Supplementary material accompanying the article:

Trends and projections of cause-specific premature mortality in Australia to 2044: a statistical modelling study

Qingwei Luo,[a] Julia Steinberg,[a] Clare Kahn,[a] Michael Caruana,[a] Paul B Grogan,[a] Andrew Page,[b] Rebecca Ivers,[c] Emily Banks,[d] Dianne L O'Connell,[a, e, f] Karen Canfell[a, f]

a. The Daffodil Centre, The University of Sydney, a joint venture with Cancer Council NSW, Sydney, New South Wales, Australia.
b. Translational Health Research Institute, Western Sydney University, Penrith, New South Wales, Australia.
c. School of Population Health, University of New South Wales, Sydney, New South Wales, Australia.
d. National Centre for Epidemiology and Population Health, Research School of Population Health, Australian National University, Canberra, Australian Capital Territory, Australia.
e. School of Medicine and Public Health, University of Newcastle, Newcastle, New South Wales, Australia.
f. Contributed equally as senior authors.

Table of Contents

List of Tables

List of Figures

1. Methods

1.1. Cause of death categories

We sourced national tabulated data for the numbers of deaths from all causes and detailed cause of death categories by sex, 5-year age group and calendar year from the Australian Institute of Health and Welfare (AIHW).[1] These cause of death categories based on the International Classification of Diseases and Related Health Problems codes,[2] listed in Table S1, are those with sufficient numbers of deaths to provide robust and valid projections, with two levels of cause of death groups being reported: 16 high-level groups (level-1 cause groups) and 43 more detailed cause of death categories (level-2 cause categories). A total of 36 cause of death categories were noncommunicable diseases (NCDs).[3] An external cause is defined as the event, circumstance or condition associated with the occurrence of injury, poisoning, suicide or violence. For lung cancer mortality projections we included data for 1955-2019 to allow for a minimum of 20 years of observed data prior to the peak in lung cancer mortality in the early 1980s.[4] Data for kidney failure, other genitourinary diseases, accidental poisoning, accidental drowning and other external causes were only available from 1979. Projections for the remaining causes of death were based on mortality data for 1970-2019. Australian population counts by sex, 5-year age group and calendar year from 1955 to 2044 (Series B, assuming medium population growth) were obtained from the Australian Bureau of Statistics (ABS).[5]

Table S1. ICD-10 codes for cause of death categories included in this study

Level-1 group	Level-2 group	Cause of death categories	ICD-10[a]	Data period
	All causes		**All**	**1970 - 2019**
A1	**Cancer***		**C00–D48**	**1970 - 2019**
	B1	Bladder cancer*	C67	1970 - 2019
	B2	Brain cancer*	C71	1970 - 2019
	B3	Breast cancer*	C50	1970 - 2019
	B4	Colorectal cancer*	C18–C20, C26.0	1970 - 2019
	B5	Gallbladder and bile duct cancer*	C23-24	1970 - 2019
	B6	Kidney cancer*	C64	1970 - 2019
	B7	Laryngeal cancer*	C32	1970 - 2019
	B8	Leukaemia*	C91-95	1970 - 2019
	B9	Liver cancer*	C22	1970 - 2019
	B10	Lung cancer*	C33-C34	1955 - 2019
	B11	Melanoma*	C43	1970 - 2019
	B12	Non-Hodgkin lymphoma*	C82-86	1970 - 2019
	B13	Oesophageal cancer*	C15	1970 - 2019
	B14	Oral cancer*	C00-14, 30-31	1970 - 2019
	B15	Ovarian cancer*	C56	1970 - 2019
	B16	Pancreatic cancer*	C25	1970 - 2019
	B17	Prostate cancer*	C61	1970 - 2019
	B18	Stomach cancer*	C16	1970 - 2019
	B19	Testicular cancer*	C62	1970 - 2019
	B20	Thyroid cancer*	C73	1970 - 2019
	B21	Uterine cancer*	C54-55	1970 - 2019
	B22	Other cancers*		1970 - 2019
A2	**Cardiovascular disease***		**I00–I99**	**1970 - 2019**
	B23	Cerebrovascular disease*	I60–I69	1970 - 2019
	B24	Coronary heart disease*	I20–I25	1970 - 2019

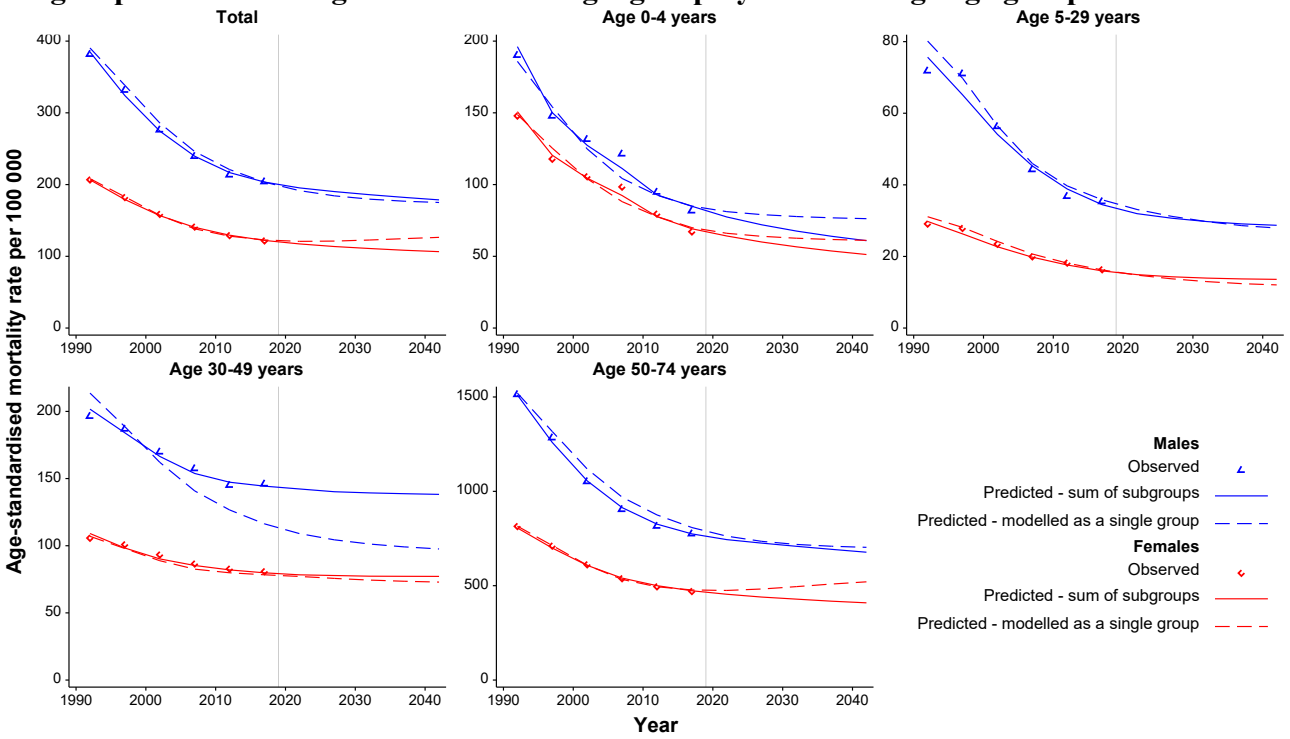
	B25	Hypertensive disease*	I10–I15	1970 - 2019
	B26	Other cardiovascular disease*		1970 - 2019
A3	**External causes**		**V01–Y98**	**1979 - 2019**
	B27	Accidental drowning	W65–W74	1979 - 2019
	B28	Accidental poisoning	X40–X49	1979 - 2019
	B29	Assault	X85-Y09	1970 - 2019
	B30	Land transport accidents	V01–V89	1970 - 2019
	B31	Suicide	X60–X84, Y87.0	1970 - 2019
	B32	Other external causes include falls, exposure to electric current or other factors		1979 - 2019
A4	**Respiratory diseases**		**J00–J99**	**1970 - 2019**
	B33	Asthma*	J45-J46	1970 - 2019
	B34	COPD*	J40–J44	1970 - 2019
	B35	Other respiratory diseases		1970 - 2019
A5	**Endocrine and metabolic diseases**		**E00–E90**	**1970 - 2019**
	B36	Diabetes*	E10–E14	1970 - 2019
	B37	Other endocrine and metabolic diseases		1970 - 2019
A6	**Diseases of the nervous system**		**G00–G99**	**1970 - 2019**
A7	**Digestive diseases**		**K00–K93**	**1970 - 2019**
	B38	Liver disease*	K70–K76	1970 - 2019
	B39	Other digestive diseases		1970 - 2019
A8	**Infectious and parasitic diseases**		**A00–B99**	**1970 - 2019**
A9	**Mental and behavioural disorders***		**F00–F99**	**1970 - 2019**
A10	**Genitourinary diseases**		**N00–N99**	**1979 - 2019**
	B40	Kidney failure*	N17–N19	1979 - 2019
	B41	Other genitourinary diseases		1979 - 2019
A11	**Conditions in the perinatal period**		**P00–P96**	**1970 - 2019**
A12	**Congenital malformations***		**Q00–Q99**	**1970 - 2019**
A13	**Diseases of the skin***		**L00–L99**	**1970 - 2019**
A14	**Diseases of the blood**		**D50–D89**	**1970 - 2019**
A15	**Musculoskeletal diseases***		**M00–M99**	**1970 - 2019**
A16	**Other causes (excluding A1-A15)[b]**		**H00-H95, O00-O99, R00-R99**	**1970 - 2019**
	B42	SIDS*	R95 (aged <1)	1970 - 2019
	B43	Other causes excluding SIDS		1970 - 2019

* Noncommunicable disease.
COPD: Chronic obstructive pulmonary disease. SIDS: sudden infant death syndrome.
a. Data for 1970-1978 were based on ICD-8 codes.
b. Other causes includes diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified (R00-R99).

1.2. Statistical projection models

As each cause of death category has unique characteristics, separate projection models were developed and validated for each of the 43 level-2 cause of death categories and 8 of the 16 level-1 cause of death groups, for males and females separately (Table S2). For each of the remaining 8 level-1 cause of death groups (cancer, cardiovascular disease, external causes, respiratory diseases, endocrine and metabolic diseases, digestive diseases, genitourinary diseases and other causes) with multiple constituent level-2 categories, the estimated numbers of deaths for the relevant level-2 categories were combined to calculate the projected mortality rates. The projected premature mortality rate for all causes combined was analogously calculated from all 16 level-1 groups. This approach allows for different patterns and factors for individual causes and provides a better fitting model than by modelling all-cause mortality as a large single group (Figure S1).

Figure S1. Comparison of all-cause mortality projections obtained as the sum of cause-specific subgroups and modelling of the overall single group by sex and large age groups



All rates are age-standardised to the Segi World standard population. To model all-cause mortality as an overall single group, we also tested different age-stratified models to obtain the best fitting models, which used separate age-stratified age-period-cohort models for ages <50 years and ages 50+ years.

We used a log-linear period model to project mortality rates for conditions in the perinatal period and sudden infant death syndrome with one age group (0-4 years). For the projections of lung cancer mortality we used a previously validated generalised linear model (GLM) with cigarette smoking consumption as a covariate (with a 26 year lag for males and a 29 year lag for females), as we have previously shown that the inclusion of data on cigarette consumption improves statistical projections.[4] For the projections of mortality rates for colorectal cancer, suicide, land transport accidents, diabetes, and diseases of the nervous system, we used separate age-stratified age-period-cohort (APC) models for ages <50 years and ages 50+ years. For the projections of mortality rates for hypertensive disease, liver disease, diseases of the skin and musculoskeletal diseases, we used separate age-stratified APC models for ages<25 year and ages 25+ years. The estimates for the two sub-groups (i.e. ages 0-49 years and 50-74 years or 0-24 years and 25-74 years) were then summed to provide estimates and projections for the whole group. We used a flexible APC model, as this method can implicitly incorporate changes in many aetiological exposures that are reflected in past trends in the cancer rates. In particular, the period and cohort effects are considered to be surrogates for exposure to a range of risk factors.[6] We also explicitly examined GLM or APC models incorporating a covariate for breast and prostate cancer. However, the terms for the breast cancer screening participation rate and the PSA testing rate were not statistically significant in the full APC

models for breast cancer and prostate cancer mortality, respectively. For other cancer types which have been shown to have a strong established relationship with cigarette smoking (e.g. with >30% of cases caused by smoking), including laryngeal, bladder, oral, and oesophageal cancers, the explicit term for cigarette smoking exposure was not statistically significant in the full APC models and so was omitted from the final models. Standard APC models[7] were used to project mortality rates for each of the remaining cause of death categories as listed in Table S2.

Table S2. Projection methods for different cause of death categories

Level-1 group	Level-2 group	Cause of death categories	Projection method
	All causes		**Calculate sex-age-specific number of deaths by summing the number of deaths for causes A1 to A16**
A1	**Cancer***		**Calculate sex-age-specific number of deaths by summing the number of deaths for causes B1 to B22**
	B1	Bladder cancer*	APC model
	B2	Brain cancer*	APC model
	B3	Breast cancer*	APC model
	B4	Colorectal cancer*	Age-stratified APC model for age <50 years and age 50-74 years
	B5	Gallbladder and bile duct cancer*	APC model
	B6	Kidney cancer*	APC model
	B7	Laryngeal cancer*	APC model
	B8	Leukaemia*	APC model for males, AC model for females.
	B9	Liver cancer*	AC model for males, APC model for females
	B10	Lung cancer*	GLM: with cigarette smoking exposure as a covariate
	B11	Melanoma*	APC model
	B12	Non-Hodgkin lymphoma*	APC model
	B13	Oesophageal cancer*	APC model
	B14	Oral cancer*	APC model
	B15	Ovarian cancer*	APC model
	B16	Pancreatic cancer*	APC model
	B17	Prostate cancer*	APC model
	B18	Stomach cancer*	APC model
	B19	Testicular cancer*	AP model
	B20	Thyroid cancer*	APC model
	B21	Uterine cancer*	APC model
	B22	Other cancers*	APC model
A2	**Cardiovascular disease***		**Calculate sex-age-specific number of deaths by summing the number of deaths for causes B23 to B26**
	B23	Cerebrovascular disease*	APC model
	B24	Coronary heart disease*	Age-stratified APC model for age <50 years and age 50-74 years
	B25	Hypertensive disease*	Age-stratified APC model for age <25 years and age 25-74years
	B26	Other cardiovascular disease*	APC model
A3	**External causes**		**Calculate sex-age-specific number of deaths by summing the number of deaths for causes B27 to B32**
	B27	Accidental drowning	Age-stratified APC model for age <30 years and age 30-74 years
	B28	Accidental poisoning	Age-stratified APC model for age <30 years and age 30-74 years
	B29	Assault	Age-stratified APC model for age <30 years and age 30-74 years
	B30	Land transport accidents	Age-stratified APC model for age <50 years and age 50-74 years
	B31	Suicide	Age-stratified APC model for age <30 years and age 30-74 years
	B32	Other external causes	Age-stratified APC model for age <30 years and age 30-74 years
A4	**Respiratory diseases**		**Calculate sex-age-specific number of deaths by summing the number of deaths for causes B33 to B35**
	B33	Asthma*	APC model
	B34	COPD*	Age-stratified APC model for age <50 years and age 50-74 years
	B35	Other respiratory disease	Age-stratified APC model for age <30 years and age 30-74 years
A5	**Endocrine and metabolic diseases**		**Calculate sex-age-specific number of deaths by summing the number of deaths for causes B36 to B37**
	B36	Diabetes*	Age-stratified APC model for age <50 years and age 50-74 years
	B37	Other endocrine and metabolic diseases	Age-stratified APC model for age <30 years and age 30-74 years

A6	**Diseases of the nervous system**		**Age-stratified APC model for age <50 years and age 50-74years**
A7	**Digestive diseases**		**Calculate sex-age-specific number of deaths by summing the number of deaths for causes B38 to B39**
	B38	Liver disease*	APC model
	B39	Other digestive diseases	APC model
A8	**Infectious and parasitic diseases**		**APC model**
A9	**Mental and behavioural disorders***		**Age-stratified APC model for age <40 years and age 40-74years**
A10	**Genitourinary diseases**		**Calculate sex-age-specific number of deaths by summing the number of deaths for causes B40 to B41**
	B40	Kidney failure*	APC model
	B41	Other genitourinary diseases	APC model
A11	**Conditions in the perinatal period**		**Log-linear model**
A12	**Congenital malformations***		**APC model**
A13	**Diseases of the skin***		**Age-stratified APC model for age <25 years and age 25-74years**
A14	**Diseases of the blood**		**APC model**
A15	**Musculoskeletal diseases***		**Age-stratified APC model for age <25 years and age 25-74years**
A16	**Other causes (excluding A1-A15)[a]**		**Calculate sex-age-specific number of deaths by summing the number of deaths for causes B42 to B43**
	B42	SIDS*	Log-linear model
	B43	Other causes excluding SIDS	APC model

* Noncommunicable disease.

a. Other causes includes diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified (R00-R99).

COPD: Chronic obstructive pulmonary disease. SIDS: sudden infant death syndrome. GLM: generalised linear model; AC: age-cohort; AP: age-period; APC: age-period-cohort.

APC model

To project mortality for each cause of death except lung cancer, conditions in the perinatal period and sudden infant death syndrome, we used APC models including age, period and cohort components under the framework of a GLM with Poisson distribution. The APC models were fitted by the apcspline command in Stata 17 with natural cubic splines for smoothing.[7] Briefly, we compared a number of APC models with different numbers of knots for the age, period and cohort effects to identify the one with the lowest Bayesian information criterion (BIC). The APC model with the log-link function can be expressed as:

$$lnD_{ij} = lnN_{ij} + \alpha Age_i + \beta Period_j + \gamma Cohort_k + Drift \times damping^m$$

where D_{ij} denotes the number of deaths from the specific cause of death for the i^{th} age group during the j^{th} calendar period; N_{ij} denotes the number at risk in the population for the i^{th} age group during the j^{th} calendar period; α is the coefficient of the age component for age group i; β is the non-linear coefficient of the period component for period j, and γ is the non-linear coefficient of the cohort component for birth cohort k. Future periods and cohorts were assumed to have the same effect as those for the most recent observed period and cohort.[7] Damping specifies the level of geometric shrinking of the drift beyond the last observation point and m is the number of units of time after the last observation. We used the default setting for the damping factor (equal to 0.92), so that the drift was reduced by 8% for each year following the last observation. This takes into account the fact that the period and cohort effects will wane and current trends in mortality rates are not expected to continue over time.[8] In this study, the log-link model offered better model fit compared

to the power function, therefore estimates based on the log-link model were presented.

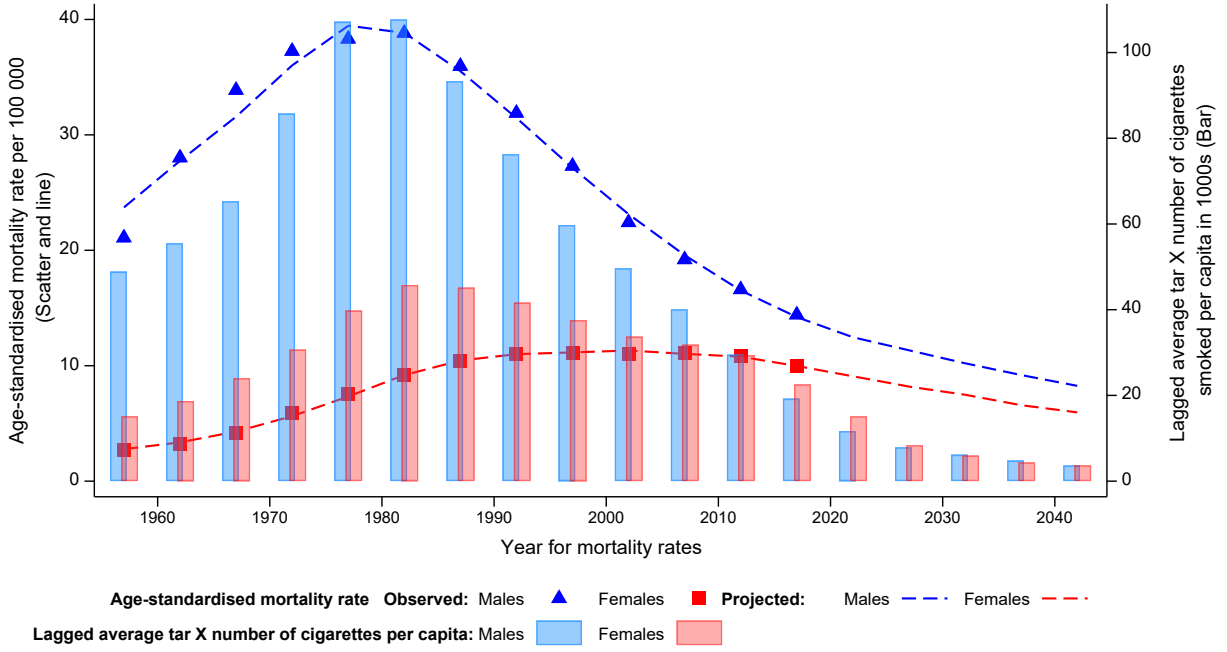
GLM with cigarette smoking exposure as a covariate

We previously developed and validated a statistical model which included cigarette smoking exposure as one of the covariates for the projection of lung cancer mortality rates.[4] A detailed explanation of the method is provided elsewhere,[4] but the final fitted model for each sex can be presented as a parsimonious equation:

$$lnD_{ij} = lnN_{ij} + \alpha Age_i + \gamma Cohort_k + \delta CTC_{ij-L}$$

where D_{ij} denotes the number of deaths from lung cancer for the i^{th} age group during the j^{th} calendar period; N_{ij} denotes the number at risk in the population for the i^{th} age group during the j^{th} calendar period; α is the coefficient of the age component for age group i; γ is the non-linear coefficient of the cohort component for birth cohort k; δ is the coefficient of the CTC_{ij-L}, which denotes the sex-age-period-specific cigarette tar exposure in the population for the i^{th} age group during the j-L^{th} calendar period, which is lagged by L years (lagged 26 years for males and 29 years for females). To project lung cancer mortality rates beyond the observed calendar period these models assumed that the age effects remained constant over time,[9 10] and we used cohort-specific cigarette tar exposure to predict the future cohort effects.[4] The correspondence between the age-standardised lung cancer mortality rate and the lagged trends in cigarette tar exposure is shown in Figure S2.

Figure S2. Age-standardised lung cancer mortality rate for age 30-74 years and lagged smoking exposure (lagged by 26 years for males and 29 years for females), Australia



Lung cancer mortality rates are age-standardised to the Segi World standard population.

Log-linear period models

The log-linear models were generally applied to decreasing trends to avoid negative rates. We used a log-linear period model to project mortality rates due to sudden infant death syndrome and conditions originating in the perinatal period for those aged under 5 years. The final fitted model for each sex can be presented as a parsimonious equation:

$$lnD_j = lnN_j + \beta Period_j$$

where D_j denotes the number of deaths for those aged under 5 years during the j^{th} calendar period; N_j denotes the number at risk in the population for the under 5 age group during the j^{th} calendar period; β is the non-linear coefficient of the period component for period j. Similar to the approach used for the APC models, future periods were assumed to have the same effect as those of the most recent observed period.

1.3. Model validation

Model validation provides information on the performance and reliability of the projection modelling approach. We undertook a model validation process by withholding the most recent observed data from the model fitting and then comparing the projected rates for those years with the actual observed rates. If the model evaluation indicated lack of fit, we examined age-stratified models by splitting the data using an age cut off based on the patterns in the observed data. The most appropriate model was selected based on the model fit statistics and validated using the observed data. For some causes, age-stratified models improved the model performance. To measure the closeness of observed and projected age-standardised mortality rates, we calculated the absolute difference (defined as the absolute difference between the predicted and observed rates) for the 15-year projections. Validations of 15-year projections (2005-2019) for premature mortality rates for all causes combined as well as the 59 cause of death categories showed that the projected rates for both males and females were close to the observed values, with low absolute differences for 15-year projections across most cause of death categories (Figure S3), suggesting that the models provide valid 15-year projections for premature mortality for all causes combined as well as the 59 cause of death categories in Australia.

Our projections for all-cause mortality rates are generally in close agreement with those based on population projections by the ABS (Figure S4).[11] This is largely due to the monotonic decreasing trends in the historical rates that have been adequately captured by both methods. However, this may not have been the case if there had been a rapid increase or decrease in the rates.[12] The small differences in the current and ABS projected age-standardised mortality rates and the numbers of

premature deaths are likely due to the different methods used. The ABS all-cause mortality projections were based on rates of change in the recent trends for each sex and age group, which were incorporated in the production of the assumed life tables and did not account for the diverse patterns in mortality across the cause of death categories. However, our projections for all-cause mortality were based on projections for cause-specific mortality rates, which allowed for different patterns and factors for individual causes.

1.4. Calculation of potential years of life lost (PYLL)

The PYLL for each single year age and calendar period was calculated using the formula:

$$PYLL_{ij} = D_{ij} \times (75 - Age\ i)$$

where D_{ij} is the number of deaths for age group i and calendar period j, and $Age\ i$ is the estimated single year age i. (e.g. number of deaths for age group 0-4 years was disaggregated into single year age 0, 1, 2, 3 and 4 year). The number of deaths within a 5-year age group was distributed across single years of age. The estimated PYLL in 2015-2019 was in good agreement with the corresponding PYLL reported by the AIHW.[1]

1.5. Calculation of probability of dying from non-communicable diseases

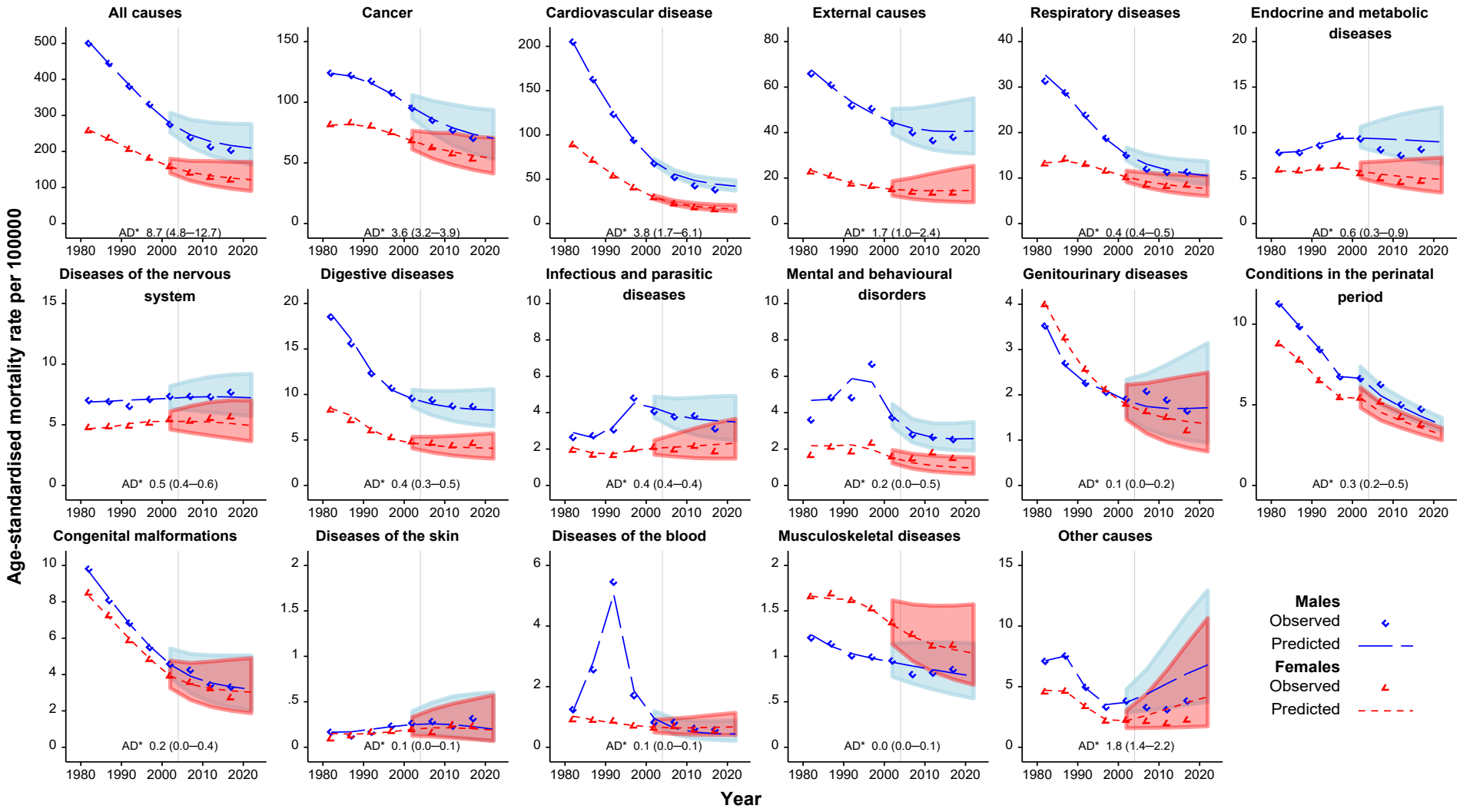
The indicator used for the Sustainable Development Goal (SDG) target 3.4 was defined as the unconditional probability of dying from NCDs between exact age 30 and 70 years in the absence of competing causes of death other than the NCDs.[13] In this study, we estimated the probability of dying from the four main NCDs (cancer, cardiovascular disease, diabetes and chronic respiratory disease) for age 30-69 years. Let ${}_nq_x$ denote the probability of dying between age x and x+n, which is derived using the formula:

$${}_nq_x = n \times {}_nm_x / [1 + (n - {}_na_x) \times {}_nm_x]$$

where ${}_nm_x$ is the age-specific mortality rate for ages x to x+n, n is the number of years in the age group, and ${}_na_x$ is the mean number of person-years lived in the interval by those dying in the interval.[14]

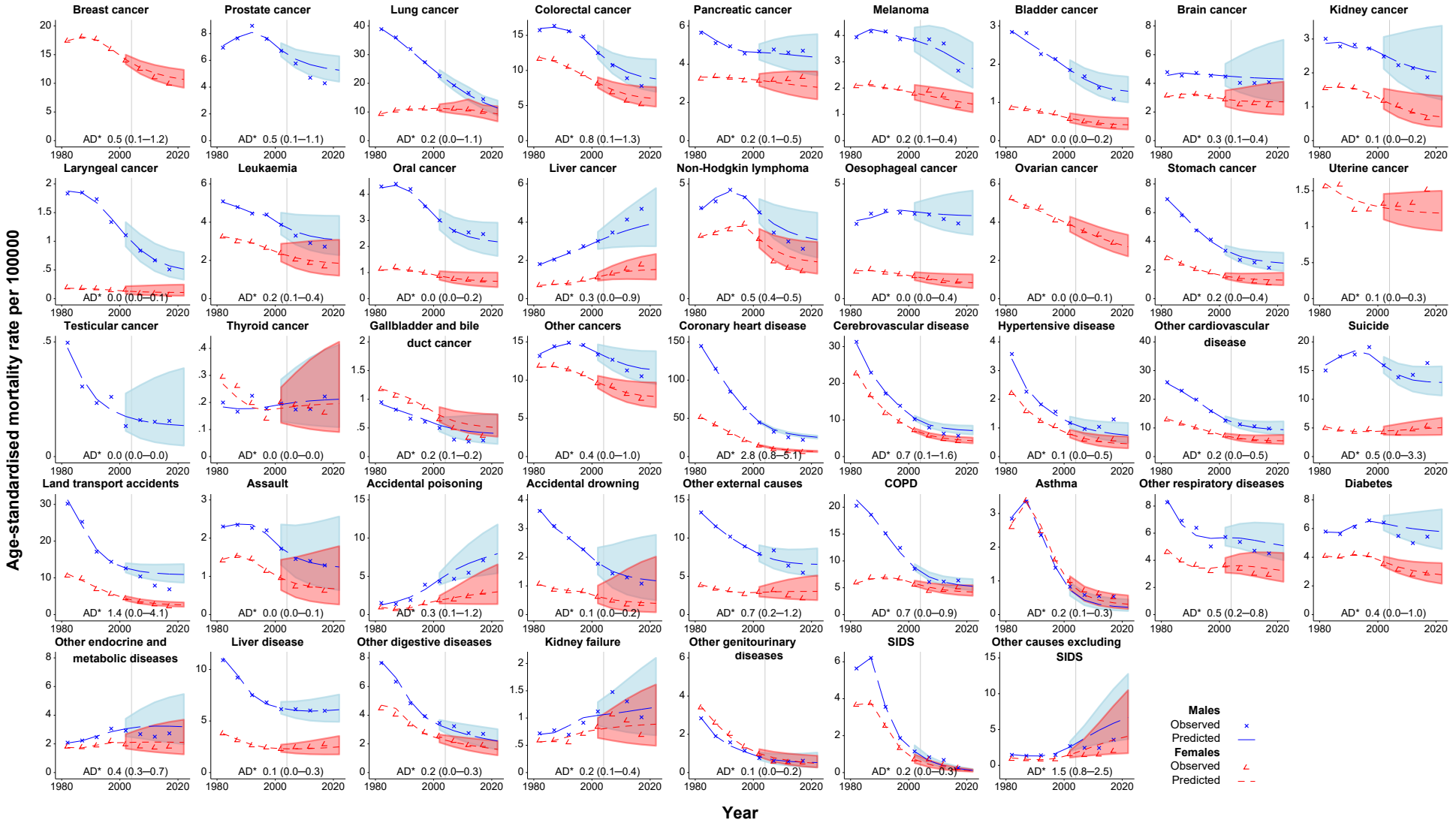
Figure S3. Validation of 15-year projections for premature mortality rates using observed data from 1980 to 2004 projected to 2019, compared to the observed data for 1980-2019, Australia

A. High-level causes of deaths



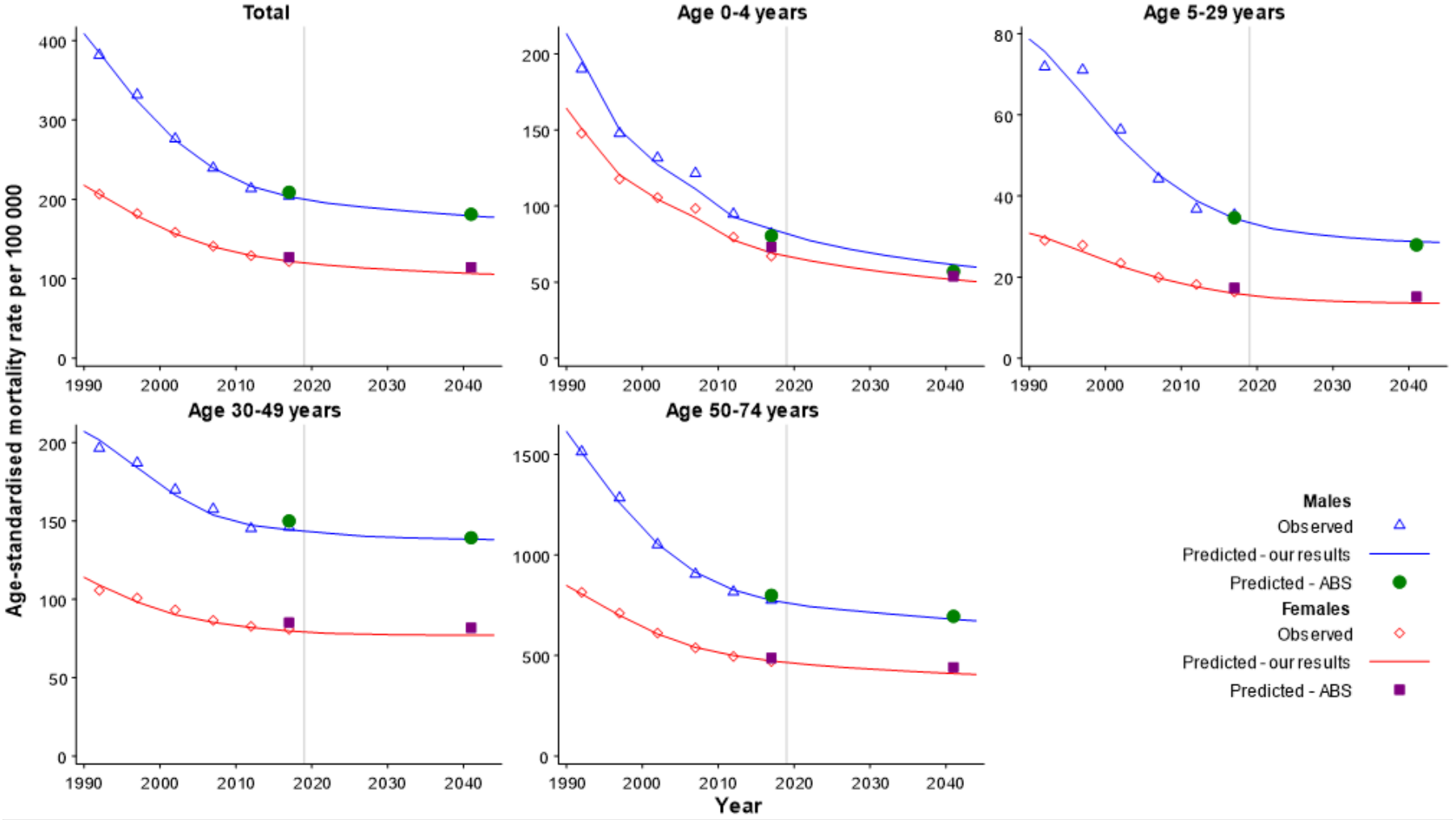
Other causes includes diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified (R00-R99).
All rates are age-standardised to the Segi World standard population. The shaded area represents the 95% uncertainty interval.

B. Detailed cause of death categories



All rates are age-standardised to the Segi World standard population. The shaded area represents the 95% uncertainty interval.
AD: median and range of absolute difference in age-standardised rate per 100 000 for 15-year projections.

Figure S4. Comparison of mortality rate projections from the Australian Bureau of Statistics (ABS) and the results from this study for all causes combined by sex and large age groups



Projections for all-cause mortality in 2017 and 2041 were extracted from the open source https://www.abs.gov.au/statistics/people/population/population-projections-australia/latest-release. All rates were age-standardised to the Segi World standard population.

Reference. Australian Bureau of Statistics. Population Projections, Australia [Internet]. Canberra: ABS; 2017-base---2066. Available from: https://www.abs.gov.au/statistics/people/population/population-projections-australia/latest-release. Accessed 8 October 2023.

