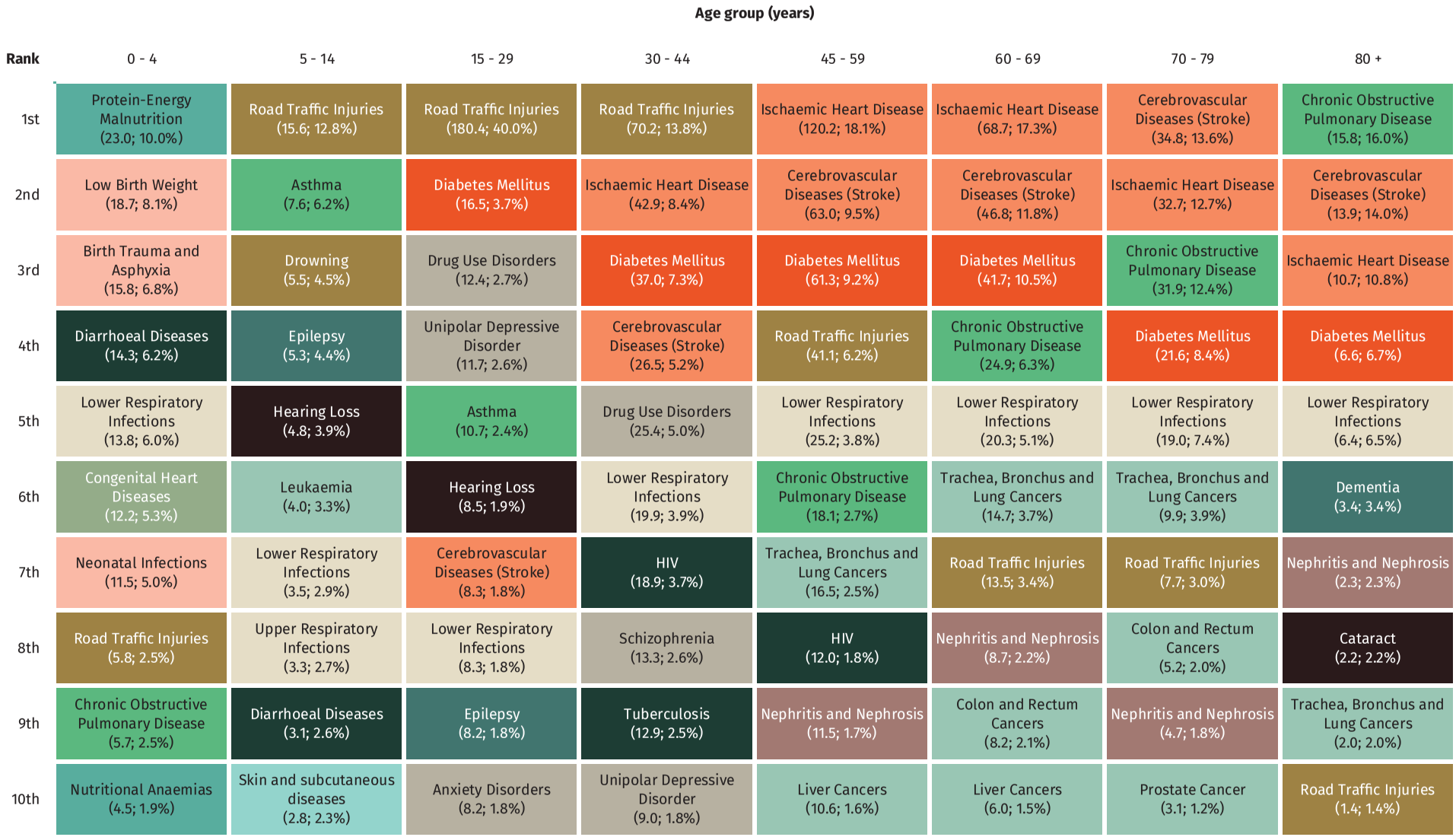


Figure 6.5.5: Leading causes of total burden (DALYs '000; percentage %) for males, by age group, 2013

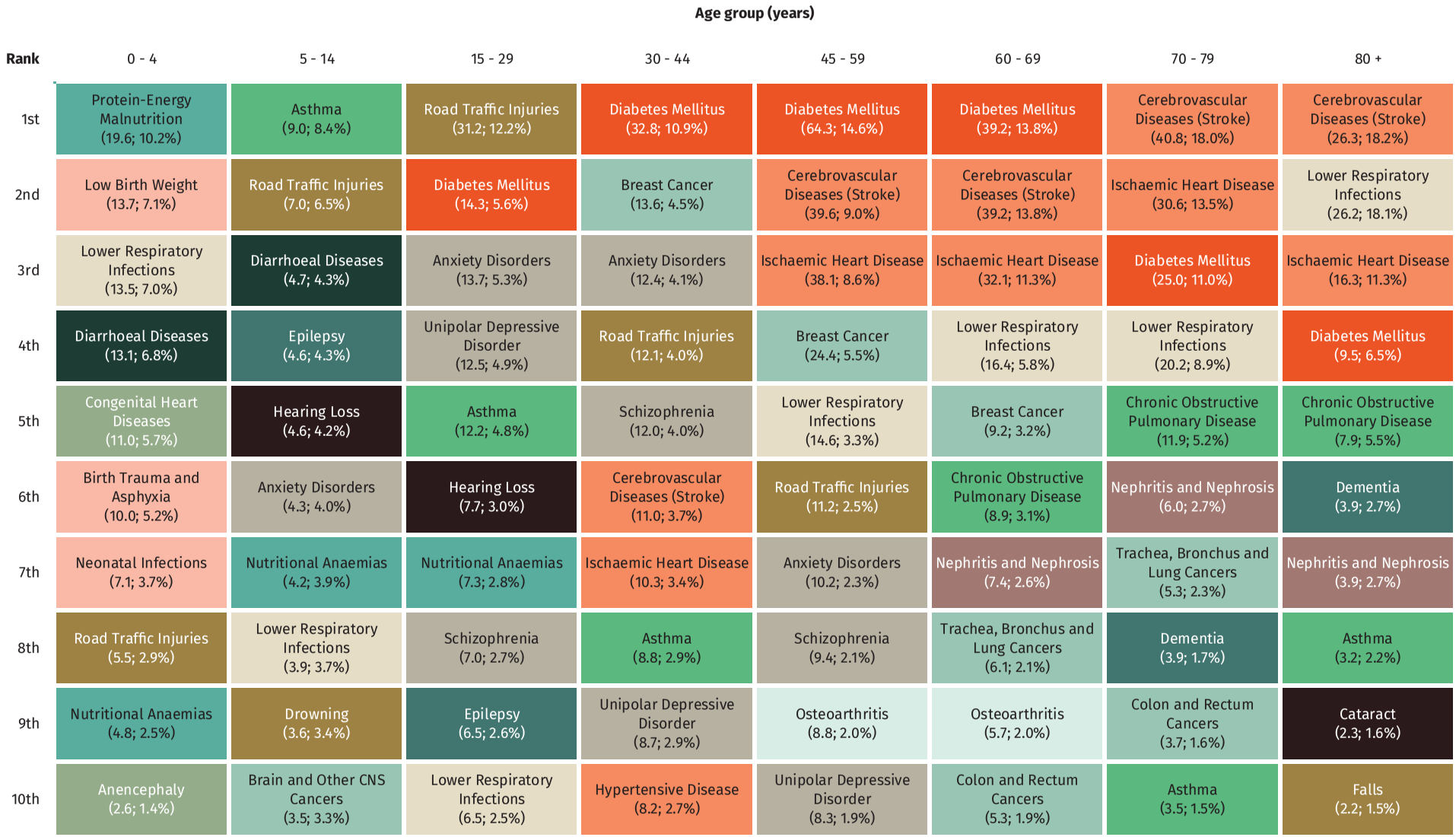


Figure 6.5.6: Leading causes of total burden (DALYs '000; percentage %) for females, by age group, 2013

6.6 Disability-Adjusted Life Years (DALYs) – 2014

In 2014, a total of 4.99 million years of life were lost due to ill-health in Malaysia. Males contributed towards 2.89 million DALYs (57.9%) and females 2.10 million DALYs (42.1%).

6.6.1 Pattern of Years of Life Lost (YLL) vs Years Lost due to Disability (YLD)

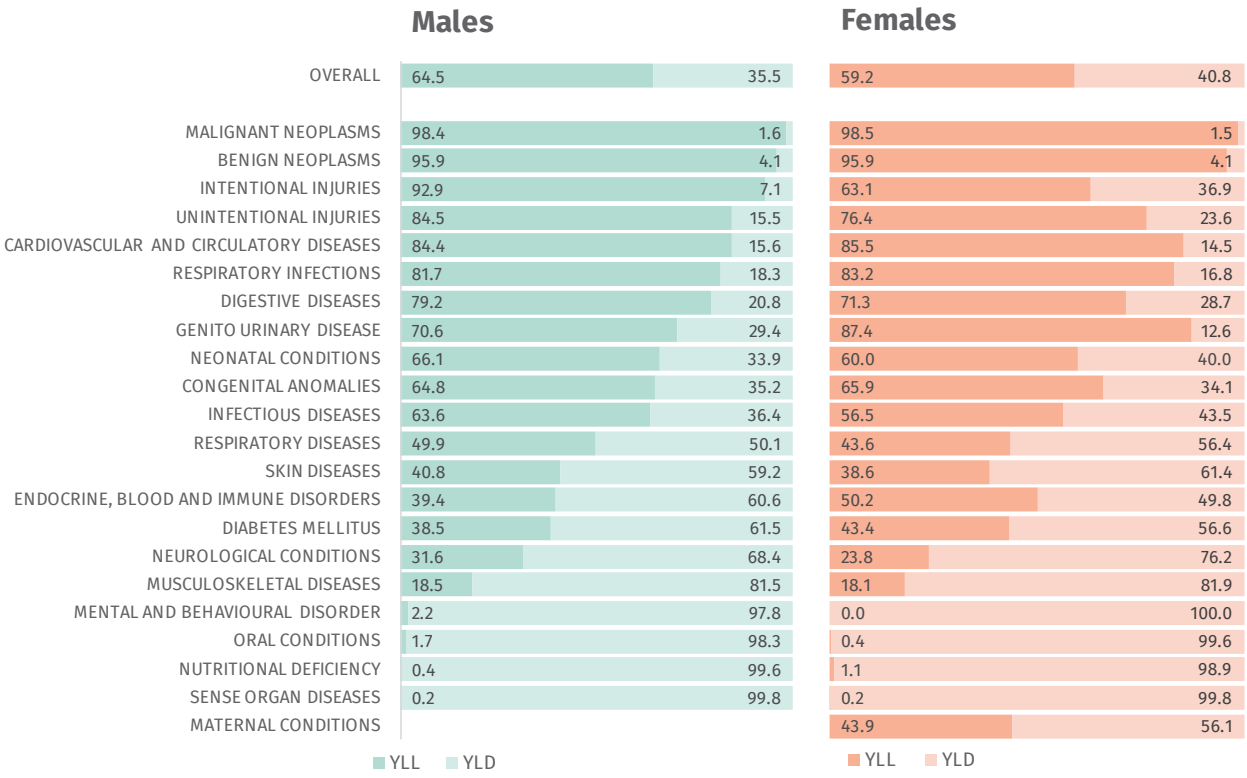


Figure 6.6.1: Percentage (%) of DALYs by YLL vs YLD for males and females, by disease group, 2014

Overall, fatal burden (YLL) contributed towards 64.5% of the total burden of disease and injury among males, with the remaining 35.5% contributed by non-fatal burden (YLD). Among females, fatal burden (YLL) contributed towards 59.2% of the total burden of disease and injury, with the remaining 40.8% contributed by non-fatal burden (YLD). For both males and females, the burden of Malignant Neoplasms and Benign Neoplasms are largely contributed by mortality. On the other hand, burden from Mental and Behavioural Disorders, Oral Conditions, Nutritional Deficiency and Sense Organ Diseases are largely contributed by morbidity. Intentional Injuries contributed mainly towards fatal burden among males, with a larger component of non-fatal among females **[Figure 6.6.1]**.

6.6.2 Pattern of Disability-Adjusted Life Years (DALYs) by sex

Figure 6.6.2: Percentage (%) of total burden (DALYs), by disease groups and sex, 2014

Overall, Cardiovascular and Circulatory Diseases were the largest contributor towards total burden of disease and injury in Malaysia for 2014, followed by Unintentional Injuries and Malignant Neoplasms **[Figure 6.6.2]**. For both males and females, Cardiovascular and Circulatory Diseases caused the highest DALYs and contributed to around 20% of the total disease and injury burden. For males, Unintentional Injuries contributed to 15.7% of total disease and injury burden followed by Malignant Neoplasms at 8.1% and Respiratory Diseases at 7.1%. For females, Malignant Neoplasms was the second largest contributor of total disease and injury burden, with 11.3%, followed by Diabetes Mellitus at 9.3% and Mental and Behavioural Disorders at 7.6% **[Table 6.6.1]**.

DISEASE GROUP	PEOPLE		MALES		FEMALES	
	DALYs (number)	DALYs (%)	DALYs (number)	DALYs (%)	DALYs (number)	DALYs (%)
INFECTIOUS DISEASES	254530	5.1	155925	5.4	98604	4.7
RESPIRATORY INFECTIONS	276466	5.5	143819	5.0	132647	6.3
MATERNAL CONDITIONS	21524	0.4	0	0.0	21524	1.0
NEONATAL CONDITIONS	189881	3.8	106505	3.7	83376	4.0
NUTRITIONAL DEFICIENCY	90832	1.8	40794	1.4	50038	2.4
MALIGNANT NEOPLASMS	470528	9.4	233555	8.1	236973	11.3
BENIGN NEOPLASMS	11333	0.2	4718	0.2	6616	0.3
DIABETES MELLITUS	391871	7.8	196073	6.8	195798	9.3
ENDOCRINE, BLOOD AND IMMUNE DISORDERS	44258	0.9	23930	0.8	20328	1.0
MENTAL AND BEHAVIOURAL DISORDER	359599	7.2	200425	6.9	159174	7.6
NEUROLOGICAL CONDITIONS	180425	3.6	94337	3.3	86088	4.1
SENSE ORGAN DISEASES	82011	1.6	42457	1.5	39554	1.9
CARDIOVASCULAR AND CIRCULATORY DISEASES	1040536	20.8	634543	22.0	405992	19.3
RESPIRATORY DISEASES	325295	6.5	204296	7.1	120999	5.8
DIGESTIVE DISEASES	160224	3.2	94630	3.3	65594	3.1
GENITO URINARY DISEASE	107354	2.2	58627	2.0	48727	2.3
SKIN DISEASES	63330	1.3	30135	1.0	33194	1.6
MUSCULOSKELETAL DISEASES	99540	2.0	45429	1.6	54112	2.6
CONGENITAL ANOMALIES	129685	2.6	63808	2.2	65878	3.1
ORAL CONDITIONS	71449	1.4	36343	1.3	35105	1.7
UNINTENTIONAL INJURIES	593476	11.9	453599	15.7	139877	6.6
INTENTIONAL INJURIES	28499	0.6	24692	0.9	3808	0.2
TOTAL	**4992646**	**100.0**	**2888640**	**100.0**	**2104007**	**100.0**

Colour legend: GROUP I : Communicable, Maternal, Perinatal and Nutritional Conditions | GROUP II : Noncommunicable Diseases | GROUP III : Injuries

Table 6.6.1: Total burden of disease and injury by disease groups and by sex, 2014

6.6.3 Pattern of Disability-Adjusted Life Years (DALYs) by age

Males between 45 and 59 years of age contributed towards 24.5% of the total DALYs, the age group with the highest contribution towards male total burden of disease and injury in Malaysia in 2014 **[Figure 6.6.3(a)]**. Neonatal Conditions contributed towards the largest percentage of the DALYs in males below 5 years of age. Congenital Anomalies were the second highest among males below 5 years of age at 15.9%. Unintentional Injuries were the predominant cause of DALYs among males 5 to 29 years of age. Cardiovascular and Circulatory Diseases were the highest contributor of total burden among males from age 30 years and above. Malignant Neoplasms were the second highest contributor of total disease burden among males 45 to 69 years of age and Respiratory Diseases contributed the second highest among males from the age of 70 years and above **[Figure 6.6.3(b)]**.

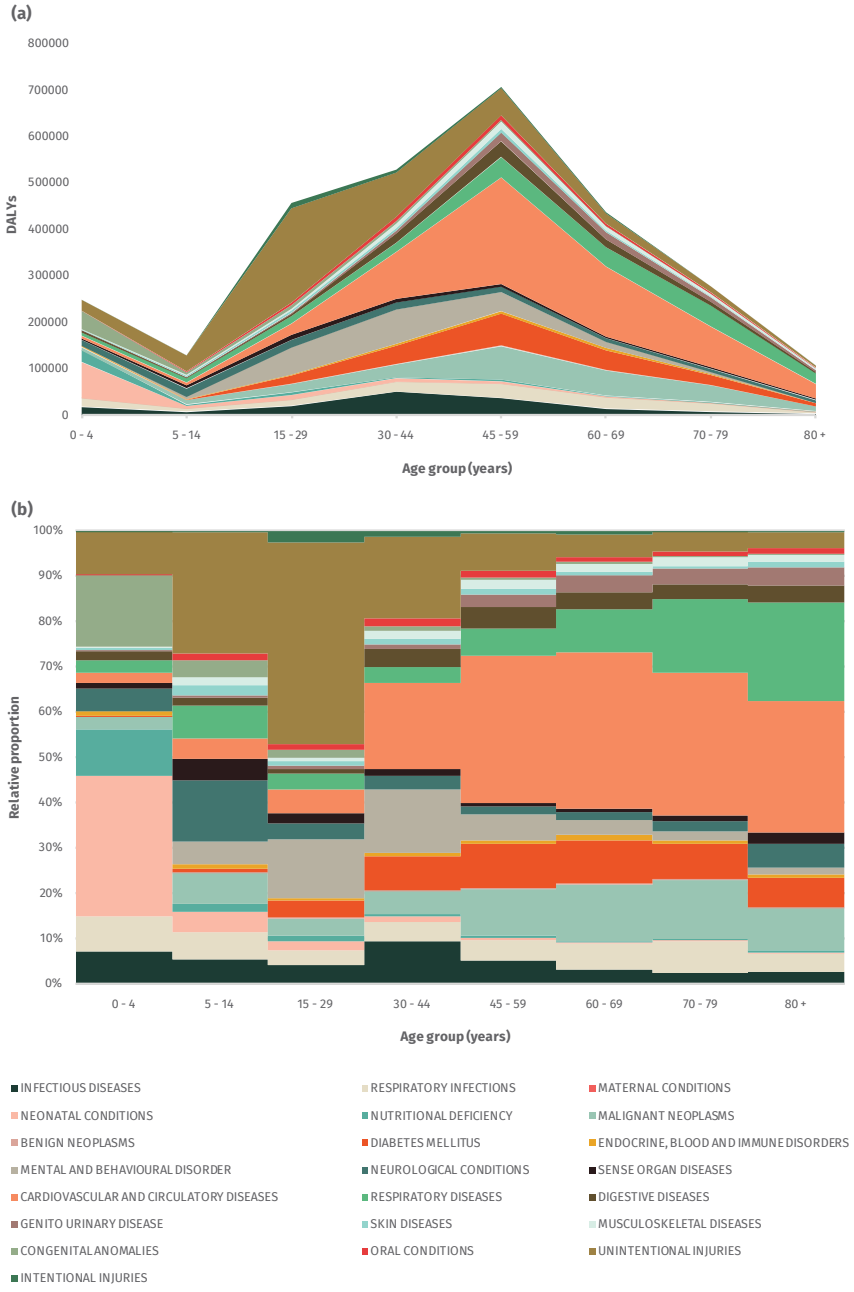


Figure 6.6.3: Number (a) & percentage (b) of total burden (DALYs), by disease groups & age, males, 2014

Females between the ages of 45 and 59 years contributed towards 22.5% of the total DALYs, the age group with the highest contribution towards female total burden of disease and injury in Malaysia in 2014 **[Figure 6.6.4(a)]**. Neonatal Conditions contributed towards the largest percentage of the DALYs in females below 5 years of age. Neurological Conditions and Unintentional Injuries were the highest contributor of DALYs among females 5 to 14 years of age, both at 14.2%. Mental and Behavioural Disorders were the predominant cause of DALYs among females 15 to 44 years of age. Cardiovascular and Circulatory Diseases were the highest contributors to DALYs among females age 45 years and above. Malignant Neoplasms was the second largest contributor of total burden among females 45 to 79 years of age, with Respiratory Infections being the second highest among females 80 years of age and above **[Figure 6.6.4(b)]**.

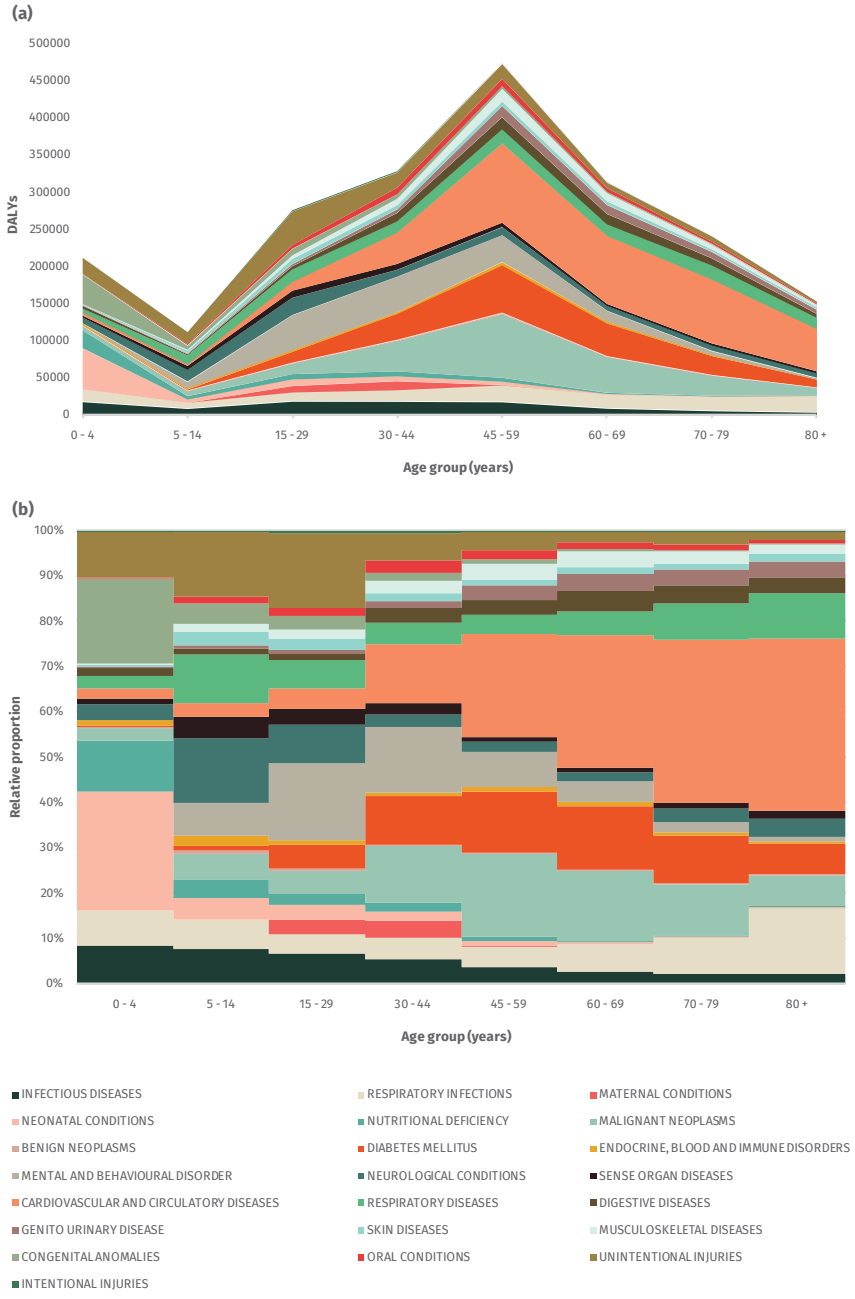


Figure 6.6.4: Number (a) & percentage (b) of total burden (DALYs), by disease groups & age, females, 2014

6.6.4 Leading Causes of Disability-Adjusted Life Years (DALYs)

Ischaemic Heart Disease was the leading cause of total burden in Malaysia for 2014, contributing 9.3% of the total DALYs. This was followed by Road Traffic Injuries, with 8.4%, and Cerebrovascular Diseases, with 7.9% of total DALYs. Diabetes Mellitus, with 7.8% and Lower Respiratory Infections with 4.8% make up the five leading causes of total disease and injury burden in 2014.