2. Additional results

Table S3. Observed age-standardised premature mortality rates for all causes combined and for different cause of death categories, 1990-1994 to 2015-2019, Australia

	Total			Age 0-4 years			Age 5-29 years			Age 30-49 years			Age 50-74 years		
	1990-1994	2015-2019	% change[a]	1990-1994	2015-2019	% change[a]	1990-1994	2015-2019	% change[a]	1990-1994	2015-2019	% change[a]	1990-1994	2015-2019	% change[a]
Total - all causes	**292·1**	**162·4**	**-44·4**	**169·6**	**74·6**	**-56·0**	**50·8**	**26·0**	**-48·8**	**151·5**	**113·2**	**-25·3**	**1151·2**	**620·2**	**-46·1**
Males - all causes	**381·8**	**204·2**	**-46·5**	**190·2**	**81·8**	**-57·0**	**71·9**	**35·4**	**-50·8**	**196·5**	**146·2**	**-25·6**	**1514·1**	**776·0**	**-48·7**
Cancer	**117·7**	**70·7**	**-39·9**	**4·7**	**2·5**	**-46·8**	**5·8**	**3·3**	**-43·1**	**45·2**	**28·1**	**-37·8**	**563·3**	**337·6**	**-40·1**
Lung cancer	*31·9*	*14·4*	*-54·9*	*0·0*	*0·0*		*0·1*	*0·0*	*-100·0*	*7·0*	*3·6*	*-48·6*	*164·2*	*73·6*	*-55·2*
Colorectal cancer	*15·6*	*7·8*	*-50·0*	*0·0*	*0·0*		*0·1*	*0·2*	*100·0*	*5·4*	*4·2*	*-22·2*	*77·2*	*36·3*	*-53·0*
Liver cancer	*2·4*	*4·7*	*95·8*	*0·0*	*0·1*		*0·0*	*0·0*		*1·2*	*1·3*	*8·3*	*11·5*	*23·6*	*105·2*
Pancreatic cancer	*4·9*	*4·7*	*-4·1*	*0·0*	*0·0*		*0·0*	*0·0*		*1·6*	*1·6*	*0·0*	*24·7*	*23·4*	*-5·3*
Prostate cancer	*8·6*	*4·3*	*-50·0*	*0·0*	*0·0*		*0·0*	*0·0*		*0·3*	*0·2*	*-33·3*	*46·2*	*23·1*	*-50·0*
Brain cancer	*4·7*	*4·1*	*-12·8*	*1·1*	*0·6*	*-45·5*	*0·9*	*0·8*	*-11·1*	*3·8*	*3·5*	*-7·9*	*17·6*	*15·1*	*-14·2*
Oesophageal cancer	*3·8*	*3·3*	*-13·2*	*0·0*	*0·0*		*0·0*	*0·0*		*1·2*	*1·1*	*-8·3*	*19·2*	*16·4*	*-14·6*
Leukaemia	*4·4*	*2·7*	*-38·6*	*1·5*	*0·6*	*-60·0*	*1·7*	*0·6*	*-64·7*	*2·5*	*1·2*	*-52·0*	*15·8*	*11·5*	*-27·2*
Melanoma	*4·1*	*2·7*	*-34·1*	*0·0*	*0·0*		*0·3*	*0·1*	*-66·7*	*4·1*	*1·9*	*-53·7*	*16·4*	*11·7*	*-28·7*
Oral cancer	*4·2*	*2·5*	*-40·5*	*0·0*	*0·0*		*0·1*	*0·0*	*-100·0*	*2·2*	*1·1*	*-50·0*	*19·7*	*11·9*	*-39·6*
Non-Hodgkin lymphoma	*4·7*	*2·2*	*-53·2*	*0·2*	*0·1*	*-50·0*	*0·6*	*0·1*	*-83·3*	*3·9*	*0·9*	*-76·9*	*18·9*	*10·3*	*-45·5*
Stomach cancer	*4·8*	*2·1*	*-56·3*	*0·0*	*0·0*		*0·0*	*0·1*		*1·9*	*1·3*	*-31·6*	*23·2*	*9·8*	*-57·8*
Kidney cancer	*2·8*	*1·9*	*-32·1*	*0·2*	*0·1*	*-50·0*	*0·1*	*0·0*	*-100·0*	*1·5*	*0·9*	*-40·0*	*13·1*	*8·9*	*-32·1*
Bladder cancer	*2·3*	*1·1*	*-52·2*	*0·0*	*0·0*		*0·0*	*0·0*		*0·4*	*0·2*	*-50·0*	*11·8*	*5·6*	*-52·5*
Laryngeal cancer	*1·7*	*0·5*	*-70·6*	*0·0*	*0·0*		*0·0*	*0·0*		*0·2*	*0·1*	*-50·0*	*9·1*	*2·6*	*-71·4*
Gallbladder and bile duct cancer	*0·7*	*0·3*	*-57·1*	*0·0*	*0·0*		*0·0*	*0·0*		*0·2*	*0·1*	*-50·0*	*3·3*	*1·4*	*-57·6*
Thyroid cancer	*0·2*	*0·2*	*0·0*	*0·0*	*0·0*		*0·0*	*0·0*		*0·1*	*0·1*	*0·0*	*1·1*	*1·0*	*-9·1*
Testicular cancer	*0·2*	*0·2*	*0·0*	*0·0*	*0·0*		*0·1*	*0·1*	*0·0*	*0·5*	*0·3*	*-40·0*	*0·3*	*0·3*	*0·0*
Other cancers	*14·9*	*10·5*	*-29·5*	*1·2*	*0·6*	*-50·0*	*1·5*	*1·0*	*-33·3*	*6·9*	*4·1*	*-40·6*	*67·4*	*48·9*	*-27·4*
Cardiovascular disease	**123·6**	**38·6**	**-68·8**	**1·7**	**1·6**	**-5·9**	**2·5**	**1·4**	**-44·0**	**41·6**	**24·1**	**-42·1**	**610·4**	**173·5**	**-71·6**
Coronary heart disease	*84·8*	*21·9*	*-74·2*	*0·0*	*0·0*		*0·5*	*0·3*	*-40·0*	*27·9*	*12·9*	*-53·8*	*423·3*	*101·3*	*-76·1*
Cerebrovascular disease	*17·2*	*5·7*	*-66·9*	*0·3*	*0·1*	*-66·7*	*0·6*	*0·2*	*-66·7*	*5·5*	*3·0*	*-45·5*	*84·5*	*26·2*	*-69·0*
Hypertensive disease	*1·8*	*1·3*	*-27·8*	*0·0*	*0·0*		*0·1*	*0·0*	*-100·0*	*0·4*	*0·7*	*75·0*	*9·2*	*6·1*	*-33·7*
Other cardiovascular diseases	*19·9*	*9·8*	*-50·8*	*1·5*	*1·4*	*-6·7*	*1·4*	*1·0*	*-28·6*	*7·7*	*7·4*	*-3·9*	*93·4*	*40·0*	*-57·2*
External causes	**51·9**	**38·1**	**-26·6**	**18·7**	**6·1**	**-67·4**	**50·8**	**25·1**	**-50·6**	**62·3**	**63·7**	**2·2**	**62·9**	**57·2**	**-9·1**
Suicide	*17·8*	*16·3*	*-8·4*	*0·0*	*0·0*		*15·8*	*11·7*	*-25·9*	*26·1*	*28·0*	*7·3*	*23·7*	*22·8*	*-3·8*
Accidental poisoning	*1·9*	*7·1*	*273·7*	*0·3*	*0·1*	*-66·7*	*2·0*	*2·7*	*35·0*	*3·0*	*17·6*	*486·7*	*1·1*	*8·6*	*681·8*
Land transport accidents	*17·1*	*6·9*	*-59·6*	*5·2*	*1·6*	*-69·2*	*22·1*	*6·6*	*-70·1*	*15·5*	*8·9*	*-42·6*	*15·0*	*8·2*	*-45·3*
Assault	*2·3*	*1·3*	*-43·5*	*1·4*	*0·6*	*-57·1*	*2·0*	*1·0*	*-50·0*	*3·4*	*2·2*	*-35·3*	*2·1*	*1·3*	*-38·1*
Accidental drowning	*2·7*	*1·1*	*-59·3*	*6·4*	*1·6*	*-75·0*	*2·0*	*0·9*	*-55·0*	*2·3*	*1·1*	*-52·2*	*2·2*	*1·2*	*-45·5*
Other external causes	*10·2*	*5·5*	*-46·1*	*5·5*	*2·3*	*-58·2*	*6·9*	*2·2*	*-68·1*	*12·1*	*5·7*	*-52·9*	*18·9*	*15·2*	*-19·6*
Respiratory diseases	**23·9**	**11·4**	**-52·3**	**4·9**	**2·1**	**-57·1**	**1·4**	**0·7**	**-50·0**	**4·9**	**3·8**	**-22·4**	**117·1**	**54·0**	**-53·9**
COPD	*15·1*	*6·4*	*-57·6*	*0·3*	*0·0*	*-100·0*	*0·0*	*0·0*		*0·7*	*1·0*	*42·9*	*81·2*	*33·2*	*-59·1*
Asthma	*2·4*	*0·5*	*-79·2*	*0·3*	*0·0*	*-100·0*	*0·7*	*0·3*	*-57·1*	*1·4*	*0·7*	*-50·0*	*9·0*	*1·2*	*-86·7*

Other respiratory diseases	*6·4*	*4·5*	*-29·7*	*4·3*	*2·0*	*-53·5*	*0·6*	*0·4*	*-33·3*	*2·7*	*2·1*	*-22·2*	*27·0*	*19·5*	*-27·8*
Endocrine and metabolic diseases	**8·6**	**8·2**	**-4·7**	**2·0**	**1·5**	**-25·0**	**0·9**	**0·8**	**-11·1**	**3·7**	**5·1**	**37·8**	**38·5**	**34·8**	**-9·6**
Diabetes	*6·1*	*5·4*	*-11·5*	*0·0*	*0·0*		*0·2*	*0·2*	*0·0*	*2·4*	*2·8*	*16·7*	*29·6*	*25·3*	*-14·5*
Other endocrine and metabolic diseases	*2·5*	*2·7*	*8·0*	*2·0*	*1·5*	*-25·0*	*0·6*	*0·5*	*-16·7*	*1·3*	*2·3*	*76·9*	*8·9*	*9·5*	*6·7*
Diseases of the nervous system	**6·5**	**7·7**	**18·5**	**6·7**	**2·5**	**-62·7**	**2·6**	**1·7**	**-34·6**	**4·1**	**4·6**	**12·2**	**19·4**	**30·1**	**55·2**
Digestive diseases	**12·3**	**8·7**	**-29·3**	**0·8**	**0·4**	**-50·0**	**0·4**	**0·3**	**-25·0**	**9·2**	**7·0**	**-23·9**	**53·5**	**37·2**	**-30·5**
Liver disease	*7·5*	*6·0*	*-20·0*	*0·2*	*0·1*	*-50·0*	*0·2*	*0·1*	*-50·0*	*7·4*	*5·4*	*-27·0*	*30·5*	*25·2*	*-17·4*
Other digestive diseases	*4·8*	*2·7*	*-43·8*	*0·6*	*0·2*	*-66·7*	*0·2*	*0·2*	*0·0*	*1·8*	*1·6*	*-11·1*	*23·0*	*12·0*	*-47·8*
Infectious and parasitic diseases	**3·1**	**3·1**	**0·0**	**3·5**	**1·4**	**-60·0**	**0·7**	**0·3**	**-57·1**	**2·9**	**2·2**	**-24·1**	**8·7**	**12·4**	**42·5**
Mental and behavioural disorders	**4·8**	**2·5**	**-47·9**	**0·0**	**0·1**		**2·9**	**0·1**	**-96·6**	**6·2**	**1·5**	**-75·8**	**11·0**	**11·6**	**5·5**
Genitourinary diseases	**2·3**	**1·7**	**-26·1**	**0·3**	**0·1**	**-66·7**	**0·1**	**0·1**	**0·0**	**0·8**	**0·6**	**-25·0**	**10·8**	**7·9**	**-26·9**
Kidney failure	*0·7*	*1·0*	*42·9*	*0·0*	*0·0*		*0·0*	*0·0*		*0·2*	*0·4*	*100·0*	*3·4*	*5·0*	*47·1*
Other genitourinary diseases	*1·6*	*0·6*	*-62·5*	*0·3*	*0·0*	*-100·0*	*0·1*	*0·1*	*0·0*	*0·6*	*0·2*	*-66·7*	*7·4*	*2·9*	*-60·8*
Conditions in the perinatal period	**8·4**	**4·8**	**-42·9**	**69·0**	**38·7**	**-43·9**	**0·0**	**0·0**		**0·0**	**0·0**		**0·0**	**0·0**	
Congenital malformations	**6·8**	**3·3**	**-51·5**	**45·5**	**17·8**	**-60·9**	**1·3**	**0·7**	**-46·2**	**1·3**	**1·1**	**-15·4**	**2·1**	**3·0**	**42·9**
Diseases of the skin	**0·2**	**0·3**	**50·0**	**0·0**	**0·0**		**0·0**	**0·0**		**0·1**	**0·2**	**100·0**	**0·8**	**1·5**	**87·5**
Diseases of the blood	**5·5**	**0·6**	**-89·1**	**0·9**	**0·4**	**-55·6**	**1·7**	**0·1**	**-94·1**	**12·8**	**0·4**	**-96·9**	**8·0**	**2·2**	**-72·5**
Musculoskeletal diseases	**1·0**	**0·9**	**-10·0**	**0·0**	**0·0**		**0·1**	**0·1**	**0·0**	**0·3**	**0·5**	**66·7**	**4·9**	**3·8**	**-22·4**
Other causes[b]	**5·0**	**3·8**	**-24·0**	**31·5**	**6·8**	**-78·4**	**0·7**	**0·8**	**14·3**	**1·2**	**3·8**	**216·7**	**2·7**	**9·4**	**248·1**
SIDS	*3·6*	*0·3*	*-91·7*	*29·1*	*2·1*	*-92·8*	*0·0*	*0·0*		*0·0*	*0·0*		*0·0*	*0·0*	
Other causes excluding SIDS	*1·4*	*3·6*	*157·1*	*2·4*	*4·7*	*95·8*	*0·7*	*0·8*	*14·3*	*1·2*	*3·8*	*216·7*	*2·7*	*9·4*	*248·1*
Females - all causes	**206·7**	**121·7**	**-41·1**	**147·9**	**67·1**	**-54·6**	**29·1**	**16·3**	**-44·0**	**105·7**	**80·9**	**-23·5**	**814·6**	**470·3**	**-42·3**
Cancer	**80·6**	**53·5**	**-33·6**	**4·2**	**2·1**	**-50·0**	**4·7**	**2·7**	**-42·6**	**53·2**	**32·0**	**-39·8**	**353·6**	**240·5**	**-32·0**
Lung cancer	*11·0*	*10·0*	*-9·1*	*0·0*	*0·0*		*0·0*	*0·0*		*4·2*	*2·9*	*-31·0*	*54·5*	*50·3*	*-7·7*
Breast cancer	*17·7*	*9·9*	*-44·1*	*0·0*	*0·0*		*0·2*	*0·1*	*-50·0*	*18·5*	*9·1*	*-50·8*	*71·4*	*41·4*	*-42·0*
Colorectal cancer	*10·5*	*5·2*	*-50·5*	*0·0*	*0·0*		*0·1*	*0·2*	*100·0*	*4·8*	*3·6*	*-25·0*	*50·4*	*22·8*	*-54·8*
Pancreatic cancer	*3·3*	*3·3*	*0·0*	*0·0*	*0·0*		*0·0*	*0·0*		*1·0*	*1·1*	*10·0*	*16·5*	*16·6*	*0·6*
Ovarian cancer	*4·8*	*2·9*	*-39·6*	*0·0*	*0·0*		*0·2*	*0·1*	*-50·0*	*2·9*	*1·4*	*-51·7*	*21·7*	*13·8*	*-36·4*
Brain cancer	*3·2*	*2·5*	*-21·9*	*0·8*	*0·5*	*-37·5*	*0·9*	*0·5*	*-44·4*	*2·9*	*2·0*	*-31·0*	*11·1*	*9·1*	*-18·0*
Liver cancer	*0·8*	*1·8*	*125·0*	*0·0*	*0·0*		*0·1*	*0·0*	*-100·0*	*0·4*	*0·8*	*100·0*	*3·7*	*8·5*	*129·7*
Leukaemia	*3·0*	*1·7*	*-43·3*	*1·4*	*0·5*	*-64·3*	*1·2*	*0·4*	*-66·7*	*2·1*	*1·0*	*-52·4*	*9·4*	*6·5*	*-30·9*
Uterine cancer	*1·2*	*1·5*	*25·0*	*0·0*	*0·0*		*0·0*	*0·0*		*0·4*	*0·5*	*25·0*	*6·1*	*7·5*	*23·0*
Melanoma	*2·0*	*1·3*	*-35·0*	*0·0*	*0·0*		*0·2*	*0·1*	*-50·0*	*2·6*	*1·2*	*-53·8*	*7·0*	*5·3*	*-24·3*
Non-Hodgkin lymphoma	*3·0*	*1·2*	*-60·0*	*0·2*	*0·0*	*-100·0*	*0·2*	*0·1*	*-50·0*	*1·7*	*0·5*	*-70·6*	*13·4*	*5·6*	*-58·2*
Stomach cancer	*2·1*	*1·1*	*-47·6*	*0·0*	*0·0*		*0·1*	*0·0*	*-100·0*	*1·2*	*0·9*	*-25·0*	*9·5*	*4·5*	*-52·6*
Oral cancer	*1·1*	*0·7*	*-36·4*	*0·0*	*0·0*		*0·0*	*0·0*		*0·5*	*0·4*	*-20·0*	*5·3*	*3·2*	*-39·6*
Oesophageal cancer	*1·1*	*0·7*	*-36·4*	*0·0*	*0·0*		*0·0*	*0·0*		*0·3*	*0·3*	*0·0*	*5·7*	*3·6*	*-36·8*
Kidney cancer	*1·6*	*0·7*	*-56·3*	*0·2*	*0·0*	*-100·0*	*0·1*	*0·0*	*-100·0*	*0·7*	*0·3*	*-57·1*	*7·3*	*3·1*	*-57·5*
Bladder cancer	*0·8*	*0·4*	*-50·0*	*0·0*	*0·0*		*0·0*	*0·0*		*0·2*	*0·1*	*-50·0*	*3·9*	*1·9*	*-51·3*
Gallbladder and bile duct cancer	*1·0*	*0·4*	*-60·0*	*0·0*	*0·0*		*0·0*	*0·0*		*0·3*	*0·1*	*-66·7*	*4·8*	*1·8*	*-62·5*
Thyroid cancer	*0·2*	*0·2*	*0·0*	*0·0*	*0·0*		*0·0*	*0·0*		*0·1*	*0·0*	*-100·0*	*1·0*	*0·8*	*-20·0*
Laryngeal cancer	*0·2*	*0·1*	*-50·0*	*0·0*	*0·0*		*0·0*	*0·0*		*0·0*	*0·0*		*0·9*	*0·3*	*-66·7*
Other cancers	*11·4*	*7·6*	*-33·3*	*1·0*	*0·5*	*-50·0*	*1·2*	*0·9*	*-25·0*	*8·3*	*5·1*	*-38·6*	*47·5*	*31·8*	*-33·1*
Cardiovascular disease	**54·0**	**16·1**	**-70·2**	**1·8**	**1·4**	**-22·2**	**1·6**	**0·8**	**-50·0**	**14·6**	**9·7**	**-33·6**	**269·6**	**71·6**	**-73·4**
Coronary heart disease	*30·8*	*5·8*	*-81·2*	*0·0*	*0·0*		*0·1*	*0·0*	*-100·0*	*5·5*	*2·9*	*-47·3*	*159·9*	*27·6*	*-82·7*

Cerebrovascular disease	*11·9*	*4·2*	*-64·7*	*0·0*	*0·3*		*0·4*	*0·2*	*-50·0*	*4·5*	*2·5*	*-44·4*	*57·4*	*18·8*	*-67·2*
Hypertensive disease	*1·2*	*0·6*	*-50·0*	*0·0*	*0·0*		*0·0*	*0·0*		*0·2*	*0·2*	*0·0*	*6·5*	*3·0*	*-53·8*
Other cardiovascular diseases	*10·1*	*5·5*	*-45·5*	*1·6*	*1·2*	*-25·0*	*1·0*	*0·6*	*-40·0*	*4·3*	*4·1*	*-4·7*	*46·0*	*22·1*	*-52·0*
External causes	**17·5**	**13·5**	**-22·9**	**13·0**	**4·9**	**-62·3**	**14·8**	**8·5**	**-42·6**	**18·4**	**20·1**	**9·2**	**25·8**	**22·8**	**-11·6**
Suicide	*4·3*	*5·4*	*25·6*	*0·0*	*0·0*		*3·1*	*4·2*	*35·5*	*6·9*	*8·3*	*20·3*	*6·7*	*7·7*	*14·9*
Accidental poisoning	*0·8*	*2·9*	*262·5*	*0·3*	*0·1*	*-66·7*	*0·7*	*0·8*	*14·3*	*1·2*	*6·5*	*441·7*	*1·1*	*4·9*	*345·5*
Land transport accidents	*6·9*	*2·2*	*-68·1*	*3·7*	*1·3*	*-64·9*	*7·7*	*2·3*	*-70·1*	*5·6*	*2·1*	*-62·5*	*8·8*	*2·8*	*-68·2*
Assault	*1·5*	*0·6*	*-60·0*	*1·6*	*0·9*	*-43·8*	*1·5*	*0·4*	*-73·3*	*1·8*	*0·8*	*-55·6*	*1·0*	*0·6*	*-40·0*
Accidental drowning	*0·8*	*0·4*	*-50·0*	*3·7*	*1·2*	*-67·6*	*0·4*	*0·2*	*-50·0*	*0·3*	*0·3*	*0·0*	*0·7*	*0·3*	*-57·1*
Other external causes	*3·2*	*2·1*	*-34·4*	*3·7*	*1·6*	*-56·8*	*1·6*	*0·6*	*-62·5*	*2·7*	*2·0*	*-25·9*	*7·5*	*6·4*	*-14·7*
Respiratory diseases	**13·1**	**8·5**	**-35·1**	**3·7**	**1·6**	**-56·8**	**1·2**	**0·5**	**-58·3**	**4·0**	**2·8**	**-30·0**	**60·6**	**40·4**	**-33·3**
COPD	*6·9*	*5·1*	*-26·1*	*0·2*	*0·0*	*-100·0*	*0·0*	*0·0*		*0·7*	*0·7*	*0·0*	*36·6*	*26·6*	*-27·3*
Asthma	*2·5*	*0·5*	*-80·0*	*0·2*	*0·0*	*-100·0*	*0·8*	*0·2*	*-75·0*	*1·6*	*0·5*	*-68·8*	*9·3*	*1·6*	*-82·8*
Other respiratory diseases	*3·7*	*2·9*	*-21·6*	*3·4*	*1·6*	*-52·9*	*0·4*	*0·3*	*-25·0*	*1·6*	*1·5*	*-6·3*	*14·7*	*12·2*	*-17·0*
Endocrine and metabolic diseases	**6·1**	**4·7**	**-23·0**	**2·2**	**1·0**	**-54·5**	**0·9**	**0·5**	**-44·4**	**2·2**	**3·2**	**45·5**	**26·6**	**19·2**	**-27·8**
Diabetes	*4·2*	*2·9*	*-31·0*	*0·2*	*0·0*	*-100·0*	*0·1*	*0·1*	*0·0*	*1·3*	*1·6*	*23·1*	*20·9*	*13·1*	*-37·3*
Other endocrine and metabolic diseases	*1·9*	*1·8*	*-5·3*	*2·1*	*1·0*	*-52·4*	*0·8*	*0·4*	*-50·0*	*1·0*	*1·6*	*60·0*	*5·7*	*6·0*	*5·3*
Diseases of the nervous system	**4·9**	**5·7**	**16·3**	**5·5**	**2·6**	**-52·7**	**1·6**	**1·2**	**-25·0**	**2·8**	**3·0**	**7·1**	**15·6**	**22·3**	**42·9**
Digestive diseases	**6·0**	**4·6**	**-23·3**	**0·8**	**0·3**	**-62·5**	**0·4**	**0·2**	**-50·0**	**3·7**	**4·0**	**8·1**	**26·4**	**19·2**	**-27·3**
Liver disease	*2·6*	*2·7*	*3·8*	*0·2*	*0·1*	*-50·0*	*0·2*	*0·1*	*-50·0*	*2·5*	*2·9*	*16·0*	*10·5*	*10·7*	*1·9*
Other digestive diseases	*3·4*	*1·9*	*-44·1*	*0·6*	*0·3*	*-50·0*	*0·1*	*0·2*	*100·0*	*1·2*	*1·0*	*-16·7*	*15·8*	*8·5*	*-46·2*
Infectious and parasitic diseases	**1·7**	**1·9**	**11·8**	**2·4**	**1·4**	**-41·7**	**0·4**	**0·3**	**-25·0**	**0·8**	**1·2**	**50·0**	**5·4**	**6·8**	**25·9**
Mental and behavioural disorders	**1·9**	**1·5**	**-21·1**	**0·0**	**0·0**		**1·1**	**0·1**	**-90·9**	**1·8**	**0·8**	**-55·6**	**5·1**	**6·8**	**33·3**
Genitourinary diseases	**2·6**	**1·2**	**-53·8**	**0·2**	**0·1**	**-50·0**	**0·1**	**0·0**	**-100·0**	**0·8**	**0·6**	**-25·0**	**12·5**	**5·7**	**-54·4**
Kidney failure	*0·6*	*0·7*	*16·7*	*0·0*	*0·0*		*0·0*	*0·0*		*0·2*	*0·3*	*50·0*	*2·8*	*3·3*	*17·9*
Other genitourinary diseases	*2·0*	*0·5*	*-75·0*	*0·2*	*0·1*	*-50·0*	*0·1*	*0·0*	*-100·0*	*0·7*	*0·3*	*-57·1*	*9·7*	*2·4*	*-75·3*
Conditions in the perinatal period	**6·5**	**3·8**	**-41·5**	**53·1**	**30·9**	**-41·8**	**0·0**	**0·0**		**0·0**	**0·0**		**0·0**	**0·0**	
Congenital malformations	**5·9**	**2·7**	**-54·2**	**38·5**	**14·5**	**-62·3**	**1·4**	**0·7**	**-50·0**	**0·9**	**0·8**	**-11·1**	**1·8**	**2·4**	**33·3**
Diseases of the skin	**0·2**	**0·2**	**0·0**	**0·0**	**0·0**		**0·0**	**0·0**		**0·1**	**0·1**	**0·0**	**0·8**	**1·1**	**37·5**
Diseases of the blood	**0·9**	**0·5**	**-44·4**	**0·3**	**0·4**	**33·3**	**0·3**	**0·2**	**-33·3**	**0·7**	**0·3**	**-57·1**	**2·7**	**1·8**	**-33·3**
Musculoskeletal diseases	**1·6**	**1·1**	**-31·3**	**0·2**	**0·1**	**-50·0**	**0·2**	**0·1**	**-50·0**	**0·9**	**0·6**	**-33·3**	**7·0**	**4·9**	**-30·0**
Other causes[b]	**3·4**	**2·3**	**-32·4**	**22·3**	**5·8**	**-74·0**	**0·4**	**0·5**	**25·0**	**0·9**	**1·8**	**100·0**	**1·3**	**4·9**	**276·9**
SIDS	*2·5*	*0·3*	*-88·0*	*20·7*	*2·1*	*-89·9*	*0·0*	*0·0*		*0·0*	*0·0*		*0·0*	*0·0*	
Other causes excluding SIDS	*0·8*	*2·0*	*150·0*	*1·4*	*3·8*	*171·4*	*0·4*	*0·5*	*25·0*	*0·9*	*1·8*	*100·0*	*1·3*	*4·9*	*276·9*

a. Overall percentage change in the age-standardised rate for 2015-2019 compared to the rate observed in 1990-1995.
b. Other causes includes diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified (R00-R99).
All rates are age-standardised to the Segi World standard population.
COPD: Chronic obstructive pulmonary disease. SIDS: sudden infant death syndrome.

Table S4. Projected age-standardised premature mortality rates per 100 000 for all causes combined and for different cause of death categories by age group for 2040-2044 and overall percentage change in rate compared to the rate observed in 2015-2019, Australia

	Age 0-4 years		Age 5-29 years		Age 30-49 years		Age 50-74 years	
	2040-2044	% change[a]	2040-2044	% change[a]	2040-2044	% change[a]	2040-2044	% change[a]
Total - all causes	**56·2 (40·8, 82·1)**	**-24·7 (-45·3, 10·1)**	**21·3 (15·4, 30·9)**	**-18·1 (-40·8, 18·8)**	**107·6 (83·4, 142·2)**	**-4·9 (-26·3, 25·6)**	**538·3 (450·2, 645·1)**	**-13·2 (-27·4, 4·0)**
Males - all causes	**60·9 (45·3, 85·5)**	**-25·6 (-44·6, 4·5)**	**28·7 (21·4, 39·9)**	**-18·9 (-39·5, 12·7)**	**138·2 (109·0, 179·0)**	**-5·5 (-25·4, 22·4)**	**677·5 (572·7, 803·7)**	**-12·7 (-26·2, 3·6)**
Cancer	**2·4 (1·3, 4·4)**	**-4·0 (-48·0, 76·0)**	**2·8 (1·6, 4·9)**	**-15·2 (-51·5, 48·5)**	**28·8 (19·1, 43·8)**	**2·5 (-32·0, 55·9)**	**266·9 (217·6, 324·4)**	**-20·9 (-35·5, -3·9)**
Lung cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*2·4 (1·3, 3·5)*	*-33·3 (-63·9, -2·8)*	*41·7 (28·5, 54·9)*	*-43·3 (-61·3, -25·4)*
Colorectal cancer	*0·0 (0·0, 0·0)*		*0·2 (0·1, 0·4)*	*0·0 (-50·0, 100·0)*	*7·6 (4·6, 12·7)*	*81·0 (9·5, 202·4)*	*26·1 (22·8, 29·9)*	*-28·1 (-37·2, -17·6)*
Pancreatic cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*1·8 (1·5, 2·1)*	*12·5 (-6·3, 31·3)*	*23·0 (19·9, 26·5)*	*-1·7 (-15·0, 13·2)*
Prostate cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·1 (0·1, 0·2)*	*-50·0 (-50·0, 0·0)*	*21·2 (18·6, 24·1)*	*-8·2 (-19·5, 4·3)*
Liver cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*2·7 (2·2, 3·3)*	*107·7 (69·2, 153·8)*	*26·4 (21·1, 33·2)*	*11·9 (-10·6, 40·7)*
Brain cancer	*1·0 (0·6, 1·8)*	*66·7 (0·0, 200·0)*	*0·7 (0·4, 1·3)*	*-12·5 (-50·0, 62·5)*	*3·4 (2·1, 5·7)*	*-2·9 (-40·0, 62·9)*	*15·1 (11·5, 20·0)*	*0·0 (-23·8, 32·5)*
Oesophageal cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*1·1 (0·9, 1·3)*	*0·0 (-18·2, 18·2)*	*14·6 (12·4, 17·3)*	*-11·0 (-24·4, 5·5)*
Leukaemia	*0·6 (0·3, 1·1)*	*0·0 (-50·0, 83·3)*	*0·5 (0·3, 1·0)*	*-16·7 (-50·0, 66·7)*	*0·9 (0·5, 1·8)*	*-25·0 (-58·3, 50·0)*	*9·9 (8·5, 11·5)*	*-13·9 (-26·1, 0·0)*
Melanoma	*0·0 (0·0, 0·0)*		*0·1 (0·1, 0·2)*	*0·0 (0·0, 100·0)*	*1·2 (0·9, 1·5)*	*-36·8 (-52·6, -21·1)*	*5·1 (4·1, 6·3)*	*-56·4 (-65·0, -46·2)*
Oral cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*1·4 (1·1, 1·7)*	*27·3 (0·0, 54·5)*	*11·5 (9·2, 14·4)*	*-3·4 (-22·7, 21·0)*
Non-Hodgkin lymphoma	*0·1 (0·0, 0·1)*		*0·1 (0·1, 0·2)*	*0·0 (0·0, 100·0)*	*0·6 (0·3, 1·2)*	*-33·3 (-66·7, 33·3)*	*8·9 (7·1, 11·1)*	*-13·6 (-31·1, 7·8)*
Stomach cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·8 (0·6, 0·9)*	*-38·5 (-53·8, -30·8)*	*8·2 (6·8, 9·9)*	*-16·3 (-30·6, 1·0)*
Kidney cancer	*0·1 (0·0, 0·2)*		*0·0 (0·0, 0·1)*		*0·5 (0·2, 0·9)*	*-44·4 (-77·8, 0·0)*	*8·1 (6·0, 10·9)*	*-9·0 (-32·6, 22·5)*
Bladder cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·2 (0·1, 0·2)*	*0·0 (-50·0, 0·0)*	*5·0 (3·9, 6·3)*	*-10·7 (-30·4, 12·5)*
Laryngeal cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·1 (0·1, 0·1)*	*0·0 (0·0, 0·0)*	*1·7 (1·2, 2·4)*	*-34·6 (-53·8, -7·7)*
Gallbladder and bile duct cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·1 (0·1, 0·1)*	*0·0 (0·0, 0·0)*	*1·4 (0·9, 2·2)*	*0·0 (-35·7, 57·1)*
Thyroid cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*1·2 (0·8, 1·9)*	*20·0 (-20·0, 90·0)*
Testicular cancer	*0·0 (0·0, 0·0)*		*0·1 (0·1, 0·3)*	*0·0 (0·0, 200·0)*	*0·3 (0·1, 0·7)*	*0·0 (-66·7, 133·3)*	*0·2 (0·1, 0·5)*	*-33·3 (-66·7, 66·7)*
Other cancers	*0·7 (0·4, 1·1)*	*16·7 (-33·3, 83·3)*	*0·9 (0·6, 1·4)*	*-10·0 (-40·0, 40·0)*	*3·8 (2·5, 5·6)*	*-7·3 (-39·0, 36·6)*	*37·7 (34·5, 41·2)*	*-22·9 (-29·4, -15·7)*
Cardiovascular disease	**0·7 (0·3, 2·0)**	**-56·3 (-81·3, 25·0)**	**1·2 (0·9, 1·8)**	**-14·3 (-35·7, 28·6)**	**18·3 (15·3, 22·2)**	**-24·1 (-36·5, -7·9)**	**153·4 (139·5, 169·5)**	**-11·6 (-19·6, -2·3)**
Coronary heart disease	*0·0 (0·0, 0·0)*		*0·1 (0·1, 0·2)*	*-66·7 (-66·7, -33·3)*	*9·3 (8·3, 10·5)*	*-27·9 (-35·7, -18·6)*	*83·7 (78·8, 88·9)*	*-17·4 (-22·2, -12·2)*
Cerebrovascular disease	*0·0 (0·0, 0·1)*		*0·1 (0·1, 0·2)*	*-50·0 (-50·0, 0·0)*	*1·9 (1·7, 2·3)*	*-36·7 (-43·3, -23·3)*	*27·2 (23·3, 31·7)*	*3·8 (-11·1, 21·0)*
Hypertensive disease	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·8 (0·6, 1·1)*	*14·3 (-14·3, 57·1)*	*9·4 (6·9, 12·9)*	*54·1 (13·1, 111·5)*
Other cardiovascular diseases	*0·7 (0·2, 2·0)*	*-50·0 (-85·7, 42·9)*	*0·9 (0·6, 1·4)*	*-10·0 (-40·0, 40·0)*	*6·3 (4·8, 8·3)*	*-14·9 (-35·1, 12·2)*	*33·1 (30·5, 36·0)*	*-17·3 (-23·8, -10·0)*
External causes	**4·5 (2·8, 7·8)**	**-26·2 (-54·1, 27·9)**	**20·7 (16·4, 26·6)**	**-17·5 (-34·7, 6·0)**	**60·3 (50·5, 72·3)**	**-5·3 (-20·7, 13·5)**	**55·1 (47·0, 65·1)**	**-3·7 (-17·8, 13·8)**
Suicide	*0·0 (0·0, 0·0)*		*11·5 (9·7, 13·7)*	*-1·7 (-17·1, 17·1)*	*30·2 (26·3, 34·6)*	*7·9 (-6·1, 23·6)*	*25·6 (22·5, 29·2)*	*12·3 (-1·3, 28·1)*
Accidental poisoning	*0·2 (0·1, 0·4)*	*100·0 (0·0, 300·0)*	*2·5 (2·0, 3·1)*	*-7·4 (-25·9, 14·8)*	*16·3 (13·3, 20·0)*	*-7·4 (-24·4, 13·6)*	*9·9 (8·2, 12·1)*	*15·1 (-4·7, 40·7)*
Land transport accidents	*0·7 (0·5, 1·0)*	*-56·3 (-68·8, -37·5)*	*3·7 (2·9, 4·9)*	*-43·9 (-56·1, -25·8)*	*5·3 (4·4, 6·4)*	*-40·4 (-50·6, -28·1)*	*5·9 (4·9, 7·1)*	*-28·0 (-40·2, -13·4)*
Assault	*0·7 (0·3, 1·5)*	*16·7 (-50·0, 150·0)*	*0·8 (0·4, 1·8)*	*-20·0 (-60·0, 80·0)*	*2·0 (1·4, 3·0)*	*-9·1 (-36·4, 36·4)*	*1·2 (0·8, 1·8)*	*-7·7 (-38·5, 38·5)*
Accidental drowning	*1·5 (0·8, 3·1)*	*-6·3 (-50·0, 93·8)*	*0·5 (0·2, 1·0)*	*-44·4 (-77·8, 11·1)*	*1·0 (0·5, 1·8)*	*-9·1 (-54·5, 63·6)*	*1·1 (0·6, 1·9)*	*-8·3 (-50·0, 58·3)*
Other external causes	*1·4 (1·1, 1·9)*	*-39·1 (-52·2, -17·4)*	*1·7 (1·2, 2·2)*	*-22·7 (-45·5, 0·0)*	*5·5 (4·7, 6·5)*	*-3·5 (-17·5, 14·0)*	*11·4 (10·0, 13·1)*	*-25·0 (-34·2, -13·8)*
Respiratory diseases	**1·9 (1·0, 3·9)**	**-9·5 (-52·4, 85·7)**	**0·5 (0·3, 1·0)**	**-28·6 (-57·1, 42·9)**	**3·5 (2·3, 6·2)**	**-7·9 (-39·5, 63·2)**	**50·3 (44·1, 57·8)**	**-6·9 (-18·3, 7·0)**
COPD	*0·3 (0·1, 0·8)*		*0·1 (0·0, 0·2)*		*1·1 (0·4, 2·9)*	*10·0 (-60·0, 190·0)*	*32·4 (29·5, 35·6)*	*-2·4 (-11·1, 7·2)*
Asthma	*0·1 (0·0, 0·1)*		*0·3 (0·1, 0·5)*	*0·0 (-66·7, 66·7)*	*0·6 (0·3, 1·1)*	*-14·3 (-57·1, 57·1)*	*1·7 (0·9, 3·0)*	*41·7 (-25·0, 150·0)*
Other respiratory diseases	*1·6 (0·9, 3·1)*	*-20·0 (-55·0, 55·0)*	*0·2 (0·1, 0·3)*	*-50·0 (-75·0, -25·0)*	*1·9 (1·6, 2·2)*	*-9·5 (-23·8, 4·8)*	*16·3 (13·7, 19·2)*	*-16·4 (-29·7, -1·5)*
Digestive diseases	**0·6 (0·4, 0·8)**	**50·0 (0·0, 100·0)**	**0·4 (0·3, 0·5)**	**33·3 (0·0, 66·7)**	**7·6 (6·4, 9·1)**	**8·6 (-8·6, 30·0)**	**36·5 (30·7, 43·5)**	**-1·9 (-17·5, 16·9)**
Liver disease	*0·1 (0·0, 0·1)*		*0·2 (0·2, 0·3)*	*100·0 (100·0, 200·0)*	*6·2 (5·3, 7·3)*	*14·8 (-1·9, 35·2)*	*25·0 (21·6, 29·1)*	*-0·8 (-14·3, 15·5)*

Other digestive diseases	*0·5 (0·4, 0·7)*	*150·0 (100·0, 250·0)*	*0·2 (0·1, 0·2)*	*0·0 (-50·0, 0·0)*	*1·4 (1·1, 1·9)*	*-12·5 (-31·3, 18·8)*	*11·5 (9·1, 14·4)*	*-4·2 (-24·2, 20·0)*
Endocrine and metabolic diseases	**1·0 (0·4, 2·4)**	**-33·3 (-73·3, 60·0)**	**0·5 (0·3, 1·1)**	**-37·5 (-62·5, 37·5)**	**4·2 (3·4, 5·3)**	**-17·6 (-33·3, 3·9)**	**36·8 (30·4, 44·7)**	**5·7 (-12·6, 28·4)**
Diabetes	*0·0 (0·0, 0·0)*		*0·2 (0·1, 0·2)*	*0·0 (-50·0, 0·0)*	*2·2 (1·8, 2·5)*	*-21·4 (-35·7, -10·7)*	*25·6 (21·8, 30·0)*	*1·2 (-13·8, 18·6)*
Other endocrine and metabolic diseases	*1·0 (0·4, 2·3)*	*-33·3 (-73·3, 53·3)*	*0·3 (0·1, 0·8)*	*-40·0 (-80·0, 60·0)*	*2·1 (1·6, 2·7)*	*-8·7 (-30·4, 17·4)*	*11·3 (8·6, 14·8)*	*18·9 (-9·5, 55·8)*
Diseases of the nervous system	**2·4 (1·6, 3·4)**	**-4·0 (-36·0, 36·0)**	**1·1 (0·7, 1·6)**	**-35·3 (-58·8, -5·9)**	**4·7 (4·0, 5·5)**	**2·2 (-13·0, 19·6)**	**29·5 (26·2, 33·4)**	**-2·0 (-13·0, 11·0)**
Infectious and parasitic diseases	**1·4 (1·0, 1·8)**	**0·0 (-28·6, 28·6)**	**0·2 (0·1, 0·2)**	**-33·3 (-66·7, -33·3)**	**0·5 (0·4, 0·7)**	**-77·3 (-81·8, -68·2)**	**8·2 (6·5, 10·2)**	**-33·9 (-47·6, -17·7)**
Mental and behavioural disorders	**0·0 (0·0, 0·0)**		**0·1 (0·0, 0·1)**		**2·6 (2·1, 3·2)**	**73·3 (40·0, 113·3)**	**12·2 (10·2, 14·7)**	**5·2 (-12·1, 26·7)**
Conditions in the perinatal period	**22·0 (19·7, 24·6)**	**-43·2 (-49·1, -36·4)**	**0·0 (0·0, 0·0)**		**0·0 (0·0, 0·0)**		**0·0 (0·0, 0·0)**	
Congenital malformations	**14·4 (10·2, 20·3)**	**-19·1 (-42·7, 14·0)**	**0·5 (0·3, 0·9)**	**-28·6 (-57·1, 28·6)**	**0·6 (0·4, 0·9)**	**-45·5 (-63·6, -18·2)**	**2·3 (1·7, 3·3)**	**-23·3 (-43·3, 10·0)**
Genitourinary diseases	**0·0 (0·0, 0·1)**		**0·1 (0·0, 0·1)**		**0·6 (0·4, 1·0)**	**0·0 (-33·3, 66·7)**	**8·6 (5·9, 12·6)**	**8·9 (-25·3, 59·5)**
Kidney failure	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·2 (0·2, 0·3)*	*-50·0 (-50·0, -25·0)*	*4·5 (3·2, 6·1)*	*-10·0 (-36·0, 22·0)*
Other genitourinary diseases	*0·0 (0·0, 0·1)*		*0·1 (0·0, 0·1)*		*0·4 (0·2, 0·6)*	*100·0 (0·0, 200·0)*	*4·1 (2·6, 6·5)*	*41·4 (-10·3, 124·1)*
Musculoskeletal diseases	**0·1 (0·0, 0·1)**		**0·1 (0·0, 0·1)**		**0·3 (0·2, 0·4)**	**-40·0 (-60·0, -20·0)**	**3·6 (2·8, 4·7)**	**-5·3 (-26·3, 23·7)**
Diseases of the blood	**0·2 (0·1, 0·4)**	**-50·0 (-75·0, 0·0)**	**0·2 (0·1, 0·3)**	**100·0 (0·0, 200·0)**	**0·9 (0·5, 1·5)**	**125·0 (25·0, 275·0)**	**1·6 (0·9, 2·6)**	**-27·3 (-59·1, 18·2)**
Diseases of the skin	**0·1 (0·0, 0·2)**		**0·0 (0·0, 0·0)**		**0·1 (0·1, 0·3)**	**-50·0 (-50·0, 50·0)**	**1·6 (0·7, 3·5)**	**6·7 (-53·3, 133·3)**
Other causes[b]	**3·6 (1·9, 6·9)**	**-47·1 (-72·1, 1·5)**	**0·7 (0·4, 1·4)**	**-12·5 (-50·0, 75·0)**	**5·1 (3·9, 6·6)**	**34·2 (2·6, 73·7)**	**10·8 (8·5, 13·7)**	**14·9 (-9·6, 45·7)**
SIDS	*0·2 (0·1, 0·8)*	*-90·5 (-95·2, -61·9)*	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*	
Other causes excluding SIDS	*3·3 (1·8, 6·1)*	*-29·8 (-61·7, 29·8)*	*0·7 (0·4, 1·4)*	*-12·5 (-50·0, 75·0)*	*5·1 (3·9, 6·6)*	*34·2 (2·6, 73·7)*	*10·8 (8·5, 13·7)*	*14·9 (-9·6, 45·7)*
Females - all causes	**51·2 (36·0, 78·6)**	**-23·7 (-46·3, 17·1)**	**13·6 (9·1, 21·6)**	**-16·6 (-44·2, 32·5)**	**77·2 (57·8, 105·6)**	**-4·6 (-28·6, 30·5)**	**409·1 (336·6, 497·8)**	**-13·0 (-28·4, 5·8)**
Cancer	**1·8 (1·1, 3·3)**	**-14·3 (-47·6, 57·1)**	**2·1 (1·3, 3·5)**	**-22·2 (-51·9, 29·6)**	**29·0 (21·5, 39·8)**	**-9·4 (-32·8, 24·4)**	**187·6 (153·3, 227·1)**	**-22·0 (-36·3, -5·6)**
Lung cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*1·9 (0·9, 3·0)*	*-34·5 (-69·0, 3·4)*	*29·8 (19·2, 40·5)*	*-40·8 (-61·8, -19·5)*
Breast cancer	*0·0 (0·0, 0·0)*		*0·1 (0·1, 0·1)*	*0·0 (0·0, 0·0)*	*8·1 (7·2, 9·0)*	*-11·0 (-20·9, -1·1)*	*32·1 (28·8, 35·7)*	*-22·5 (-30·4, -13·8)*
Colorectal cancer	*0·0 (0·0, 0·0)*		*0·1 (0·1, 0·2)*	*-50·0 (-50·0, 0·0)*	*4·0 (2·6, 6·3)*	*11·1 (-27·8, 75·0)*	*17·2 (15·2, 19·5)*	*-24·6 (-33·3, -14·5)*
Pancreatic cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*1·2 (1·0, 1·4)*	*9·1 (-9·1, 27·3)*	*16·1 (13·8, 18·8)*	*-3·0 (-16·9, 13·3)*
Ovarian cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*1·5 (1·2, 1·7)*	*7·1 (-14·3, 21·4)*	*9·9 (8·4, 11·6)*	*-28·3 (-39·1, -15·9)*
Brain cancer	*0·7 (0·4, 1·1)*	*40·0 (-20·0, 120·0)*	*0·5 (0·3, 0·8)*	*0·0 (-40·0, 60·0)*	*1·7 (1·1, 2·6)*	*-15·0 (-45·0, 30·0)*	*9·0 (7·1, 11·6)*	*-1·1 (-22·0, 27·5)*
Liver cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*1·2 (0·9, 1·6)*	*50·0 (12·5, 100·0)*	*9·8 (7·8, 12·4)*	*15·3 (-8·2, 45·9)*
Leukaemia	*0·4 (0·2, 0·9)*	*-20·0 (-60·0, 80·0)*	*0·3 (0·1, 0·7)*	*-25·0 (-75·0, 75·0)*	*0·7 (0·3, 1·5)*	*-30·0 (-70·0, 50·0)*	*5·7 (4·5, 7·1)*	*-12·3 (-30·8, 9·2)*
Uterine cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·7 (0·5, 0·8)*	*40·0 (0·0, 60·0)*	*8·5 (7·4, 9·9)*	*13·3 (-1·3, 32·0)*
Melanoma	*0·0 (0·0, 0·0)*		*0·1 (0·1, 0·1)*	*0·0 (0·0, 0·0)*	*1·1 (0·8, 1·4)*	*-8·3 (-33·3, 16·7)*	*3·4 (2·8, 4·1)*	*-35·8 (-47·2, -22·6)*
Non-Hodgkin lymphoma	*0·0 (0·0, 0·1)*		*0·1 (0·0, 0·1)*		*0·3 (0·1, 0·9)*	*-40·0 (-80·0, 80·0)*	*4·4 (3·4, 5·8)*	*-21·4 (-39·3, 3·6)*
Stomach cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·6 (0·4, 0·8)*	*-33·3 (-55·6, -11·1)*	*4·1 (3·2, 5·3)*	*-8·9 (-28·9, 17·8)*
Oesophageal cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·2 (0·1, 0·2)*	*-33·3 (-66·7, -33·3)*	*2·8 (2·1, 3·6)*	*-22·2 (-41·7, 0·0)*
Oral cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·4 (0·3, 0·6)*	*0·0 (-25·0, 50·0)*	*2·9 (2·2, 3·9)*	*-9·4 (-31·3, 21·9)*
Kidney cancer	*0·1 (0·0, 0·2)*		*0·0 (0·0, 0·1)*		*0·2 (0·1, 0·6)*	*-33·3 (-66·7, 100·0)*	*2·5 (1·7, 3·6)*	*-19·4 (-45·2, 16·1)*
Bladder cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*1·4 (1·1, 1·8)*	*-26·3 (-42·1, -5·3)*
Gallbladder and bile duct cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·1 (0·1, 0·1)*	*0·0 (0·0, 0·0)*	*1·4 (1·0, 1·9)*	*-22·2 (-44·4, 5·6)*
Thyroid cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*1·0 (0·6, 1·7)*	*25·0 (-25·0, 112·5)*
Laryngeal cancer	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·2 (0·1, 0·4)*	*-33·3 (-66·7, 33·3)*
Other cancers	*0·6 (0·4, 1·0)*	*20·0 (-20·0, 100·0)*	*0·8 (0·6, 1·2)*	*-11·1 (-33·3, 33·3)*	*5·2 (3·7, 7·2)*	*2·0 (-27·5, 41·2)*	*25·4 (23·0, 28·0)*	*-20·1 (-27·7, -11·9)*
Cardiovascular disease	**0·4 (0·1, 1·4)**	**-71·4 (-92·9, 0·0)**	**0·7 (0·5, 1·1)**	**-12·5 (-37·5, 37·5)**	**7·5 (5·7, 10·0)**	**-22·7 (-41·2, 3·1)**	**55·1 (48·6, 62·7)**	**-23·0 (-32·1, -12·4)**
Coronary heart disease	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·1)*		*2·5 (1·9, 3·2)*	*-13·8 (-34·5, 10·3)*	*16·4 (14·9, 18·1)*	*-40·6 (-46·0, -34·4)*
Cerebrovascular disease	*0·0 (0·0, 0·0)*		*0·1 (0·1, 0·2)*	*-50·0 (-50·0, 0·0)*	*1·7 (1·5, 2·0)*	*-32·0 (-40·0, -20·0)*	*18·6 (15·8, 21·8)*	*-1·1 (-16·0, 16·0)*
Hypertensive disease	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·2 (0·2, 0·3)*	*0·0 (0·0, 50·0)*	*2·6 (1·9, 3·7)*	*-13·3 (-36·7, 23·3)*
Other cardiovascular diseases	*0·4 (0·1, 1·4)*	*-66·7 (-91·7, 16·7)*	*0·5 (0·3, 0·9)*	*-16·7 (-50·0, 50·0)*	*3·1 (2·2, 4·5)*	*-24·4 (-46·3, 9·8)*	*17·5 (16·0, 19·2)*	*-20·8 (-27·6, -13·1)*