Among males, Road Traffic Injuries contributed the largest amount of DALYs with 11.7%. Ischaemic Heart Disease was the second highest contributor of DALYs in males with 11.0% followed by Cerebrovascular Diseases with 7.5%. Diabetes Mellitus and Lower Respiratory Infections make up the fourth and fifth leading causes of DALYs among males. Among females, Diabetes Mellitus was also the leading cause of DALYs with 9.3% followed by Cerebrovascular Diseases with 8.6% and Ischaemic Heart Diseases with 7.0%. Lower Respiratory Infections was the fourth and Road Traffic Injuries the fifth leading cause of DALYs among females **[Table 6.6.2]**.

The leading causes of total burden vary according to age. Among males below 5 years of age, Protein-Energy Malnutrition contributed the highest amount of DALYs. Low Birth Weight was the second leading cause of DALYs among males below 5 years of age. Road Traffic Injuries was the leading cause of DALYs among males 5 to 44 years of age. Diabetes Mellitus was the second largest contributor of DALYs among males 15 to 29 years of age. Among males 30 to 44 years of age, Ischaemic Heart Disease was the second highest contributor to DALYs and rises to the leading cause of DALYs among males 45 to 69 years of age. Cerebrovascular Diseases were the second highest contributor to DALYs among males 60 to 69 years of age. Among males 70 to 79 years of age, Cerebrovascular Diseases becomes the leading cause of DALYs. Ischaemic Heart Disease was the second leading cause of DALYs among males 70 to 79 years of age, with Chronic Obstructive Pulmonary Disease the highest among males age 80 years and above **[Figure 6.6.5]**.

Among females below 5 years of age, Protein-Energy Malnutrition contributed to the highest amount of DALYs, followed by Lower Respiratory Infections. Asthma was to the leading cause of DALYs among females 5 to 14 years of age and Road Traffic Injuries were the leading cause among females 15 to 29 years of age. Diabetes Mellitus was the second highest contributor to DALYs among females 15 to 29 years of age and rises to the leading cause to DALYs among females 30 to 69 years of age. Among females 30 to 69 years of age, Cerebrovascular Diseases was the second leading cause of DALYs, and rises to be the leading cause of DALYs among females age 70 years and above. Ischaemic Heart Disease was the second leading cause of DALYs among females 70 to 79 years of age, with Lower Respiratory Infections the second highest contributor to DALYs among females 80 years of age and above **[Figure 6.6.6]**.

Rank	People	DALYs	% of total	Males	DALYs	% of total	Females	DALYs	% of total
1	Ischaemic Heart Disease	463744	9.3	Road Traffic Injuries	338379	11.7	Diabetes Mellitus	195798	9.3
2	Road Traffic Injuries	417135	8.4	Ischaemic Heart Disease	316455	11.0	Cerebrovascular Diseases (Stroke)	180658	8.6
3	Cerebrovascular Diseases (Stroke)	396779	7.9	Cerebrovascular Diseases (Stroke)	216121	7.5	Ischaemic Heart Disease	147289	7.0
4	Diabetes Mellitus	391871	7.8	Diabetes Mellitus	196073	6.8	Lower Respiratory Infections	114611	5.4
5	Lower Respiratory Infections	237560	4.8	Lower Respiratory Infections	122949	4.3	Road Traffic Injuries	78756	3.7
6	Chronic Obstructive Pulmonary Disease	149967	3.0	Chronic Obstructive Pulmonary Disease	106901	3.7	Breast Cancer	57092	2.7
7	Asthma	96829	1.9	Trachea, Bronchus and Lung Cancers	50226	1.7	Asthma	53274	2.5
8	Unipolar Depressive Disorder	77510	1.6	Asthma	43556	1.5	Anxiety Disorders	43391	2.1
9	Trachea, Bronchus and Lung Cancers	75674	1.5	Drug Use Disorders	43122	1.5	Chronic Obstructive Pulmonary Disease	43066	2.0
10	Schizophrenia	71215	1.4	HIV	41073	1.4	Unipolar Depressive Disorder	39671	1.9
11	Nephritis and Nephrosis	70739	1.4	Tuberculosis	39823	1.4	Diarrhoeal Diseases	36726	1.7
12	Anxiety Disorders	68479	1.4	Unipolar Depressive Disorder	37840	1.3	Nephritis and Nephrosis	34266	1.6
13	Diarrhoeal Diseases	63955	1.3	Schizophrenia	37097	1.3	Schizophrenia	34118	1.6
14	Skin and subcutaneous diseases	63330	1.3	Nephritis and Nephrosis	36473	1.3	Skin and subcutaneous diseases	33194	1.6
15	Low Birth Weight	62105	1.2	Low Birth Weight	33986	1.2	Nutritional Anaemias	30306	1.4
16	Tuberculosis	59872	1.2	Skin and subcutaneous diseases	30135	1.0	Low Birth Weight	28119	1.3
17	Breast Cancer	58776	1.2	Epilepsy	28632	1.0	Hearing Loss	26708	1.3
18	Hearing Loss	55260	1.1	Hearing Loss	28552	1.0	Trachea, Bronchus and Lung Cancers	25448	1.2
19	Epilepsy	52469	1.1	Colon and Rectum Cancers	28097	1.0	Epilepsy	23837	1.1
20	HIV	51742	1.0	Diarrhoeal Diseases	27229	0.9	Osteoarthritis	23747	1.1
	Top 20 diseases	**3197655**	**64.0**	**Top 20 diseases**	**1943989**	**67.3**	**Top 20 diseases**	**1335570**	**63.5**
	All other diseases	*1794992*	*36.0*	*All other diseases*	*944651*	*32.7*	*All other diseases*	*768437*	*36.5*
	Total	**4992646**	**100.0**	**Total**	**2888640**	**100.0**	**Total**	**2104007**	**100.0**

Colour legend:

>5% | 4-5% | 3-4% | 2-3% | 0-2%

Table 6.6.2: Leading causes of total burden (DALYs), by sex, 2014

Rank	Age group (years)							
	0 - 4	5 - 14	15 - 29	30 - 44	45 - 59	60 - 69	70 - 79	80 +
1st	Protein-Energy Malnutrition (20.9; 8.4%)	Road Traffic Injuries (20.5; 16.0%)	Road Traffic Injuries (174.4; 38.2%)	Road Traffic Injuries (71.9; 13.6%)	Ischaemic Heart Disease (131.4; 18.6%)	Ischaemic Heart Disease (77.4; 17.7%)	Cerebrovascular Diseases (Stroke) (40.9; 14.8%)	Chronic Obstructive Pulmonary Disease (16.7; 15.8%)
2nd	Low Birth Weight (19.5; 7.9%)	Asthma (7.4; 5.8%)	Diabetes Mellitus (17.5; 3.8%)	Ischaemic Heart Disease (51.6; 9.8%)	Diabetes Mellitus (68.4; 9.7%)	Cerebrovascular Diseases (Stroke) (55.3; 12.7%)	Ischaemic Heart Disease (37.3; 13.5%)	Ischaemic Heart Disease (13.4; 12.6%)
3rd	Lower Respiratory Infections (17.5; 7.1%)	Epilepsy (5.0; 3.9%)	Drug Use Disorders (13.1; 2.9%)	Diabetes Mellitus (39.2; 7.4%)	Cerebrovascular Diseases (Stroke) (66.4; 9.4%)	Diabetes Mellitus (41.9; 9.6%)	Chronic Obstructive Pulmonary Disease (32.7; 11.8%)	Cerebrovascular Diseases (Stroke) (13.3; 12.6%)
4th	Birth Trauma and Asphyxia (15.3; 6.2%)	Hearing Loss (4.8; 3.7%)	Unipolar Depressive Disorder (11.9; 2.6%)	Cerebrovascular Diseases (Stroke) (27.3; 5.2%)	Road Traffic Injuries (41.9; 5.9%)	Chronic Obstructive Pulmonary Disease (26.2; 6.0%)	Diabetes Mellitus (21.4; 7.7%)	Diabetes Mellitus (6.9; 6.5%)
5th	Congenital Heart Diseases (14.2; 5.7%)	Leukaemia (4.5; 3.5%)	Asthma (10.7; 2.3%)	Drug Use Disorders (23.8; 4.5%)	Lower Respiratory Infections (28.6; 4.0%)	Lower Respiratory Infections (24.4; 5.6%)	Lower Respiratory Infections (18.4; 6.7%)	Lower Respiratory Infections (4.2; 4.0%)
6th	Diarrhoeal Diseases (13.0; 5.2%)	Diarrhoeal Diseases (3.9; 3.0%)	Cerebrovascular Diseases (Stroke) (9.3; 2.0%)	HIV (20.1; 3.8%)	Chronic Obstructive Pulmonary Disease (19.9; 2.8%)	Trachea, Bronchus and Lung Cancers (16.0; 3.7%)	Trachea, Bronchus and Lung Cancers (9.7; 3.5%)	Dementia (3.7; 3.5%)
7th	Neonatal Infections (10.4; 4.2%)	Lower Respiratory Infections (3.9; 3.0%)	Self-Inflicted Injuries (9.1; 2.0%)	Lower Respiratory Infections (17.6; 3.3%)	Trachea, Bronchus and Lung Cancers (17.6; 2.5%)	Road Traffic Injuries (13.8; 3.2%)	Road Traffic Injuries (8.5; 3.1%)	Trachea, Bronchus and Lung Cancers (2.7; 2.5%)
8th	Road Traffic Injuries (5.1; 2.1%)	Drowning (3.6; 2.8%)	Hearing Loss (8.6; 1.9%)	Tuberculosis (14.1; 2.7%)	Tuberculosis (12.6; 1.8%)	Nephritis and Nephrosis (9.1; 2.1%)	Colon and Rectum Cancers (5.6; 2.0%)	Nephritis and Nephrosis (2.3; 2.2%)
9th	Nutritional Anaemias (4.5; 1.8%)	Upper Respiratory Infections (3.2; 2.5%)	Lower Respiratory Infections (8.3; 1.8%)	Schizophrenia (13.8; 2.6%)	HIV (12.5; 1.8%)	Colon and Rectum Cancers (7.5; 1.7%)	Nephritis and Nephrosis (5.2; 1.9%)	Road Traffic Injuries (2.3; 2.2%)
10th	Fires, Heat and Hot Substances (3.7; 1.5%)	Skin and subcutaneous diseases (2.9; 2.3%)	Anxiety Disorders (8.1; 1.8%)	Unipolar Depressive Disorder (9.3; 1.8%)	Nephritis and Nephrosis (12.3; 1.7%)	Liver Cancers (6.4; 1.5%)	Dementia (3.2; 1.2%)	Cataract (2.3; 2.2%)

Figure 6.6.5: Leading causes of total burden (DALYs '000; percentage %) for males, by age group, 2014