External causes	**3·4 (1·5, 9·1)**	**-30·6 (-69·4, 85·7)**	**7·5 (5·4, 11·2)**	**-11·8 (-36·5, 31·8)**	**21·3 (16·4, 28·3)**	**6·0 (-18·4, 40·8)**	**27·4 (21·2, 36·0)**	**20·2 (-7·0, 57·9)**
Suicide	*0·0 (0·0, 0·0)*		*4·8 (3·8, 6·0)*	*14·3 (-9·5, 42·9)*	*10·2 (8·5, 12·4)*	*22·9 (2·4, 49·4)*	*10·5 (8·5, 13·1)*	*36·4 (10·4, 70·1)*
Accidental poisoning	*0·2 (0·1, 0·5)*	*100·0 (0·0, 400·0)*	*0·7 (0·4, 1·1)*	*-12·5 (-50·0, 37·5)*	*6·0 (4·2, 8·6)*	*-7·7 (-35·4, 32·3)*	*6·2 (4·5, 8·6)*	*26·5 (-8·2, 75·5)*
Land transport accidents	*0·6 (0·4, 0·8)*	*-53·8 (-69·2, -38·5)*	*1·2 (0·9, 1·6)*	*-47·8 (-60·9, -30·4)*	*1·7 (1·3, 2·1)*	*-19·0 (-38·1, 0·0)*	*2·4 (1·9, 3·0)*	*-14·3 (-32·1, 7·1)*
Assault	*0·6 (0·2, 1·5)*	*-33·3 (-77·8, 66·7)*	*0·5 (0·2, 1·4)*	*25·0 (-50·0, 250·0)*	*0·8 (0·5, 1·5)*	*0·0 (-37·5, 87·5)*	*0·5 (0·3, 0·8)*	*-16·7 (-50·0, 33·3)*
Accidental drowning	*1·4 (0·4, 5·1)*	*16·7 (-66·7, 325·0)*	*0·1 (0·0, 0·6)*		*0·2 (0·1, 0·7)*	*-33·3 (-66·7, 133·3)*	*0·4 (0·1, 1·2)*	*33·3 (-66·7, 300·0)*
Other external causes	*0·7 (0·4, 1·3)*	*-56·3 (-75·0, -18·8)*	*0·3 (0·1, 0·5)*	*-50·0 (-83·3, -16·7)*	*2·3 (1·8, 2·9)*	*15·0 (-10·0, 45·0)*	*7·4 (6·0, 9·2)*	*15·6 (-6·3, 43·8)*
Respiratory diseases	**1·5 (0·7, 3·4)**	**-6·3 (-56·3, 112·5)**	**0·4 (0·2, 0·7)**	**-20·0 (-60·0, 40·0)**	**2·6 (1·6, 5·3)**	**-7·1 (-42·9, 89·3)**	**43·2 (37·8, 49·7)**	**6·9 (-6·4, 23·0)**
COPD	*0·3 (0·1, 0·9)*		*0·0 (0·0, 0·1)*		*0·9 (0·3, 2·9)*	*28·6 (-57·1, 314·3)*	*32·4 (29·2, 35·9)*	*21·8 (9·8, 35·0)*
Asthma	*0·0 (0·0, 0·1)*		*0·2 (0·1, 0·3)*	*0·0 (-50·0, 50·0)*	*0·4 (0·2, 0·7)*	*-20·0 (-60·0, 40·0)*	*1·5 (0·9, 2·5)*	*-6·3 (-43·8, 56·3)*
Other respiratory diseases	*1·2 (0·6, 2·5)*	*-25·0 (-62·5, 56·3)*	*0·1 (0·1, 0·3)*	*-66·7 (-66·7, 0·0)*	*1·3 (1·0, 1·6)*	*-13·3 (-33·3, 6·7)*	*9·3 (7·6, 11·3)*	*-23·8 (-37·7, -7·4)*
Diseases of the nervous system	**2·6 (1·4, 4·6)**	**0·0 (-46·2, 76·9)**	**0·8 (0·5, 1·5)**	**-33·3 (-58·3, 25·0)**	**3·2 (2·6, 3·8)**	**6·7 (-13·3, 26·7)**	**20·6 (17·8, 23·8)**	**-7·6 (-20·2, 6·7)**
Endocrine and metabolic diseases	**0·7 (0·3, 1·7)**	**-30·0 (-70·0, 70·0)**	**0·4 (0·2, 0·8)**	**-20·0 (-60·0, 60·0)**	**2·5 (1·9, 3·3)**	**-21·9 (-40·6, 3·1)**	**21·4 (17·0, 27·1)**	**11·5 (-11·5, 41·1)**
Diabetes	*0·0 (0·0, 0·0)*		*0·1 (0·1, 0·2)*	*0·0 (0·0, 100·0)*	*1·1 (0·9, 1·4)*	*-31·3 (-43·8, -12·5)*	*14·1 (11·6, 17·2)*	*7·6 (-11·5, 31·3)*
Other endocrine and metabolic diseases	*0·7 (0·2, 1·7)*	*-30·0 (-80·0, 70·0)*	*0·2 (0·1, 0·6)*	*-50·0 (-75·0, 50·0)*	*1·4 (1·0, 2·0)*	*-12·5 (-37·5, 25·0)*	*7·3 (5·4, 9·9)*	*21·7 (-10·0, 65·0)*
Digestive diseases	**0·6 (0·4, 0·9)**	**100·0 (33·3, 200·0)**	**0·4 (0·3, 0·5)**	**100·0 (50·0, 150·0)**	**4·4 (3·4, 5·6)**	**10·0 (-15·0, 40·0)**	**19·7 (15·8, 24·7)**	**2·6 (-17·7, 28·6)**
Liver disease	*0·1 (0·1, 0·2)*	*0·0 (0·0, 100·0)*	*0·2 (0·2, 0·3)*	*100·0 (100·0, 200·0)*	*3·5 (2·7, 4·6)*	*20·7 (-6·9, 58·6)*	*12·3 (9·8, 15·4)*	*15·0 (-8·4, 43·9)*
Other digestive diseases	*0·5 (0·4, 0·7)*	*66·7 (33·3, 133·3)*	*0·2 (0·1, 0·2)*	*0·0 (-50·0, 0·0)*	*0·8 (0·7, 1·1)*	*-20·0 (-30·0, 10·0)*	*7·5 (6·0, 9·3)*	*-11·8 (-29·4, 9·4)*
Infectious and parasitic diseases	**1·5 (1·1, 2·1)**	**7·1 (-21·4, 50·0)**	**0·2 (0·1, 0·2)**	**-33·3 (-66·7, -33·3)**	**0·3 (0·2, 0·5)**	**-75·0 (-83·3, -58·3)**	**5·8 (4·4, 7·7)**	**-14·7 (-35·3, 13·2)**
Mental and behavioural disorders	*0·0 (0·0, 0·0)*		**0·1 (0·0, 0·3)**		**1·7 (1·4, 2·3)**	**112·5 (75·0, 187·5)**	**9·5 (7·8, 11·6)**	**39·7 (14·7, 70·6)**
Congenital malformations	**14·5 (10·1, 20·9)**	**0·0 (-30·3, 44·1)**	**0·5 (0·3, 0·8)**	**-28·6 (-57·1, 14·3)**	**0·5 (0·3, 0·8)**	**-37·5 (-62·5, 0·0)**	**1·7 (1·2, 2·5)**	**-29·2 (-50·0, 4·2)**
Conditions in the perinatal period	**17·4 (15·0, 20·0)**	**-43·7 (-51·5, -35·3)**	**0·0 (0·0, 0·0)**		**0·0 (0·0, 0·0)**		**0·0 (0·0, 0·0)**	
Genitourinary diseases	**0·0 (0·0, 0·1)**		**0·0 (0·0, 0·1)**		**0·4 (0·3, 0·7)**	**-33·3 (-50·0, 16·7)**	**5·6 (3·7, 8·5)**	**-1·8 (-35·1, 49·1)**
Kidney failure	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·2 (0·1, 0·2)*	*-33·3 (-66·7, -33·3)*	*2·6 (1·8, 3·8)*	*-21·2 (-45·5, 15·2)*
Other genitourinary diseases	*0·0 (0·0, 0·1)*		*0·0 (0·0, 0·1)*		*0·3 (0·2, 0·5)*	*0·0 (-33·3, 66·7)*	*2·9 (1·9, 4·7)*	*20·8 (-20·8, 95·8)*
Musculoskeletal diseases	**0·0 (0·0, 0·1)**		**0·1 (0·1, 0·2)**	**0·0 (0·0, 100·0)**	**0·5 (0·3, 0·7)**	**-16·7 (-50·0, 16·7)**	**3·8 (2·8, 5·3)**	**-22·4 (-42·9, 8·2)**
Diseases of the blood	**0·3 (0·2, 0·5)**	**-25·0 (-50·0, 25·0)**	**0·1 (0·1, 0·2)**	**-50·0 (-50·0, 0·0)**	**0·3 (0·2, 0·6)**	**0·0 (-33·3, 100·0)**	**1·8 (1·3, 2·6)**	**0·0 (-27·8, 44·4)**
Diseases of the skin	**0·0 (0·0, 0·2)**		**0·0 (0·0, 0·0)**		**0·1 (0·1, 0·2)**	**0·0 (0·0, 100·0)**	**1·1 (0·5, 2·3)**	**0·0 (-54·5, 109·1)**
Other causes[b]	**2·9 (1·3, 6·4)**	**-50·0 (-77·6, 10·3)**	**0·5 (0·2, 1·1)**	**0·0 (-60·0, 120·0)**	**2·7 (1·9, 3·7)**	**50·0 (5·6, 105·6)**	**4·7 (3·4, 6·3)**	**-4·1 (-30·6, 28·6)**
SIDS	*0·4 (0·2, 1·2)*	*-81·0 (-90·5, -42·9)*	*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*		*0·0 (0·0, 0·0)*	
Other causes excluding SIDS	*2·5 (1·2, 5·2)*	*-34·2 (-68·4, 36·8)*	*0·5 (0·2, 1·1)*	*0·0 (-60·0, 120·0)*	*2·7 (1·9, 3·7)*	*50·0 (5·6, 105·6)*	*4·7 (3·4, 6·3)*	*-4·1 (-30·6, 28·6)*

a. Overall percentage change in the age-standardised rate for 2040-2044 compared to the rate observed in 2015-2019.
b. Other causes includes diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified (R00-R99).
All rates are age-standardised to the Segi World standard population.

Table S5. Projected total numbers of premature deaths for all causes combined and for different cause of death categories by age group for 2020-2044, Australia

	Age 0-4 years		Age 5-29 years		Age 30-49 years		Age 50-74 years	
	N (95% UI)	%[a]	N (95% UI)	%[a]	N (95% UI)	%[a]	N (95% UI)	%[a]
Total - all causes	**29 075 (21 008–38 974)**	**100·0**	**61 259 (44 156–81 974)**	**100·0**	**228 409 (178 709–284 930)**	**100·0**	**1 259 757 (1 080 569–1 431 553)**	**100·0**
Males - all causes	**16 026 (11 833–20 853)**	**100·0**	**42 181 (31 535–54 502)**	**100·0**	**145 780 (116 379–178 910)**	**100·0**	**758 766 (658 850–859 045)**	**100·0**
Cancer	**599 (333–994)**	**3·7**	**3672 (2321–6025)**	**8·7**	**28 953 (20 223–41 615)**	**19·9**	**305 344 (263 197–353 844)**	**40·2**
Lung cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*2656 (1517–3798)*	*1·8*	*55 597 (46 746–64 445)*	*7·3*
Colorectal cancer	*0 (0–0)*	*0·0*	*315 (200–526)*	*0·7*	*6832 (4402–10 668)*	*4·7*	*29 842 (26 664–33 412)*	*3·9*
Pancreatic cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*1785 (1527–2083)*	*1·2*	*24 361 (21 563–27 532)*	*3·2*
Prostate cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*147 (115–190)*	*0·1*	*25 062 (22 369–28 091)*	*3·3*
Liver cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*2529 (2057–3113)*	*1·7*	*28 502 (24 092–33 810)*	*3·8*
Brain cancer	*243 (150–400)*	*1·5*	*939 (584–1 519)*	*2·2*	*3572 (2359–5449)*	*2·5*	*15 282 (12 206–19 189)*	*2·0*
Oesophageal cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*1087 (907–1308)*	*0·7*	*15 645 (13 579–18 033)*	*2·1*
Leukaemia	*137 (75–252)*	*0·9*	*658 (370–1 204)*	*1·6*	*1041 (585–1869)*	*0·7*	*11 040 (9 662–12 620)*	*1·5*
Melanoma	*0 (0–0)*	*0·0*	*231 (180–300)*	*0·5*	*1325 (1070–1642)*	*0·9*	*7700 (6555–9058)*	*1·0*
Oral cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*1360 (1088–1695)*	*0·9*	*11 586 (9 665–13 909)*	*1·5*
Non-Hodgkin lymphoma	*25 (0–31)*	*0·2*	*150 (77–294)*	*0·4*	*631 (336–1206)*	*0·4*	*9774 (8100–11 801)*	*1·3*
Stomach cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*812 (672–980)*	*0·6*	*9204 (7846–10 803)*	*1·2*
Kidney cancer	*25 (0–50)*	*0·2*	*25 (25–75)*	*0·1*	*553 (304–1016)*	*0·4*	*8636 (6738–11 095)*	*1·1*
Bladder cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*172 (135–224)*	*0·1*	*5756 (4710–7046)*	*0·8*
Laryngeal cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*106 (75–148)*	*0·1*	*1973 (1469–2662)*	*0·3*
Gallbladder and bile duct cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*87 (50–139)*	*0·1*	*1501 (1006–2243)*	*0·2*
Thyroid cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*1281 (866–1892)*	*0·2*
Testicular cancer	*0 (0–0)*	*0·0*	*191 (100–375)*	*0·5*	*319 (165–628)*	*0·2*	*218 (104–441)*	*0·0*
Other cancers	*169 (108–261)*	*1·1*	*1163 (785–1732)*	*2·8*	*3939 (2859–5459)*	*2·7*	*42 384 (39 257–45 762)*	*5·6*
Cardiovascular disease	**200 (90–510)**	**1·2**	**1 736 (1 320–2 408)**	**4·1**	**19 975 (17 080–23 467)**	**13·7**	**165 996 (153 431–180 129)**	**21·9**
Coronary heart disease	*0 (0–0)*	*0·0*	*233 (191–281)*	*0·6*	*10 257 (9193–11 453)*	*7·0*	*91 001 (86 488–95 756)*	*12·0*
Cerebrovascular disease	*0 (0–25)*	*0·0*	*204 (176–251)*	*0·5*	*2 142 (1 855–2 473)*	*1·5*	*28 263 (24 977–32 008)*	*3·7*
Hypertensive disease	*0 (0–0)*	*0·0*	*25 (25–57)*	*0·1*	*770 (573–1 034)*	*0·5*	*9008 (6938–11 731)*	*1·2*
Other cardiovascular diseases	*200 (90–485)*	*1·2*	*1 274 (928–1 819)*	*3·0*	*6 806 (5 459–8 507)*	*4·7*	*37 724 (35 028–40 634)*	*5·0*
External causes	**1 196 (774–1 914)**	**7·5**	**29 381 (24 007–36 498)**	**69·7**	**62 673 (53 805–73 375)**	**43·0**	**56 310 (48 876–65 171)**	**7·4**
Suicide	*0 (0–0)*	*0·0*	*15 928 (13 669–18 569)*	*37·8*	*30 942 (27 499–34 826)*	*21·2*	*23 249 (20 662–26 166)*	*3·1*
Accidental poisoning	*48 (25–92)*	*0·3*	*3381 (2758–4160)*	*8·0*	*16 435 (13 800–19 598)*	*11·3*	*10 463 (8806–12 452)*	*1·4*
Land transport accidents	*198 (152–261)*	*1·2*	*5770 (4657–7177)*	*13·7*	*6205 (5290–7279)*	*4·3*	*6617 (5641–7765)*	*0·9*
Assault	*175 (91–345)*	*1·1*	*1134 (608–2154)*	*2·7*	*2140 (1511–3031)*	*1·5*	*1 095 (767–1569)*	*0·1*
Accidental drowning	*388 (214–707)*	*2·4*	*737 (416–1320)*	*1·7*	*1092 (662–1820)*	*0·7*	*1 061 (653–1737)*	*0·1*
Other external causes	*387 (292–509)*	*2·4*	*2431 (1899–3118)*	*5·8*	*5859 (5043–6821)*	*4·0*	*13 825 (12 347–15 482)*	*1·8*
Respiratory diseases	**508 (263–913)**	**3·2**	**720 (384–1366)**	**1·7**	**3652 (2517–5820)**	**2·5**	**56 362 (50 684–63 022)**	**7·4**
COPD	*60 (25–152)*	*0·4*	*63 (25–169)*	*0·1*	*1114 (508–2515)*	*0·8*	*36 287 (33 415–39 415)*	*4·8*
Asthma	*25 (0–25)*	*0·2*	*367 (206–645)*	*0·9*	*548 (318–955)*	*0·4*	*1521 (929–2509)*	*0·2*
Other respiratory diseases	*423 (238–736)*	*2·6*	*290 (153–552)*	*0·7*	*1990 (1691–2350)*	*1·4*	*18 554 (16 340–21 098)*	*2·4*
Digestive diseases	**152 (100–194)**	**0·9**	**515 (407–655)**	**1·2**	**7590 (6447–8937)**	**5·2**	**37 472 (32 654–43 089)**	**4·9**
Liver disease	*25 (0–25)*	*0·2*	*289 (232–361)*	*0·7*	*6105 (5272–7065)*	*4·2*	*25 333 (22 512–28 532)*	*3·3*

Other digestive diseases	*127 (100–169)*	*0·8*	*226 (175–294)*	*0·5*	*1485 (1175–1872)*	*1·0*	*12 139 (10 142–14 557)*	*1·6*
Endocrine and metabolic diseases	**853 (128–525)**	**5·3**	**2139 (455–1400)**	**5·1**	**6935 (3544–5318)**	**4·8**	**45 994 (32 871–44 514)**	**6·1**
Diabetes	*0 (0–0)*	*0·0*	*258 (205–333)*	*0·6*	*2215 (1901–2581)*	*1·5*	*27 398 (24 155–31 102)*	*3·6*
Other endocrine and metabolic diseases	*254 (128–525)*	*1·6*	*518 (250–1 067)*	*1·2*	*2118 (1643–2737)*	*1·5*	*10 796 (8 716–13 412)*	*1·4*
Diseases of the nervous system	**599 (420–854)**	**3·7**	**1621 (1190–2221)**	**3·8**	**4817 (4172–5566)**	**3·3**	**35 198 (31 991–38 745)**	**4·6**
Infectious and parasitic diseases	**348 (275–449)**	**2·2**	**196 (152–257)**	**0·5**	**1062 (860–1316)**	**0·7**	**12 856 (10 730–15 415)**	**1·7**
Mental and behavioural disorders	**0 (0–0)**	**0·0**	**96 (43–212)**	**0·2**	**2457 (2029–3023)**	**1·7**	**13 499 (11 629–15 688)**	**1·8**
Conditions in the perinatal period	**6738 (6036–7520)**	**42·0**	**0 (0–0)**	**0·0**	**0 (0–0)**	**0·0**	**0 (0–0)**	**0·0**
Congenital malformations	**3712 (2 798–4938)**	**23·2**	**693 (458–1 049)**	**1·6**	**793 (561–1128)**	**0·5**	**2712 (2007–3667)**	**0·4**
Genitourinary diseases	**0 (0–25)**	**0·0**	**99 (50–154)**	**0·2**	**639 (427–974)**	**0·4**	**8804 (6496–12 022)**	**1·2**
Kidney failure	*0 (0–0)*	*0·0*	*25 (0–25)*	*0·1*	*280 (204–392)*	*0·2*	*4751 (3660–6188)*	*0·6*
Other genitourinary diseases	*0 (0–25)*	*0·0*	*74 (50–129)*	*0·2*	*359 (223–582)*	*0·2*	*4053 (2836–5834)*	*0·5*
Musculoskeletal diseases	**19 (0–25)**	**0·1**	**85 (50–134)**	**0·2**	**319 (231–441)**	**0·2**	**3958 (3218–4880)**	**0·5**
Diseases of the blood	**50 (25–94)**	**0·3**	**221 (132–364)**	**0·5**	**929 (584–1492)**	**0·6**	**1688 (1095–2625)**	**0·2**
Diseases of the skin	**25 (0–50)**	**0·2**	**25 (0–50)**	**0·1**	**149 (74–318)**	**0·1**	**1626 (931–2959)**	**0·2**
Other causes[b]	**1027 (591–1848)**	**6·4**	**982 (566–1709)**	**2·3**	**4837 (3825–6120)**	**3·3**	**10 947 (9040–13 275)**	**1·4**
SIDS	*173 (79–419)*	*1·1*	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*
Other causes excluding SIDS	*854 (512–1429)*	*5·3*	*982 (566–1709)*	*2·3*	*4837 (3825–6120)*	*3·3*	*10 947 (9040–13 275)*	*1·4*
Females - all causes	**13 049 (9175–18 121)**	**100·0**	**19 078 (12 621–27 472)**	**100·0**	**82 629 (62 330–106 020)**	**100·0**	**500 991 (421 719–572 508)**	**100·0**
Cancer	**430 (250–730)**	**3·3**	**2690 (1812–4184)**	**14·1**	**30 411 (23 238–40 221)**	**36·8**	**228 740 (197 144–264 865)**	**45·7**
Lung cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*2146 (1082–3207)*	*2·6*	*43 512 (35 601–51 426)*	*8·7*
Breast cancer	*0 (0–0)*	*0·0*	*179 (150–211)*	*0·9*	*8505 (7679–9423)*	*10·3*	*37 985 (34 836–41 428)*	*7·6*
Colorectal cancer	*0 (0–0)*	*0·0*	*187 (125–309)*	*1·0*	*4073 (2792–5961)*	*4·9*	*20 712 (18 578–23 091)*	*4·1*
Pancreatic cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*1180 (989–1413)*	*1·4*	*18 726 (16 420–21 370)*	*3·7*
Ovarian cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*1541 (1298–1833)*	*1·9*	*12 095 (10 666–13 727)*	*2·4*
Brain cancer	*159 (100–246)*	*1·2*	*613 (403–929)*	*3·2*	*1841 (1288–2639)*	*2·2*	*9781 (7946–12 057)*	*2·0*
Liver cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*1155 (906–1472)*	*1·4*	*10 925 (9 017–13 256)*	*2·2*
Leukaemia	*100 (50–196)*	*0·8*	*406 (213–808)*	*2·1*	*829 (434–1605)*	*1·0*	*6660 (5484–8100)*	*1·3*
Uterine cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*654 (534–804)*	*0·8*	*9317 (8176–10 620)*	*1·9*
Melanoma	*0 (0–0)*	*0·0*	*161 (125–211)*	*0·8*	*1183 (935–1497)*	*1·4*	*4611 (3988–5337)*	*0·9*
Non-Hodgkin lymphoma	*0 (0–25)*	*0·0*	*75 (27–175)*	*0·4*	*384 (168–903)*	*0·5*	*5330 (4290–6639)*	*1·1*
Stomach cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*652 (512–835)*	*0·8*	*4726 (3818–5861)*	*0·9*
Oesophageal cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*163 (117–223)*	*0·2*	*3361 (2650–4268)*	*0·7*
Oral cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*425 (319–570)*	*0·5*	*3293 (2567–4230)*	*0·7*
Kidney cancer	*25 (0–50)*	*0·2*	*25 (5–105)*	*0·1*	*245 (111–566)*	*0·3*	*2979 (2154–4138)*	*0·6*
Bladder cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*1724 (1356–2200)*	*0·3*
Gallbladder and bile duct cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*91 (66–130)*	*0·1*	*1718 (1319–2237)*	*0·3*
Thyroid cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*1171 (756–1815)*	*0·2*
Laryngeal cancer	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*254 (123–515)*	*0·1*
Other cancers	*146 (100–213)*	*1·1*	*1044 (764–1436)*	*5·5*	*5344 (4008–7140)*	*6·5*	*29 860 (27 399–32 550)*	*6·0*
Cardiovascular disease	**121 (44–339)**	**0·9**	**985 (697–1 489)**	**5·2**	**8373 (6608–10 658)**	**10·1**	**69 862 (62 793–77 917)**	**13·9**
Coronary heart disease	*0 (0–0)*	*0·0*	*75 (50–102)*	*0·4*	*2695 (2139–3397)*	*3·3*	*22 550 (20 750–24 510)*	*4·5*
Cerebrovascular disease	*0 (0–0)*	*0·0*	*176 (150–219)*	*0·9*	*1917 (1653–2222)*	*2·3*	*22 047 (19 272–25 241)*	*4·4*
Hypertensive disease	*0 (0–0)*	*0·0*	*0 (0–25)*	*0·0*	*232 (163–327)*	*0·3*	*3265 (2466–4328)*	*0·7*
Other cardiovascular diseases	*121 (44–339)*	*0·9*	*734 (497–1143)*	*3·8*	*3529 (2653–4712)*	*4·3*	*22 000 (20 305–23 838)*	*4·4*

External causes	**833 (411–1918)**	**6·4**	**9971 (7441–13 980)**	**52·3**	**21 719 (17 274–27 792)**	**26·3**	**27 793 (22 344–35 077)**	**5·5**
Suicide	*0 (0–0)*	*0·0*	*6082 (4896–7559)*	*31·9*	*10 046 (8557–11 805)*	*12·2*	*9684 (7948–11 806)*	*1·9*
Accidental poisoning	*48 (25–99)*	*0·4*	*902 (579–1417)*	*4·7*	*6 231 (4 616–8 442)*	*7·5*	*6028 (4554–8009)*	*1·2*
Land transport accidents	*154 (115–202)*	*1·2*	*1735 (1374–2189)*	*9·1*	*1900 (1536–2354)*	*2·3*	*2571 (2088–3166)*	*0·5*
Assault	*132 (52–328)*	*1·0*	*648 (284–1 524)*	*3·4*	*931 (577–1529)*	*1·1*	*486 (291–811)*	*0·1*
Accidental drowning	*306 (105–954)*	*2·3*	*192 (60–603)*	*1·0*	*219 (77–655)*	*0·3*	*431 (168–1149)*	*0·1*
Other external causes	*193 (114–335)*	*1·5*	*412 (248–688)*	*2·2*	*2392 (1911–3007)*	*2·9*	*8593 (7295–10 136)*	*1·7*
Respiratory diseases	**341 (177–738)**	**2·6**	**513 (280–995)**	**2·7**	**2726 (1764–4795)**	**3·3**	**49 712 (44 361–55 965)**	**9·9**
COPD	*53 (25–158)*	*0·4*	*39 (10–126)*	*0·2*	*906 (358–2 399)*	*1·1*	*36 191 (33 068–39 618)*	*7·2*
Asthma	*0 (0–25)*	*0·0*	*235 (151–388)*	*1·2*	*445 (276–723)*	*0·5*	*1684 (1117–2558)*	*0·3*
Other respiratory diseases	*288 (152–555)*	*2·2*	*239 (119–481)*	*1·3*	*1375 (1130–1673)*	*1·7*	*11 837 (10 176–13 789)*	*2·4*
Diseases of the nervous system	**615 (374–1017)**	**4·7**	**1108 (669–1850)**	**5·8**	**3282 (2758–3909)**	**4·0**	**26 611 (23 877–29 677)**	**5·3**
Endocrine and metabolic diseases	**769 (73–371)**	**5·9**	**1450 (276–996)**	**7·6**	**4775 (2098–3435)**	**5·8**	**34 157 (19 761–28 435)**	**6·8**
Diabetes	*0 (0–0)*	*0·0*	*160 (125–214)*	*0·8*	*1189 (982–1433)*	*1·4*	*16 112 (13 838–18 788)*	*3·2*
Other endocrine and metabolic diseases	*154 (73–371)*	*1·2*	*342 (151–782)*	*1·8*	*1493 (1116–2002)*	*1·8*	*7546 (5923–9647)*	*1·5*
Digestive diseases	**142 (110–202)**	**1·1**	**452 (336–597)**	**2·4**	**4361 (3453–5517)**	**5·3**	**22 125 (18 605–26 350)**	**4·4**
Liver disease	*25 (22–49)*	*0·2*	*271 (200–363)*	*1·4*	*3483 (2752–4414)*	*4·2*	*12 880 (10 800–15 386)*	*2·6*
Other digestive diseases	*117 (88–153)*	*0·9*	*181 (136–234)*	*0·9*	*878 (701–1103)*	*1·1*	*9245 (7805–10 964)*	*1·8*
Infectious and parasitic diseases	**353 (261–476)**	**2·7**	**187 (130–266)**	**1·0**	**595 (456–788)**	**0·7**	**8840 (7030–11 134)**	**1·8**
Mental and behavioural disorders	**0 (0–0)**	**0·0**	**126 (52–332)**	**0·7**	**1614 (1275–2125)**	**2·0**	**10 865 (9152–12 915)**	**2·2**
Congenital malformations	**3419 (2527–4644)**	**26·2**	**632 (409–975)**	**3·3**	**659 (451–975)**	**0·8**	**2133 (1539–2951)**	**0·4**
Conditions in the perinatal period	**5110 (4457–5862)**	**39·2**	**0 (0–0)**	**0·0**	**0 (0–0)**	**0·0**	**0 (0–0)**	**0·0**
Genitourinary diseases	**0 (0–22)**	**0·0**	**58 (25–98)**	**0·3**	**462 (301–733)**	**0·6**	**6533 (4706–9128)**	**1·3**
Kidney failure	*0 (0–0)*	*0·0*	*9 (0–25)*	*0·0*	*180 (127–276)*	*0·2*	*3237 (2408–4365)*	*0·6*
Other genitourinary diseases	*0 (0–22)*	*0·0*	*49 (25–73)*	*0·3*	*282 (174–457)*	*0·3*	*3296 (2298–4763)*	*0·7*
Musculoskeletal diseases	**0 (0–25)**	**0·0**	**155 (102–229)**	**0·8**	**537 (385–753)**	**0·6**	**4720 (3733–5994)**	**0·9**
Diseases of the blood	**75 (50–107)**	**0·6**	**150 (100–260)**	**0·8**	**382 (253–587)**	**0·5**	**2135 (1604–2847)**	**0·4**
Diseases of the skin	**0 (0–39)**	**0·0**	**15 (0–42)**	**0·1**	**119 (61–235)**	**0·1**	**1303 (754–2321)**	**0·3**
Other causes[b]	**841 (441–1631)**	**6·4**	**586 (292–1179)**	**3·1**	**2614 (1955–3497)**	**3·2**	**5462 (4316–6932)**	**1·1**
SIDS	*223 (108–476)*	*1·7*	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*	*0 (0–0)*	*0·0*
Other causes excluding SIDS	*618 (333–1155)*	*4·7*	*586 (292–1179)*	*3·1*	*2614 (1955–3497)*	*3·2*	*5462 (4316–6932)*	*1·1*

a. Percentage of total number of deaths.

b. Other causes includes diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified (R00-R99).

UI: uncertainty interval. N: total number of deaths.

Table S6. Projected potential years of life lost (PYLL) due to premature death for all causes combined and for different cause of death categories for 2020-2044, Australia (ranked by the total PYLL in 2020-2044)

	Total		Males		Females	
	PYLL (95% UI)	%[a]	PYLL (95% UI)	%[a]	PYLL (95% UI)	%[a]
All causes	**24 515 189 (20 057 627 - 30 590 468)**	**100·0**	**15 313 622 (12 707 448 - 18 770 561)**	**100·0**	**9 201 567 (7 350 179 - 11 819 907)**	**100·0**
Cancer	**7 443 327 (6 001 926 - 9 324 024)**	**30·4**	**4 027 638 (3 215 859 - 5 101 421)**	**26·3**	**3 415 689 (2 786 067 - 4 222 603)**	**37·1**
Lung cancer	*1 032 010 (768 110 - 1 295 891)*	*4·2*	*584 455 (444 205 - 724 689)*	*3·8*	*447 555 (323 905 - 571 202)*	*4·9*
Colorectal cancer	*866 255 (684 446 - 1 126 744)*	*3·5*	*521 122 (405 876 - 689 978)*	*3·4*	*345 133 (278 570 - 436 766)*	*3·8*
Breast cancer	*718 159 (652 393 - 790 860)*	*2·9*		*0·0*	*718 159 (652 393 - 790 860)*	*7·8*
Brain cancer	*578 601 (419 287 - 809 544)*	*2·4*	*361 604 (257 810 - 515 208)*	*2·4*	*216 997 (161 477 - 294 336)*	*2·4*
Pancreatic cancer	*494 469 (431 406 - 567 315)*	*2·0*	*289 040 (253 547 - 329 777)*	*1·9*	*205 429 (177 859 - 237 538)*	*2·2*
Liver cancer	*492 649 (405 158 - 600 246)*	*2·0*	*354 222 (293 224 - 428 812)*	*2·3*	*138 427 (111 934 - 171 434)*	*1·5*
Leukaemia	*302 574 (213 215 - 455 775)*	*1·2*	*181 195 (131 573 - 263 852)*	*1·2*	*121 379 (81 642 - 191 923)*	*1·3*
Oesophageal cancer	*224 079 (189 740 - 265 223)*	*0·9*	*188 927 (162 430 - 219 935)*	*1·2*	*35 152 (27 310 - 45 288)*	*0·4*
Melanoma	*223 124 (183 326 - 272 185)*	*0·9*	*127 521 (105 194 - 154 903)*	*0·8*	*95 603 (78 132 - 117 282)*	*1·0*
Oral cancer	*218 120 (176 225 - 270 587)*	*0·9*	*171 396 (140 414 - 209 511)*	*1·1*	*46 724 (35 811 - 61 076)*	*0·5*
Non-Hodgkin lymphoma	*191 222 (140 559 - 275 802)*	*0·8*	*124 102 (93 216 - 172 410)*	*0·8*	*67 120 (47 343 - 103 392)*	*0·7*
Stomach cancer	*179 632 (148 484 - 217 729)*	*0·7*	*112 227 (94 744 - 133 049)*	*0·7*	*67 405 (53 740 - 84 680)*	*0·7*
Prostate cancer	*177 131 (157 263 - 199 606)*	*0·7*	*177 131 (157 263 - 199 606)*	*1·2*		
Ovarian cancer	*175 872 (151 740 - 204 049)*	*0·7*			*175 872 (151 740 - 204 049)*	*1·9*
Kidney cancer	*148 291 (104 395 - 221 200)*	*0·6*	*109 060 (79 458 - 153 964)*	*0·7*	*39 231 (24 937 - 67 236)*	*0·4*
Uterine cancer	*108 942 (93 931 - 126 511)*	*0·4*			*108 942 (93 931 - 126 511)*	*1·2*
Bladder cancer	*66 841 (53 389 - 83 809)*	*0·3*	*51 690 (41 642 - 64 240)*	*0·3*	*15 151 (11 747 - 19 569)*	*0·2*
Gallbladder and bile duct cancer	*35 396 (25 217 - 50 081)*	*0·1*	*16 518 (10 917 - 25 109)*	*0·1*	*18 878 (14 300 - 24 972)*	*0·2*
Laryngeal cancer	*25 117 (17 869 - 35 864)*	*0·1*	*23 022 (16 846 - 31 507)*	*0·2*	*2095 (1023 - 4357)*	*0·0*
Testicular cancer	*24 093 (12 327 - 47 522)*	*0·1*	*24 093 (12 327 - 47 522)*	*0·2*		
Thyroid cancer	*23 731 (15 647 - 36 017)*	*0·1*	*12 685 (8 547 - 18 801)*	*0·1*	*11 046 (7 100 - 17 216)*	*0·1*
Other cancers	*1 137 019 (957 799 - 1 371 464)*	*4·6*	*597 628 (506 626 - 718 548)*	*3·9*	*539 391 (451 173 - 652 916)*	*5·9*
External causes	**6 312 131 (5 187 047 - 7 847 779)**	**25·7**	**4 601 835 (3 872 302 - 5 530 524)**	**30·1**	**1 710 296 (1 314 745 - 2 317 255)**	**18·6**
Suicide	*3 081 460 (2 663 095 - 3 571 393)*	*12·6*	*2 262 245 (1 985 090 - 2 579 916)*	*14·8*	*819 215 (678 005 - 991 477)*	*8·9*
Accidental poisoning	*1 267 571 (1 021 163 - 1 586 328)*	*5·2*	*912 503 (762 293 - 1 094 951)*	*6·0*	*355 068 (258 870 - 491 377)*	*3·9*
Land transport accidents	*837 518 (687 051 - 1 023 774)*	*3·4*	*631 441 (522 423 - 765 538)*	*4·1*	*206 077 (164 628 - 258 236)*	*2·2*
Assault	*253 272 (149 893 - 446 976)*	*1·0*	*167 309 (105 416 - 273 198)*	*1·1*	*85 963 (44 477 - 173 778)*	*0·9*
Accidental drowning	*167 600 (86 328 - 353 077)*	*0·7*	*121 572 (70 711 - 211 885)*	*0·8*	*46 028 (15 617 - 141 192)*	*0·5*
Other external causes	*704 710 (579 517 - 866 231)*	*2·9*	*506 765 (426 369 - 605 036)*	*3·3*	*197 945 (153 148 - 261 195)*	*2·2*
Cardiovascular disease	**3 181 244 (2 801 719 - 3 668 328)**	**13·0**	**2 283 823 (2 041 166 - 2 586 538)**	**14·9**	**897 421 (760 553 - 1 081 790)**	**9·8**
Coronary heart disease	*1 479 873 (1 366 271 - 1 606 799)*	*6·0*	*1 212 912 (1 132 563 - 1 300 137)*	*7·9*	*266 961 (233 708 - 306 662)*	*2·9*
Cerebrovascular disease	*570 220 (496 521 - 655 342)*	*2·3*	*320 417 (279 937 - 367 025)*	*2·1*	*249 803 (216 584 - 288 317)*	*2·7*
Hypertensive disease	*138 920 (104 432 - 186 464)*	*0·6*	*106 240 (80 381 - 141 428)*	*0·7*	*32 680 (24 051 - 45 036)*	*0·4*
Other cardiovascular disease	*992 231 (834 495 - 1 219 723)*	*4·0*	*644 254 (548 285 - 777 948)*	*4·2*	*347 977 (286 210 - 441 775)*	*3·8*
Respiratory diseases	**1 183 420 (959 641 - 1 552 837)**	**4·8**	**630 526 (511 075 - 823 877)**	**4·1**	**552 894 (448 566 - 728 960)**	**6·0**
COPD	*636 285 (543 165 - 804 431)*	*2·6*	*308 001 (262 600 - 387 999)*	*2·0*	*328 284 (280 565 - 416 432)*	*3·6*
Asthma	*104 348 (63 193 - 174 115)*	*0·4*	*57 646 (33 721 - 99 408)*	*0·4*	*46 702 (29 472 - 74 707)*	*0·5*
Other respiratory diseases	*442 787 (353 283 - 574 291)*	*1·8*	*264 879 (214 754 - 336 470)*	*1·7*	*177 908 (138 529 - 237 821)*	*1·9*

Digestive diseases	**1 109 345 (930 689 - 1 327 295)**	**4·5**	**702 524 (601 629 - 822 624)**	**4·6**	**406 821 (329 060 - 504 671)**	**4·4**
Liver disease	*807 619 (686 084 - 954 222)*	*3·3*	*523 396 (456 677 - 600 778)*	*3·4*	*284 223 (229 407 - 353 444)*	*3·1*
Other digestive diseases	*301 726 (244 605 - 373 073)*	*1·2*	*179 128 (144 952 - 221 846)*	*1·2*	*122 598 (99 653 - 151 227)*	*1·3*
Diseases of the nervous system	**1 030 840 (857 136 - 1 262 366)**	**4·2**	**591 592 (503 235 - 701 881)**	**3·9**	**439 248 (353 901 - 560 485)**	**4·8**
Endocrine and metabolic diseases	**898 269 (715 080 - 1 165 684)**	**3·7**	**558 556 (451 855 - 710 427)**	**3·6**	**339 713 (263 225 - 455 257)**	**3·7**
Diabetes	***511 967 (438 757 - 599 141)***	***2·1***	***326 770 (283 362 - 377 744)***	***2·1***	***185 197 (155 395 - 221 397)***	***2·0***
Other endocrine and metabolic diseases	***386 302 (276 323 - 566 543)***	***1·6***	***231 786 (168 493 - 332 683)***	***1·5***	***154 516 (107 830 - 233 860)***	***1·7***
Conditions in the perinatal period	**888 914 (787 364 - 1 003 741)**	**3·6**	**505 443 (452 827 - 564 174)**	**3·3**	**383 471 (334 537 - 439 567)**	**4·2**
Congenital malformations	**715 125 (523 668 - 981 814)**	**2·9**	**375 832 (277 995 - 510 696)**	**2·5**	**339 293 (245 673 - 471 118)**	**3·7**
Mental and behavioural disorders	**345 909 (282 542 - 437 436)**	**1·4**	**201 696 (167 554 - 247 380)**	**1·3**	**144 213 (114 988 - 190 056)**	**1·6**
Infectious and parasitic diseases	**309 900 (246 768 - 390 655)**	**1·3**	**181 380 (147 856 - 223 045)**	**1·2**	**128 520 (98 912 - 167 610)**	**1·4**
Genitourinary diseases	**170 673 (118 155 - 249 728)**	**0·7**	**98 284 (68 703 - 142 542)**	**0·6**	**72 389 (49 452 - 107 186)**	**0·8**
Kidney failure	*80 094 (58 799 - 109 909)*	*0·3*	*47 624 (35 576 - 64 184)*	*0·3*	*32 470 (23 223 - 45 725)*	*0·4*
Other genitourinary diseases	*90 579 (59 356 - 139 819)*	*0·4*	*50 660 (33 127 - 78 358)*	*0·3*	*39 919 (26 229 - 61 461)*	*0·4*
Musculoskeletal diseases	**118 445 (89 136 - 158 930)**	**0·5**	**50 664 (38 561 - 67 241)**	**0·3**	**67 781 (50 575 - 91 689)**	**0·7**
Diseases of the blood	**113 433 (73 496 - 176 853)**	**0·5**	**66 366 (41 657 - 106 429)**	**0·4**	**47 067 (31 839 - 70 424)**	**0·5**
Diseases of the skin	**37 735 (18 909 - 77 610)**	**0·2**	**21 603 (10 772 - 44 659)**	**0·1**	**16 132 (8 137 - 32 951)**	**0·2**
Other causes[b]	**656 479 (464 351 - 965 388)**	**2·7**	**415 860 (304 402 - 587 103)**	**2·7**	**240 619 (159 949 - 378 285)**	**2·6**
SIDS	*29 825 (13 826 - 66 906)*	*0·1*	*13 053 (5 752 - 31 282)*	*0·1*	*16 772 (8 074 - 35 624)*	*0·2*
Other causes excluding SIDS	*626 654 (450 525 - 898 482)*	*2·6*	*402 807 (298 650 - 555 821)*	*2·6*	*223 847 (151 875 - 342 661)*	*2·4*

a. Proportion within total PYLL.

b. Other causes includes diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified (R00-R99).