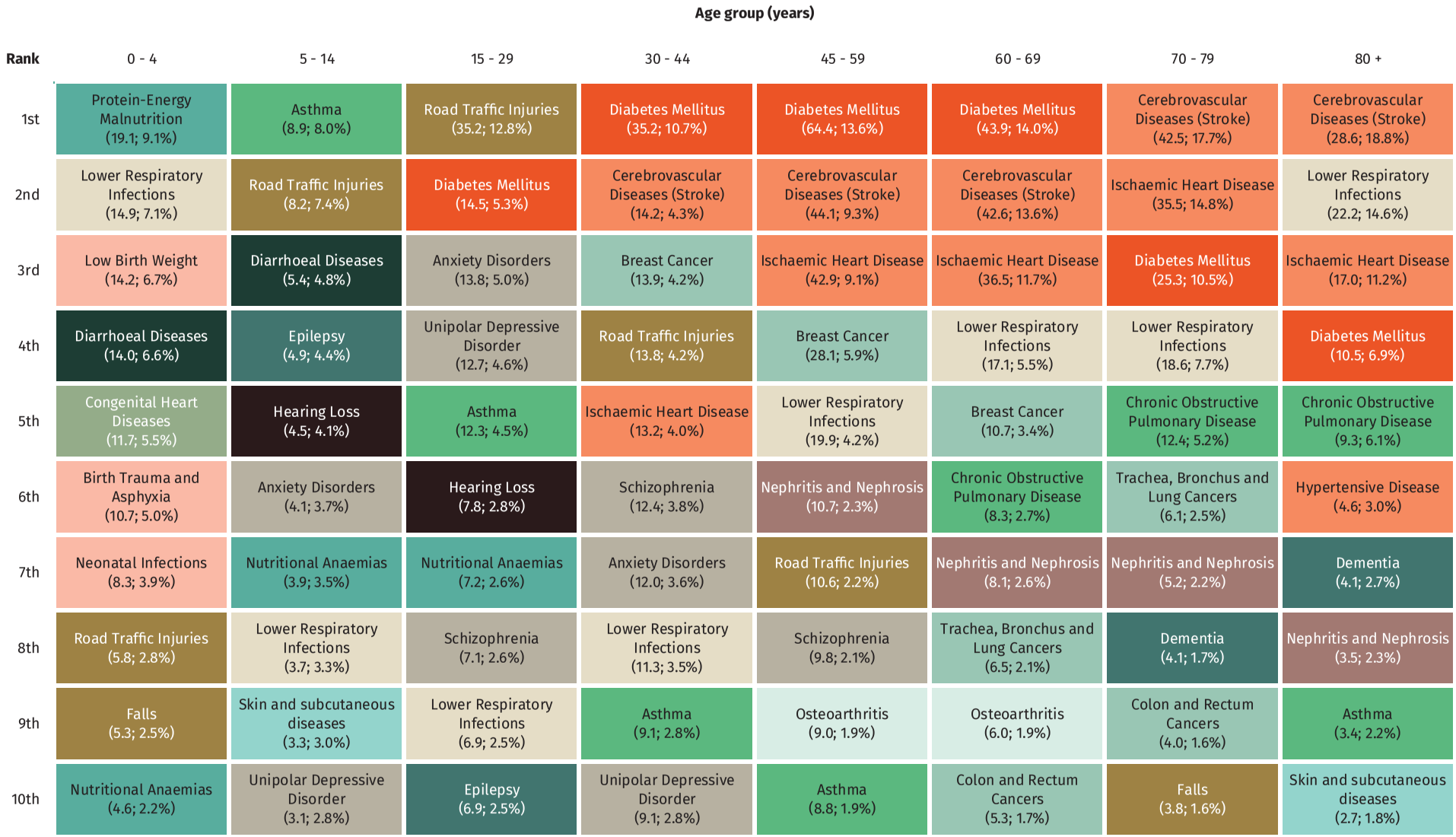


Figure 6.6.6: Leading causes of total burden (DALYs '000; percentage %) for females, by age group, 2014

7.0 Discussion

This is the third Malaysian Burden of Disease and Injury (MBOD) study undertaken and produced for Malaysia, after the first study in year 2000 and the subsequent study in 2008. The estimates presented in this study, though limited by availability of data, was derived from best available local data for Malaysia and through critical appraisal of available information.

The study on Determination of Cause of Deaths in Malaysia 2013 has paved the way for producing better local mortality estimates. The cause of death estimates produced in this report is the first time cause specific mortality fractions from verbal autopsy were applied on non-medically certified deaths to produce a more accurate representation of non-hospital deaths in Malaysia. The accuracy of medically certified deaths has also been enhanced by using the findings of medical records reviews to derive better estimates of the underlying cause of deaths in Malaysia. We believe that these data manipulations have enabled us to obtain the most accurate representation of cause of death and fatal disease burden in Malaysia.

This study uses local data as far as possible, and secondary data sources with no new primary data collection for the sole purpose of this study. The estimates for a large number of diseases in Malaysia is now available through the extensive and

vigorous data collection by the Ministry of Health Malaysia. Other than the notification data of certain diseases and hospital in-patient data available, the National Health Surveys carried out yearly have significantly improved the local prevalence estimates of several diseases. Registries such as the National Diabetic Registry and Cancer Registry have been essential towards deriving the burden of these diseases in Malaysia.

However, we need to also acknowledge that data from primary healthcare providers and health service providers outside of Ministry of Health is still limited. Several of the disease registries in Malaysia needs to be expanded to include a larger representation of both government and private hospitals in Malaysia to enable meaningful use of the data collected. Estimates for some diseases have also had to be made based on international data and disease modelling estimates. This is notably so especially for Mental and Behavioural Disorders, one of the leading causes of non-fatal burden, where there is no reliable local data or data source to derive accurate estimates specific for the Malaysian population.

We have presented this report in 4 main sections, Deaths, Fatal Burden, Non-Fatal Burden and Total Burden. This approach is undertaken as we believe each of these sections present essential information to the different stakeholders. Furthermore, understanding the differences within the fatal and non-fatal burden, beyond looking only at the total burden would assist stakeholders in policy formulation, planning of resources, executing interventions and guiding future research in these areas.

Burden of Disease study uses a macro level approach towards determining the burden of each disease. The aim is to measure the burden of these diseases and injuries as a population at whole, rather than at an individual level. Thus, even though this generalization may not be accurate for an individual inflicted with the health problem, the estimate derived for the whole population would ultimately average out to a reasonable approximation. Furthermore, the absolute number of DALYs is an arbitrary figure that is difficult to interpret and not necessarily comparable between studies due to methodological differences in the calculation. DALYs presented in this report is mainly presented as relative numbers to gain insight on the proportion of a particular disease to the overall disease burden.

As the methodological approach of burden of disease study is to measure the objective health status of the population, we acknowledge that there are many other factors policy makers would and should take into accounting when considering the improvement of the population health status. Inequalities in health, health service delivery and health gains, effectiveness and affordability from interventions are all essential scopes within health policy and priority setting that is not explored in a burden of disease study.

Understanding the burden of some chronic and degenerative diseases, such as Dementia, would not benefit in planning for an intervention or treatment of the diseases, as none such exist. It might however aid in setting up necessary social and support services for these conditions.

The information on the burden of disease and injury is only as good as the data inputs used to derive these estimates. Beyond the systematic assessment of disease burden, undertaking a national level burden of disease study also identifies the gaps in health information system. The data needed for this analysis, would also serve as data potentially required by policy makers or should be provided to policy makers to enable them to make an informed and evidence based decision.

Continuous improvements need to be implemented to strengthen the vital statistics and cause of death certification in Malaysia. Data collection within the Ministry of Health needs to be further improved, addressing the problems of under-reporting and developing a unified database utilizing primary healthcare provider in government and private sector as well as other healthcare service providers such as rehabilitative and laboratory services. We also recommend that quality control measures are instituted by the relevant divisions collecting these data to ensure accuracy of data as well as produce their own estimates for their service needs as well as provide a more accurate national representation of disease prevalence.

Reference:
Institute for Public Health (2016). A Study on Determination of Cause of Deaths in Malaysia

APPENDIX I: Malaysian Burden of Disease and Injury List

Disease Group / Category	ICD-10 Codes
A. INFECTIOUS DISEASES	**A00-A39, A42-B99, G00-G03, G14**
1. Tuberculosis	A15-A19, B90
2. STDs Excluding HIV	
a. Syphilis	A50-A53
b. Chlamydia	A55-A56
c. Gonorrhoea	A54
3. HIV	B20-B24
4. Diarrhoeal Diseases	A00-A04, A06-A09
5. EPI-Cluster	
a. Diphtheria	A36
b. Pertussis	A37
c. Tetanus	A33-A35
d. Polio	A80, B91
e. Measles	B05
6. Meningitis	G00-G03
7. Hepatitis	
a. Hepatitis A	B15
b. Hepatitis B	B16
c. Other Hepatitis	B17-B19
8. Parasitic and Vector Disease	
a. Malaria	B50-B54
b. Dengue	A90-A91
9. Other Infectious Diseases	A05, A20-A32, A38-A39, A42-A49, A57-A63, A65-A79, A81-A89, A92-B04, B06-B09, B25-B49, B55-B89, B92-B99, G14
B. RESPIRATORY INFECTIONS	**H65-H66, J00-J22**
1. Lower Respiratory Infections	J09-J22
2. Upper Respiratory Infections	J00-J06
3. Otitis Media	H65-H66
C. MATERNAL CONDITIONS	**O00-O99**
1. Maternal Haemorrhage	O44-O46, O67, O72
2. Maternal Sepsis	O85-O86
3. Hypertensive Disorders of Pregnancy	O10-O11, O13-O16
4. Obstructed Labour	O64-O66
5. Abortion	O00-O08
6. Other Maternal Conditions	O12, O20-O43, O47-O63, O68-O71, O73-O84, O87-O99
D. NEONATAL CONDITIONS	**P00-P96, R95**
1. Low Birth Weight	P05, P07
2. Birth Trauma and Asphyxia	P03, P10-P15, P20-P22, P24-P26
3. Neonatal Infections	P35-P39
4. Sudden Infant Death Syndrome	R95
5. Other Neonatal Conditions	P00-P02, P04, P08, P23, P27-P29, P50-P94, P96
E. NUTRITIONAL DEFICIENCY	**D50-D53, E00-E02, E40-E64**
1. Protein-Energy Malnutrition	E40-E46
2. Nutritional Anaemias	D50-D53
3. Other Nutritional Disorders	E00-E02, E50-E64

F. MALIGNANT NEOPLASMS	**C00-C97**
1. Mouth and Oropharynx Cancers	C00-C14
2. Oesophagus Cancer	C15
3. Stomach Cancer	C16
4. Colon and Rectum Cancers	C18-C21
5. Liver Cancers	C22
6. Pancreas Cancer	C25
7. Trachea, Bronchus and Lung Cancers	C33-C34, C39
8. Breast Cancer	C50
9. Cervix Cancer	C53
10. Ovary Cancer	C56
11. Prostate Cancer	C61
12. Bladder Cancer	C67
13. Brain and Other CNS Cancers	C70-C72
14. Lymphoma	C81-C86
15. Leukaemia	C91-C95
16. Other Malignant Neoplasms	C17, C23-C24, C26-C32, C37-C38, C40-C49, C51-C52, C54-C55, C57-C60, C62-C66, C68-C69, C73-C79, C88, C90, C96-C97
G. BENIGN NEOPLASM	**D00-D48**
1. Benign Neoplasms	D00-D48
H. DIABETES MELLITUS	**E10-E14**
1. Diabetes Mellitus	E10-E14
I. ENDOCRINE, BLOOD & IMMUNE DISORDERS	**D55-D64, D66-D89, E03-E07, E15-E35, E65-E90**
1. Endocrine, Blood and Immune Disorders	D55-D64, D66-D89, E03-E07, E15-E35, E65-E90
J. MENTAL AND BEHAVIOURAL DISORDER	**F04-F69, F80-F99**
1. Unipolar Depressive Disorder	F32-F33
2. Bipolar Affective Disorder	F30-F31
3. Schizophrenia	F20-F29
4. Alcohol Use Disorders	F10
5. Drug Use Disorders	F11-F16, F18-F19
6. Anxiety Disorders	F40-F44
7. Other Mental and Behavioral Disorders	F04-F09, F17, F34-F39, F45-F69, F80-F98
K. NEUROLOGICAL CONDITIONS	**F00-F03, F70-F79, G04-G13, G20-G99**
1. Epilepsy	G40-G41
2. Dementia	F00-F03, G30-G32
3. Parkinson Disease	G20-G22
4. Mental Retardation	F70-F79
5. Other Neurological Conditions	G04-G13, G23-G26, G35-G37, G43-G99
L. SENSE ORGAN DISEASES	**H00-H61, H68-H95**
1. Glaucoma	H40
2. Cataract	H25-H26
3. Hearing Loss	H90-H91
4. Other Sense Organ Disorder	H00-H21, H27-H36, H43-H61, H68-H83, H92-H95
M. CARDIOVASCULAR & CIRCULATORY DISEASES	**I00-I25, I27-I45, I47-I99**
1. Rheumatic Heart Disease	I01-I09
2. Hypertensive Heart Disease	I11-I14
3. Ischaemic Heart Disease	I20-I25