PYLL: potential years of life lost. UI: uncertainty interval. COPD: chronic obstructive pulmonary disease. SIDS: sudden infant death syndrome.

Table S7. Projected potential years of life lost (PYLL) due to premature death for all causes combined and for different cause of death categories by age groups for 2020-2044, Australia

	Aged 0-4 years		Aged 5-29 years		Aged 30-49 years		Aged 50-74 years	
	PYLL (95% UI)	%[a]	PYLL (95% UI)	%[a]	PYLL (95% UI)	%[a]	PYLL (95% UI)	%[a]
Total - all causes	**2 073 387 (1 569 291 - 2 891 514)**	**100·0**	**3 144 183 (2 341 602 - 4 399 653)**	**100·0**	**7 499 558 (5 989 641 - 9 631 624)**	**100·0**	**11 798 061 (10 144 504 - 13 908 520)**	**100·0**
Males - all causes	**1 146 713 (885 889 - 1 549 622)**	**100·0**	**2 165 048 (1 663 886 - 2 906 944)**	**100·0**	**4 826 532 (3 924 300 - 6 066 480)**	**100·0**	**7 175 329 (6 224 620 - 8 373 275)**	**100·0**
External causes	**87 636 (56 855 - 139 992)**	**7·6**	**1 538 900 (1 254 315 - 1 916 642)**	**71·1**	**2 212 636 (1 899 033 - 2 591 607)**	**45·8**	**762 663 (662 099 - 882 283)**	**10·6**
Suicide		*0·0*	*829 343 (711 384 - 967 461)*	*38·3*	*1 097 373 (975 507 - 1 234 881)*	*22·7*	*335 529 (298 199 - 377 574)*	*4·7*
Accidental poisoning	*3397 (1716 - 6741)*	*0·3*	*173 241 (140 816 - 213 534)*	*8·0*	*572 100 (480 153 - 682 366)*	*11·9*	*163 765 (139 608 - 192 310)*	*2·3*
Land transport accidents	*14 638 (11 191 - 19 175)*	*1·3*	*305 794 (245 815 - 381 660)*	*14·1*	*225 017 (191 858 - 264 099)*	*4·7*	*85 992 (73 559 - 100 604)*	*1·2*
Assault	*12 931 (6 683 - 25 179)*	*1·1*	*60 032 (32 003 - 114 302)*	*2·8*	*77 054 (54 447 - 109 303)*	*1·6*	*17 292 (12 283 - 24 414)*	*0·2*
Accidental drowning	*28 329 (15 718 - 51 605)*	*2·5*	*40 154 (22 654 - 72 105)*	*1·9*	*38 863 (23 492 - 65 014)*	*0·8*	*14 226 (8 847 - 23 161)*	*0·2*
Other external causes	*28 341 (21 547 - 37 292)*	*2·5*	*130 336 (101 643 - 167 580)*	*6·0*	*202 229 (173 576 - 235 944)*	*4·2*	*145 859 (129 603 - 164 220)*	*2·0*
Cancer	**42 964 (25 678 - 73 119)**	**3·7**	**203 488 (126 721 - 333 724)**	**9·4**	**927 995 (643 495 - 1 380 574)**	**19·2**	**2 853 191 (2 411 212 - 3 439 764)**	**39·8**
Lung cancer		*0·0*		*0·0*	*82 364 (44 017 - 160 698)*	*1·7*	*502 091 (391 435 - 689 751)*	*7·0*
Colorectal cancer		*0·0*	*15 774 (9 622 - 26 578)*	*0·7*	*219 247 (141 373 - 341 869)*	*4·5*	*286 101 (254 881 - 321 281)*	*4·0*
Brain cancer	*17 785 (10 816 - 29 369)*	*1·6*	*53 249 (33 108 - 86 271)*	*2·5*	*118 391 (78 110 - 180 683)*	*2·5*	*172 179 (135 776 - 218 885)*	*2·4*
Liver cancer		*0·0*		*0·0*	*78 879 (63 967 - 97 305)*	*1·6*	*275 343 (229 257 - 331 507)*	*3·8*
Pancreatic cancer		*0·0*		*0·0*	*55 030 (47 041 - 64 480)*	*1·1*	*234 010 (206 506 - 265 297)*	*3·3*
Oesophageal cancer		*0·0*		*0·0*	*33 342 (27 681 - 40 215)*	*0·7*	*155 585 (134 749 - 179 720)*	*2·2*
Leukaemia	*9935 (5409 - 18 395)*	*0·9*	*38 034 (21 092 - 69 430)*	*1·8*	*35 100 (19 760 - 63 091)*	*0·7*	*98 126 (85 312 - 112 936)*	*1·4*
Prostate cancer		*0·0*		*0·0*	*4 159 (3 316 - 5 217)*	*0·1*	*172 972 (153 947 - 194 389)*	*2·4*
Oral cancer		*0·0*		*0·0*	*42 231 (33 803 - 52 758)*	*0·9*	*129 165 (106 611 - 156 753)*	*1·8*
Melanoma		*0·0*	*11 708 (9 207 - 14 899)*	*0·5*	*44 846 (36 236 - 55 533)*	*0·9*	*70 967 (59 751 - 84 471)*	*1·0*
Non-Hodgkin lymphoma	*1157 (535 - 2478)*	*0·1*	*8320 (4252 - 16 368)*	*0·4*	*20 671 (10 961 - 39 488)*	*0·4*	*93 954 (77 468 - 114 076)*	*1·3*
Stomach cancer		*0·0*		*0·0*	*26 039 (21 464 - 31 573)*	*0·5*	*86 188 (73 280 - 101 476)*	*1·2*
Kidney cancer	*1665 (763 - 3678)*	*0·1*	*2001 (891 - 4613)*	*0·1*	*17 181 (9 405 - 31 711)*	*0·4*	*88 213 (68 399 - 113 962)*	*1·2*
Bladder cancer		*0·0*		*0·0*	*4 860 (3 732 - 6 311)*	*0·1*	*46 830 (37 910 - 57 929)*	*0·7*
Testicular cancer		*0·0*	*9599 (4916 - 18 924)*	*0·4*	*11 689 (5 998 - 22 951)*	*0·2*	*2 805 (1 413 - 5 647)*	*0·0*
Laryngeal cancer		*0·0*		*0·0*	*2 932 (2 058 - 4 186)*	*0·1*	*20 090 (14 788 - 27 321)*	*0·3*
Gallbladder and bile duct cancer		*0·0*		*0·0*	*2 414 (1 504 - 3 895)*	*0·1*	*14 104 (9 413 - 21 214)*	*0·2*
Thyroid cancer		*0·0*		*0·0*		*0·0*	*12 685 (8 547 - 18 801)*	*0·2*
Other cancers	*12 422 (8 155 - 18 949)*	*1·1*	*64 803 (43 633 - 96 641)*	*3·0*	*128 620 (93 069 - 178 610)*	*2·7*	*391 783 (361 769 - 424 348)*	*5·5*
Cardiovascular disease	**15 634 (6 904 - 36 740)**	**1·4**	**91 318 (68 178 - 128 035)**	**4·2**	**642 160 (547 927 - 755 951)**	**13·3**	**1 534 711 (1 418 157 - 1 665 812)**	**21·4**
Coronary heart disease		*0·0*	*11 408 (9 592 - 13 616)*	*0·5*	*324 117 (290 251 - 362 012)*	*6·7*	*877 387 (832 720 - 924 509)*	*12·2*
Cerebrovascular disease	*851 (543 - 1264)*	*0·1*	*11 017 (9 100 - 13 307)*	*0·5*	*69 023 (59 786 - 79 706)*	*1·4*	*239 526 (210 508 - 272 748)*	*3·3*
Hypertensive disease		*0·0*	*1398 (785 - 2943)*	*0·1*	*24 715 (18 352 - 33 352)*	*0·5*	*80 127 (61 244 - 105 035)*	*1·1*
Other cardiovascular disease	*14 783 (6 361 - 35 378)*	*1·3*	*67 495 (48 701 - 98 169)*	*3·1*	*224 305 (179 538 - 280 881)*	*4·6*	*337 671 (313 685 - 363 520)*	*4·7*
Digestive diseases	**10 853 (8 020 - 14 843)**	**0·9**	**28 264 (22 201 - 36 112)**	**1·3**	**242 831 (206 188 - 286 396)**	**5·0**	**420 576 (365 220 - 485 273)**	**5·9**
Liver disease	*1338 (756 - 2379)*	*0·1*	*15 309 (12 256 - 19 231)*	*0·7*	*194 202 (167 690 - 224 908)*	*4·0*	*312 547 (275 975 - 354 260)*	*4·4*
Other digestive diseases	*9515 (7264 - 12 464)*	*0·8*	*12 955 (9 945 - 16 881)*	*0·6*	*48 629 (38 498 - 61 488)*	*1·0*	*108 029 (89 245 - 131 013)*	*1·5*
Respiratory diseases	**36 000 (19 733 - 67 077)**	**3·1**	**39 400 (21 107 - 74 798)**	**1·8**	**118 901 (82 344 - 187 766)**	**2·5**	**436 225 (387 891 - 494 236)**	**6·1**
COPD	*4256 (1641 - 11 118)*	*0·4*	*3704 (1325 - 10 059)*	*0·2*	*33 768 (15 309 - 76 596)*	*0·7*	*266 273 (244 325 - 290 226)*	*3·7*
Asthma	*1204 (628 - 2275)*	*0·1*	*20 247 (11 606 - 35 570)*	*0·9*	*18 887 (10 936 - 32 895)*	*0·4*	*17 308 (10 551 - 28 668)*	*0·2*

Other respiratory disease	*30 540 (17 464 - 53 684)*	*2·7*	*15 449 (8 176 - 29 169)*	*0·7*	*66 246 (56 099 - 78 275)*	*1·4*	*152 644 (133 015 - 175 342)*	*2·1*
Diseases of the nervous system	**43 630 (30 571 - 62 294)**	**3·8**	**89 671 (65 610 - 123 107)**	**4·1**	**165 750 (143 402 - 191 653)**	**3·4**	**292 541 (263 652 - 324 827)**	**4·1**
Endocrine and metabolic diseases	**18 773 (9 177 - 39 112)**	**1·6**	**42 326 (24 540 - 77 339)**	**2·0**	**142 558 (116 415 - 175 166)**	**3·0**	**354 899 (301 723 - 418 810)**	**4·9**
Diabetes	*252 (125 - 707)*	*0·0*	*13 485 (10 452 - 17 519)*	*0·6*	*72 130 (61 887 - 84 126)*	*1·5*	*240 903 (210 898 - 275 392)*	*3·4*
Other endocrine and metabolic diseases	*18 521 (9 052 - 38 405)*	*1·6*	*28 841 (14 088 - 59 820)*	*1·3*	*70 428 (54 528 - 91 040)*	*1·5*	*113 996 (90 825 - 143 418)*	*1·6*
Conditions in the perinatal period	**505 443 (452 827 - 564 174)**	**44·1**		**0·0**		**0·0**		**0·0**
Congenital malformations	**277 421 (209 198 - 369 104)**	**24·2**	**39 628 (26 169 - 60 121)**	**1·8**	**27 062 (19 067 - 38 657)**	**0·6**	**31 721 (23 561 - 42 814)**	**0·4**
Mental and behavioural disorders	**125 (0 - 251)**	**0·0**	**4 916 (2 225 - 11 061)**	**0·2**	**75 800 (62 158 - 94 379)**	**1·6**	**120 855 (103 171 - 141 689)**	**1·7**
Infectious and parasitic diseases	**25 427 (19 685 - 32 851)**	**2·2**	**11 838 (8 950 - 15 659)**	**0·5**	**34 360 (27 718 - 42 730)**	**0·7**	**109 755 (91 503 - 131 805)**	**1·5**
Genitourinary diseases	**788 (351 - 1825)**	**0·1**	**4 853 (2 739 - 8 667)**	**0·2**	**20 722 (13 634 - 31 752)**	**0·4**	**71 921 (51 979 - 100 298)**	**1·0**
Kidney failure		*0·0*	*685 (337 - 1462)*	*0·0*	*8931 (6347 - 12 635)*	*0·2*	*38 008 (28 892 - 50 087)*	*0·5*
Other genitourinary diseases	*788 (351 - 1825)*	*0·1*	*4168 (2402 - 7205)*	*0·2*	*11 791 (7287 - 19 117)*	*0·2*	*33 913 (23 087 - 50 211)*	*0·5*
Diseases of the blood	**4151 (2483 - 6976)**	**0·4**	**12 025 (7359 - 19 672)**	**0·6**	**33 127 (20 795 - 53 198)**	**0·7**	**17 063 (11 020 - 26 583)**	**0·2**
Musculoskeletal diseases	**959 (482 - 1968)**	**0·1**	**4 823 (3115 - 7480)**	**0·2**	**10 496 (7586 - 14 551)**	**0·2**	**34 386 (27 378 - 43 242)**	**0·5**
Diseases of the skin	**1480 (601 - 3671)**	**0·1**	**1239 (458 - 3078)**	**0·1**	**4678 (2172 - 10 102)**	**0·1**	**14 206 (7 541 - 27 808)**	**0·2**
Other causes[b]	**75 429 (43 324 - 135 625)**	**6·6**	**52 359 (30 199 - 91 449)**	**2·4**	**167 456 (132 366 - 211 998)**	**3·5**	**120 616 (98 513 - 148 031)**	**1·7**
SIDS	*13 053 (5752 - 31 282)*	*1·1*		*0·0*		*0·0*		*0·0*
Other causes excluding SIDS	*62 376 (37 572 - 104 343)*	*5·4*	*52 359 (30 199 - 91 449)*	*2·4*	*167 456 (132 366 - 211 998)*	*3·5*	*120 616 (98 513 - 148 031)*	*1·7*
Females - all causes	**926 674 (683 402 - 1 341 892)**	**100·0**	**979 135 (677 716 - 1 492 709)**	**100·0**	**2 673 026 (2 065 341 - 3 565 144)**	**100·0**	**4 622 732 (3 919 884 - 5 535 245)**	**100·0**
Cancer	**31 129 (19 162 - 52 717)**	**3·4**	**148 522 (98 892 - 232 184)**	**15·2**	**979 299 (745 932 - 1 341 119)**	**36·6**	**2 256 739 (1 918 245 - 2 711 666)**	**48·8**
Breast cancer		*0·0*	*8519 (7082 - 10 242)*	*0·9*	*272 647 (245 991 - 302 247)*	*10·2*	*436 993 (399 320 - 478 371)*	*9·5*
Lung cancer		*0·0*		*0·0*	*66 853 (32 179 - 144 025)*	*2·5*	*380 702 (287 890 - 542 260)*	*8·2*
Colorectal cancer		*0·0*	*9437 (5882 - 15 584)*	*1·0*	*130 949 (89 748 - 191 800)*	*4·9*	*204 747 (182 940 - 229 210)*	*4·4*
Brain cancer	*11 641 (7556 - 17 950)*	*1·3*	*35 597 (23 529 - 53 991)*	*3·6*	*61 484 (43 001 - 88 124)*	*2·3*	*108 275 (87 391 - 134 271)*	*2·3*
Pancreatic cancer		*0·0*		*0·0*	*36 572 (30 456 - 43 979)*	*1·4*	*168 857 (147 403 - 193 559)*	*3·7*
Ovarian cancer		*0·0*		*0·0*	*50 224 (42 131 - 59 913)*	*1·9*	*125 648 (109 609 - 144 136)*	*2·7*
Liver cancer		*0·0*		*0·0*	*34 830 (27 257 - 44 553)*	*1·3*	*103 597 (84 677 - 126 881)*	*2·2*
Leukaemia	*7073 (3540 - 14 311)*	*0·8*	*23 590 (12 060 - 46 847)*	*2·4*	*27 651 (14 515 - 53 532)*	*1·0*	*63 065 (51 527 - 77 233)*	*1·4*
Uterine cancer		*0·0*		*0·0*	*19 618 (15 955 - 24 174)*	*0·7*	*89 324 (77 976 - 102 337)*	*1·9*
Melanoma		*0·0*	*7842 (5994 - 10 288)*	*0·8*	*40 489 (32 024 - 51 190)*	*1·5*	*47 272 (40 114 - 55 804)*	*1·0*
Stomach cancer		*0·0*		*0·0*	*21 467 (16 774 - 27 520)*	*0·8*	*45 938 (36 966 - 57 160)*	*1·0*
Non-Hodgkin lymphoma	*387 (126 - 1256)*	*0·0*	*3969 (1676 - 9641)*	*0·4*	*12 510 (5 418 - 29 447)*	*0·5*	*50 254 (40 123 - 63 048)*	*1·1*
Oral cancer		*0·0*		*0·0*	*12 887 (9625 - 17 298)*	*0·5*	*33 837 (26 186 - 43 778)*	*0·7*
Kidney cancer	*1217 (405 - 3485)*	*0·1*	*1897 (757 - 6040)*	*0·2*	*7640 (3410 - 17 747)*	*0·3*	*28 477 (20 365 - 39 964)*	*0·6*
Oesophageal cancer		*0·0*		*0·0*	*4565 (3360 - 6208)*	*0·2*	*30 587 (23 950 - 39 080)*	*0·7*
Gallbladder and bile duct cancer		*0·0*		*0·0*	*2516 (1781 - 3564)*	*0·1*	*16 362 (12 519 - 21 408)*	*0·4*
Bladder cancer		*0·0*		*0·0*		*0·0*	*15 151 (11 747 - 19 569)*	*0·3*
Thyroid cancer		*0·0*		*0·0*		*0·0*	*11 046 (7100 - 17 216)*	*0·2*
Laryngeal cancer		*0·0*		*0·0*		*0·0*	*2 095 (1023 - 4357)*	*0·0*
Other cancers	*10 811 (7535 - 15 543)*	*1·2*	*57 671 (41 912 - 79 551)*	*5·9*	*176 397 (132 307 - 235 798)*	*6·6*	*294 512 (269 419 - 322 024)*	*6·4*
External causes	**60 777 (29 880 - 139 643)**	**6·6**	**528 582 (393 456 - 744 987)**	**54·0**	**756 579 (601 037 - 969 321)**	**28·3**	**364 358 (290 372 - 463 304)**	**7·9**
Suicide		*0·0*	*318 817 (256 448 - 396 842)*	*32·6*	*356 911 (303 686 - 419 882)*	*13·4*	*143 487 (117 871 - 174 753)*	*3·1*
Accidental poisoning	*3406 (1616 - 7165)*	*0·4*	*46 828 (29 884 - 73 896)*	*4·8*	*210 466 (155 593 - 285 915)*	*7·9*	*94 368 (71 777 - 124 401)*	*2·0*
Land transport accidents	*11 105 (8534 - 14 463)*	*1·2*	*94 387 (74 672 - 119 355)*	*9·6*	*67 956 (54 900 - 84 202)*	*2·5*	*32 629 (26 522 - 40 216)*	*0·7*
Assault	*9830 (4093 - 23 892)*	*1·1*	*35 126 (15 288 - 82 678)*	*3·6*	*33 822 (20 690 - 55 457)*	*1·3*	*7185 (4406 - 11 751)*	*0·2*

Accidental drowning	*22 319 (7463 - 69 619)*	*2·4*	*10 680 (3449 - 34 090)*	*1·1*	*7672 (2637 - 23 125)*	*0·3*	*5357 (2068 - 14 358)*	*0·1*
Other external causes	*14 117 (8174 - 24 504)*	*1·5*	*22 744 (13 715 - 38 126)*	*2·3*	*79 752 (63 531 - 100 740)*	*3·0*	*81 332 (67 728 - 97 825)*	*1·8*
Cardiovascular disease	**8944 (3376 - 24 878)**	**1·0**	**51 856 (36 081 - 79 188)**	**5·3**	**271 595 (213 963 - 346 615)**	**10·2**	**565 026 (507 133 - 631 109)**	**12·2**
Coronary heart disease		*0·0*	*3649 (2589 - 5140)*	*0·4*	*85 432 (67 720 - 107 852)*	*3·2*	*177 880 (163 399 - 193 670)*	*3·8*
Cerebrovascular disease		*0·0*	*9233 (7563 - 11 279)*	*0·9*	*61 709 (53 203 - 71 587)*	*2·3*	*178 861 (155 818 - 205 451)*	*3·9*
Hypertensive disease		*0·0*	*125 (0 - 874)*	*0·0*	*7475 (5258 - 10 651)*	*0·3*	*25 080 (18 793 - 33 511)*	*0·5*
Other cardiovascular disease	*8944 (3376 - 24 878)*	*1·0*	*38 849 (25 929 - 61 895)*	*4·0*	*116 979 (87 782 - 156 525)*	*4·4*	*183 205 (169 123 - 198 477)*	*4·0*
Respiratory diseases	**25 549 (12 686 - 53 332)**	**2·8**	**28 020 (15 055 - 54 368)**	**2·9**	**88 974 (58 067 - 154 389)**	**3·3**	**410 351 (362 758 - 466 871)**	**8·9**
COPD	*3860 (1300 - 11 587)*	*0·4*	*2289 (696 - 7507)*	*0·2*	*27 557 (10 775 - 73 204)*	*1·0*	*294 578 (267 794 - 324 134)*	*6·4*
Asthma	*625 (375 - 1212)*	*0·1*	*13 019 (8010 - 21 290)*	*1·3*	*15 085 (9294 - 24 661)*	*0·6*	*17 973 (11 793 - 27 544)*	*0·4*
Other respiratory disease	*21 064 (11 011 - 40 533)*	*2·3*	*12 712 (6349 - 25 571)*	*1·3*	*46 332 (37 998 - 56 524)*	*1·7*	*97 800 (83 171 - 115 193)*	*2·1*
Diseases of the nervous system	**44 945 (27 335 - 74 371)**	**4·9**	**62 280 (37 495 - 104 114)**	**6·4**	**111 453 (93 545 - 132 855)**	**4·2**	**220 570 (195 526 - 249 145)**	**4·8**
Digestive diseases	**10 402 (7463 - 14 701)**	**1·1**	**25 024 (18 783 - 33 454)**	**2·6**	**141 319 (111 743 - 178 861)**	**5·3**	**230 076 (191 071 - 277 655)**	**5·0**
Liver disease	*1952 (1093 - 3487)*	*0·2*	*14 608 (10 837 - 19 773)*	*1·5*	*112 359 (88 692 - 142 431)*	*4·2*	*155 304 (128 785 - 187 753)*	*3·4*
Other digestive diseases	*8450 (6370 - 11 214)*	*0·9*	*10 416 (7946 - 13 681)*	*1·1*	*28 960 (23 051 - 36 430)*	*1·1*	*74 772 (62 286 - 89 902)*	*1·6*
Conditions in the perinatal period	**383 471 (334 537 - 439 567)**	**41·4**		**0·0**		**0·0**		**0·0**
Endocrine and metabolic diseases	**11 935 (5265 - 27 629)**	**1·3**	**27 785 (14 908 - 55 743)**	**2·8**	**88 792 (69 409 - 113 985)**	**3·3**	**211 201 (173 643 - 257 900)**	**4·6**
Diabetes	*250 (125 - 638)*	*0·0*	*8545 (6371 - 11 509)*	*0·9*	*38 771 (32 080 - 46 878)*	*1·5*	*137 631 (116 819 - 162 372)*	*3·0*
Other endocrine and metabolic diseases	*11 685 (5140 - 26 991)*	*1·3*	*19 240 (8537 - 44 234)*	*2·0*	*50 021 (37 329 - 67 107)*	*1·9*	*73 570 (56 824 - 95 528)*	*1·6*
Congenital malformations	**255 509 (188 740 - 347 075)**	**27·6**	**36 438 (23 647 - 56 251)**	**3·7**	**22 555 (15 324 - 33 464)**	**0·8**	**24 791 (17 962 - 34 328)**	**0·5**
Mental and behavioural disorders		**0·0**	**6419 (2437 - 17 340)**	**0·7**	**50 158 (39 136 - 67 710)**	**1·9**	**87 636 (73 415 - 104 682)**	**1·9**
Infectious and parasitic diseases	**25 720 (19 025 - 34 788)**	**2·8**	**11 750 (8422 - 16 454)**	**1·2**	**19 382 (14 699 - 25 671)**	**0·7**	**71 668 (56 766 - 90 697)**	**1·6**
Genitourinary diseases	**403 (125 - 1036)**	**0·0**	**2976 (1677 - 5470)**	**0·3**	**15 092 (9 636 - 23 705)**	**0·6**	**53 918 (38 014 - 76 975)**	**1·2**
Kidney failure		*0·0*	*614 (268 - 1350)*	*0·1*	*5890 (3922 - 8834)*	*0·2*	*25 966 (19 033 - 35 541)*	*0·6*
Other genitourinary diseases	*403 (125 - 1036)*	*0·0*	*2362 (1409 - 4120)*	*0·2*	*9202 (5714 - 14 871)*	*0·3*	*27 952 (18 981 - 41 434)*	*0·6*
Musculoskeletal diseases	**501 (250 - 1118)**	**0·1**	**8455 (5836 - 12 355)**	**0·9**	**18 000 (12 870 - 25 243)**	**0·7**	**40 825 (31 619 - 52 973)**	**0·9**
Diseases of the blood	**4855 (2966 - 7953)**	**0·5**	**8898 (5262 - 15 085)**	**0·9**	**12 976 (8486 - 19 992)**	**0·5**	**20 338 (15 125 - 27 394)**	**0·4**
Diseases of the skin	**778 (235 - 2773)**	**0·1**	**823 (125 - 2363)**	**0·1**	**3723 (1883 - 7505)**	**0·1**	**10 808 (5894 - 20 310)**	**0·2**
Other causes[b]	**61 756 (32 357 - 119 987)**	**6·7**	**31 307 (15 640 - 63 353)**	**3·2**	**93 129 (69 611 - 124 709)**	**3·5**	**54 427 (42 341 - 70 236)**	**1·2**
SIDS	*16 772 (8 074 - 35 624)*	*1·8*		*0·0*		*0·0*		*0·0*
Other causes excluding SIDS	*44 984 (24 283 - 84 363)*	*4·9*	*31 307 (15 640 - 63 353)*	*3·2*	*93 129 (69 611 - 124 709)*	*3·5*	*54 427 (42 341 - 70 236)*	*1·2*

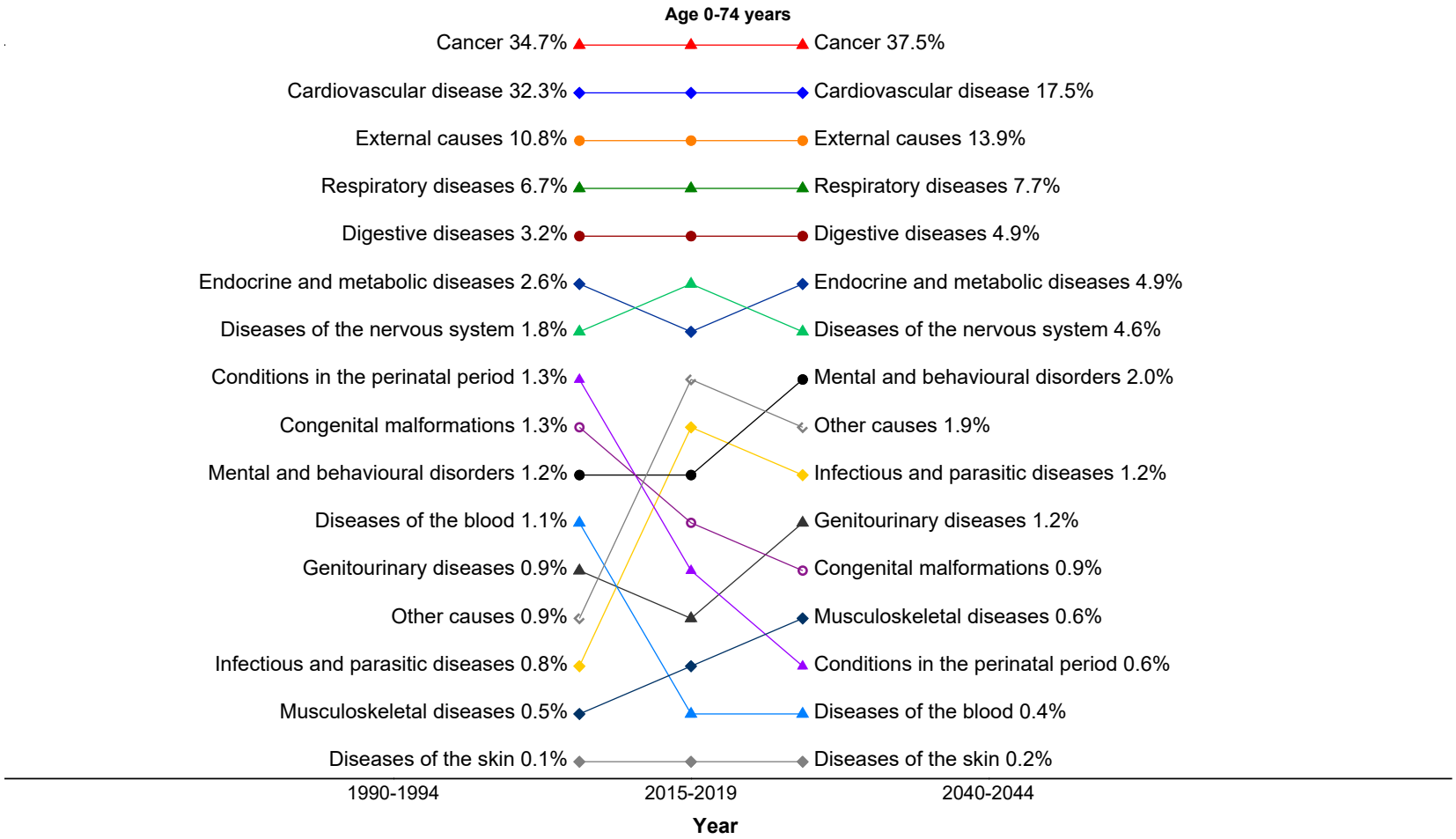
a. percentage of total potential years of life lost.

b. Other causes includes diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified (R00-R99).

PYLL: potential years of life lost. UI: uncertainty interval.

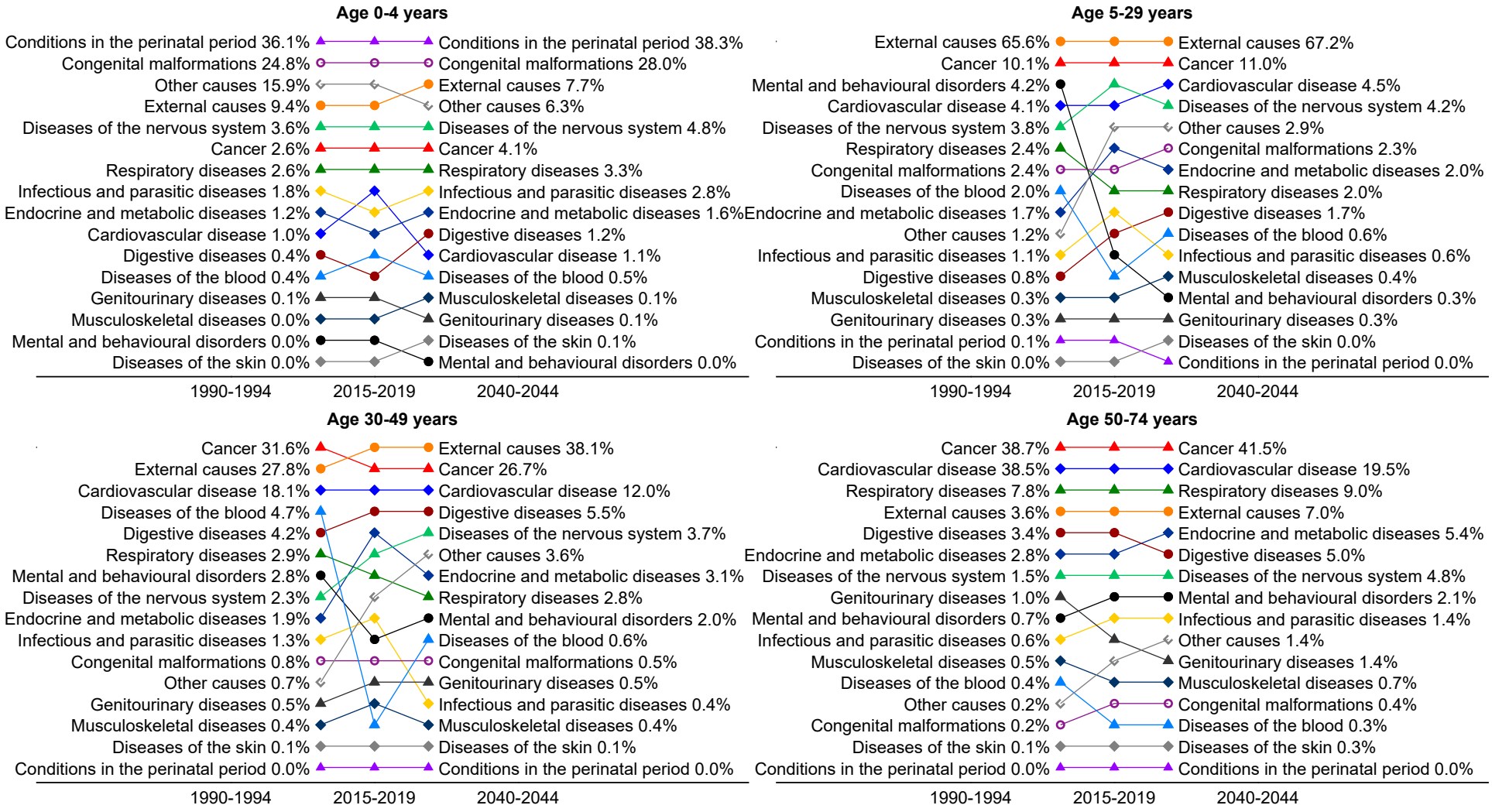
Figure S5. Change in rank of major causes of death by numbers of premature deaths over the period 1990-2044 overall and by sex and age group, Australia

A. Overall for age 0-74 years



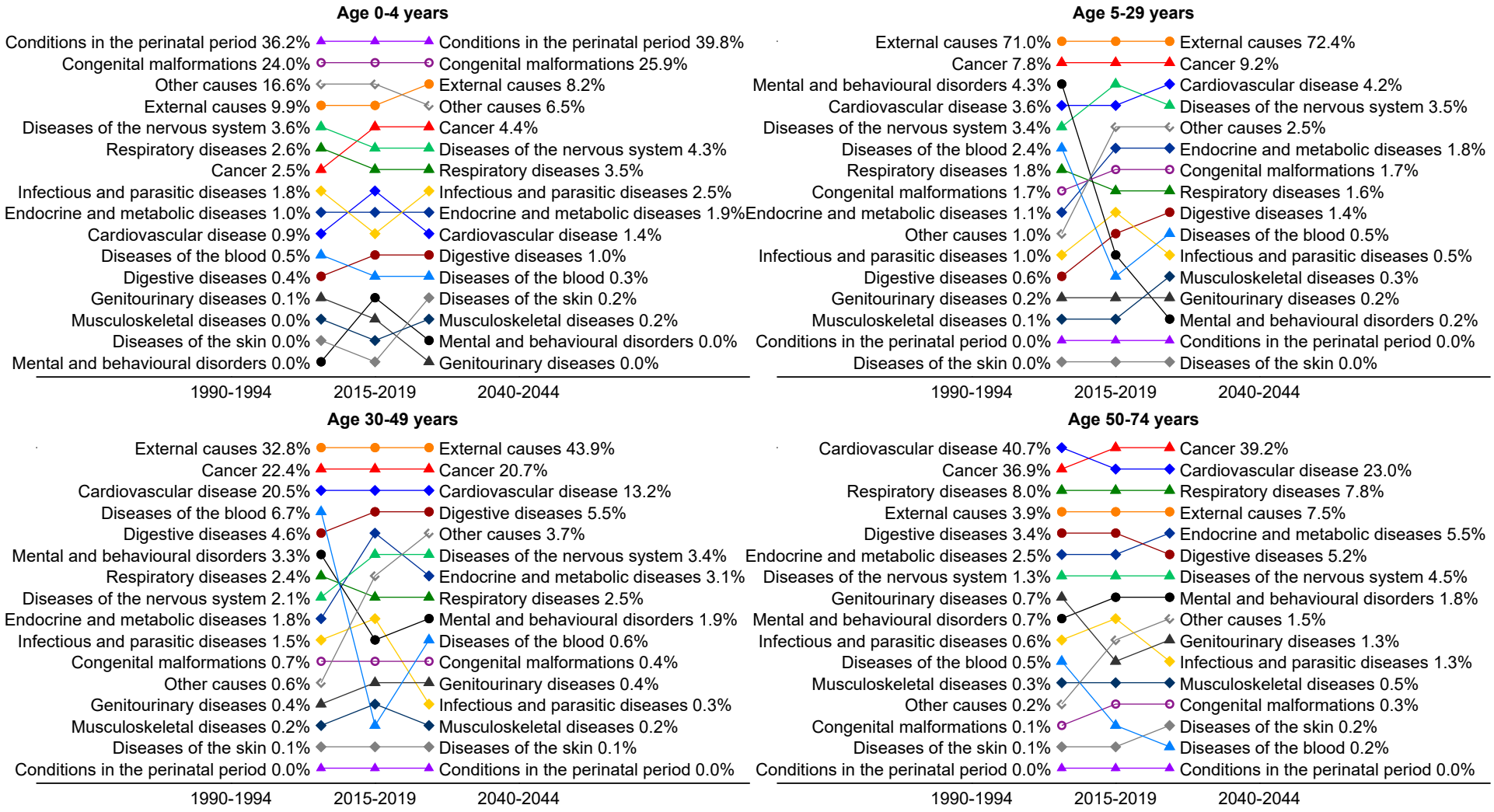
Other causes includes diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified (R00-R99). Percentages are of the total number of premature deaths.