4. Cerebrovascular Diseases (Stroke)	I60- I69
5. Pericarditis, Endocarditis and Myocarditis	I30, I32-I33, I38, I40-I42
6. Other Circulatory Diseases	I00, I27-I28, I31, I34-I37, I44-I45, I47-I51, I71-I84, I86-I99
N. RESPIRATORY DISEASES	**J30-J95, J97-J98**
1. Chronic Obstructive Pulmonary Disease	J40-J44
2. Asthma	J45-J46
3. Other Respiratory Diseases	J30-J39, J47-J95, J97-J98
O. DIGESTIVE DISEASES	**K20-K92**
1. Peptic Ulcer Disease	K25-K27
2. Appendicitis	K35-K37
3. Cirrhosis of the Liver	K70, K74
4. Other Digestive Diseases	I85, K20-K22, K28-K31, K38-K66, K71-K73, K75-K92
P. GENITO URINARY DISEASE	**N00-N16, N18-N99**
1. Nephritis and Nephrosis	N00-N16, N18-N19
2. Benign Prostatic Hypertrophy	N40
3. Other Urinary Diseases	N20-N39, N41-N99
Q. SKIN DISEASES	**L00-L98**
1. Skin and subcutaneous diseases	L00-L98
R. MUSCULOSKELETAL DISEASES	**M00-M99**
1. Rheumatoid Arthritis	M05-M06
2. Osteoarthritis	M15-M19
3. Back and Neck Pain	M50-M54
4. Gout	M10
5. Other Musculoskeletal Disorders	M00-M02, M07-M08, M11-M13, M20-M48, M60-M99
S. CONGENITAL ANOMALIES	**Q00-Q99**
1. Congenital Heart Diseases	Q20-Q28
2. Down Syndrome	Q90
3. Other Chromosomal Disorders	Q91-Q99
4. Cleft Lip and Palate	Q35-Q37
5. Spina Bifida	Q05
6. Anencephaly	Q00
7. Other Congenital Anomalies	Q01-Q04, Q06-Q18, Q30-Q34, Q38-Q89
T. ORAL CONDITIONS	**K00-K14**
1. Dental Caries	K02
2. Periodontitis	K05
3. Edentulism	K06
4. Other Oral Diseases	K00-K01, K03-K04, K07-K14
U. UNINTENTIONAL INJURIES	**V01-X59, Y40-Y86, Y88**
1. Road Traffic Injuries	V01-V89, V99, Y85-Y86
2. Poisonings	X40-X49
3. Falls	W00-W19
4. Fires, Heat and Hot Substances	X00-X19
5. Drowning	W65-W74
6. Other Unintentional Injuries	V90-V98, W20-W64, W75-W99, X20-X39, X50-X59, Y40-Y84, Y88
V. INTENTIONAL INJURIES	**X60-Y09, Y35-Y36,**
1. Self-Inflicted Injuries	X60-X84,
2. Interpersonal Violence /Homicide	X85-Y09,
3. Other intentional injuries	Y35-Y36

APPENDIX II: Disease and Injury Models

Models and methods used for calculating disability for each of the disease and injury covered in this study are listed as below. Methods used in the Global Burden of Disease Study 2015 was adopted for most of the conditions, but modified where necessary based on the availability and nature of local data and in consultation with local disease experts.

A Infectious Diseases

A1. Tuberculosis - Incidence estimates for Tuberculosis were based on Malaysian notification data. We assumed that the notifications were a reasonable approximation of all new cases in Malaysia. We used DisMod II to determine the prevalence using mortality data and remission rate. The HIV positive in Tuberculosis was distributed proportional to the prevalence of HIV/AIDS in Malaysia. The disability weights from GBD 2015 were used.

A2a. Syphilis - Incidence estimates for Syphilis were based on Malaysian notification data. The figures from the notifications register were blown up to include underreporting based on the assumption that only 10% of symptomatic patients attended clinics and only 20% of clinic attendees were reported to the Ministry of Health Malaysia. We assumed 1.32% of all reported cases of syphilis represent adult tertiary syphilis and was applied to those age 15 years and above. The disability weights from GBD 2015 were used.

A2b. Chlamydia - There is no notification surveillance or registry for chlamydia infection in Malaysia. Prevalence for Chlamydia in Malaysia was obtained from estimates reported by the Institute for Health Metrics and Evaluation (IHME). We assumed that 70% of cases in males were symptomatic and 70% of cases in females were asymptomatic with epidydimo-orchitis in 1.5% of symptomatic males. Chronic Pelvic Inflammatory Disease (PID) was assumed to occur in 4% of symptomatic females, with 50% mild, 40% moderate and 10% severe PID. Approximately 3% of infection was believed to lead to primary infertility and 2% to secondary infertility in both males and females with the disability for infertility not calculated for females 45 years of age and above. The disability weights from GBD 2015 were used.

A2c. Gonorrhea - Incidence estimates for Gonorrhea were based on Malaysian notification data. We assumed all notified cases were symptomatic cases. The figures from the notifications register were blown up to include underreporting based on the assumption that only 10% of symptomatic patients attended clinics and only 20% of clinic attendees were reported to the Ministry of Health Malaysia. We assumed that 90% of cases in males were symptomatic and 65% of cases in females were asymptomatic with occurrence of epidydimo-orchitis in 1.5% of symptomatic males. Chronic Pelvic Inflammatory Disease (PID) was assumed to occur in 20% of infected females, with 50% mild, 40% moderate and 10% severe PID. Approximately 3% of infection was believed to lead to primary infertility and 2% to secondary infertility in both males and females with the disability for infertility not calculated for females 45 years of age and above. The disability weights from GBD 2015 were used.

A3. HIV - Incidence estimates for HIV were based on Malaysian notification data. We assumed that the notifications were a reasonable approximation of all new cases in Malaysia. We used DisMod II to determine the prevalence, using mortality data and zero remission, with the prevalence for HIV and AIDS proportional to the reported incidence of HIV and AIDS. The percentage of AIDS patients on anti-retroviral therapy (ART) was based on the reported rate in the HIV and AIDS Data Hub for Asia-Pacific. The disability weights from GBD 2015 were used.

A4. Diarrheal Diseases - The prevalence of diarrheal diseases for under-5 years of age were determined by prevalence obtained in the National Health and Morbidity Survey Malaysia 2016. Proportion of diarrheal diseases for the other age groups reported in Malaysian Burden of Disease Study 2008 was used to estimate the prevalence in other age groups. Severity levels of diarrhea cases were split based on GBD proportions, with 24.3% mild, 61.7% moderate and 14.0% severe cases. The disability weights from GBD 2015 were used.

A5a. Diphtheria - Incidence estimates for Diphtheria were based on Malaysian notification data. We assumed that the notifications were a reasonable approximation of all new cases in Malaysia. Severity levels of diphtheria cases were split based on GBD proportions, with 70% moderate and 30% severe cases. The disability weights from GBD 2015 were used.

A5b. Pertussis - Incidence estimates for Pertussis were based on Malaysian notification data. We assumed that the notifications were a reasonable approximation of all new cases in Malaysia. Based on GBD study, we assumed all notified cases were moderate episodes of acute infectious disease. The disability weights from GBD 2015 were used.

A5c. Tetanus - Incidence estimates for Tetanus were based on Malaysian notification data. We assumed that the notifications were a reasonable approximation of all new cases in Malaysia. Based on GBD study, we assumed all notified cases were severe episodes of acute infectious disease. The disability weights from GBD 2015 were used.

A5d. Polio - We did not calculate the disability for polio as there were no notification for polio in Malaysia from 2008 – 2014.

A5e. Measles - Incidence estimates for Measles were based on Malaysian notification data. We assumed that the notifications were a reasonable approximation of all new cases in Malaysia. Severity levels of measles cases were split based on GBD proportions, with 50% moderate and 50% severe cases. The disability weights from GBD 2015 were used.

A6. Meningitis - Data on overall incidence of meningitis was drawn from the Hospital Inpatient Information Dataset (HMIS) which captures all admissions to government hospitals in Malaysia. We assumed that 70% of admissions were into government hospitals and data was blown up to include the private and other hospitals in Malaysia. All cases were assumed to be acute cases and to have long term acute effects. The sequela of meningitis was assumed to occur in only those 0 to 14 years of age at a rate of 3% hearing loss, 1% VP shunt,

1% mental retardation only, 2% mental retardation with motor deficit, 1% seizure disorder and 18% less severe developmental disorder. Scarring and deformity was assumed to occur in 7% of all ages. The disability weights from GBD 2015 were used.

A7a. Hepatitis A - Incidence estimates for Hepatitis A were based on Malaysian notification data. We assumed all notified cases were symptomatic cases. The figures from the notifications register were blown up 10% to include underreporting. Data on overall incidence of Hepatitis A was drawn from the Hospital Inpatient Information Dataset (HMIS) which captures all admissions to government hospitals in Malaysia, and these cases were assumed to represent the prevalence of severe Hepatitis A. The disability weights from GBD 2015 were used.

A7b. Hepatitis B - Incidence estimates for Hepatitis B were based on Malaysian notification data. We assumed all notified cases were symptomatic cases. The figures from the notifications register were blown up 10% to include underreporting. Data on overall incidence of Hepatitis B was drawn from the Hospital Inpatient Information Dataset (HMIS) which captures all admissions to government hospitals in Malaysia, and these cases were assumed to represent the prevalence of severe Hepatitis B. The disability weights from GBD 2015 were used.

A7c. Other Hepatitis - Incidence estimates for Other Hepatitis were based on Malaysian notification data for Hepatitis C and Other Hepatitis. We assumed all notified cases were symptomatic cases. The figures from the notifications register were blown up 10% to include underreporting. Data on overall incidence of Other Hepatitis was drawn from the Hospital Inpatient Information Dataset (HMIS) which captures all admissions to government hospitals in Malaysia, and these cases were assumed to represent the prevalence of severe Other Hepatitis. The disability weights from GBD 2015 were used.

A8a. Malaria - Incidence estimates for Malaria were based on Malaysian notification data. We assumed that the notifications were a reasonable approximation of all new cases in Malaysia. Data on overall incidence of Malaria was drawn from the Hospital Inpatient Information Dataset (HMIS) which captures all admissions to government hospitals in Malaysia, and these cases were assumed to represent the prevalence of moderate and severe malaria, with 80% of these cases with moderate infection and 20% with severe infection. We assume 0.1% of infected people age 0 to 4 years will develop neurological impairment. The disability weights from GBD 2015 were used.

A8b. Dengue - Incidence estimates for Dengue were based on Malaysian notification data. We assumed that the notifications were a reasonable approximation of all new and symptomatic cases in Malaysia. All notification for dengue were assumed to be moderate infections and all notification for dengue hemorrhagic fever were assumed to be severe infections. Based on GBD proportion, we assumed 8.4% of all symptomatic infection will develop post dengue chronic fatigue syndrome. The disability weights from GBD 2015 were used.

A9. Other Infectious Disease - Disability for Other Infectious Disease was estimated by calculating the YLL/YLD ratio for Other Infectious Disease in Malaysia Burden of Disease Study 2008 and applied the same ratio to the current YLL of Other Infectious Disease.