B. Overall by age group



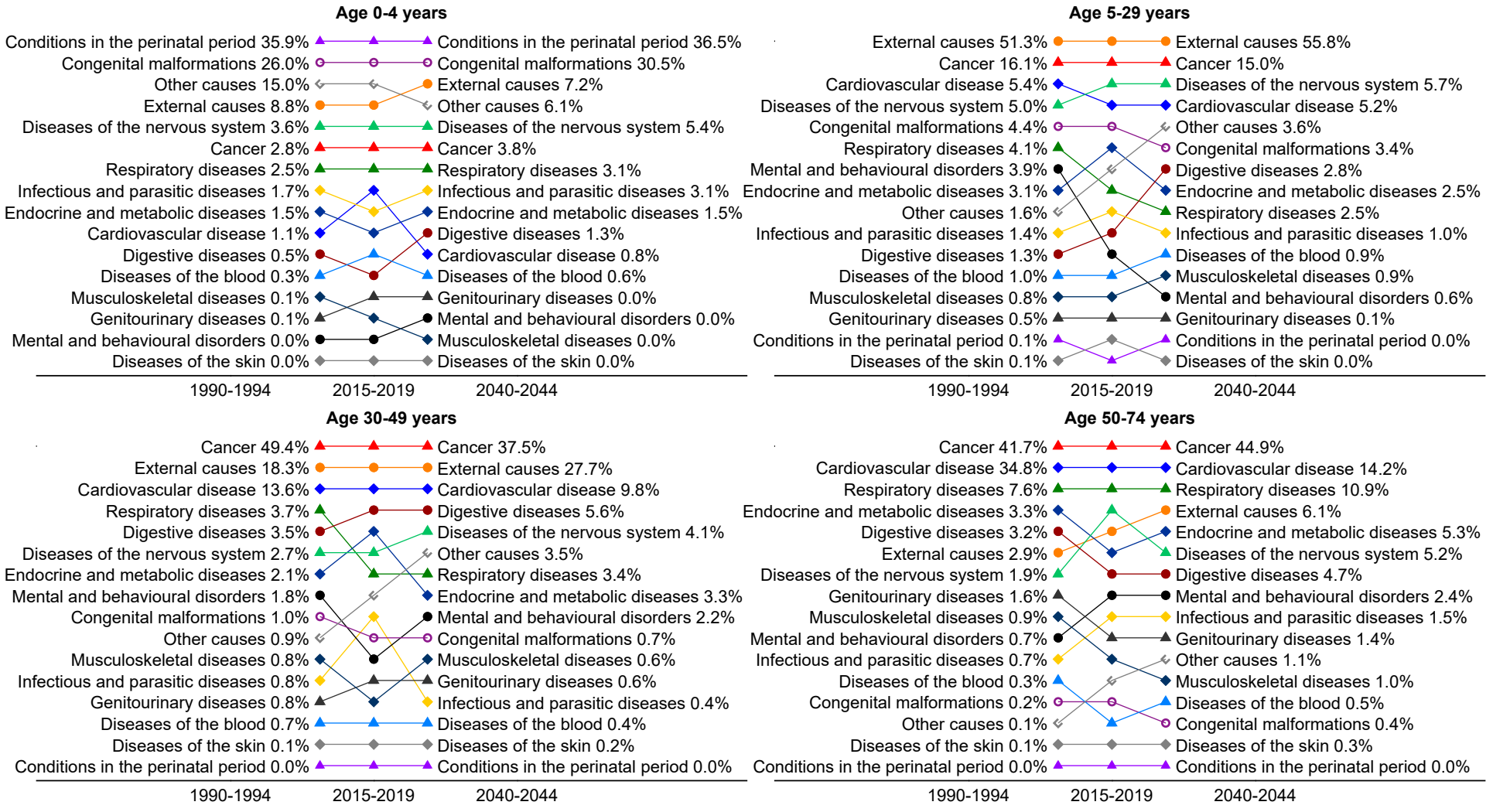
Other causes includes diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified (R00-R99).
Percentages are of the total number of premature deaths.

C. Males by age group



Other causes includes diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified (R00-R99).
Percentages are of the total number of premature deaths.

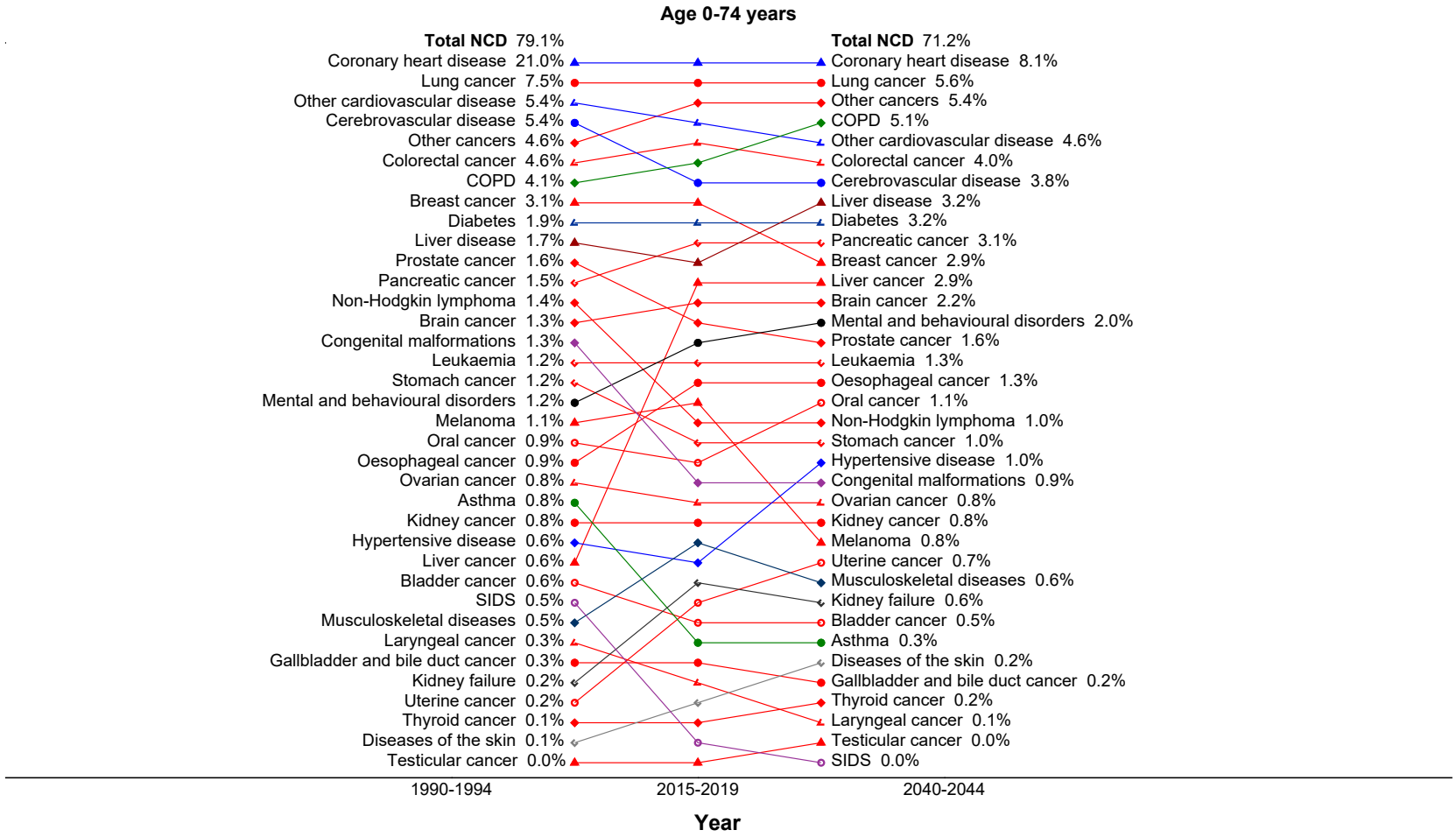
D. Females by age group



Other causes includes diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified (R00-R99).
Percentages are of the total number of premature deaths.

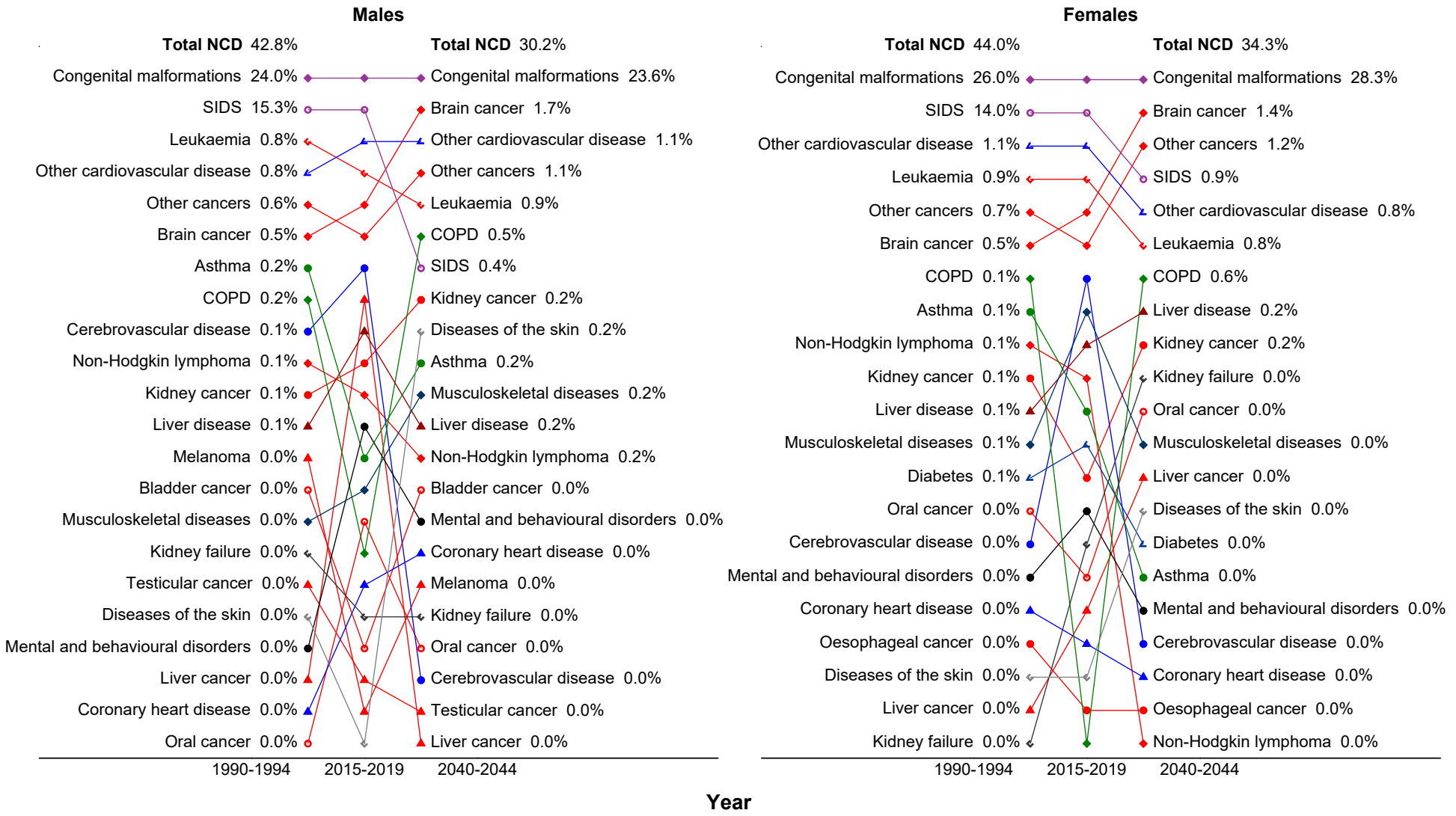
Figure S6. Change in rank of cause of death categories for noncommunicable diseases by numbers of premature deaths over the period 1990-2044 overall and by sex and age group, Australia

A. Overall



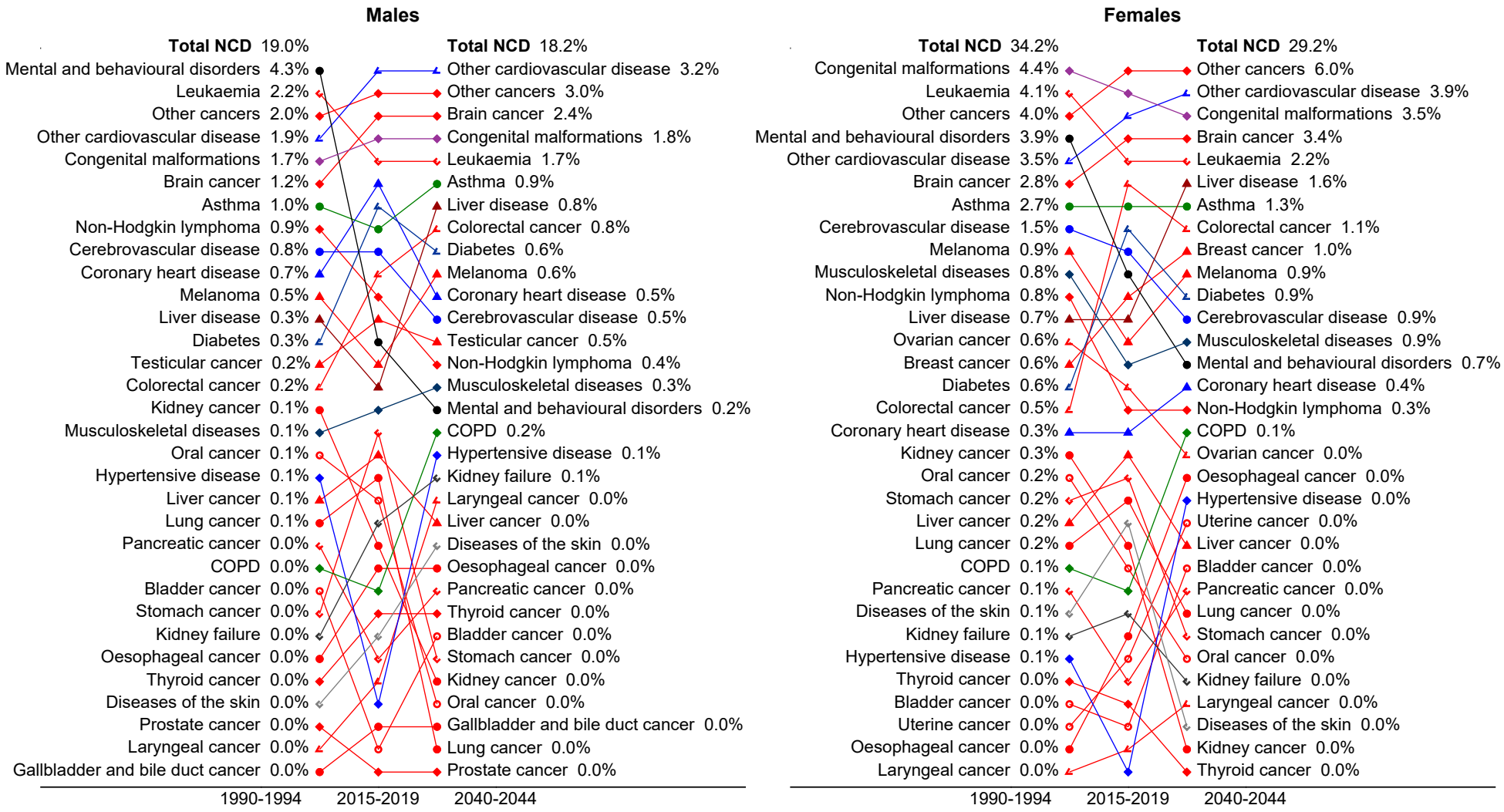
COPD: chronic obstructive pulmonary disease. SIDS: sudden infant death syndrome.
Percentages are of the total number of premature deaths.

B. Age 0-4 years



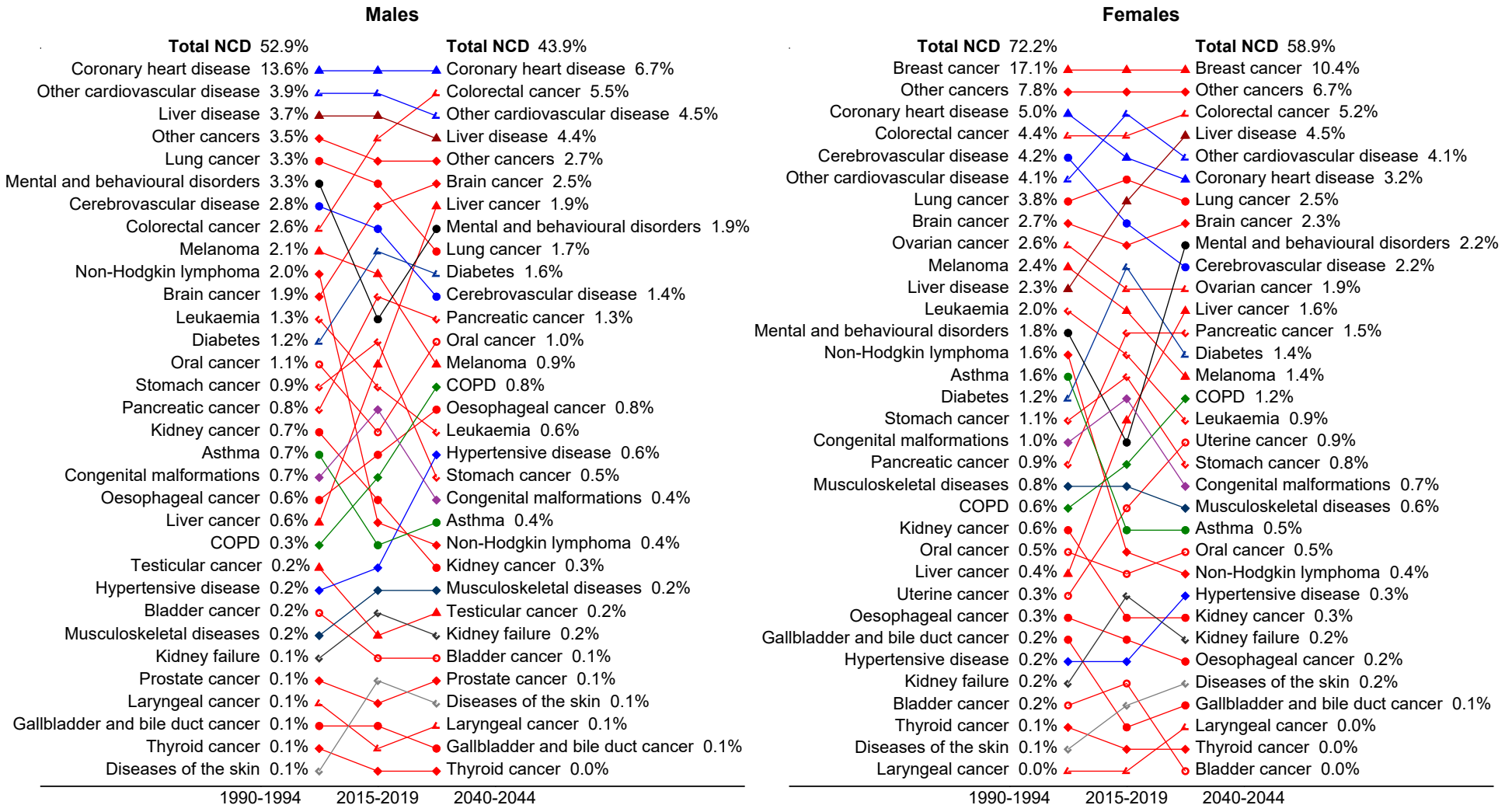
COPD: chronic obstructive pulmonary disease. SIDS: sudden infant death syndrome.
Percentages are of the total number of premature deaths.

C. Age 5-29 years



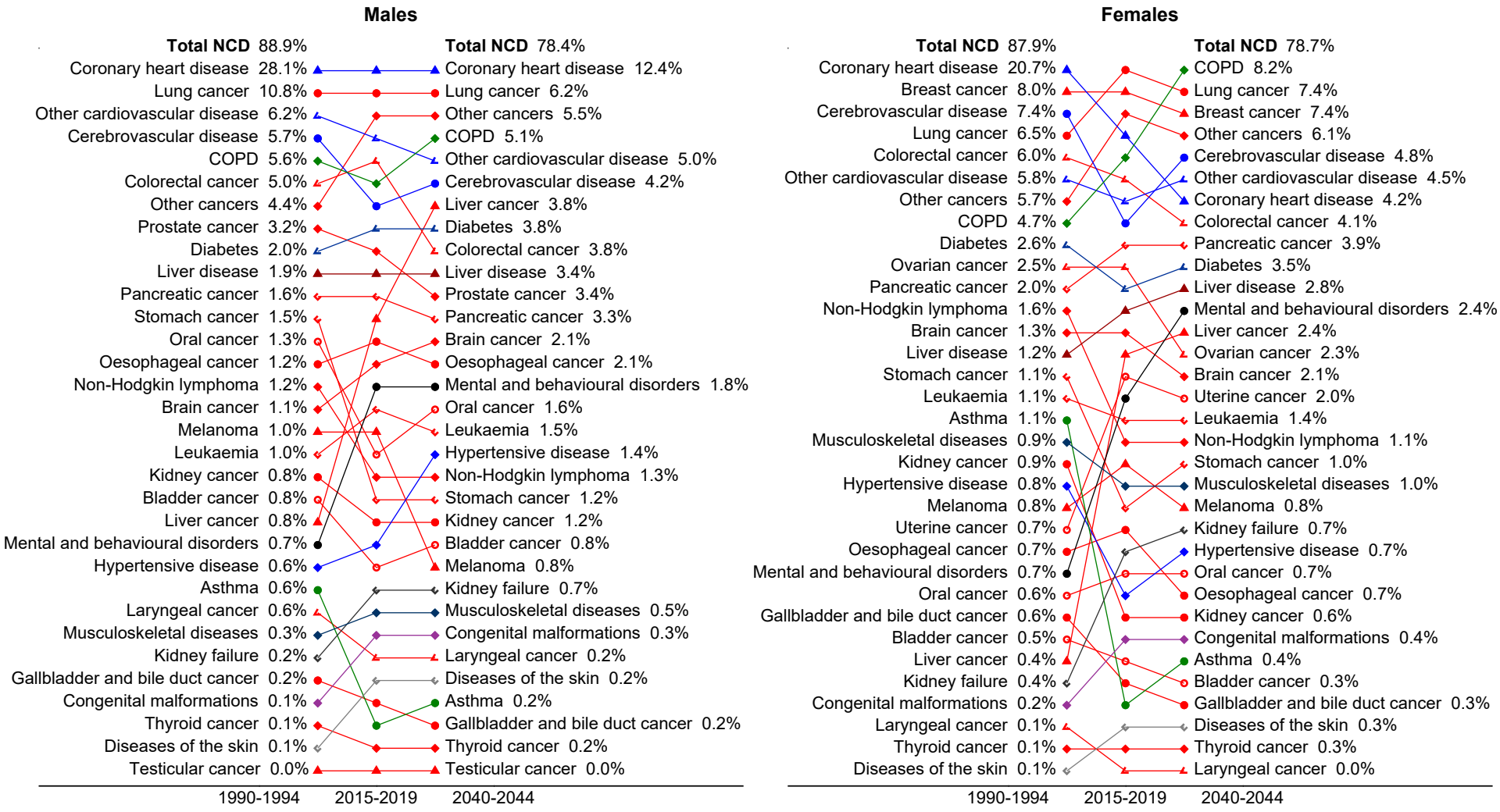
COPD: chronic obstructive pulmonary disease. SIDS: sudden infant death syndrome.
Percentages are of the total number of premature deaths.

D. Age 30-49 years



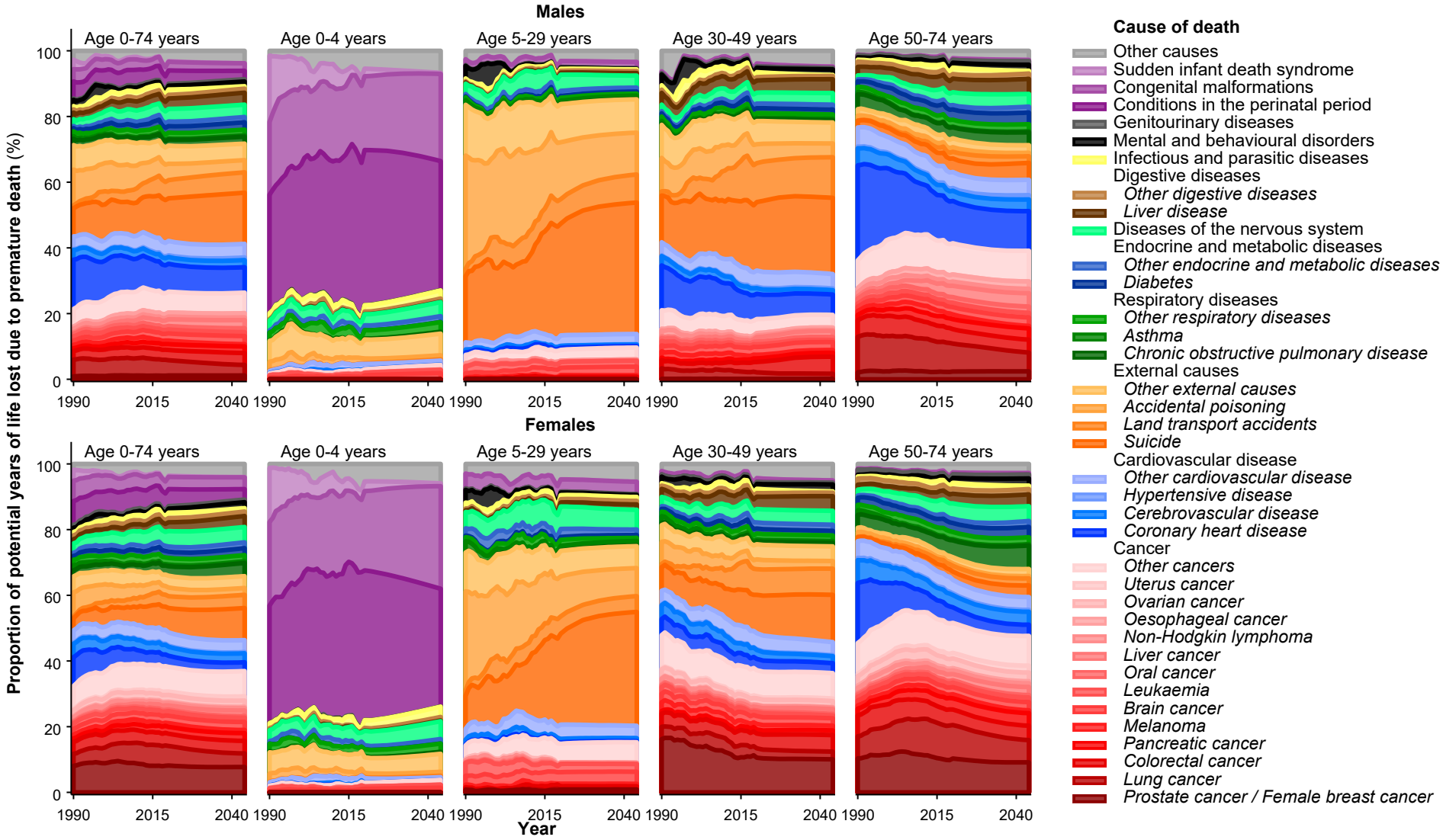
COPD: chronic obstructive pulmonary disease. SIDS: sudden infant death syndrome.
Percentages are of the total number of premature deaths.

E. Age 50-74 years



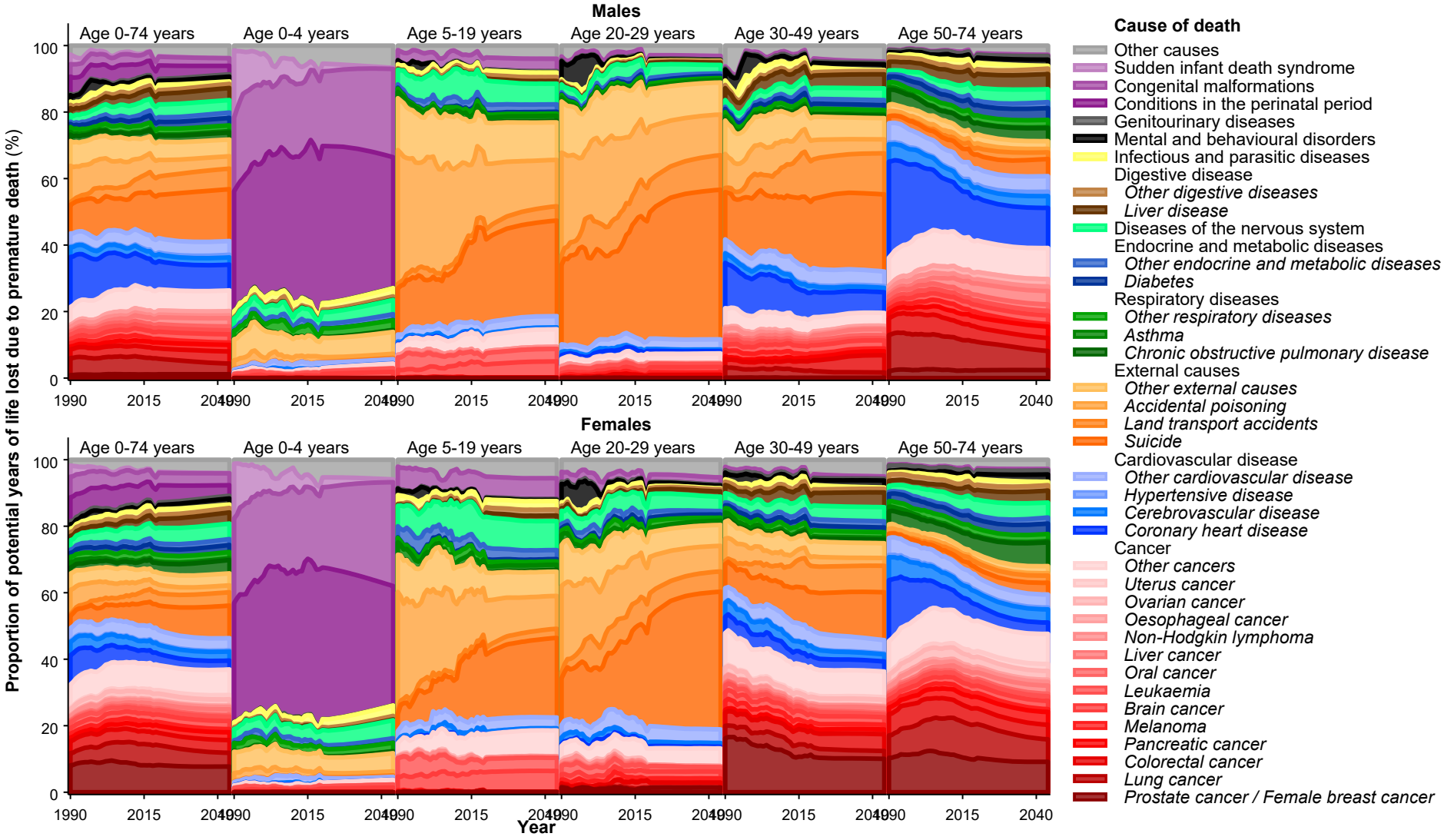
COPD: chronic obstructive pulmonary disease. SIDS: sudden infant death syndrome.
Percentages are of the total number of premature deaths.

Figure S7. Predicted proportions of potential years of life lost (PYLL) due to premature death for different cause of death categories by sex and age group, 1990-2044, Australia



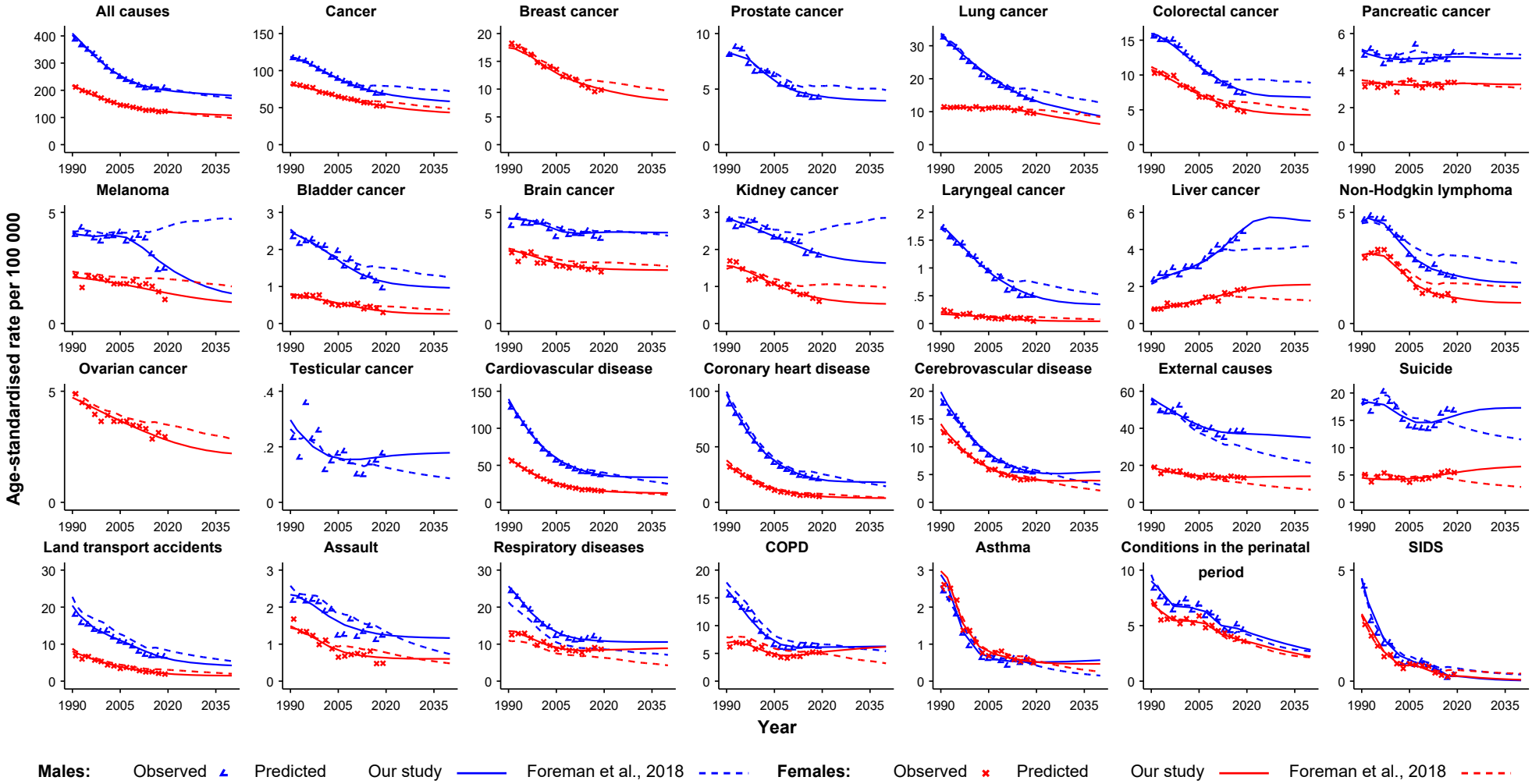
Other causes includes diseases of the blood, diseases of the skin, diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified exclude sudden infant death syndrome (R00-R94, R96-R99).

Figure S8. Predicted proportions of potential years of life lost (PYLL) due to premature death for different cause of death categories by sex and five large age groups, 1990-2044, Australia



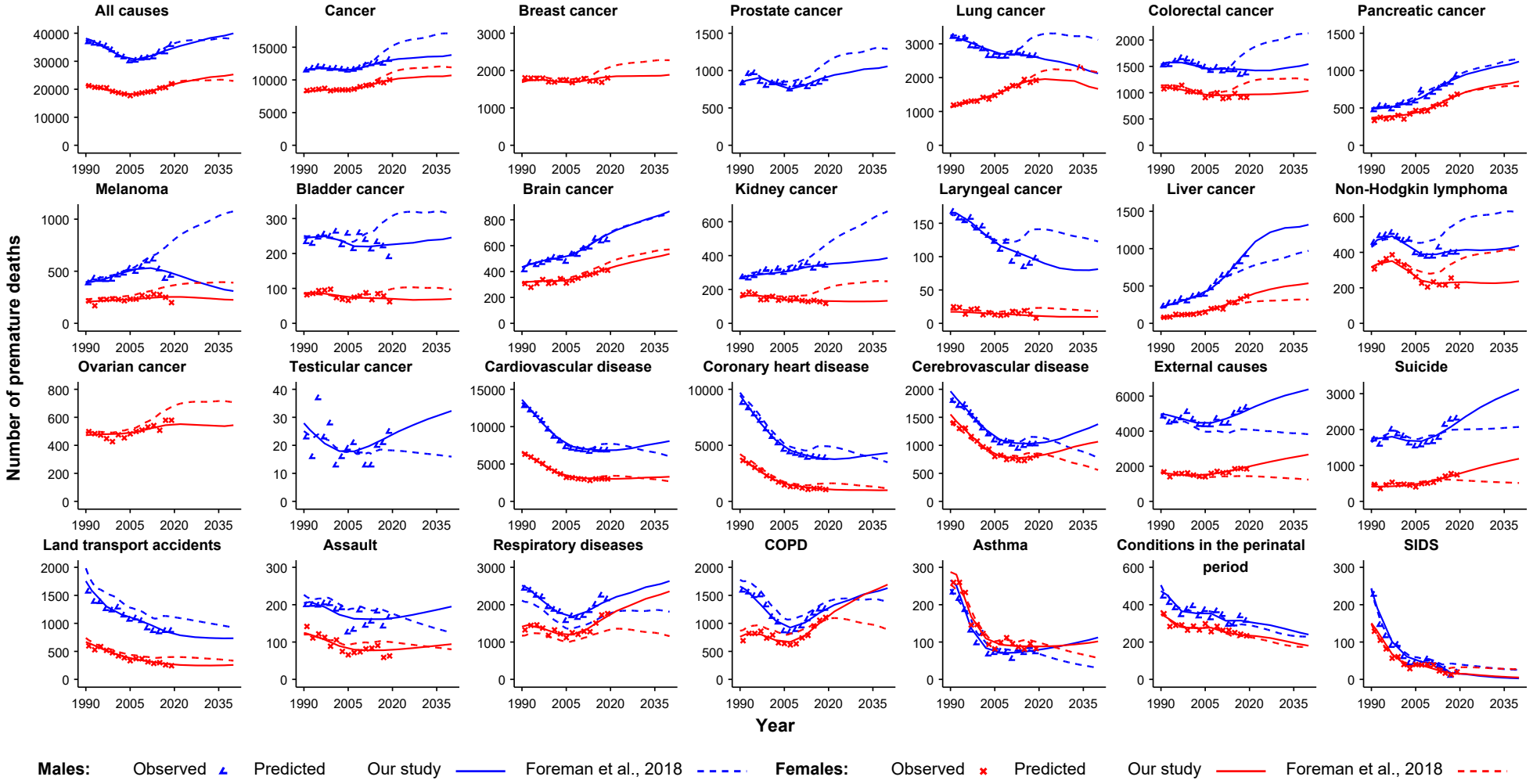
Other causes includes diseases of the blood, diseases of the skin, diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified exclude sudden infant death syndrome (R00-R94, R96-R99).

Figure S9. Comparison of mortality rate projections by Foreman et al. 2018 and the results from this study, for cause of death categories with generally consistent observed data reported in both studies.



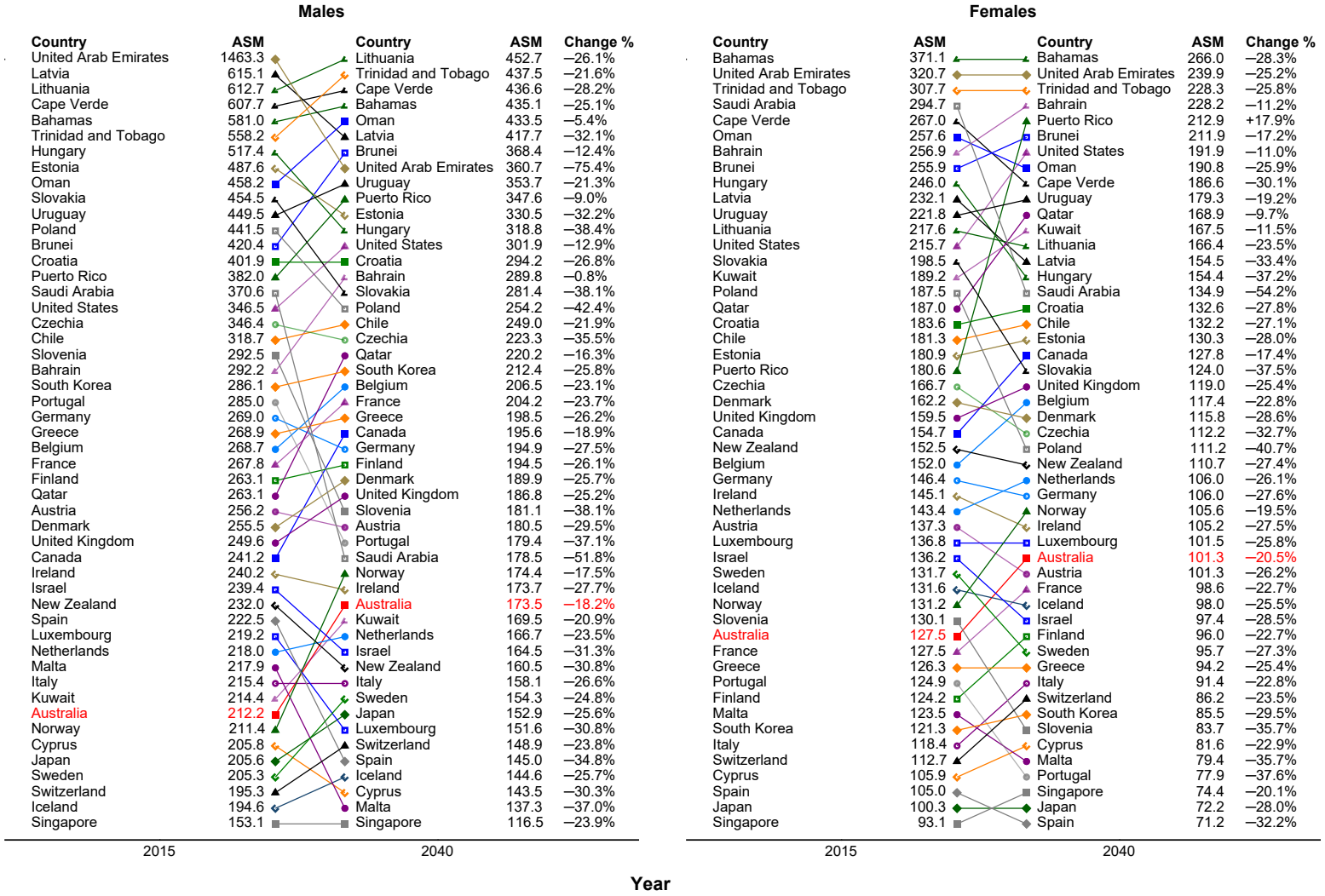
Results from Foreman et al., 2018[15] were extracted from the open source online https://vizhub.healthdata.org/gbd-foresight/, Accessed 18 April 2023. To facilitate a comparison of premature mortality rate projections between Foreman et al. and our study, we extracted the numbers of deaths by sex, 5-year age groups up to 74 years and calendar year and then calculated age-standardised rates using the Segi World standard population. As Foreman et al used different groupings of ICD codes, we only included the comparison of mortality rates for cause of death categories with similar ICD codes and consistent trends during the observed data period 1990-2014.