B Respiratory Infections

B1. Lower Respiratory Tract Infection - We assumed the prevalence of Lower Respiratory Tract Infection in under 5 years of age to be 1.06%, 5 to 64 years of age to be 0.23% and 65 years and above to be 4.04%. Sex distribution of cases was based on mortality distribution by sex and age for Lower Respiratory Tract Infection. Severity levels of Lower Respiratory Tract Infection were split based on GBD proportions, with 85% moderate and 15% severe cases. The disability weights from GBD 2015 were used.

B2. Upper Respiratory Tract Infection - The prevalence of Upper Respiratory Tract Infection for under-5 years of age were determined by prevalence obtained in the National Health and Morbidity Survey Malaysia 2016. Proportion of Upper Respiratory Tract Infection reported by the Institute for Health Metrics and Evaluation (IHME) was used to estimate the prevalence in other age groups. Severity levels of Upper Respiratory Tract Infection were split based on GBD proportions. The disability weights from GBD 2015 were used.

B3. Otitis Media - The prevalence of acute and chronic Otitis Media were determined by prevalence obtained in the National Hearing and Ear Disorders Survey Malaysia 2009. Based on GBD proportions, we assumed all acute Otitis Media experience pain, 97% of chronic Otitis Media were asymptomatic, 2.9% chronic Otitis Media had vertigo and 0.05% of chronic Otitis Media had complications. The disability weights from GBD 2015 were used.

C Maternal Conditions

C1. Maternal Hemorrhage - The incidence of Maternal Hemorrhage was obtained from Hospital Inpatient Information Dataset (HMIS) data. We assumed that 82% of admissions were into government hospitals and data was blown up to include the private and other hospitals in Malaysia. We assume that maternal hemorrhage with more than 1L blood loss occur in 1.26% of live births, with the remaining maternal hemorrhage as 500ml to 1L blood loss. Mild anaemia due to maternal hemorrhage was estimated to occur in 0.58% of live births, with moderate anaemia in 0.13% and severe anaemia in 0.18% of live births. The disability weights from GBD 2015 were used.

C2. Maternal Sepsis - The incidence of Maternal Sepsis was obtained from Hospital Inpatient Information Dataset (HMIS) data. We assumed that 82% of admissions were into government hospitals and data was blown up to include the private and other hospitals in Malaysia. Incidence of puerperal sepsis and other maternal infections were drawn from HMIS data. We assumed that 2.5% of maternal infections leads to infertility. The disability weights from GBD 2015 were used.

C3. Hypertensive Disorders of Pregnancy - The prevalence of Hypertensive Disorders of Pregnancy (HDoP) was obtained from Malaysian National Health and Morbidity Survey 2016. Based on GBD proportions, we assume 2% of HDoP leads to severe pre-eclampsia. Incidence of eclampsia was drawn from Hospital Inpatient Information Dataset (HMIS) data. We assumed that 82% of admissions were into government hospitals and data was blown up to include the private and other hospitals in Malaysia. We assume 90% of severe pre-eclampsia and eclampsia develop long term sequelae. The disability weights from GBD 2015 was used.

C4. Obstructed Labour - The incidence of Obstructed Labour was obtained from Hospital Inpatient Information Dataset (HMIS) data. We assumed that 82% of admissions were into government hospitals and data was blown up to include the private and other hospitals in Malaysia. We assumed obstetric fistula occurs in 0.29 of 1000 live births and the proportion of rectovaginal fistula and vesicovaginal fistula was based on GBD proportions. The disability weights from GBD 2015 was used.

C5. Abortion - The incidence of Abortion was obtained from Hospital Inpatient Information Dataset (HMIS) data. We assumed that 82% of admissions were into government hospitals and data was blown up to include the private and other hospitals in Malaysia. The disability weights from GBD 2015 was used.

C6. Other Maternal Conditions - YLD for Other Maternal Conditions was estimated by determining the YLL/YLD ratio for Other Maternal Conditions in Malaysia Burden of Disease study 2008 and applying the same ratio to the current YLLs of Other Maternal Conditions from 2009- 2014.

D Neonatal Conditions

D1. Low Birth Weight - The prevalence of Low Birth Weight for age under 1 year was obtained from Hospital Inpatient Information Dataset (HMIS) data. We assumed that 82% of admissions were into government hospitals and data was blown up to include the private and other hospitals in Malaysia and we reduced the prevalence by 30%, based on expert consultation, for repeat admissions. We assumed mild motor plus cognitive impairment occur in 14.0%, mild motor impairment in 4.1%, moderate motor impairment in 5.5%, severe motor impairment in 9.2%, mild/moderate distance vision impairment in 0.7% and severe vision impairment/blindness in 1.9% of Low Birth Weight. We used DisMod II to derive prevalence estimates, by using inputs of prevalence for under 1 year, zero remission and excess mortality was assumed to be from severe motor impairment. The disability weights and combined disability weights from GBD 2015 was used.

D2. Birth Trauma and Asphyxia - The prevalence of Birth Trauma and Asphyxia for age under 1 year was obtained from Hospital Inpatient Information Dataset (HMIS) data. We assumed that 82% of admissions were into government hospitals and data was blown up to include the private and other hospitals in Malaysia and we reduced the prevalence by 30%, based on expert consultation, for repeat admissions. We assumed mild motor plus cognitive

impairment occurs in 2.4%, mild motor impairment in 0.9%, moderate motor impairment in 1.4%, severe motor impairment in 24.0%, and distance vision impairment in 12.0% of Birth Trauma and Asphyxia. We used DisMod II to derive prevalence estimates, by using inputs of prevalence for under 1 year, zero remission and excess mortality was assumed to be from severe motor impairment. The disability weights and combined disability weights from GBD 2015 was used.

D3. Neonatal Infections - The prevalence of Neonatal Infections for age under 1 year was obtained from Hospital Inpatient Information Dataset (HMIS) data. We assumed that 82% of admissions were into government hospitals and data was blown up to include the private and other hospitals in Malaysia and we reduced the prevalence by 30%, based on expert consultation, for repeat admissions. We assumed motor impairment occurs in 12.4% and distance vision impairment in 12.5% of Neonatal Infections. We used DisMod II to derive prevalence estimates, by using inputs of prevalence for under 1 year, zero remission and zero excess mortality. The combined disability weights from GBD 2015 was used.

D4. Sudden Infant Death Syndrome - Disability for Sudden Infant Death Syndrome was not calculated as infants with this condition die immediately upon birth.

D5. Other Neonatal Conditions - YLD for Other Neonatal Conditions was estimated by determining the YLL/YLD ratio for Other Neonatal Conditions in Malaysia Burden of Disease study 2008 and applying the same ratio to the current YLLs of Other Neonatal Conditions from 2009- 2014.

Nutritional Deficiency

E1. Protein-Energy Malnutrition - The prevalence for Protein-Energy Malnutrition in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, duration of 1 year and mortality rate. The disability weights from GBD 2015 was used.

E2. Nutritional Anaemias - The prevalence and severity of Nutritional Anaemias were determined by data obtained in the National Health and Morbidity Survey Malaysia 2015. The disability weights from GBD 2015 were used.

E3. Other Nutritional Disorders - Disability for Other Nutritional Disorders was estimated by calculating the YLL/YLD ratio for Other Nutritional Disorders in GBD and applied the same ratio to the current YLL of Other Nutritional Disorders.

Malignant Neoplasms

The incidence cases by age, sex and cancer site were derived from Malaysian National Cancer Registry Report 2007-2011 and was used to estimate the incidence rates from 2009 to 2014. The age-sex specific cure rate and the age-sex specific average time to death for those not

cured was used to estimate the disability. For most cancers, patients surviving five years were assumed to be cured and was taken as the cure rate. Those who were cured of cancer were assumed to have negligible disability after the five-year period. For the fatal cancer cases, the survival time to death was assumed to follow an exponential distribution and the mean survival time was estimated by fitting the distribution to available survival data. In the absence of Malaysian follow-up data, we used figures from the South Australian Cancer Registry between 1977 and 1995 to estimate the 5-year survival rate. The disability weights from GBD 2015 were used.

G Benign Neoplasms

There is no registry or reliable source to estimate Benign Neoplasms in Malaysia. Disability for Benign Neoplasms was estimated by calculating the YLL/YLD ratio for Benign Neoplasms in Malaysia Burden of Disease Study 2008 and applied the same ratio to the current YLL of Benign Neoplasms.

H Diabetes Mellitus

The prevalence of Diabetes Mellitus was obtained from the National Health and Morbidity Survey Malaysia 2011 and 2015. The proportion of complications arising from this disease, including retinopathy, cataract, glaucoma, nephropathy, neuropathy, diabetic foot and amputations were derived from the Malaysian National Diabetic Registry. The disability weights from GBD 2015 were used.

I Endocrine, Blood and Immune Disorders

The prevalence for Endocrine, Blood and Immune Disorders in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, duration of 0.5 years and mortality data. The disability weights from GBD 2015 was used.

J Mental and Behavioural Disorders

J1. Unipolar Major Depressive Disorders - The prevalence for unipolar major depressive disorders in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, remission of 1.45 and mortality data. The proportion of the severity and disability weights from GBD 2015 was used.

J2. Bipolar Affective Disorder - The prevalence for bipolar affective disorders in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, remission of 0.05 and mortality data. The proportion of the severity and disability weights from GBD 2015 was used.

J3. Schizophrenia - The prevalence for schizophrenia in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, remission of 0 and no death. The proportion of the severity and disability weights from GBD 2015 was used.

J4. Alcohol Use Disorders - The prevalence for alcohol use disorder in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). The proportion of the severity alcohol used was based on the GBD 2015 & AUDIT questionnaire among Malaysian population 2015. The disability weights from GBD 2015 was used.

J5. Drug Use Disorders - Data from the "Statistics Bulletin on Drugs" by the Malaysian National Drug Agency (2009-2014) was used to determine the prevalence. We used DisMod II to derive better estimates, by using inputs of prevalence, age-sex specific remission rates ranging from 5% to 50% and RR mortality ranging from 6 to 1 depending on the type of drug. The disability weights from GBD 2015 was used.

J6. Anxiety Disorders - The prevalence for anxiety disorders in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, remission of 0.2 and RR mortality of 1. The proportion of the severity and disability weights from GBD 2015 was used.

J7. Other Mental and Behavioural Disorders - In view of no reliable source of data to estimate the prevalence of other mental and behavioural disorders as well as no deaths was assigned to this category, we used the YLD as reported by the Institute for Health Metrics and Evaluation (IHME)

K Neurological Conditions

K1. Epilepsy - There is no registry or reliable source to estimate Epilepsy in Malaysia. Prevalence for Epilepsy in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, age-specific remissions and mortality rate. The disability weights from GBD 2015 was used.

K2. Dementia - There is no registry or reliable source to estimate Dementia in Malaysia. Prevalence for Dementia in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, zero remission rates, and age-specific RR mortality. The disability weights from GBD 2015 was used.

K3. Parkinson Disease - There is no registry or reliable source to estimate Parkinson Disease in Malaysia. Prevalence for Parkinson Disease in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME).

We used DisMod II to derive better estimates, by using inputs of prevalence, zero remission rates, and mortality data. The disability weights from GBD 2015 was used.

K4. Mental Retardation - In view of no reliable source of data to estimate the prevalence of mental retardation as well as no deaths was assigned to this category, we used the YLD as reported by the Institute for Health Metrics and Evaluation (IHME).

K5. Other Neurological Conditions - YLD for Other Neurological Conditions was estimated by determining the YLL/YLD ratio for Other Neurological Conditions as reported by the Institute for Health Metrics and Evaluation (IHME) and applying the same ratio to the current YLLs of Other Neurological Conditions from 2009- 2014 to estimate the YLD.

L Sense Organ Diseases

L1. Glaucoma - The estimated national prevalence for Glaucoma was obtained from the GBD 2013 study. Proportion of Glaucoma cases for the other age groups reported in Malaysian Burden of Disease Study 2008 was used to estimate the prevalence in other age groups. We used DisMod II to derive better estimates, by using inputs of prevalence, zero remission and RR mortality of one. We combined the sequelae and used a composite disability weight of 0.134.

L2. Cataract - The estimated national prevalence for Cataract was obtained from the GBD 2013 study. Proportion of Cataract cases for the other age groups reported in Malaysian Burden of Disease Study 2008 was used to estimate the prevalence in other age groups. We used DisMod II to derive better estimates, by using inputs of prevalence, duration of 2 years and RR mortality of one. We combined the sequelae and used a composite disability weight of 0.134.

L3. Hearing Loss - The prevalence of Hearing Loss was determined by prevalence obtained from the National Hearing and Ear Disorders Survey 2009. We used DisMod II to derive better estimates of the prevalence for mild, moderate, severe and profound hearing loss by using inputs of prevalence, zero remission and RR mortality of one. The disability weights from GBD 2015 were used.

L4. Other Sense Organ Disorder - The estimated prevalence for Other Sense Organs was obtained from the GBD 2013 study. We used DisMod II to derive better estimates, by using inputs of prevalence, remission of 0.25 and zero mortality. We combined the sequelae and used a composite disability weight of 0.009.

M Cardiovascular and Circulatory Diseases

M1. Rheumatic Heart Disease - The prevalence of Rheumatic Heart Disease was obtained from Hospital Inpatient Information Dataset (HMIS) data. We assumed that the hospital admissions reflect the prevalence of symptomatic disease. We used DisMod II to derive better estimates, by using inputs of prevalence, remission rates estimated from the number

of valve replacements in hospital data and mortality rates. We combined the sequelae and used a composite disability weight of 0.046.

M2. Hypertensive Heart Disease - Hospital admission data on Hypertensive Heart Disease was very low and was believed to not truly reflect the prevalence of the disease in Malaysia. Prevalence for Hypertensive Heart Disease in Malaysia was obtained from estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, zero remission and mortality rates. We combined the sequelae and used a composite disability weight of 0.046.

M3. Ischaemic Heart Disease - The starting point for this condition was assumed to be acute myocardial infarction (AMI) or angina pectoris. Although these two conditions relate to the same disease process, we model them independently due to insufficient data to do otherwise. The incidence of AMI was obtained from Hospital Inpatient Information Dataset (HMIS) data. The incidence of angina pectoris was estimated to be 1.5 times that of AMI. We assumed that angina pectoris has recurring symptoms until death, with possible remission from treatment and that AMI results in one of the following: death, heart failure, new or continuing angina pectoris, or recovery with no residual disability. We used DisMod II to derive prevalence estimates, by using inputs of incidence, remission rates as in the previous MBOD study and mortality rates. We assume 50% receive treatment of AMI and that 15% gets heart failure following AMI. The disability weights from GBD 2015 were used.

M4. Cerebrovascular Diseases (Stroke) - The incidence of Cerebrovascular Diseases was obtained from Hospital Inpatient Information Dataset (HMIS) data. We used DisMod II to derive prevalence estimates, by using inputs of incidence, zero remission and mortality rates. The proportion of stroke sequelae was based on the Scottish Burden of Disease. The disability weights from GBD 2015 were used.

M5. Pericarditis, Endocarditis and Myocarditis - The incidence of Pericarditis, Endocarditis and Myocarditis was obtained from Hospital Inpatient Information Dataset (HMIS) data. We used DisMod II to derive prevalence estimates, by using inputs of incidence, zero remission and mortality rates. The disability weights from GBD 2015 were used.

M6. Other Circulatory Diseases - YLD for Other Circulatory Diseases was estimated by determining the YLL/YLD ratio for Other Circulatory Diseases as reported by the Institute for Health Metrics and Evaluation (IHME) and applying the same ratio to the current YLLs of Other Circulatory Diseases from 2009- 2014.

N Respiratory Diseases

N1. Chronic Obstructive Pulmonary Disease - The prevalence for chronic obstructive pulmonary disease in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, zero remission and mortality data. The proportion of the severity and disability weights from GBD 2015 was used.

N2. Asthma - The prevalence for asthma in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, age-specific remission rate (as in previous Malaysian BOD study) and mortality data. The proportion of the severity and disability weights from GBD 2015 was used.

N3. Other Respiratory Diseases - YLD for Other Respiratory Diseases was estimated by determining the YLL/YLD ratio for Other Respiratory Diseases as reported by the Institute for Health Metrics and Evaluation (IHME) and applying the same ratio to the current YLLs of Other Respiratory Diseases from 2009- 2014 to estimate the YLD.

O Digestive Diseases

O1. Peptic Ulcer Disease - The prevalence for peptic ulcer disease in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, remission rate of 0.5 and mortality data. The disability weights from GBD 2015 was used.

O2. Appendicitis - The prevalence for appendicitis in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, duration of 2 weeks and mortality data. The disability weights from GBD 2015 was used.

O3. Cirrhosis of the Liver - The prevalence for asthma in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, zero remission and mortality data. The proportion of the severity and disability weights from GBD 2015 was used.

04. Other Digestive Diseases - YLD for Other Digestive Diseases was estimated by determining the YLL/YLD ratio for Other Digestive Diseases as reported by the Institute for Health Metrics and Evaluation (IHME and applying the same ratio to the current YLLs of Other Digestive Diseases from 2009- 2014.

P Genito Urinary Disease

P1. Nephritis and Nephrosis - The calculation of the YLD for nephritis and nephrosis was based on the following condition: ESRF with Dialysis & ESRF with Transplant. The estimated prevalence was calculated using DISMOD II with the following input (Incidence rate as reported in the Report of The Malaysian Dialysis & Transplant Registry (2009 – 2014) with mortality rate as in the Malaysian Cause of Deaths). As majority of ESRF is caused by Diabetis Mellitus, we subtracted the YLD of ESRF due to DM since Nephropathy was calculated as one of the complications of DM. We used the GBD 2015 weightage.

P2. Benign Prostatic Hypertrophy (BPH) - There is no registry or reliable source to estimate Benign Prostatic Hypertrophy (BPH) in Malaysia. Prevalence for BPH in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, age-specific remission and RR Mortality of one. The disability weight from GBD 2015 was used.

P3. Other Urinary Diseases - YLD for Other Urinary Diseases was estimated by determining the YLL/YLD ratio for Other Urinary as reported by the Institute for Health Metrics and Evaluation (IHME) and applying the same ratio to the current YLLs of Other Urinary Diseases from 2009- 2014.

Q Skin Diseases

We sub-categorized the skin diseases into 4 major categories (dermatitis, psoriasis, viral infection & other skin diseases) as in the Scottish Burden of Disease Study. Prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME) was used. We used DisMod II to derive better estimates. Since the skin disease are an acute episode, we assumed the duration of illness for 2 months except for psoriasis for which the duration was assumed for 1 year. The proportion of the severity and disability weights from GBD 2015 was used.

R Musculoskeletal Diseases

R1. Rheumatoid Arthritis - There is no registry or reliable source to estimate Rheumatoid Arthritis in Malaysia. Prevalence for Rheumatoid Arthritis in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, remission of 0.04, and mortality rate. Severity distribution of Rheumatoid Arthritis were based on the Scottish Burden of Disease. The disability weight from GBD 2015 was used.

R2. Osteoarthritis - There is no registry or reliable source to estimate Osteoarthritis in Malaysia. Prevalence for Osteoarthritis in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, zero remission and mortality rate. Severity distribution of Osteoarthritis were based on the Scottish Burden of Disease, whereby 75% of Osteoarthritis cases were mild, 24% were moderate and 1% were severe. The disability weight from GBD 2015 was used.

R3. Back and Neck Pain - There is no registry or reliable source to estimate Back and Neck Pain in Malaysia. Prevalence for Back and Neck Pain in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, zero remission and duration of 0.5 years. Severity distribution of Back and Neck Pain were based on the Scottish Burden of Disease. The disability weight from GBD 2015 was used.

R4. Gout - There is no registry or reliable source to estimate Gout in Malaysia. Prevalence for Gout in Malaysia was obtained from prevalence estimates reported by the Institute for Health Metrics and Evaluation (IHME). We used DisMod II to derive better estimates, by using inputs of prevalence, zero remission and duration of 0.25 years. The disability weight from GBD 2015 was used.

R5. Other Musculoskeletal Disorders - YLD for Other Musculoskeletal Disorders was estimated by determining the YLL/YLD ratio for Other Musculoskeletal Disorders in Malaysia Burden of Disease study 2008 and applying the same ratio to the current YLLs of Other Musculoskeletal Disorders from 2009- 2014.

S Congenital Anomalies

S1. Congenital Heart Disease - We assumed that Congenital Heart Disease occurred in 7.3 per 1,000 live births, with 52% occurrence in females. We used DisMod II to derive prevalence estimates, by using inputs of incidence, mortality data and zero remission. We assumed that heart failure occurred in 6% of children with Congenital Heart Disease and 25% in adults, with 58.2% mild heart failure, 36.3% moderate heart failure and 5.5% severe heart failure. The disability weights from GBD 2015 were used.

S2. Down Syndrome - We assumed that Down Syndrome occurred in 4.4 per 10,000 live births. We used DisMod II to derive prevalence estimates, by using inputs of incidence, mortality data and zero remission. We assumed that congenital heart disease occurred in 49.3%, intellectual disability between 9.8% to 37.3% and dementia between 9.0% to 50.0% (age 40 and above) among those with Down Syndrome. The disability weights from GBD 2015 were used.

S3. Other Chromosomal Disorders - We assumed that Other Chromosomal Disorders occurred in 3.5 per 10,000 live births. We used DisMod II to derive prevalence estimates, by using inputs of incidence, mortality data and zero remission. We combined the sequelae and used a composite disability weight of 0.137.

S4. Cleft Lip and Palate - We assumed that Cleft Lip and Palate occurred in 11.9% of birth defects, with 57% occurrence in females. Birth defects were estimated to occur in 14.3 per 1,000 live births. We used DisMod II to derive prevalence estimates, by using inputs of incidence, RR mortality of one and zero remission. We assumed that 86.5% were cleft lip with or without cleft palate, and 91.3% were cleft palate with or without cleft lip. The disability weights from GBD 2015 were used.

S5. Spina Bifida - We assumed that Spina Bifida occurred in 0.11 per 1,000 live births. We used DisMod II to derive prevalence estimates, by using inputs of incidence, mortality data and zero remission. We assumed that mild intellectual disability occurred in 12.5% of cases, moderate intellectual disability in 7.5% of cases and severe intellectual disability in 17.5% of cases. Moderate motor impairment was estimated to occur in 27.3% of cases with severe motor impairment in 45.5% of cases. Incontinence due to Spina Bifida was estimated to occur in 62.2% of cases. The disability weights from GBD 2015 were used.

S6. Anencephaly - Anencephaly is an invariably fatal condition. Disability for Anencephaly was not calculated as infants with this condition typically die immediately upon birth.

S7. Other Congenital Anomalies - We assumed that Congenital Anomalies occurred in 14.3% per 1,000 live births. We used DisMod II to derive prevalence estimates, by using inputs of incidence, mortality data and zero remission. We combined the sequelae and used a composite disability weight of 0.137.

Oral Conditions

T1. Dental Caries - The prevalence for Dental Caries was determined by prevalence obtained in the National Oral Health Survey of School Children 2007 (NOHSS 2007) and National Oral Health Survey of Adults 2010 (NOHSA 2010). We used DisMod II to derive better estimates, by using inputs of prevalence, zero remission and duration. The disability weight from GBD 2015 was used.

T2. Periodontitis - The prevalence for Periodontitis was determined by prevalence obtained in the National Oral Health Survey of Adults 2010 (NOHSA 2010). We used DisMod II to derive better estimates, by using inputs of prevalence, zero remission and mortality, taking into account the population without edentulism. The disability weight from GBD 2015 was used.

T3. Edentulism - The prevalence for Edentulism was determined by prevalence obtained in the National Oral Health Survey of Adults 2010 (NOHSA 2010). We used DisMod II to derive better estimates, by using inputs of prevalence, zero remission and mortality. The disability weight from GBD 2015 was used for untreated Edentulism and the disability weight of 0.001, from the previous MBOD, was used for treated Edentulism.

T4. Other Oral Diseases - YLD for Other Oral Diseases was estimated by determining the YLL/YLD ratio for Other Oral Diseases in Malaysia Burden of Disease study 2008 and applying the same ratio to the current YLLs of Other Oral Diseases from 2009- 2014.