Figure S10. Comparison of numbers of premature deaths by Foreman et al. 2018 and the results from this study, for cause of death categories with generally consistent observed data reported in both studies.



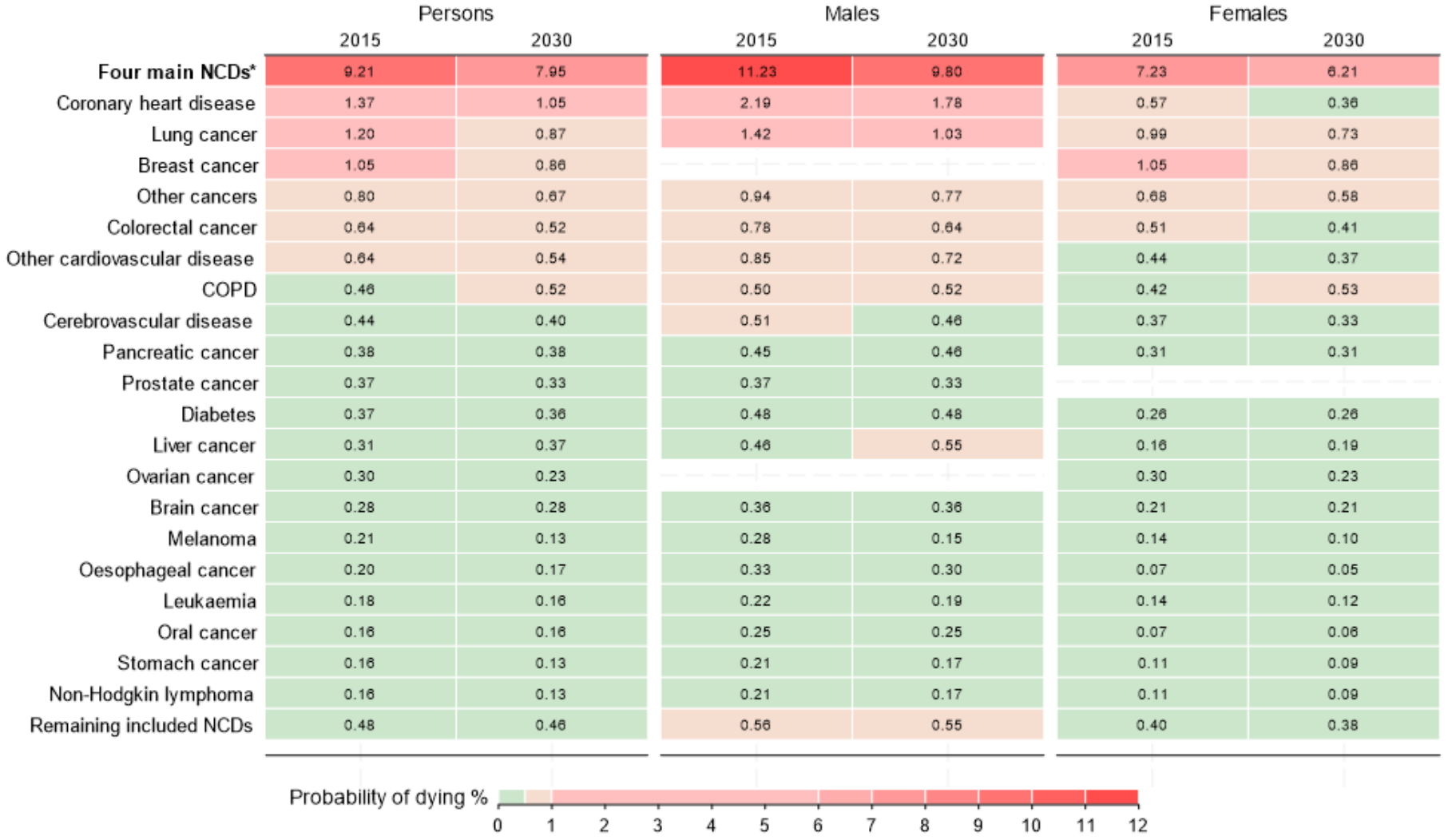
Results for age up to 74 years from Foreman et al., 2018[15] were extracted from the open source online https://vizhub.healthdata.org/gbd-foresight/, Accessed 18 April 2023. As Foreman et al used different groupings of ICD codes, this figure only includes the comparison of mortality rates for cause of death categories with consistent trends during the observed data period 1990-2014.

Figure S11. Change in rank of high-income countries by age-standardised premature mortality rates from 2015 to 2040 based on results from Foreman et al., 2018.



Results from Foreman et al., 2018 were extracted from the open source online https://vizhub.healthdata.org/gbd-foresight/, Accessed 18 April 2023. To facilitate a comparison of premature mortality rate projections between high-income countries, we extracted the numbers of deaths by sex, 5-year age groups up to 74 years and calendar year and then calculated age-standardised rates using the Segi World standard population. In our study, the projected decline over the period 2015-2040 was estimated as 14.3% for males and 15.1% for females.
ASM: Age-standardised rate. Change %: overall percentage change in the age-standardised rate projected for 2040 compared to the age-standardised rate observed in 2015.

Figure S12. Probability of dying from the four main non-communicable disease groups (%) in 2015 and 2030 for those aged 30-69 years in Australia

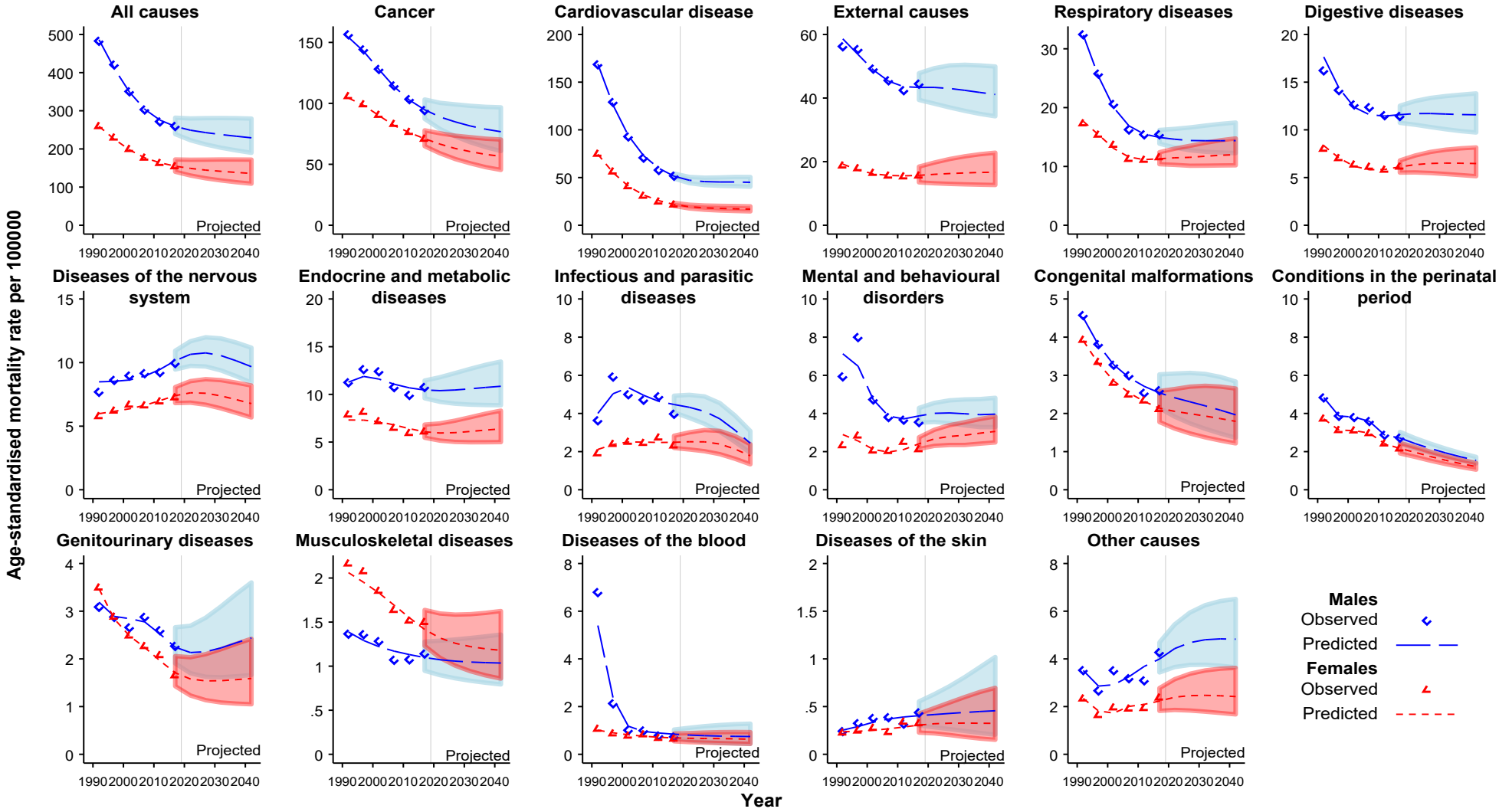


NCD: non-communicable disease.

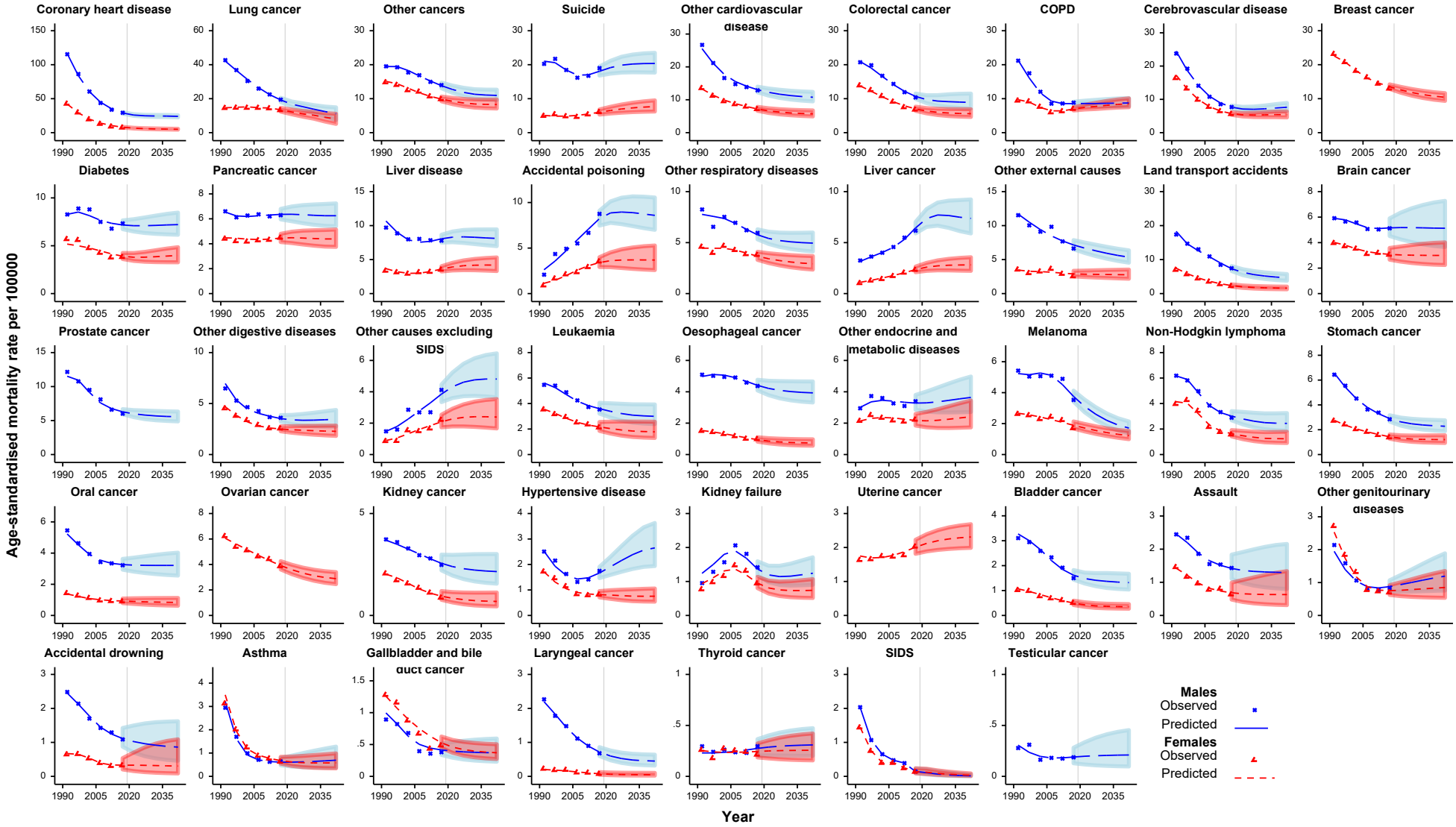
* The four main NCDs include cancer, cardiovascular disease, diabetes and chronic respiratory diseases including asthma and chronic obstructive pulmonary disease. Probability of dying from the top 20 causes within the four main NCDs are reported.

Figure S13. Observed and projected age-standardised premature mortality rates for 1990-2044 for all causes combined and for different cause of death categories, Australia (ranked by the total numbers of deaths observed in 2015-2019), age-standardised to the 2001 Australian population

A. High-level causes of deaths



B. Detailed cause of death categories



All rates are age-standardised to the 2001Australian population. The shaded area represents the 95% uncertainty interval.
COPD: Chronic obstructive pulmonary disease. SIDS: sudden infant death syndrome. Other causes includes diseases of the eye and ear (H00-H95), all pregnancy, childbirth and the puerperium (O00-O99), and all diseases not elsewhere classified excluding sudden infant death syndrome (R00-R94, R96-R99).

Figure S14. Age-specific premature mortality rate for all causes, cancer, breast cancer, prostate cancer, and lung cancer by sex and calendar year, Australia

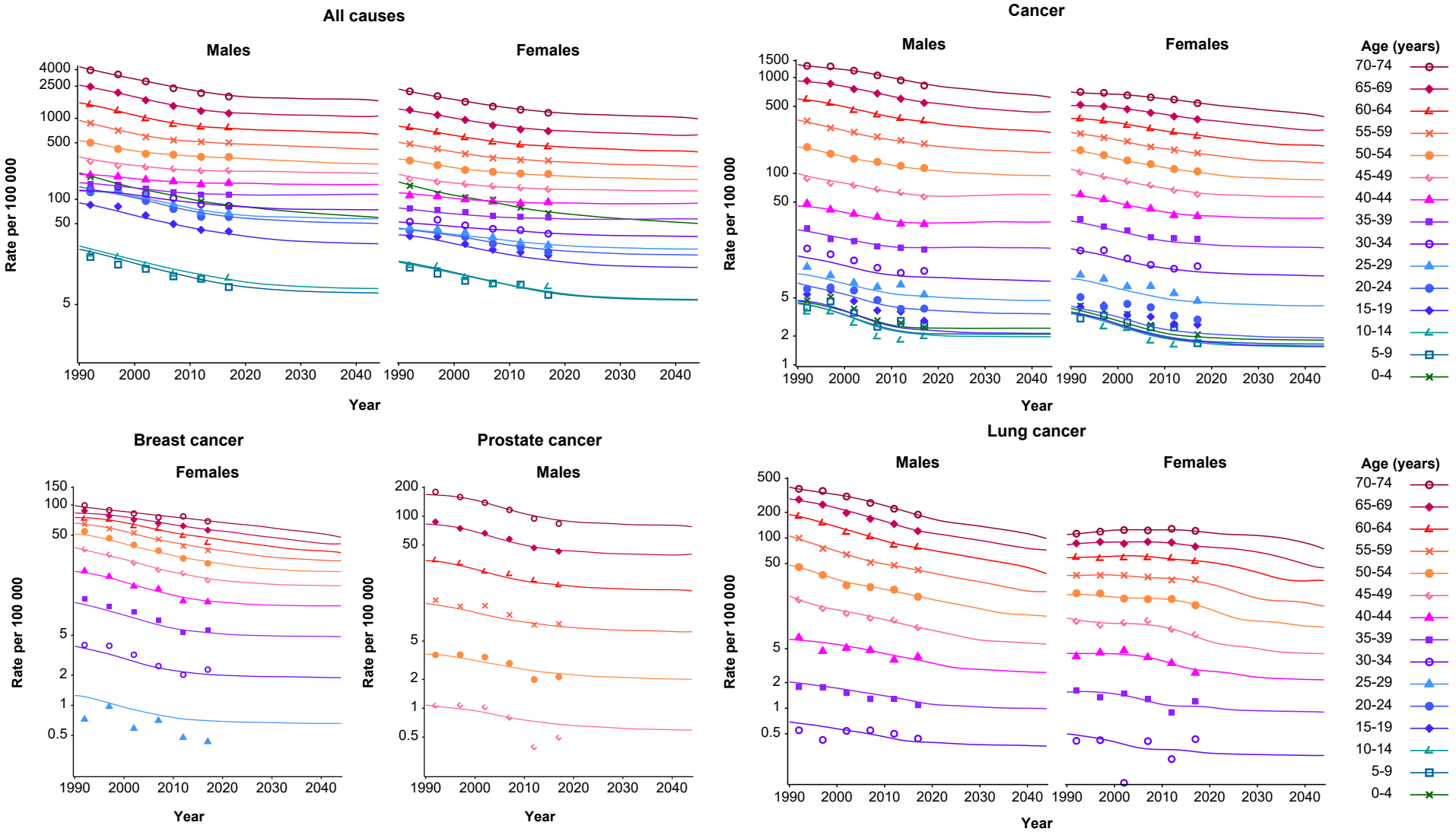


Figure S15. Age-specific premature mortality rate for colorectal cancer, pancreatic cancer, melanoma, and bladder cancer by sex and calendar year, Australia

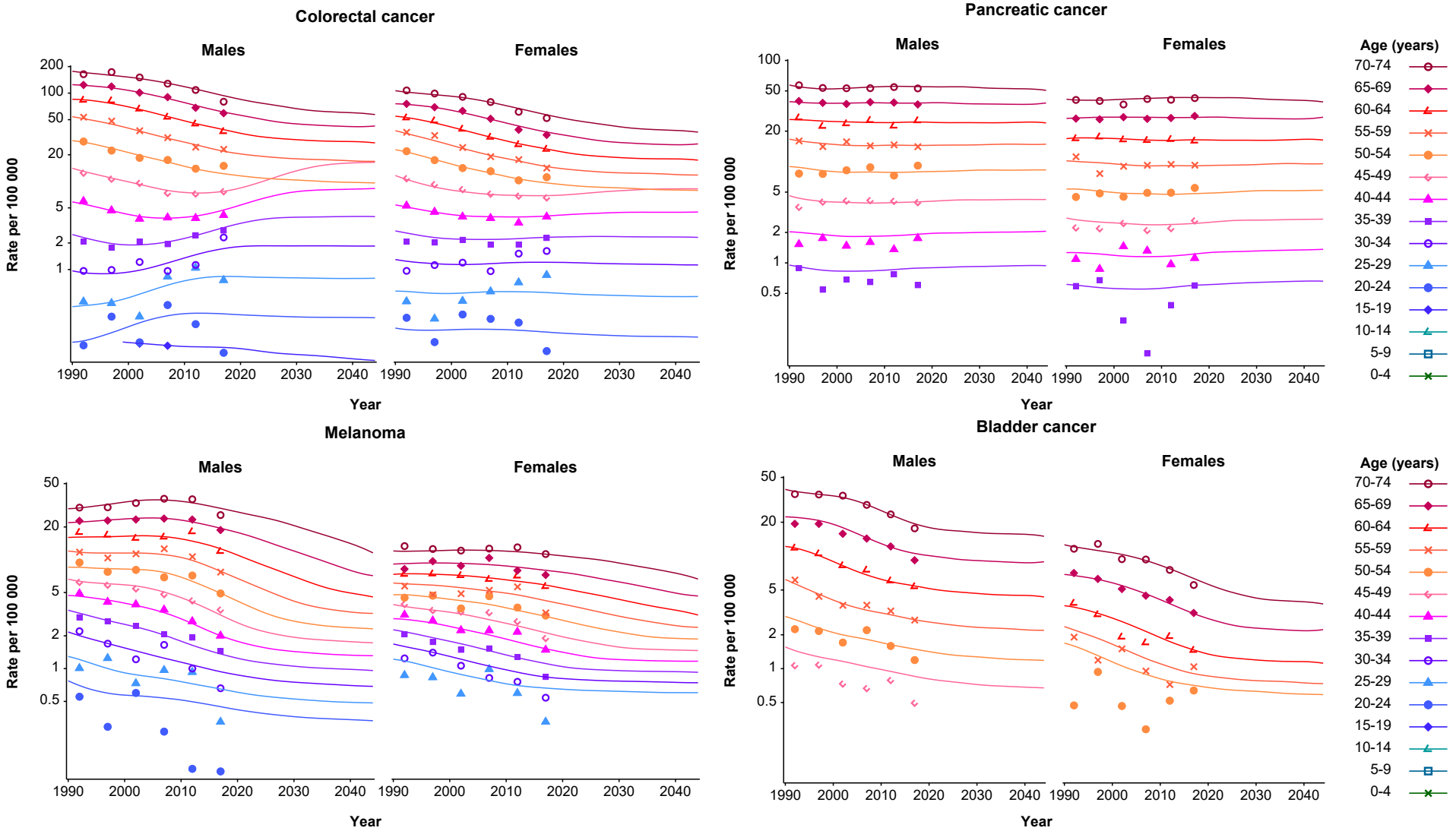


Figure S16. Age-specific premature mortality rate for brain cancer, kidney cancer, laryngeal cancer, and leukaemia by sex and calendar year, Australia

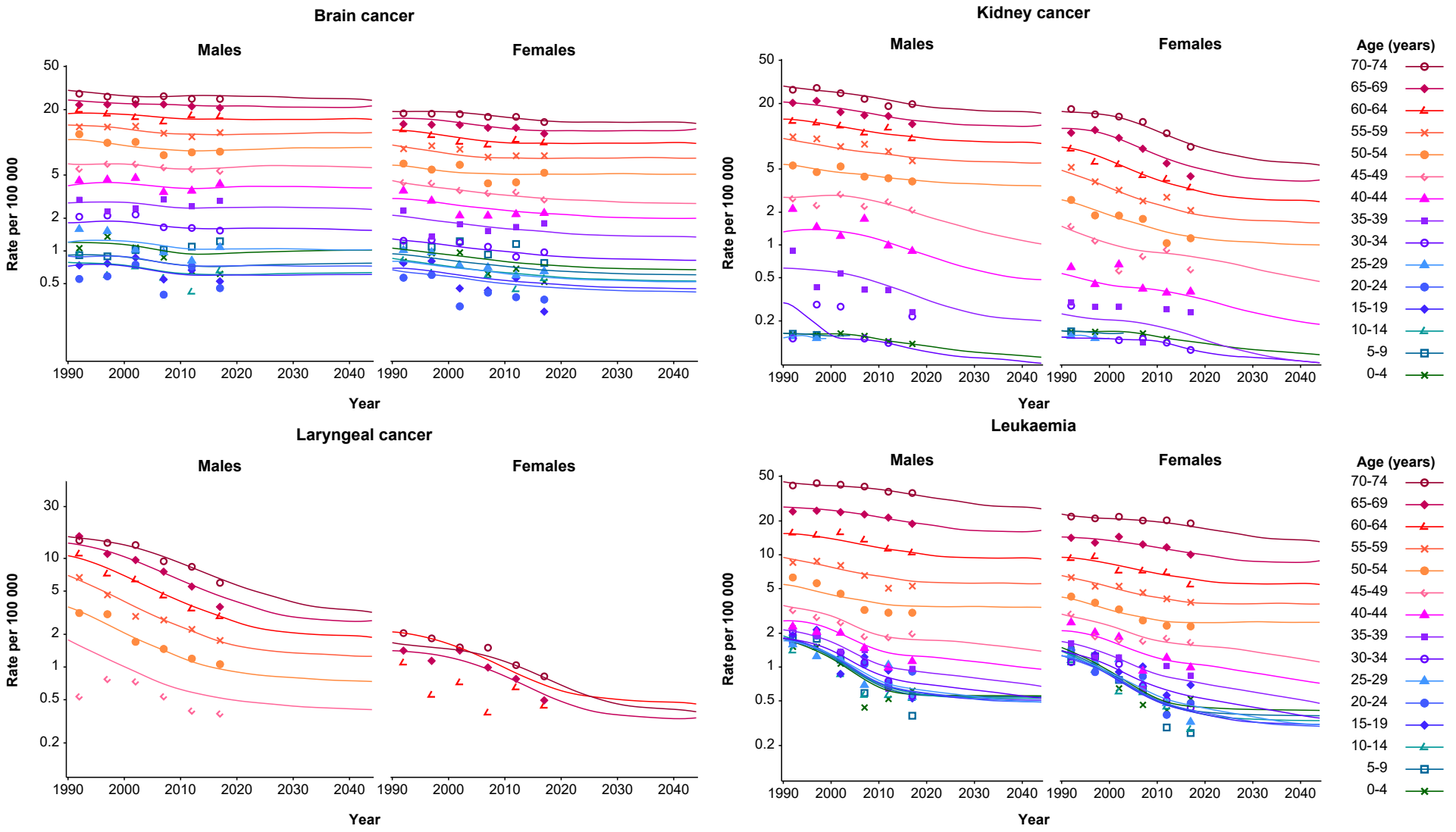


Figure S17. Age-specific premature mortality rate for oral cancer, liver cancer, non-Hodgkin lymphoma, and oesophageal cancer by sex and calendar year, Australia

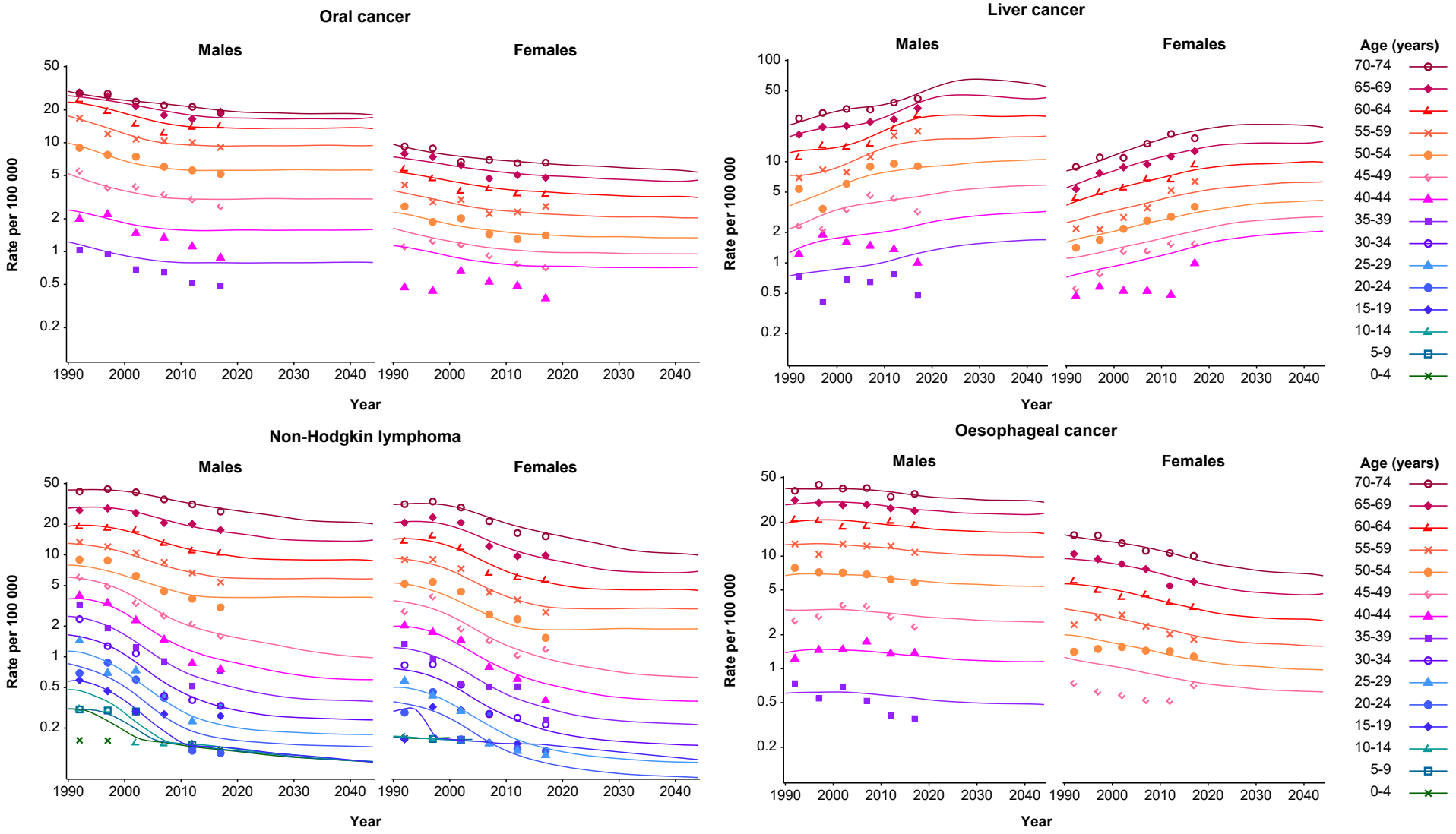


Figure S18. Age-specific premature mortality rate for stomach cancer, gallbladder and bile duct cancer, ovarian cancer, uterine cancer, and testicular cancer by sex and calendar year, Australia

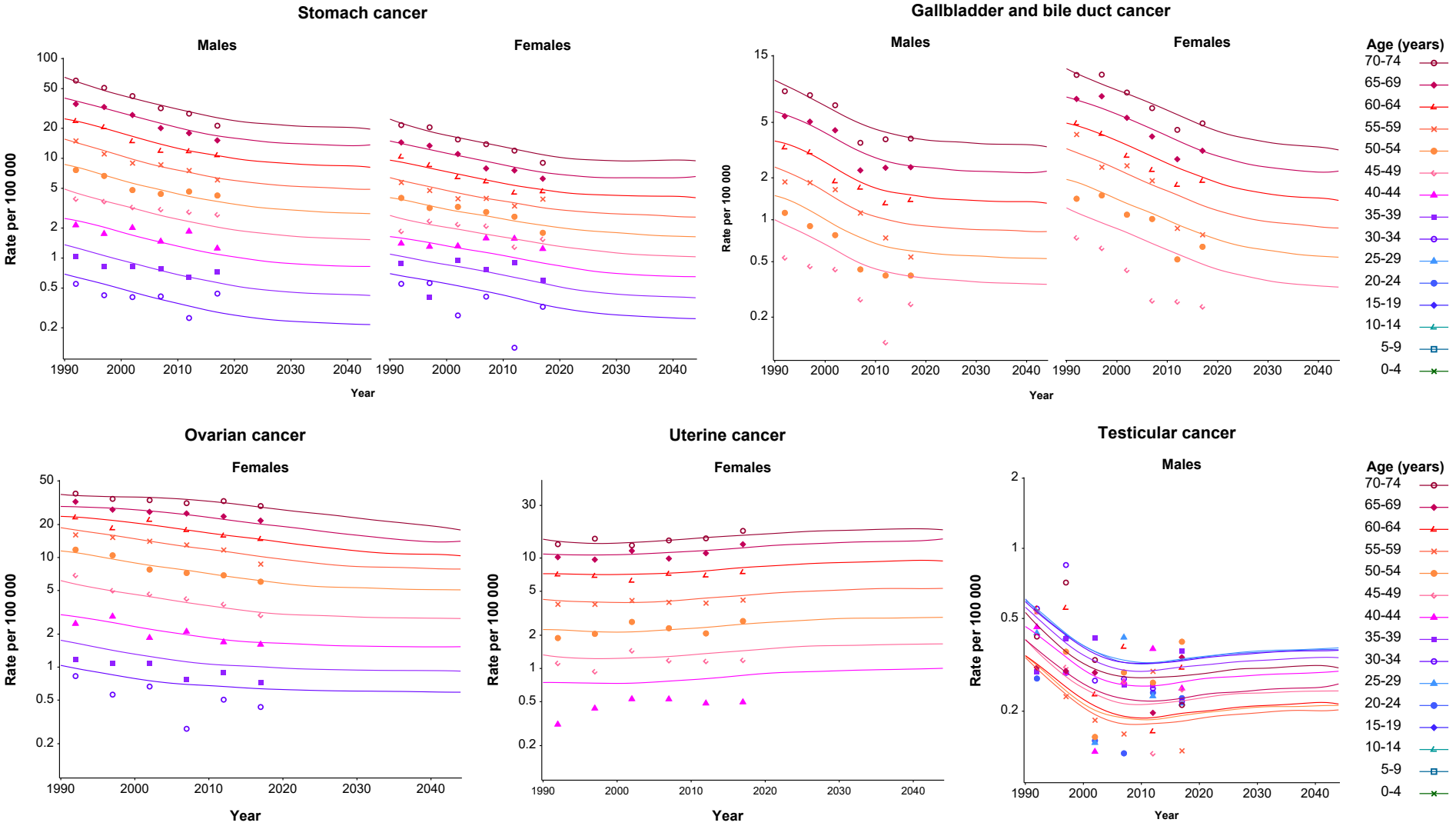


Figure S19. Age-specific premature mortality rate for thyroid cancer, other cancers, cardiovascular disease, and coronary heart disease by sex and calendar year, Australia

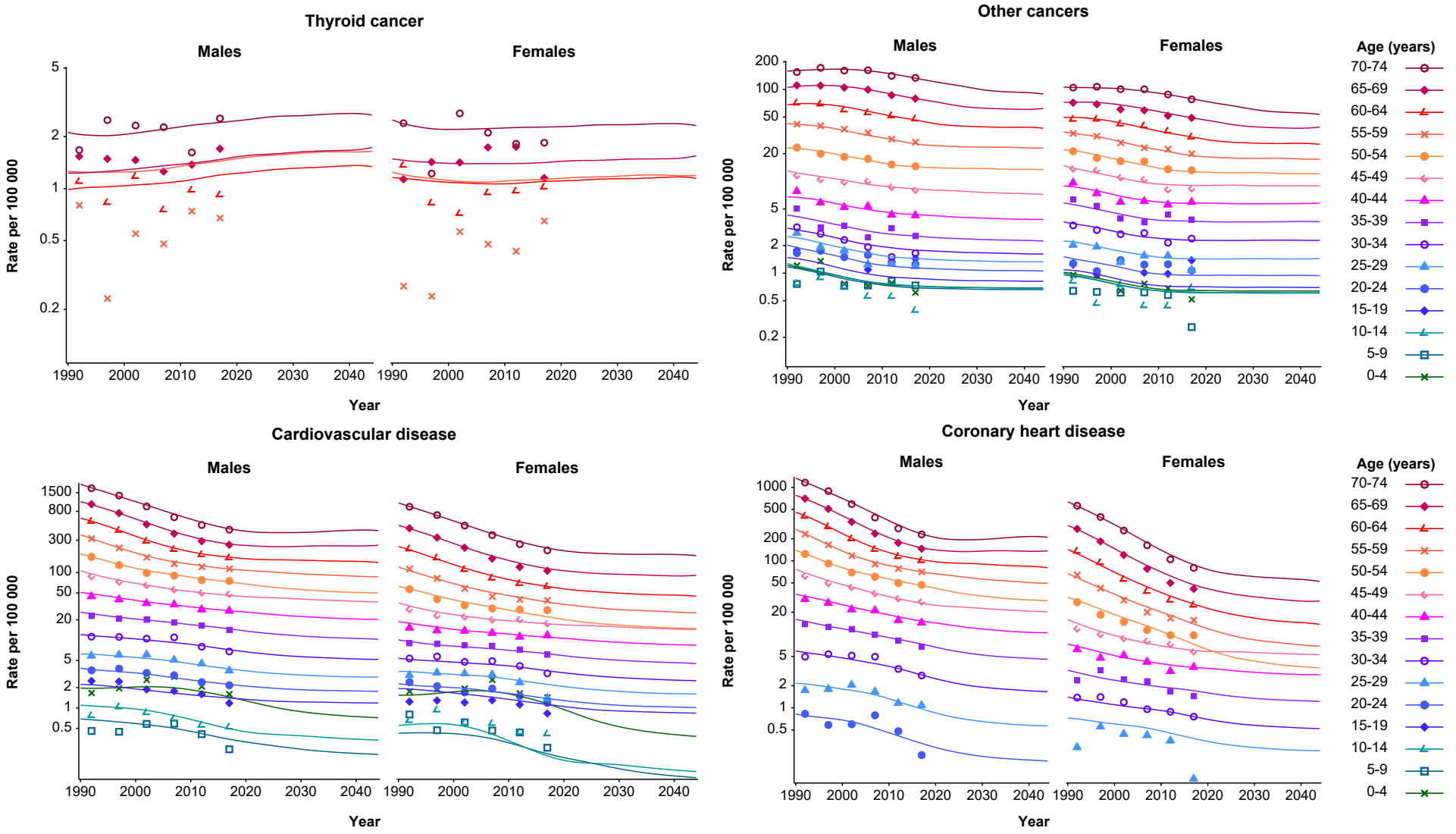


Figure S20. Age-specific premature mortality rate for cerebrovascular disease, hypertensive disease, other cardiovascular disease, respiratory diseases by sex and calendar year, Australia

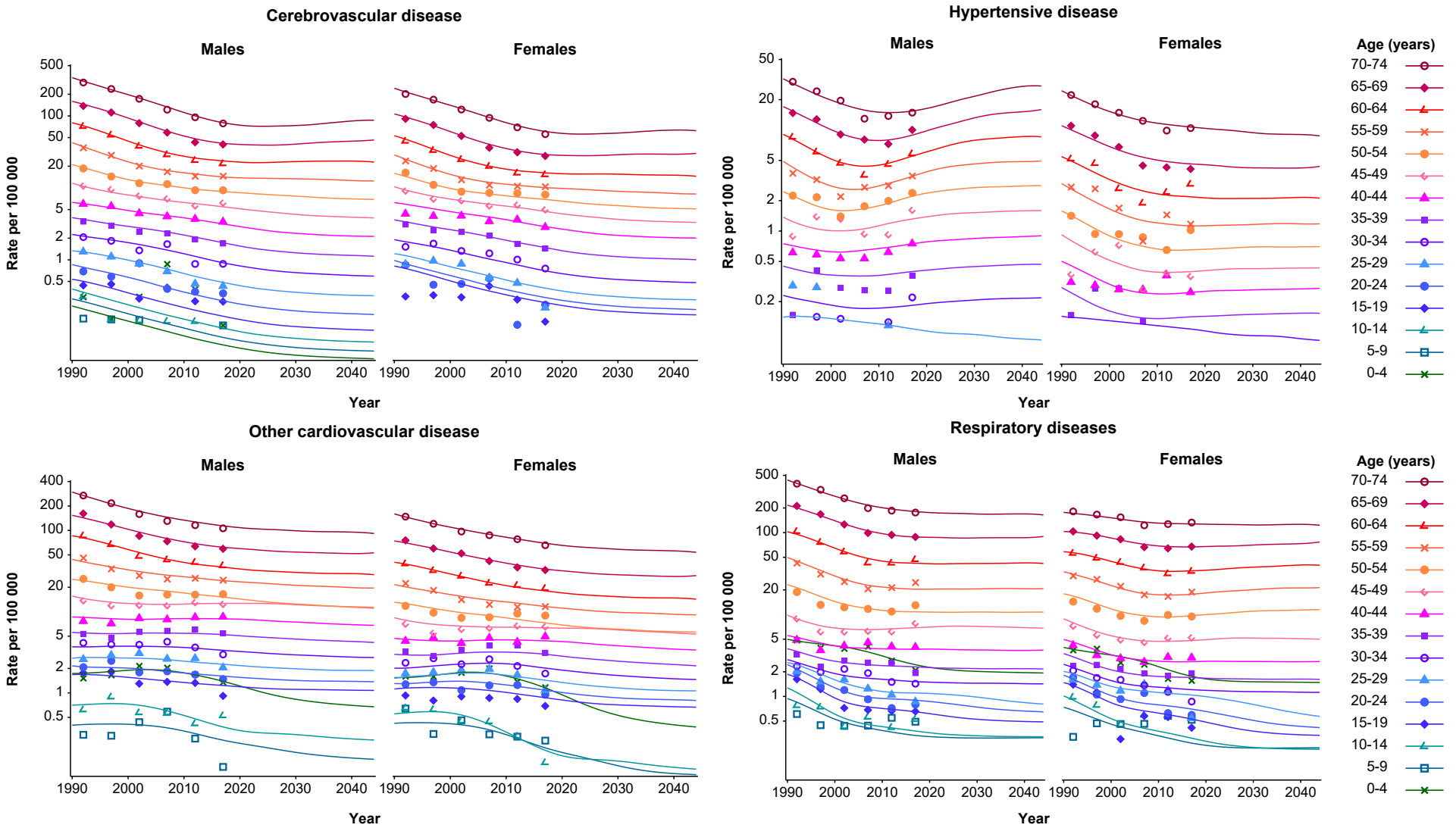


Figure S21. Age-specific premature mortality rate for chronic obstructive pulmonary disease (COPD), asthma, other respiratory disease, endocrine and metabolic diseases by sex and calendar year, Australia

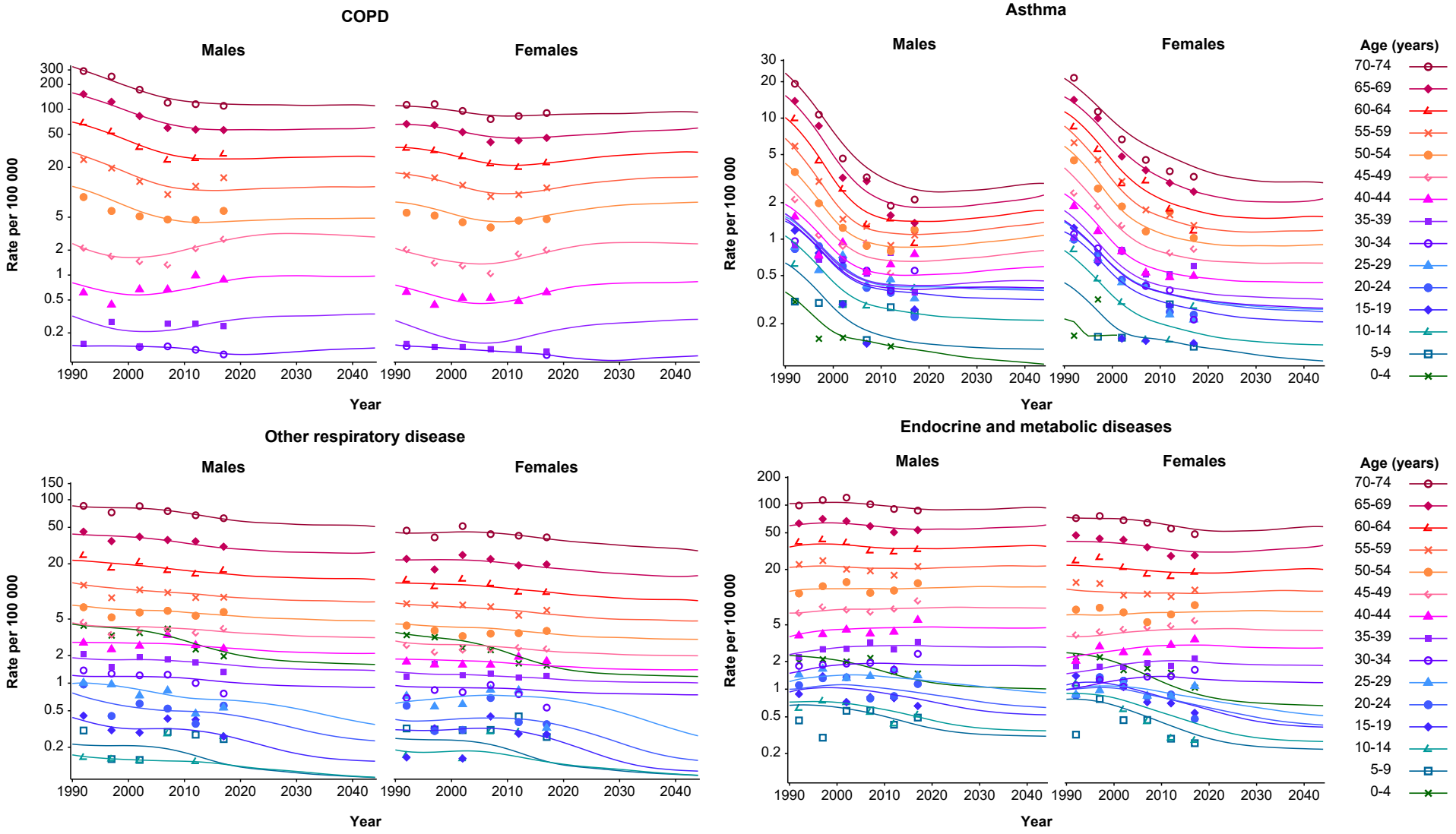


Figure S22. Age-specific premature mortality rate for diabetes, other endocrine and metabolic diseases, diseases of the nervous system, digestive diseases by sex and calendar year, Australia

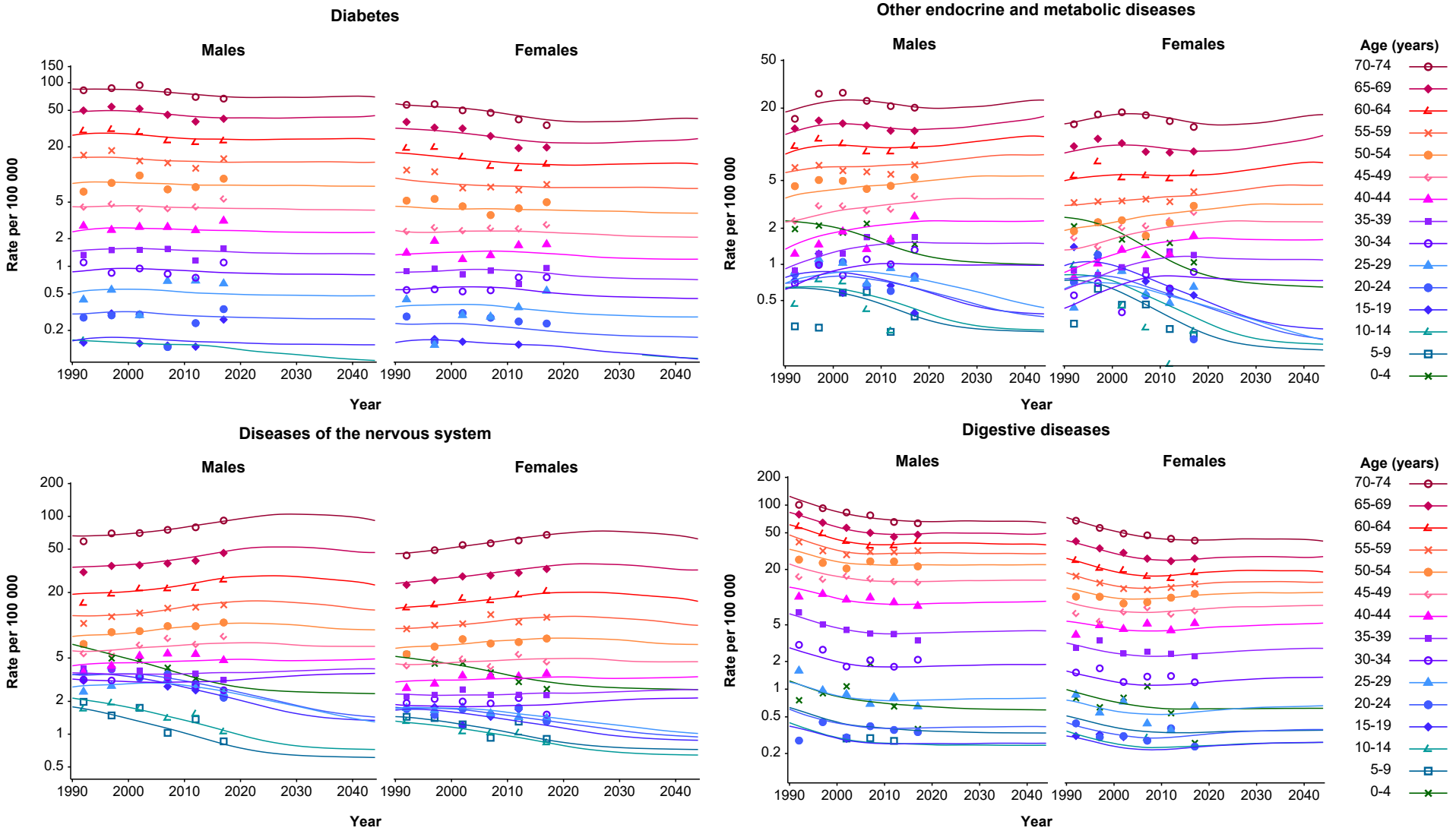


Figure S23. Age-specific premature mortality rate for liver disease, other digestive diseases, infectious and parasitic diseases, mental and behavioural disorders by sex and calendar year, Australia

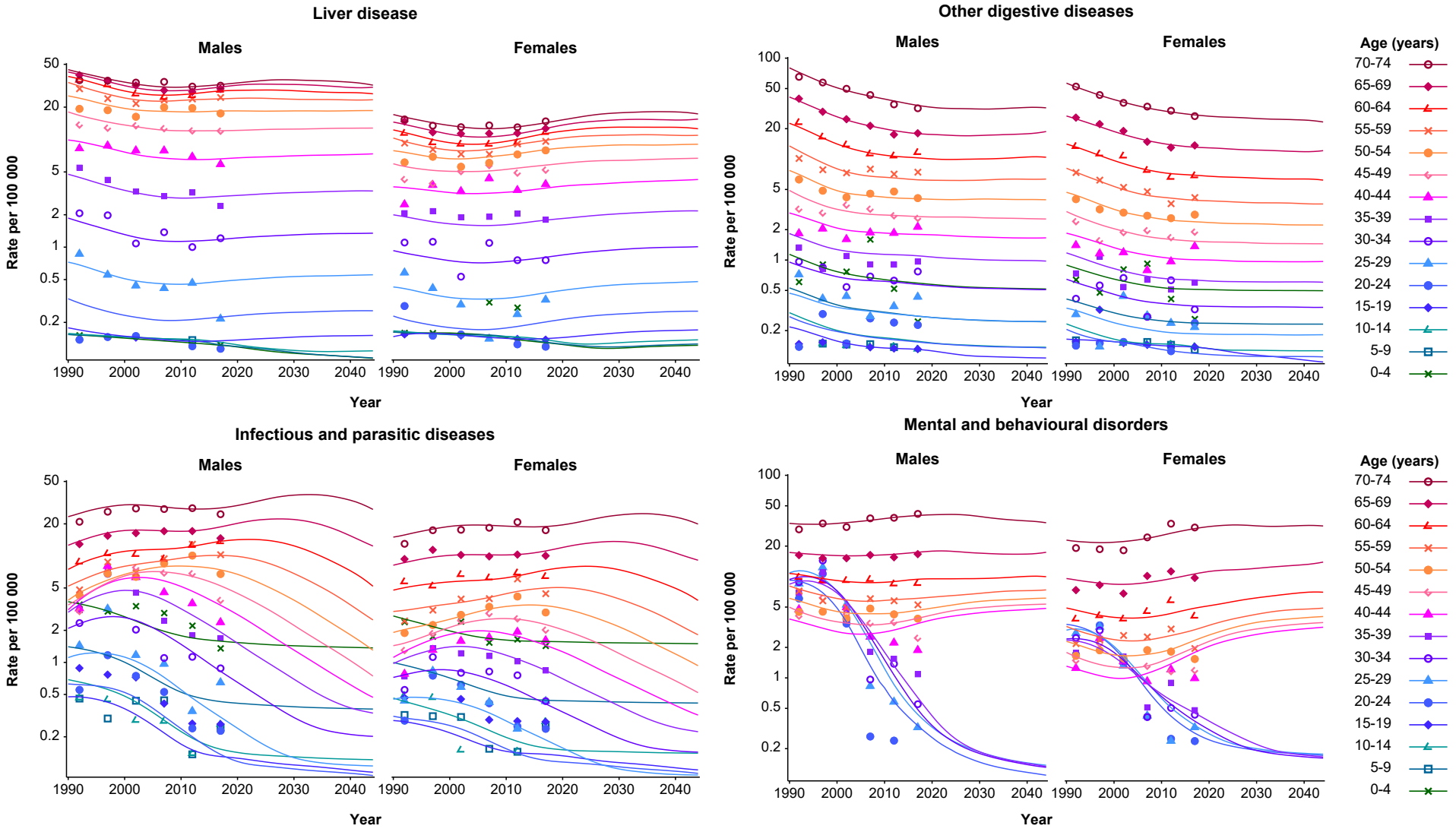


Figure S24. Age-specific premature mortality rate for genitourinary diseases, kidney failure, other genitourinary diseases, congenital malformations by sex and calendar year, Australia

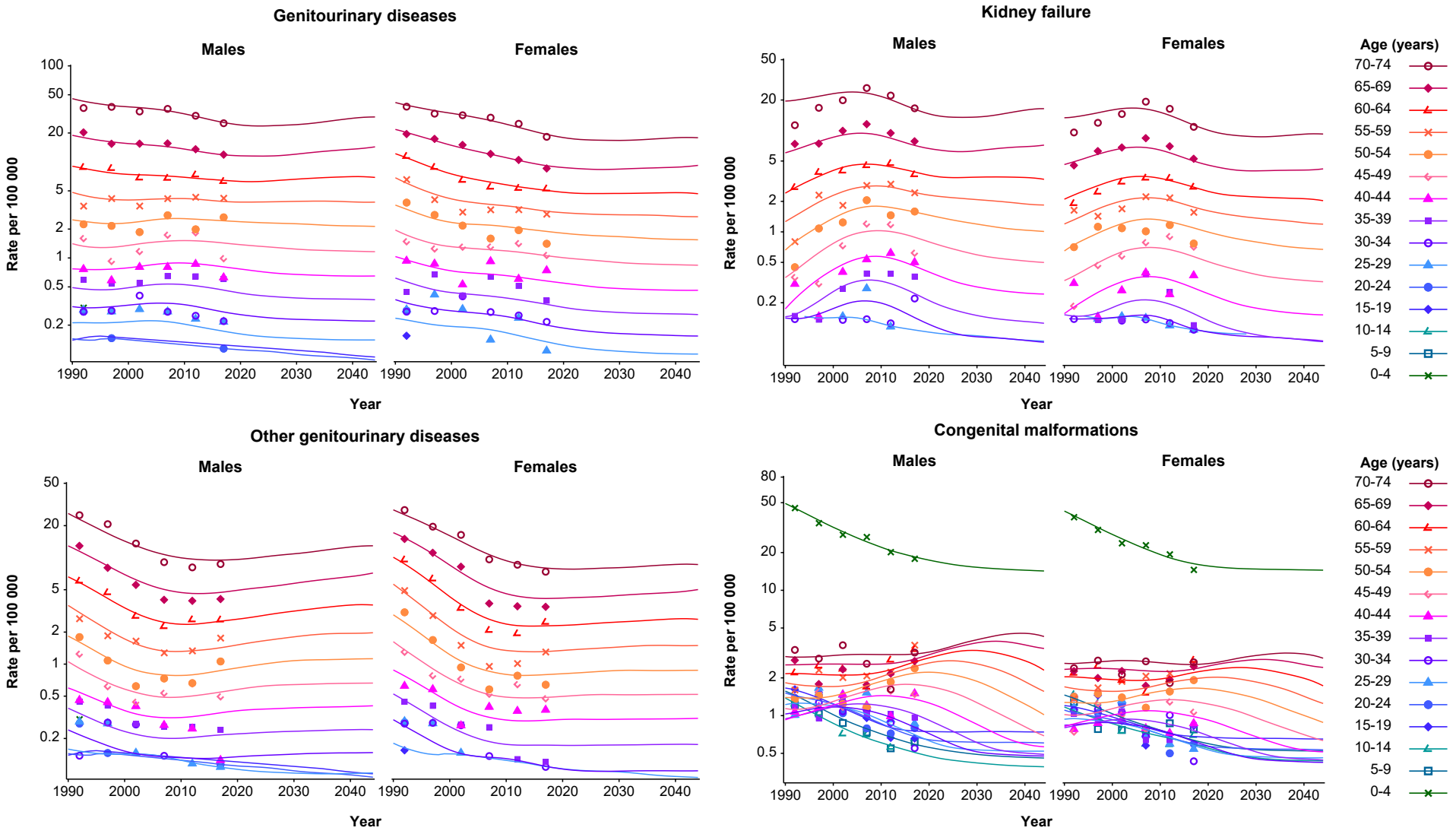


Figure S25. Age-specific premature mortality rate for diseases of the skin, diseases of the blood, musculoskeletal diseases, other causes by sex and calendar year, Australia

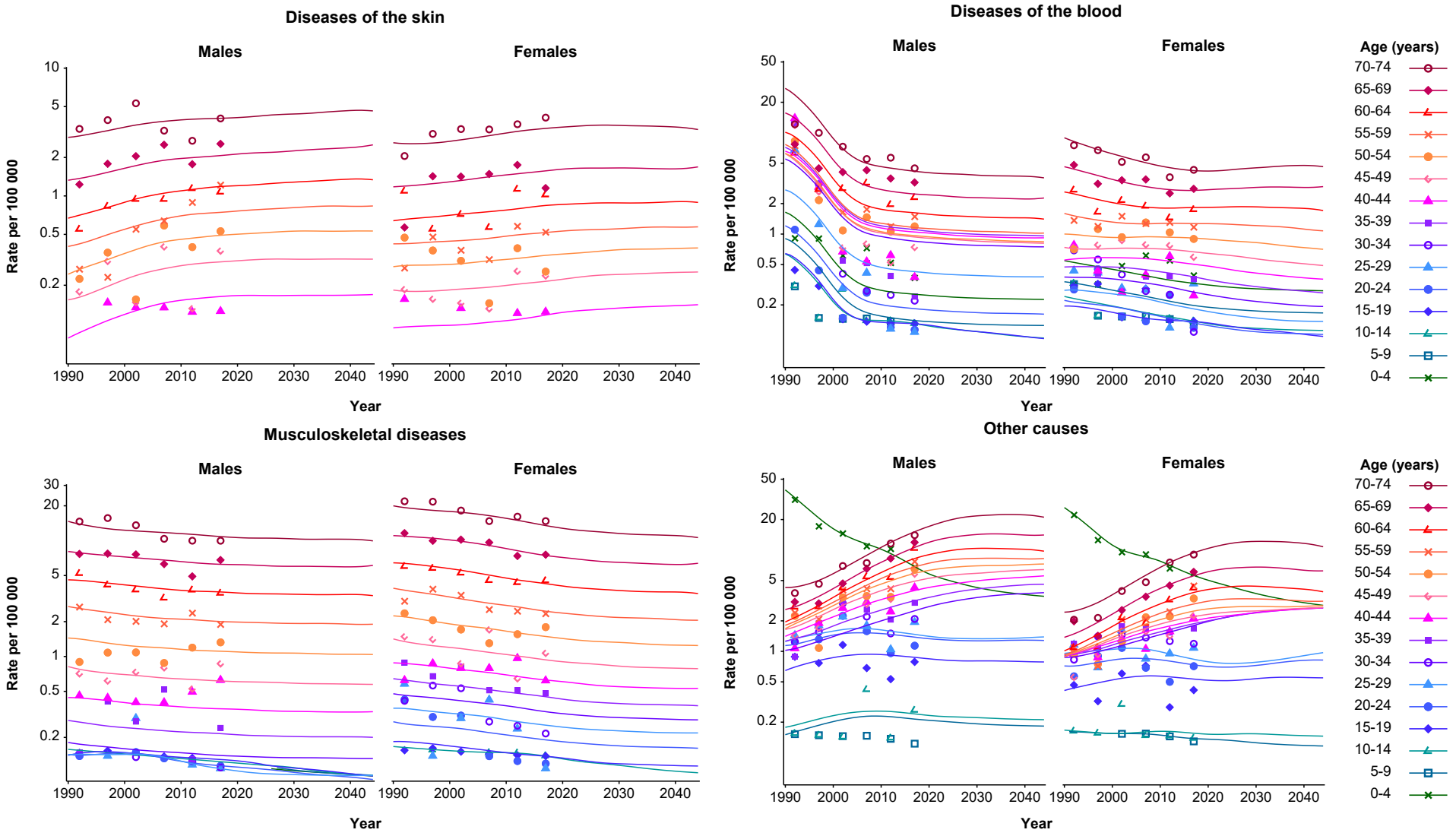


Figure S26. Age-specific premature mortality rate for other causes excluding sudden infant death syndrome (SIDS), external causes, suicide, land transport accidents by sex and calendar year, Australia

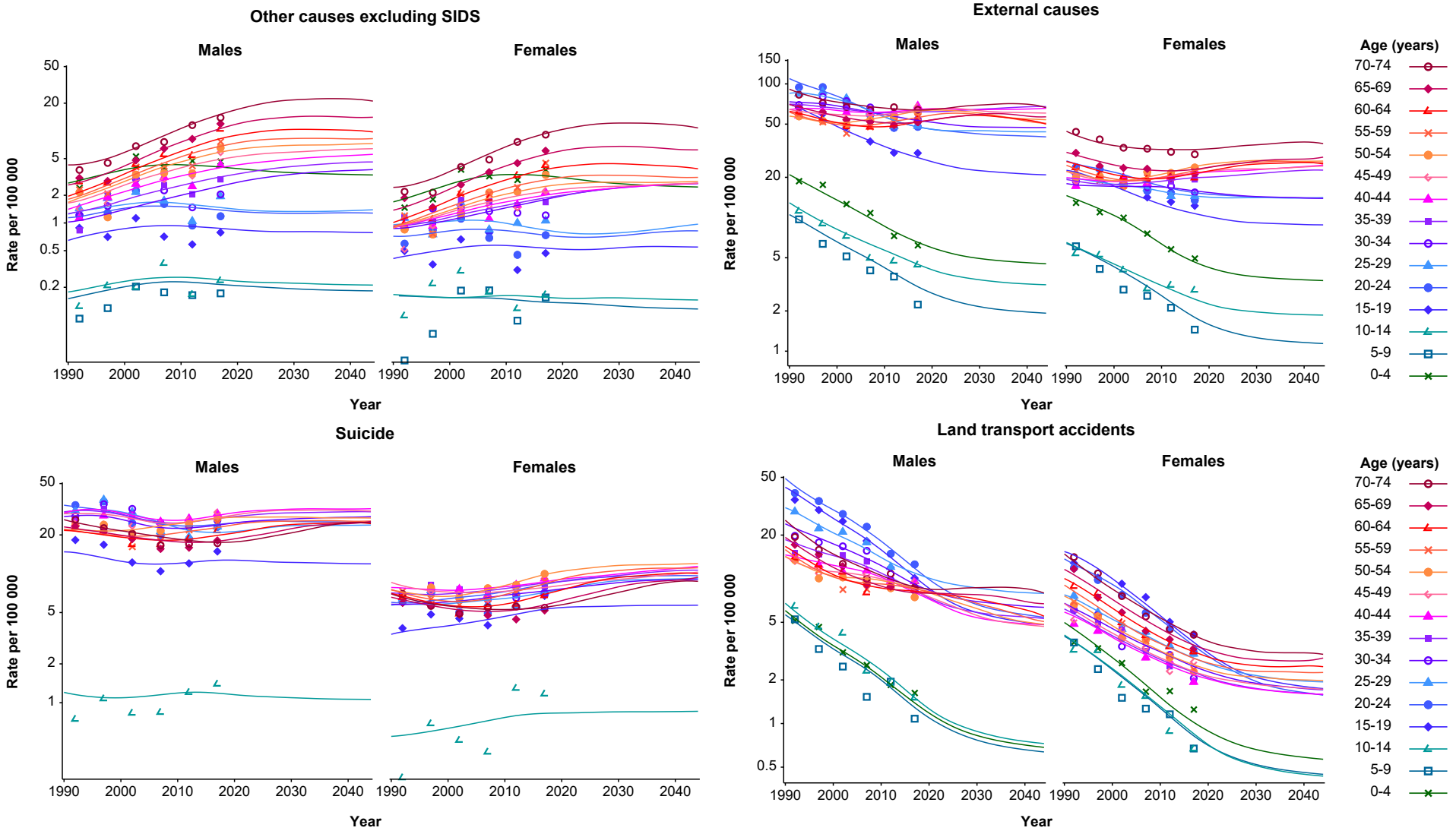


Figure S27. Age-specific premature mortality rate for assault, accidental poisoning, accidental drowning, other external causes by sex and calendar year, Australia

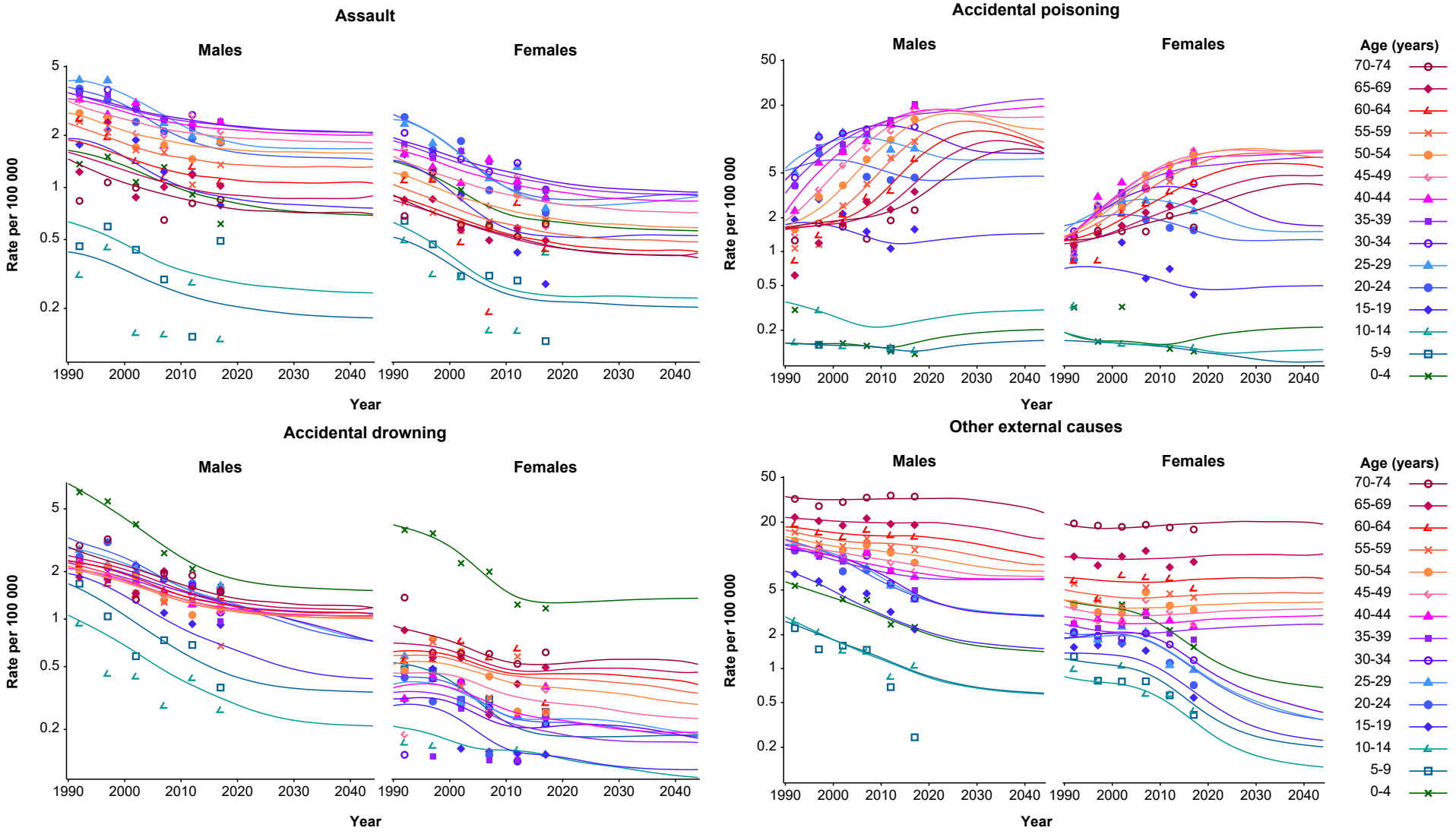


Figure S28. Birth cohort-specific premature mortality rate for all causes, cancer, breast cancer, prostate cancer, and lung cancer by sex and age, Australia

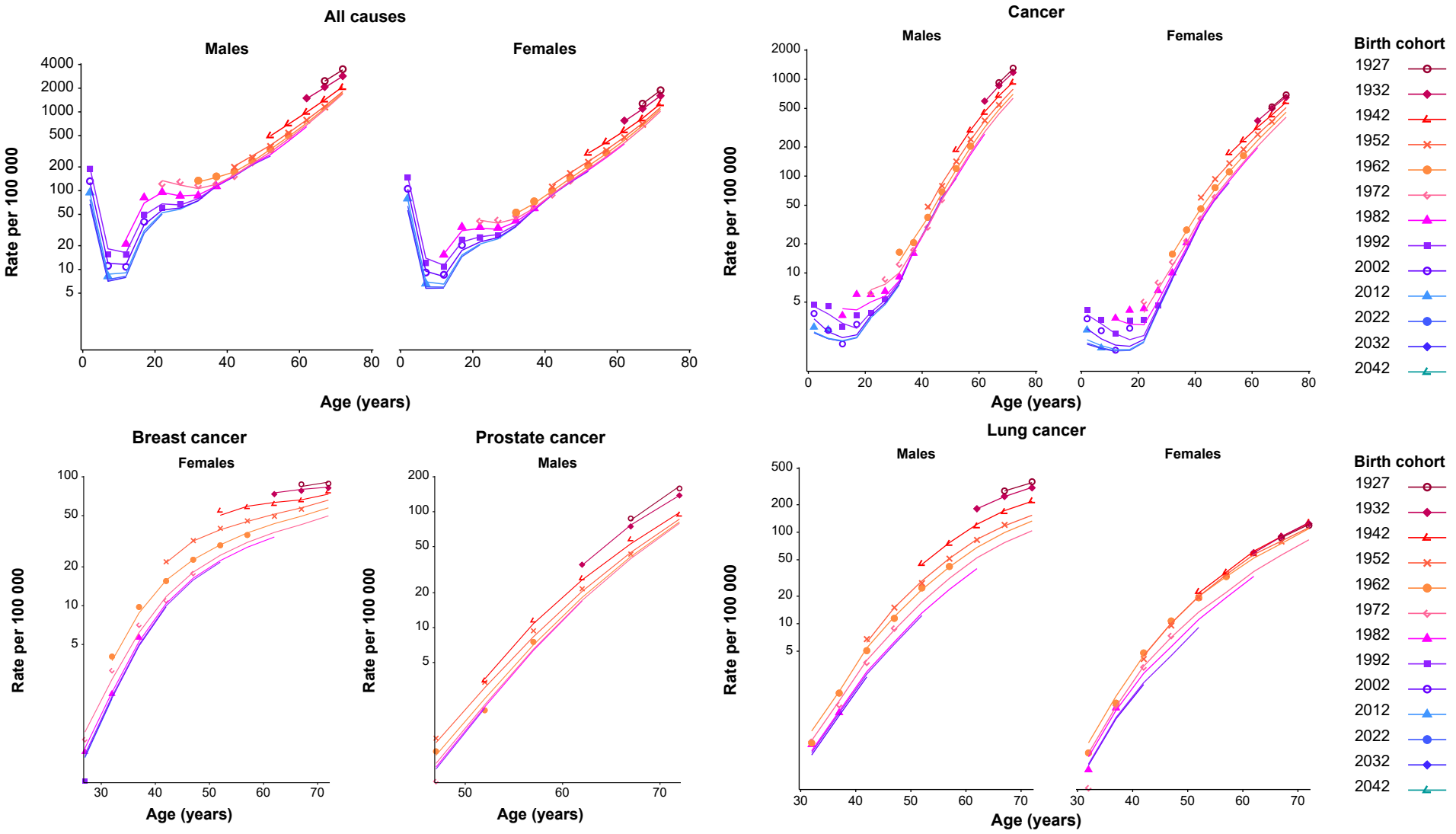


Figure S29. Birth cohort-specific premature mortality rate for colorectal cancer, pancreatic cancer, melanoma, and bladder cancer by sex and age, Australia

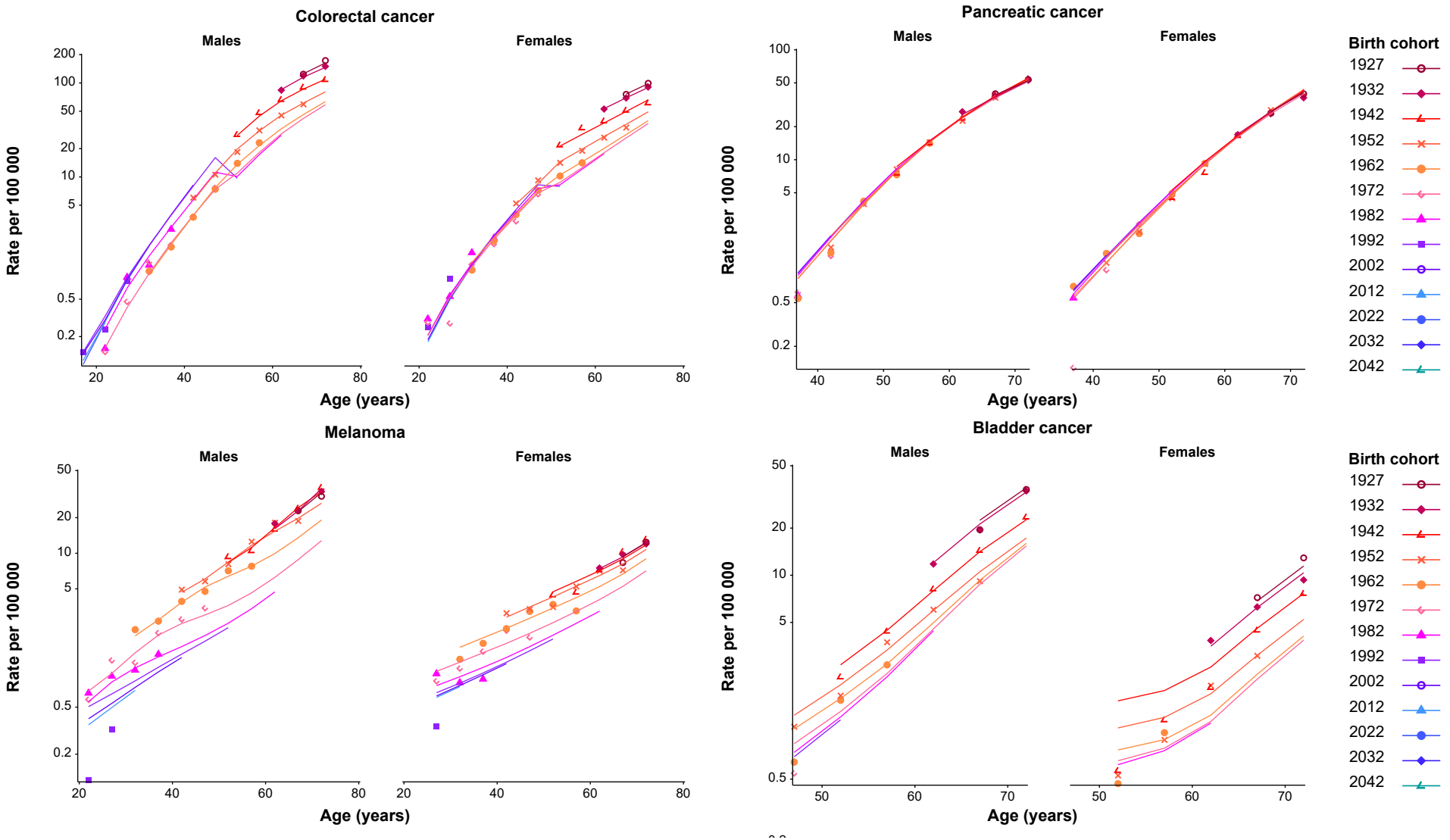


Figure S30. Birth cohort-specific premature mortality rate for brain cancer, kidney cancer, laryngeal cancer, and leukaemia by sex and age, Australia

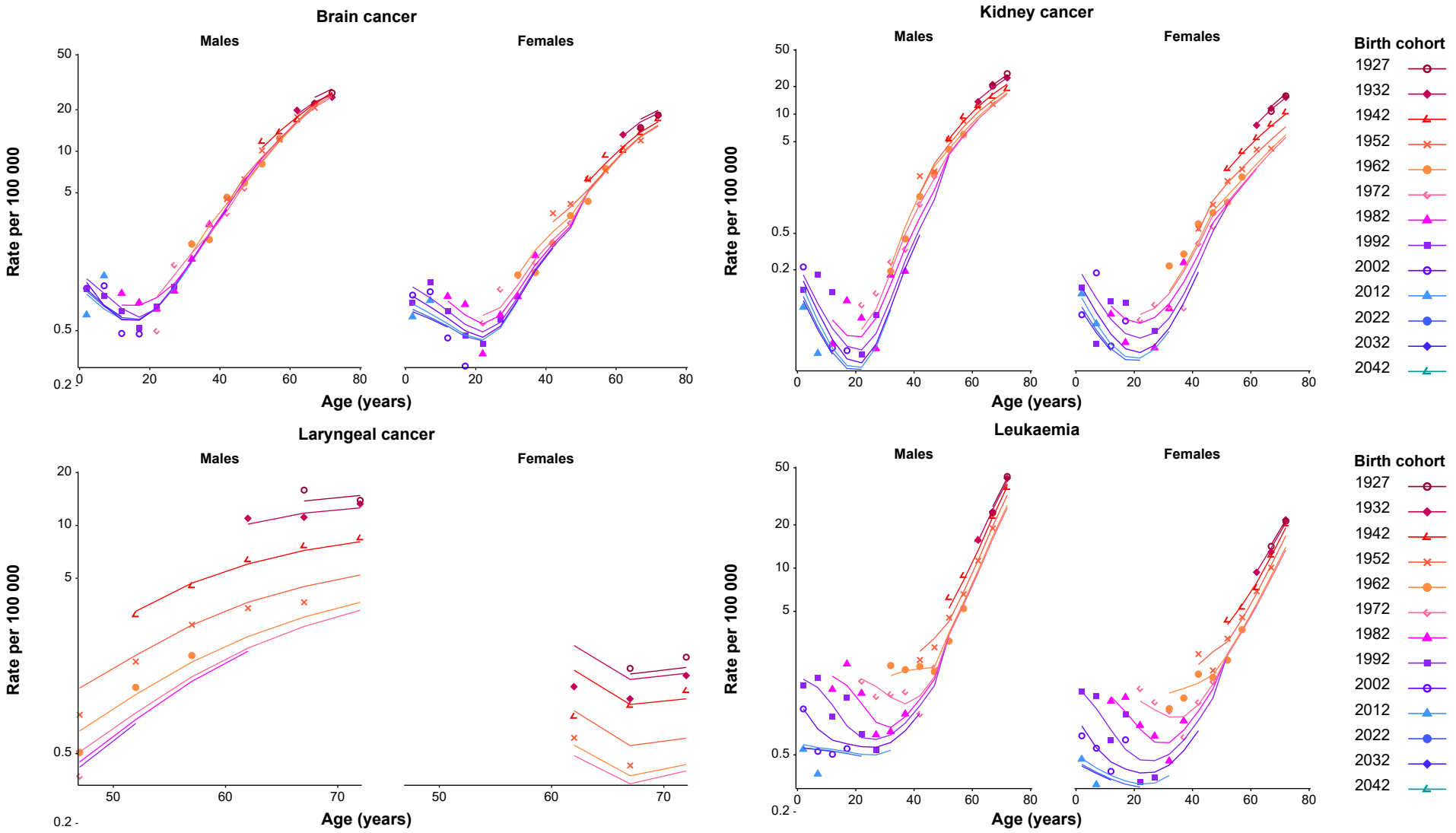


Figure S31. Birth cohort-specific premature mortality rate for oral cancer, liver cancer, non-Hodgkin lymphoma, and oesophageal cancer by sex and age, Australia

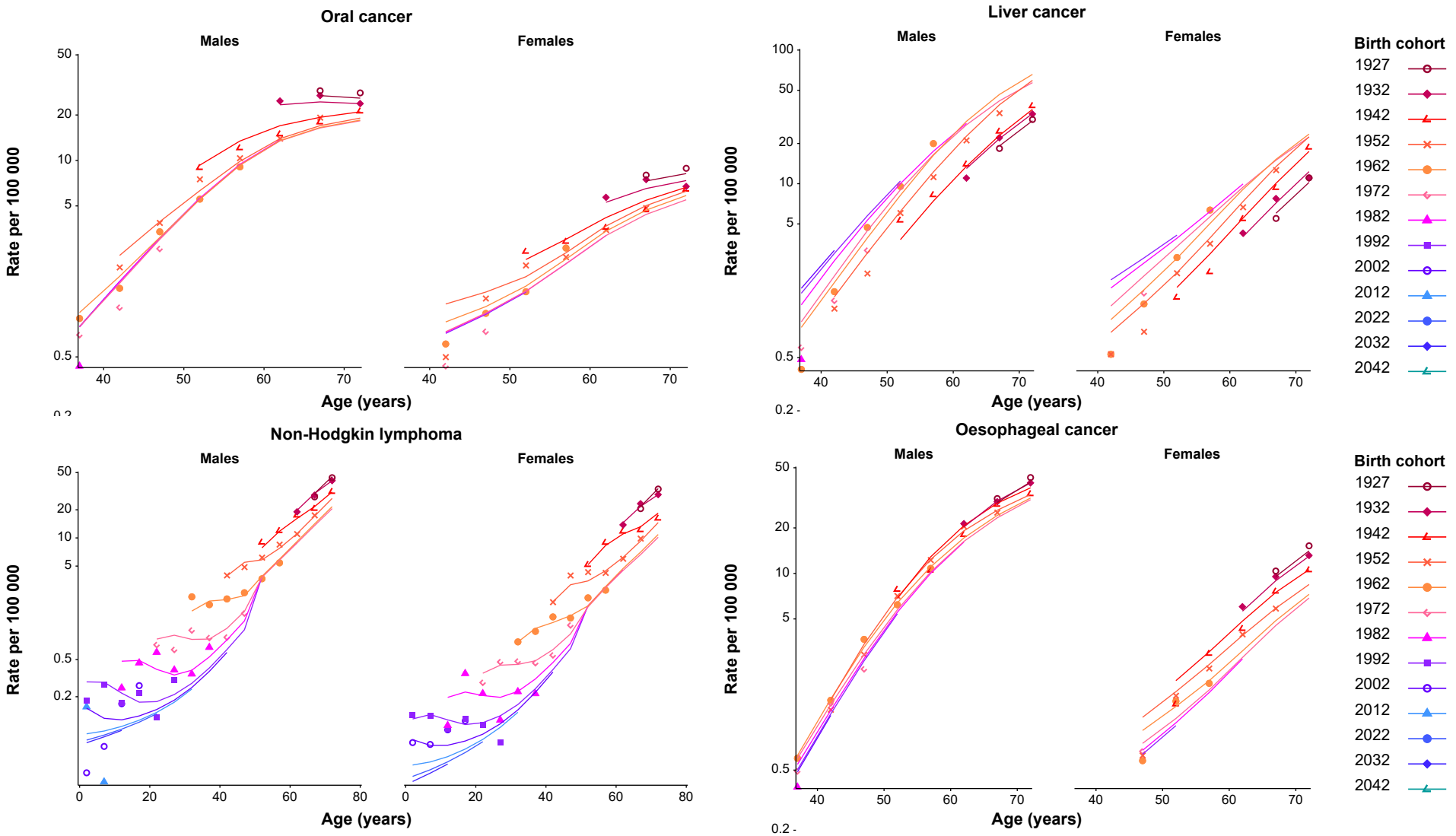


Figure S32. Birth cohort-specific premature mortality rate for stomach cancer, gallbladder and bile duct cancer, ovarian cancer, uterine cancer, and testicular cancer by sex and age, Australia