Injuries

We model disability from injuries in only those people with an injury severe enough to warrant hospital admission with assumption that injuries treated as outpatient or outside the hospital system do not result in significant disability. The incidence of each Injury and its sequelae was obtained from Hospital Inpatient Information Dataset (HMIS) data. Ill-defined injuries were redistributed pro-rate within the age and gender. The duration for each cause was based on the previous Malaysian BOD study. The disability weight from GBD 2015 was used.

Reference:

Adler, A. J., Ronsmans, C., Calvert, C., & Filippi, V. (2013). Estimating the prevalence of obstetric fistula: a systematic review and meta-analysis. BMC pregnancy and childbirth, 13(1), 246.

Annegers, J. F., Hauser, W. A., & Elveback, L. R. (1979). Remission of seizures and relapse in patients with epilepsy. Epilepsia, 20(6), 729-737.

Azman, B. Z., Ankathil, R., Siti Mariam, I., Suhaida, M. A., Norhashimah, M., Tarmizi, A. B., ... & Zilfalil, B. A. (2007). Cytogenetic and clinical profile of Down syndrome in Northeast Malaysia. Singapore medical journal, 48(6), 550.

Azmi, S., Aljunid, S. M., Maimaiti, N., Ali, A. A., Nur, A. M., De Rosas-Valera, M., ... & Roberts, C. (2016). Assessing the burden of pneumonia using administrative data from Malaysia, Indonesia, and the Philippines. International Journal of Infectious Diseases, 49, 87-93.

Boo, N. Y., Cheah, I. G., Thong, M. K., & Malaysian National Neonatal Registry. (2013). Neural tube defects in Malaysia: data from the Malaysian National Neonatal Registry. Journal of tropical pediatrics, 59(5), 338-342.

Department of Statistics Malaysia. Malaysian Mortality Data 2009 – 2014,

Department of Statistics Malaysia. Intercensal Mid-Year Population Estimates Malaysia and States 2001 - 2009,

Department of Statistics Malaysia. Mid-Year Population Estimates based on the adjusted Population and Housing Census of Malaysia 2010.

European Association of Urology (2010). Urogenital Infections.

Global Health Observatory Data Repository, http://apps.who.int/gho/data/node.main.602?lang=en

Health Informatics Centre, Ministry of Health. Malaysian Hospitals inpatient information dataset (HMIS), 2009 – 2014.

Hinton, R. B., & Ware, S. M. (2017). Heart failure in pediatric patients with congenital heart disease. Circulation research, 120(6), 978-994.

HIV and AIDS data hub for Asia-Pacific, http://www.aidsdatahub.org

Institute for Health Metrics and Evaluation (IHME), http://ghdx.healthdata.org/gbd-results-tool.

Institute for Public Health, Ministry of Health of Malaysia (2010). Findings of the National Hearing and Ear Disorders Survey 2009; ISBN: 978-983-3887-62-0.

Institute for Public Health, Ministry of Health of Malaysia (2011). National Health and Morbidity Survey (NHMS) 2011, ISBN: 978-967-3887-68-2

Institute for Public Health, Ministry of Health of Malaysia (2015). National Health and Morbidity Survey (NHMS) 2015, ISBN: 978-983-2387-23-7

Institute for Public Health, Ministry of Health of Malaysia (2016). National Health and Morbidity Survey (NHMS) 2016: Maternal and Child Health Findings, ISBN: 978-967-978-983-2387

Khanna, D., Khanna, P. P., Fitzgerald, J. D., Singh, M. K., Bae, S., Neogi, T., ... & Kaldas, M. (2012). 2012 American College of Rheumatology guidelines for management of gout. Part 2: therapy and antiinflammatory prophylaxis of acute gouty arthritis. Arthritis care & research, 64(10), 1447-1461.

Kim, M. A., Lee, Y. S., Yee, N. H., Choi, J. S., Choi, J. Y., & Seo, K. (2014). Prevalence of congenital heart defects associated with Down syndrome in Korea. Journal of Korean medical science, 29(11), 1544-1549.

Louis, E. D., Marder, K., Cote, L., Tang, M., & Mayeux, R. (1997). Mortality from Parkinson disease. Archives of Neurology, 54(3), 260-264.

Mwaniki, M. K., Atieno, M., Lawn, J. E., & Newton, C. R. (2012). Long-term neurodevelopmental outcomes after intrauterine and neonatal insults: a systematic review. The Lancet, 379(9814), 445-452.

Norhayati, M. N., Hazlina, N. H. N., Sulaiman, Z., & Azman, M. Y. (2016). Severe maternal morbidity and near misses in tertiary hospitals, Kelantan, Malaysia: a cross-sectional study. BMC public health, 16(1), 229.

Novy, M, Eschenbach, D, et al, (2008) Glob. libr. women's med., (ISSN: 1756-2228). DOI 10.3843/GLOWM.10328

Ong, L. C., Lim, Y. N., & Sofiah, A. (2002). Malaysian children with spina bifida: relationship between functional outcome and level of lesion. Singapore Med J, 43(1), 012-017.

Paavonen, J., & Eggert-Kruse, W. (1999). Chlamydia trachomatis: impact on human reproduction. Human reproduction update, 5(5), 433-447.

Prevoo, M. L. L., Van Gestel, A. M., van THof, M. A., Van Rijswijk, M. H., Van de Putte, L. B. A., & Van Riel, P. L. C. M. (1996). Remission in a prospective study of patients with rheumatoid arthritis. American Rheumatism Association preliminary remission criteria in relation to the disease activity score. Rheumatology, 35(11), 1101-1105.

Shah, S. Y. A., Rahman, Z. A. A., Mirani, S. A., Shaikh, M. I., Khattak, M. N., & Sahito, M. A. (2015). Demographic Data On the Characterization of Oral Clefts in Malaysia. Pakistan Oral & Dental Journal, 35(1).

Strydom, A., Shooshtari, S., Lee, L., Raykar, V., Torr, J., Tsiouris, J., ... & Maaskant, M. (2010). Dementia in older adults with intellectual disabilities—epidemiology, presentation, and diagnosis. Journal of Policy and Practice in Intellectual Disabilities, 7(2), 96-110.

Surveillance Sector, Ministry of Health. Notifiable Diseases Register 2009 – 2014

Tang, W., Huang, S., Chen, L., Yang, L., Tucker, J. D., Zheng, H., & Yang, B. (2017). Late Neurosyphilis and Tertiary Syphilis in Guangdong Province, China: Results from a Cross-sectional Study. Scientific Reports, 7.

Thong, M. K., Ho, J. J., & Khatijah, N. N. (2005). A population-based study of birth defects in Malaysia. Annals of human biology, 32(2), 180-187.

van der Bom, T., Bouma, B. J., Meijboom, F. J., Zwinderman, A. H., & Mulder, B. J. (2012). The prevalence of adult congenital heart disease, results from a systematic review and evidence based calculation. American heart journal, 164(4), 568-575.

van der Linde, D., Konings, E. E., Slager, M. A., Witsenburg, M., Helbing, W. A., Takkenberg, J. J., & Roos-Hesselink, J. W. (2011). Birth prevalence of congenital heart disease worldwide. Journal of the American College of Cardiology, 58(21), 2241-2247.

Vos, T., Allen, C., Arora, M., Barber, R. M., Bhutta, Z. A., Brown, A., ... & Coggeshall, M. (2016). Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. The Lancet, 388(10053), 1545-1602. (Methods Appendix)

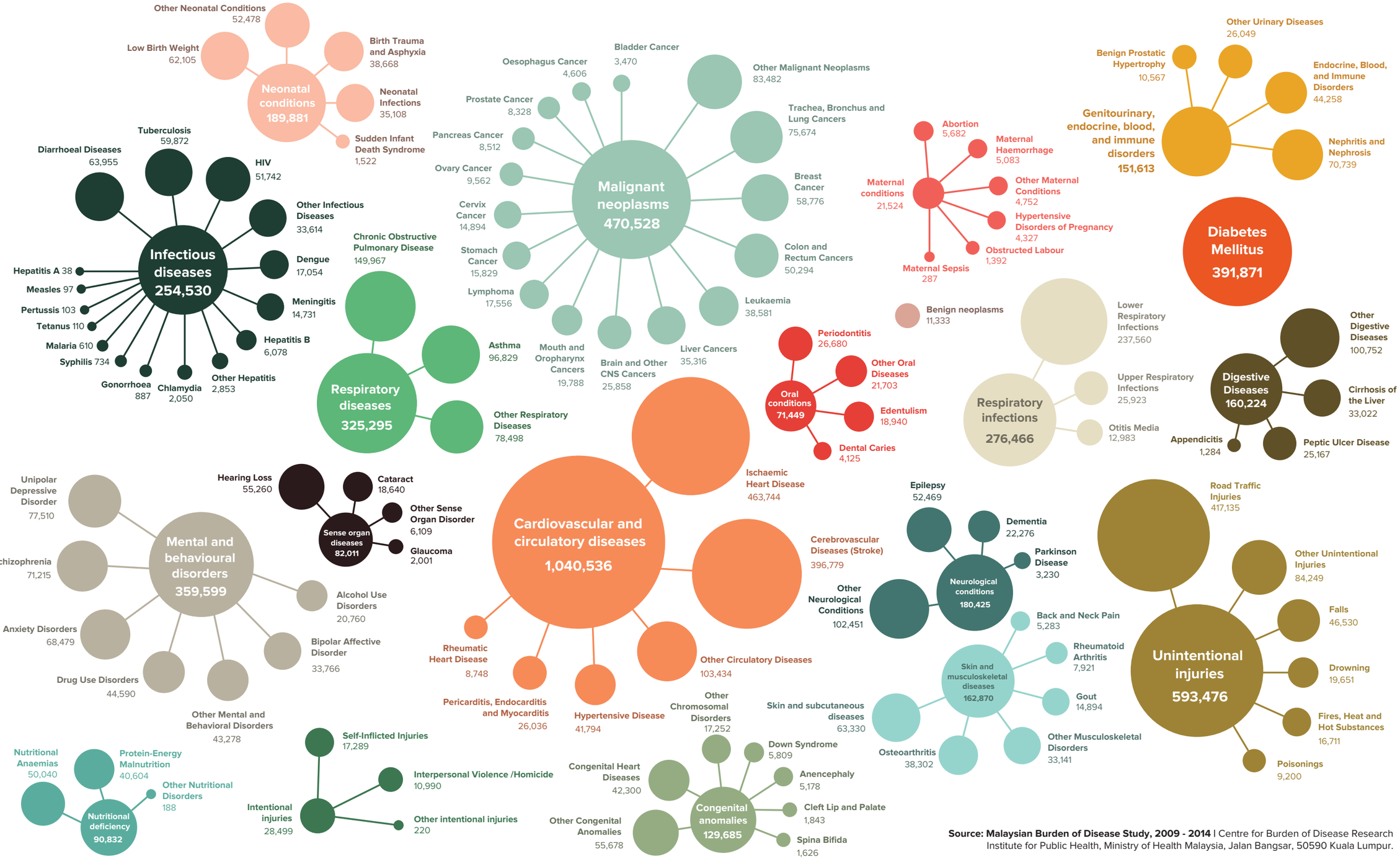
Vos, T., Allen, C., Arora, M., Barber, R. M., Bhutta, Z. A., Brown, A., ... & Coggeshall, M. (2016). Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. The Lancet, 388(10053), 1545-1602. (Supplementary Appendix)

William, T., & Menon, J. (2014). A review of malaria research in Malaysia. Med J Malaysia, 69, 82-87

World Health Organization. (2001). Consensus Report on STI, HIV and AIDS Epidemiology: Malaysia, 2001. Manila: WHO Regional Office for the Western Pacific.

Burden of disease in Malaysia, 2014

Total disability-adjusted life years (DALYs) in 2014: 4,992,646



Source: Malaysian Burden of Disease Study, 2009 - 2014 | Centre for Burden of Disease Research Institute for Public Health, Ministry of Health Malaysia, Jalan Bangsar, 50590 Kuala Lumpur.

Original concept from the Scottish Burden of Disease Study (www.scotpho.org.uk)