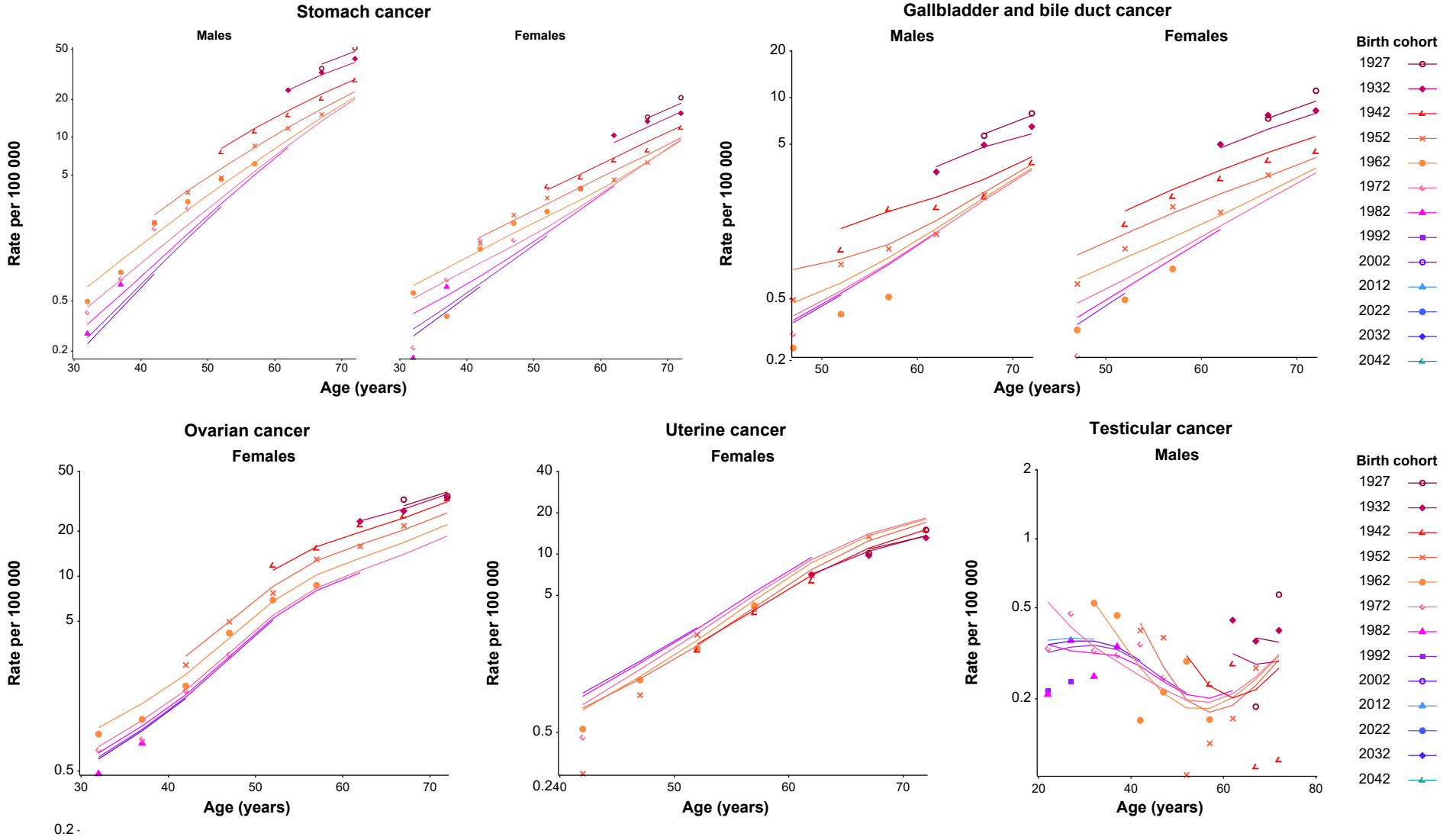


Figure S33. Birth cohort-specific premature mortality rate for thyroid cancer, other cancers, cardiovascular disease, and coronary heart disease by sex and age, Australia

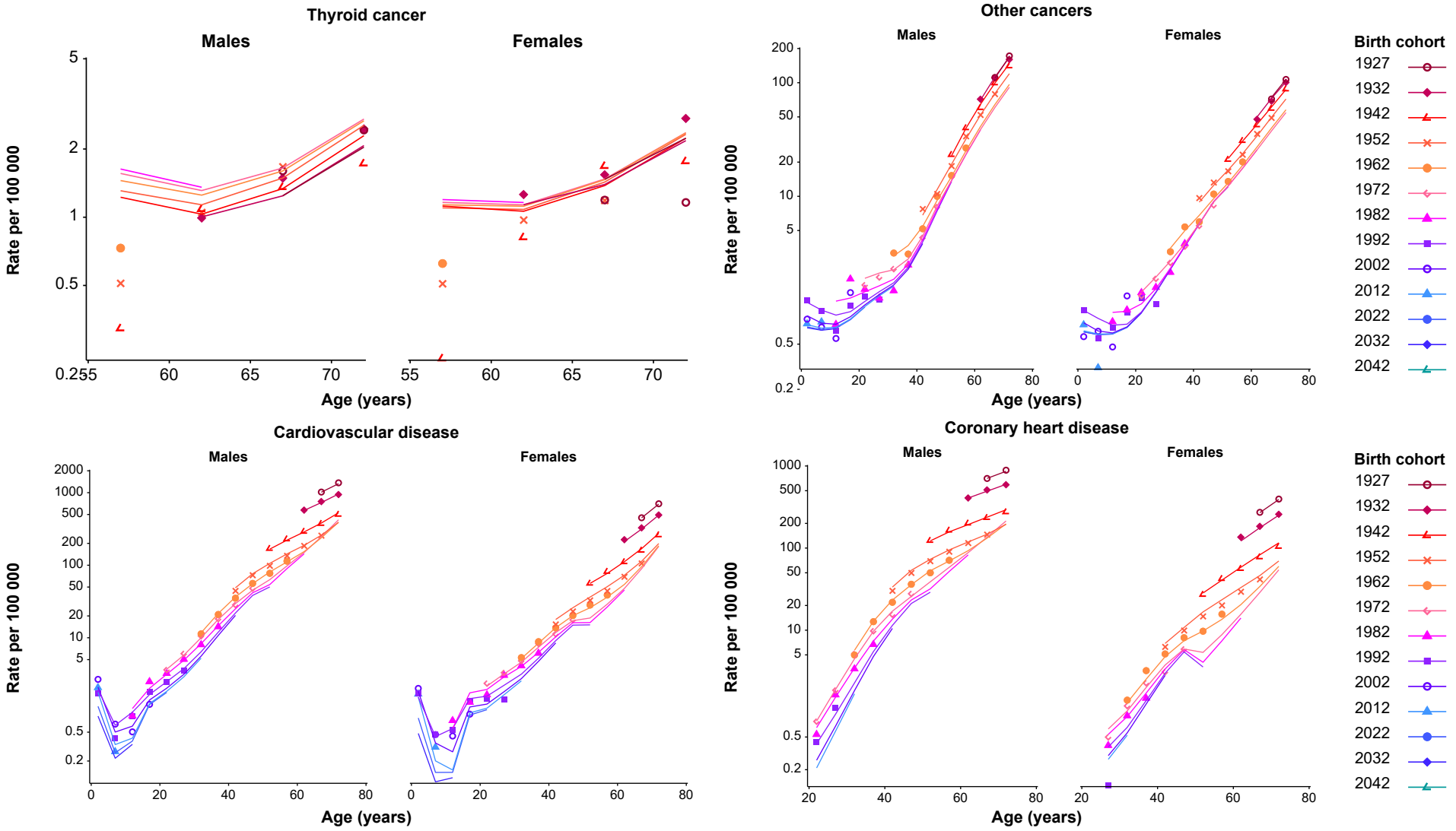


Figure S34. Birth cohort-specific premature mortality rate for cerebrovascular disease, hypertensive disease, other cardiovascular disease, and respiratory diseases by sex and age, Australia

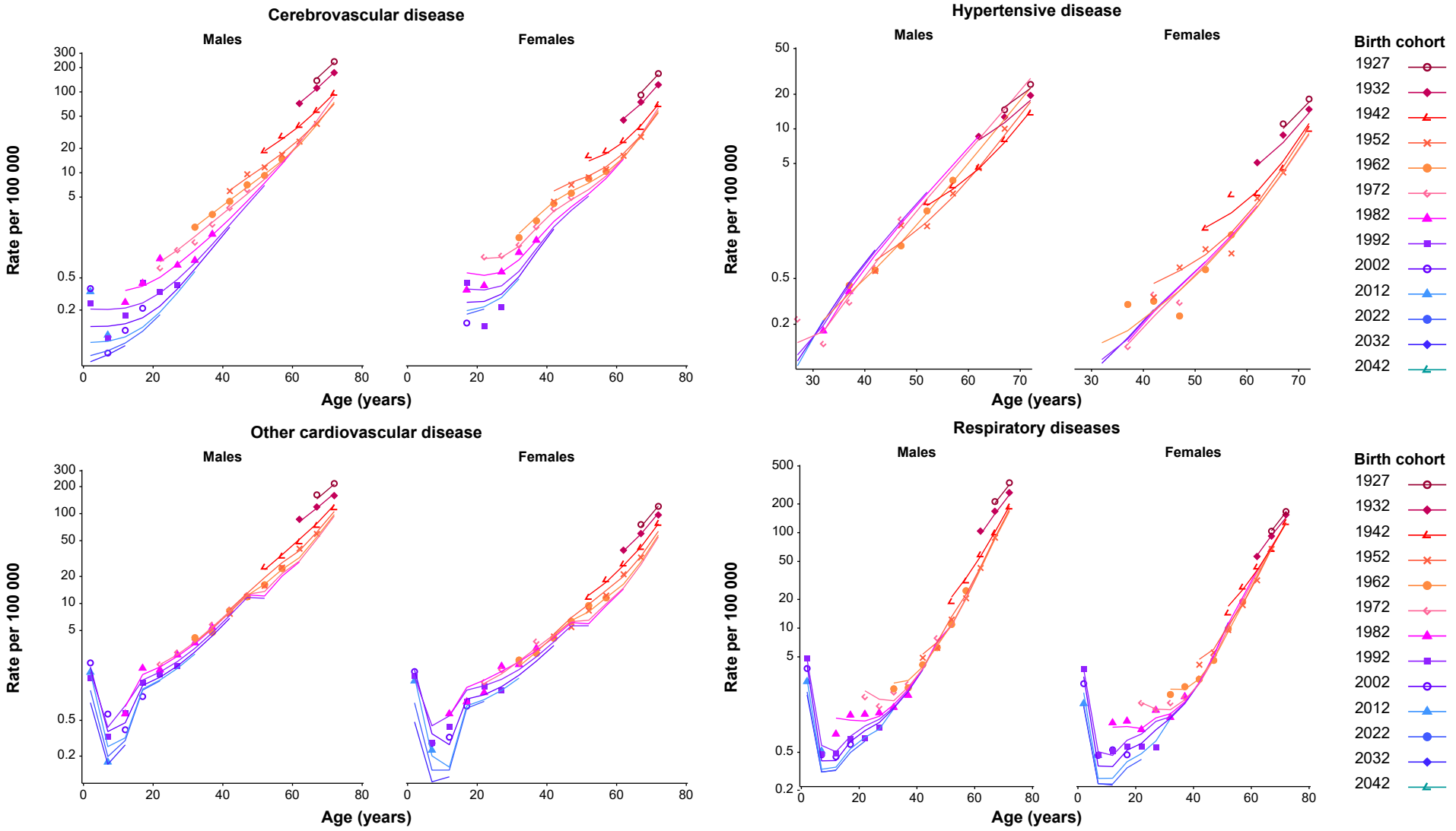


Figure S35. Birth cohort-specific premature mortality rate for chronic obstructive pulmonary disease (COPD), asthma, other respiratory disease, endocrine and metabolic diseases by sex and age, Australia

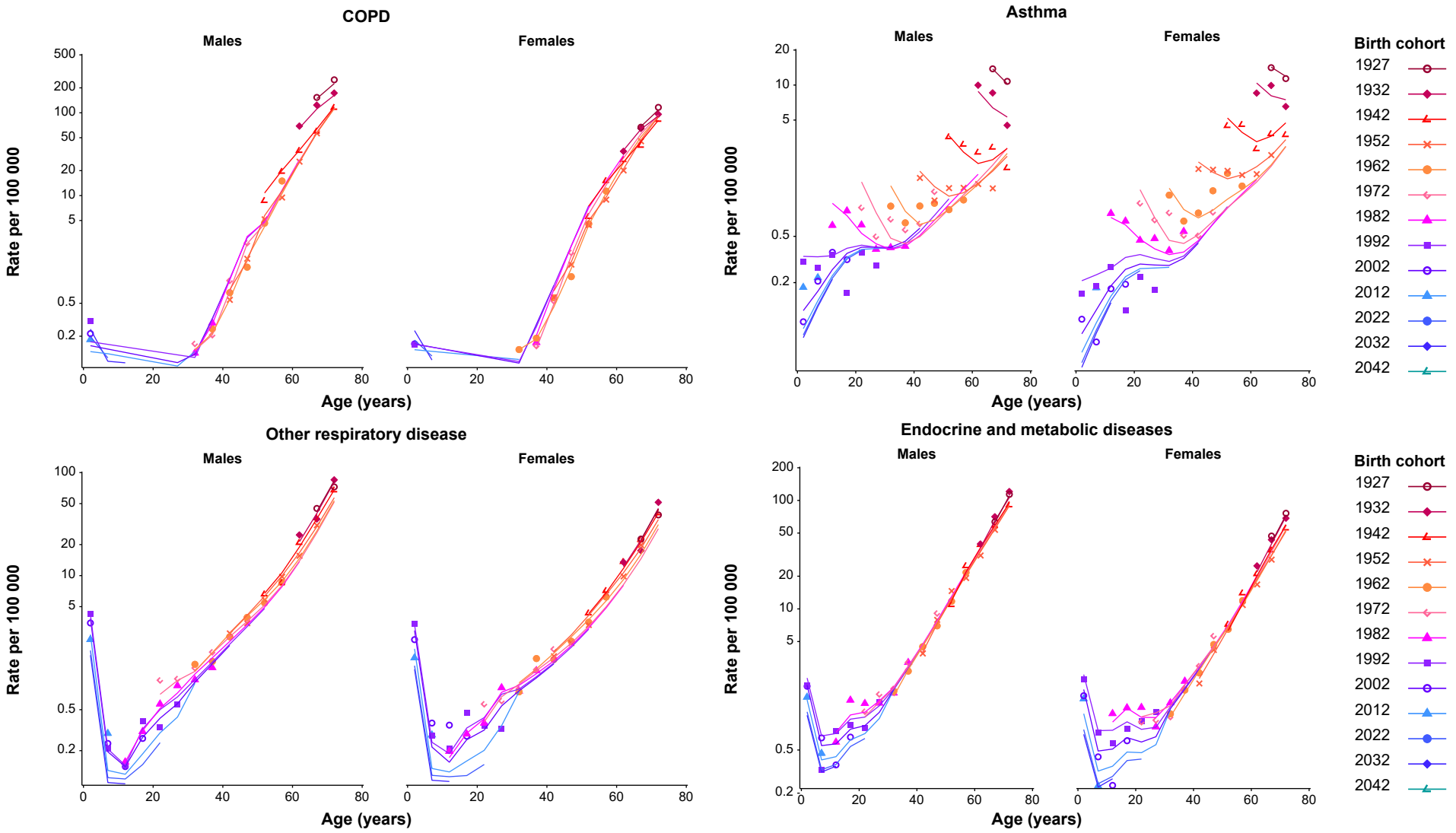


Figure S36. Birth cohort-specific premature mortality rate for diabetes, other endocrine and metabolic diseases, diseases of the nervous system, and digestive diseases by sex and age, Australia

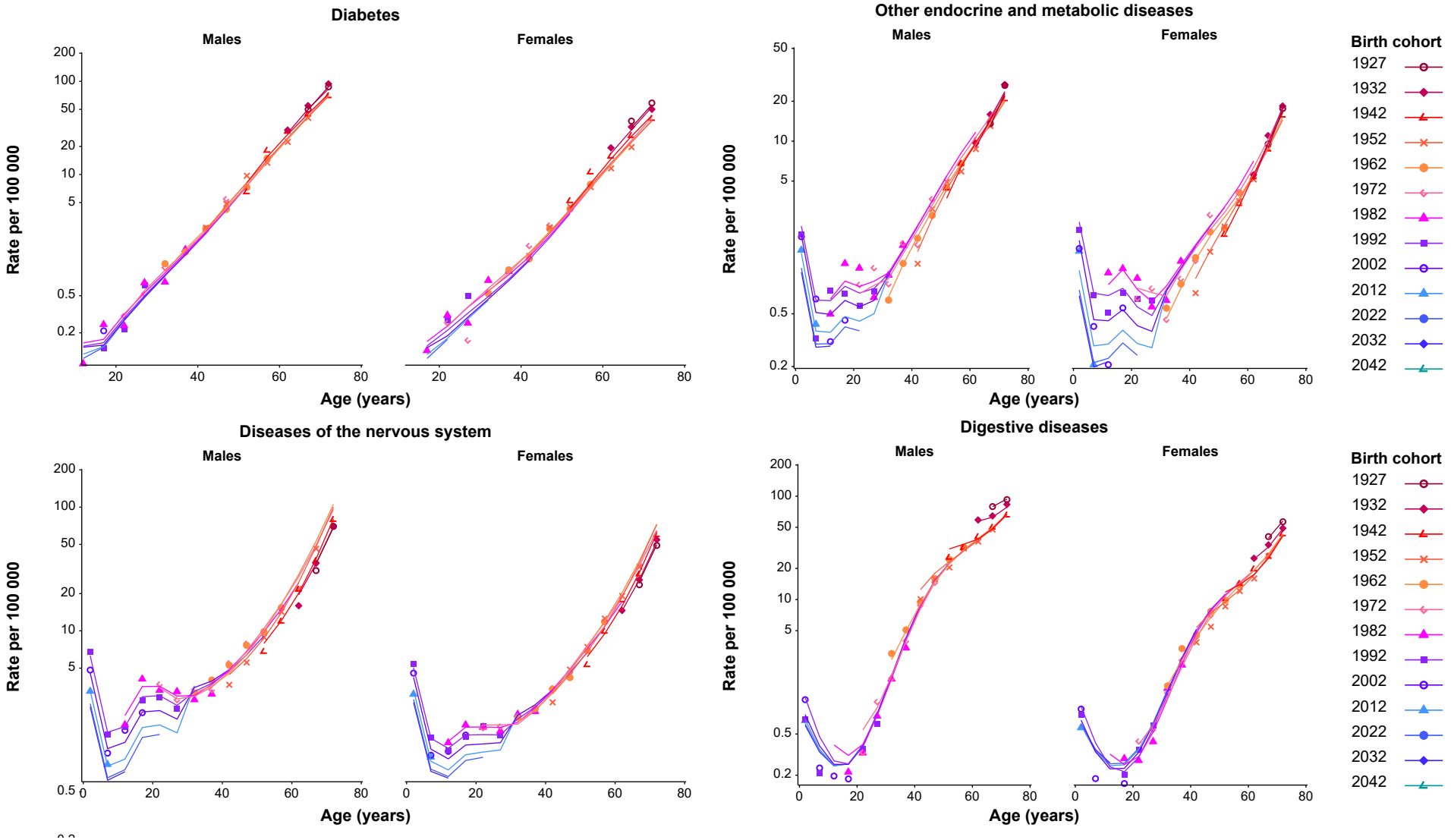


Figure S37. Birth cohort-specific premature mortality rate for liver disease, other digestive diseases, infectious and parasitic diseases, mental and behavioural disorders by sex and age, Australia

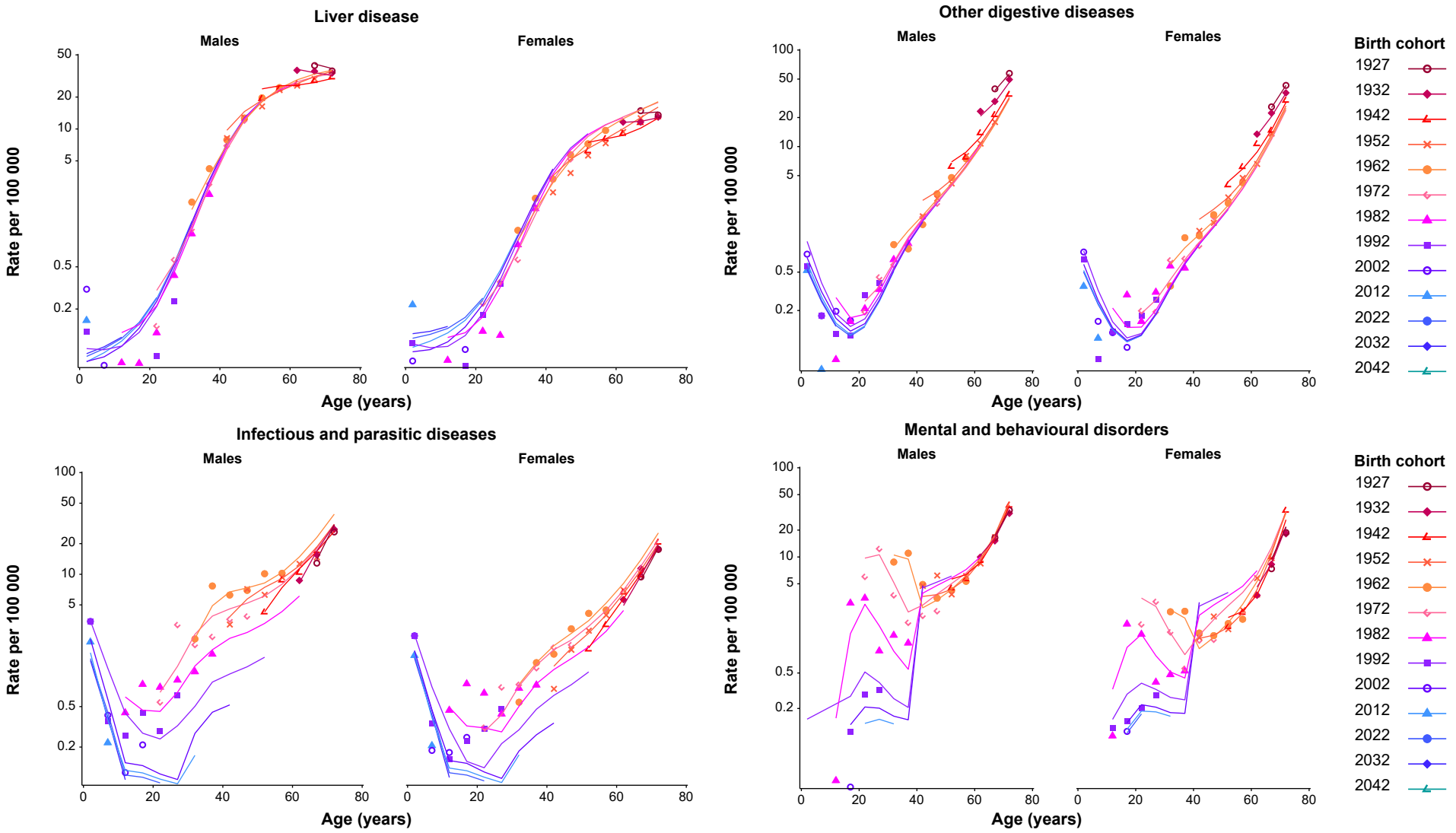


Figure S38. Birth cohort-specific premature mortality rate for genitourinary diseases, kidney failure, other genitourinary diseases, and congenital malformations by sex and age, Australia

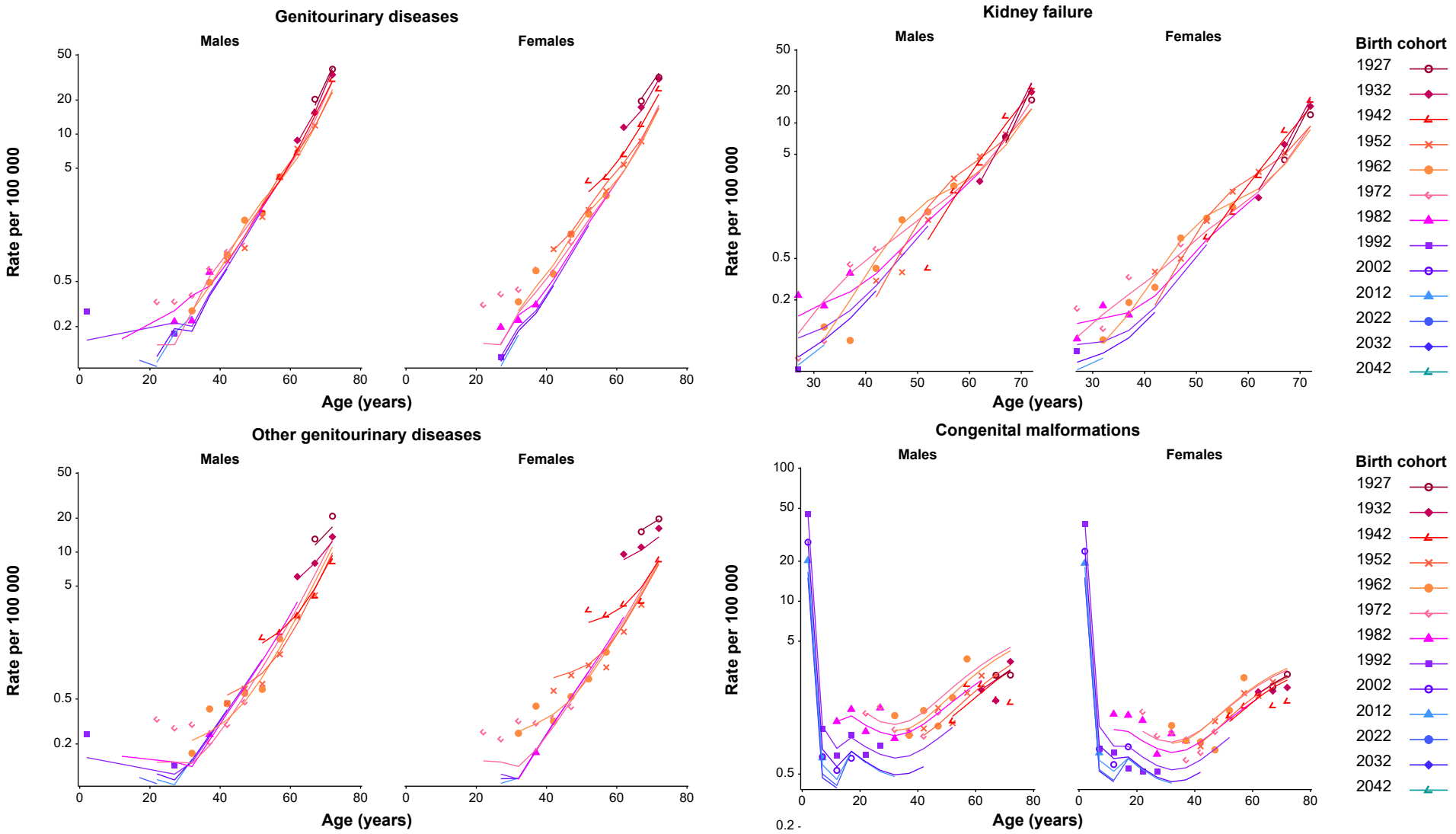


Figure S39. Birth cohort-specific premature mortality rate for diseases of the skin, diseases of the blood, musculoskeletal diseases, and other causes by sex and age, Australia

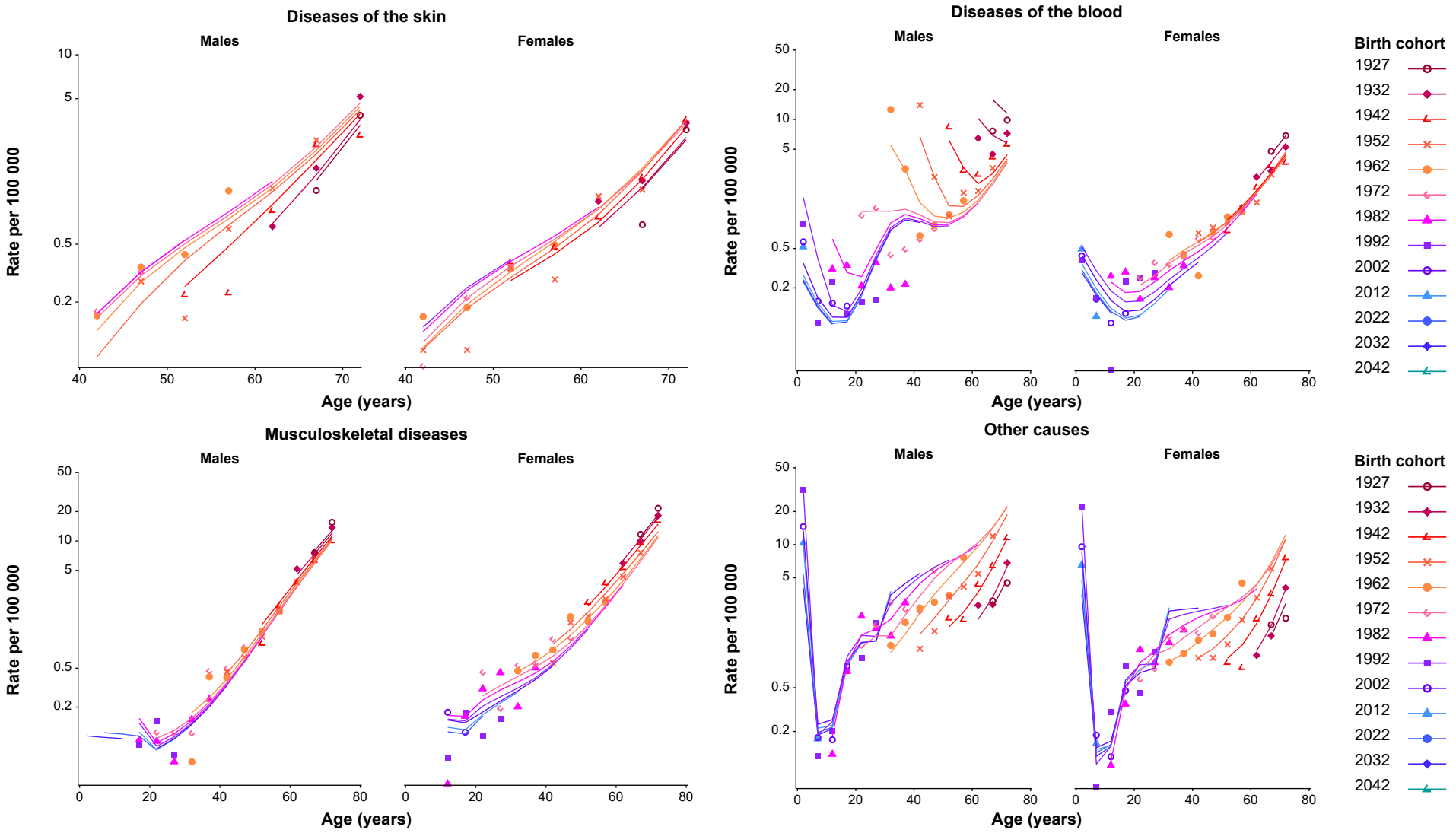


Figure S40. Birth cohort-specific premature mortality rate for other causes excluding sudden infant death syndrome (SIDS), external causes, suicide, and land transport accidents by sex and age, Australia

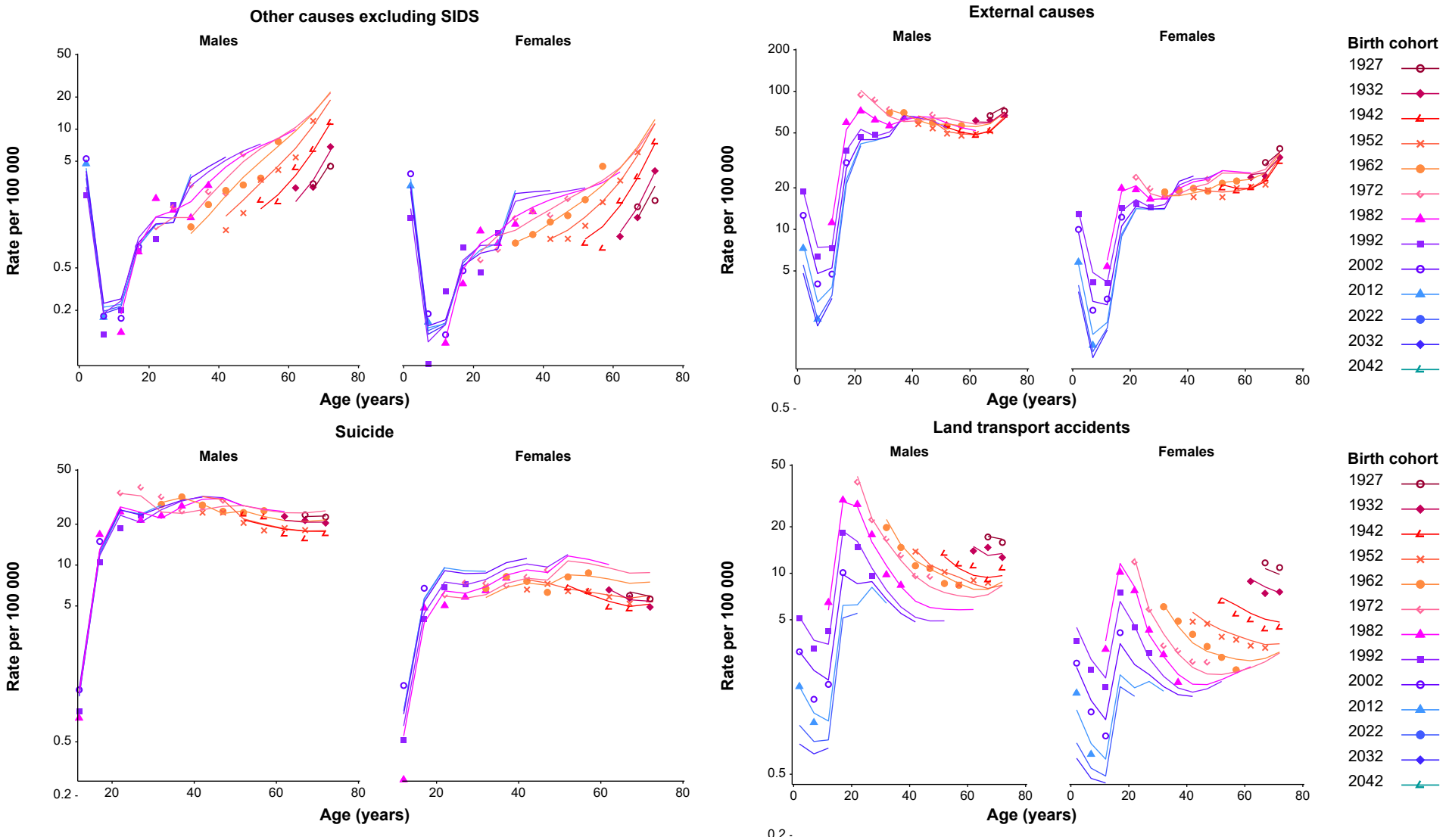
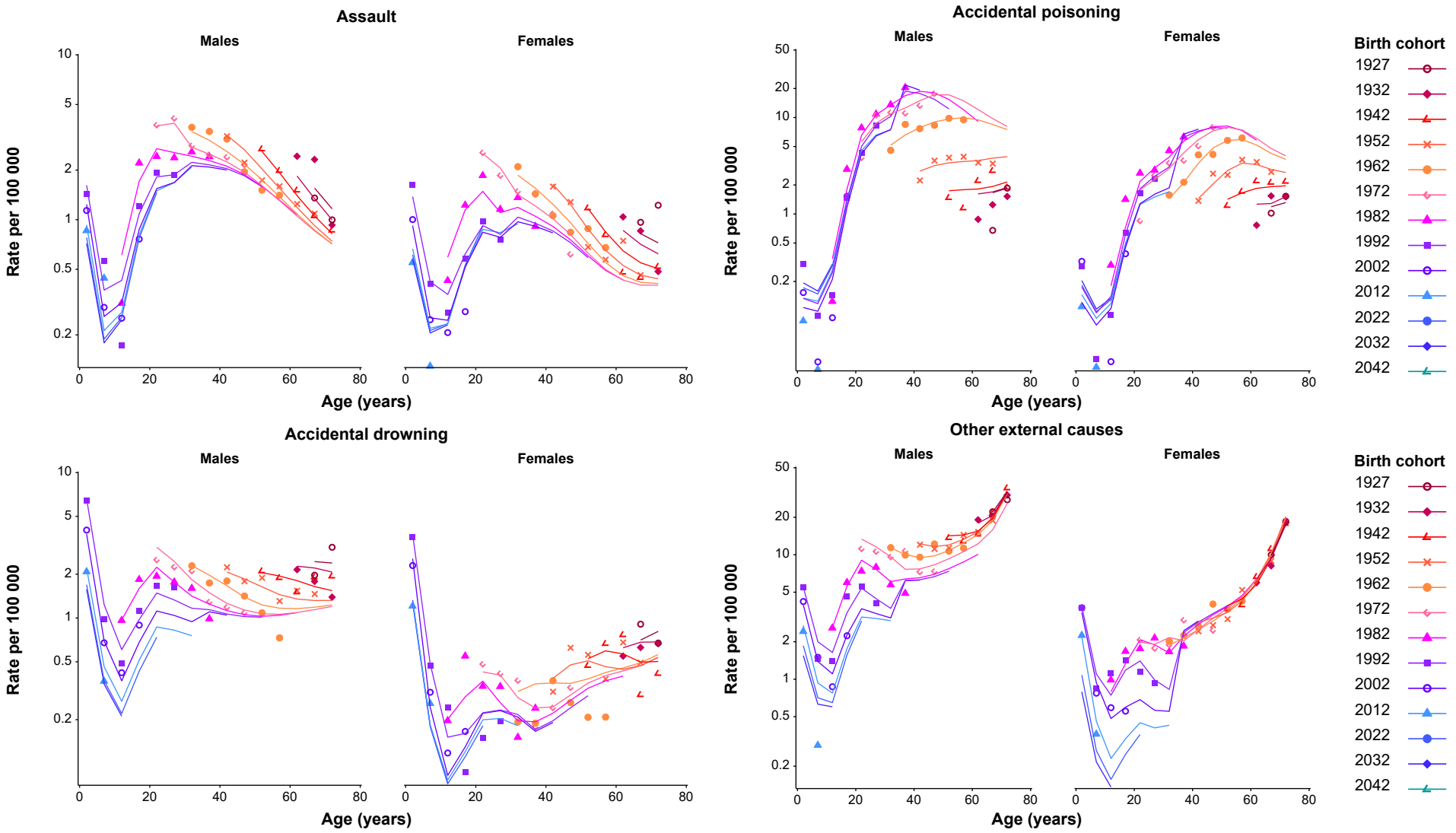
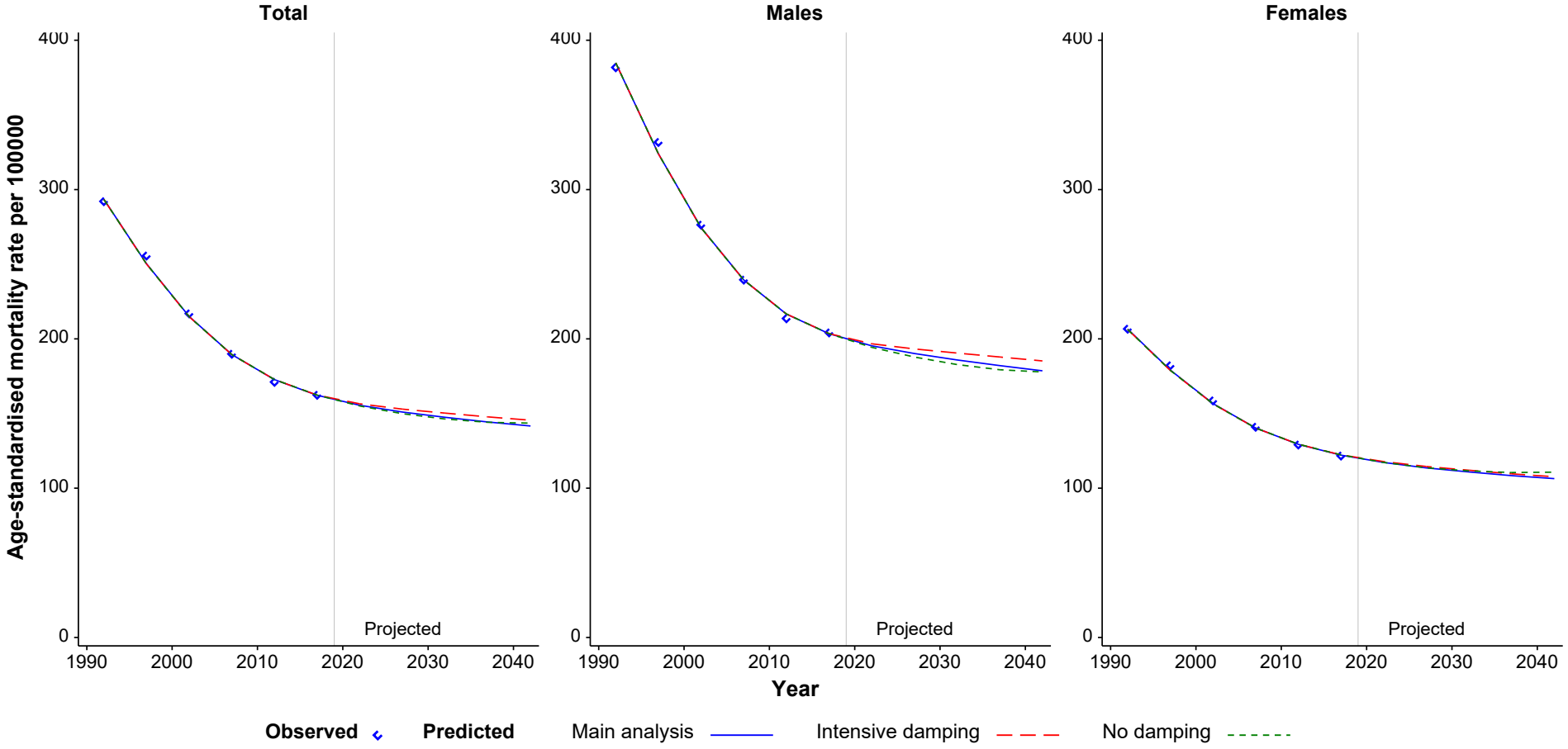


Figure S41. Birth cohort-specific premature mortality rate for assault, accidental poisoning, accidental drowning, and other external causes by sex and age, Australia



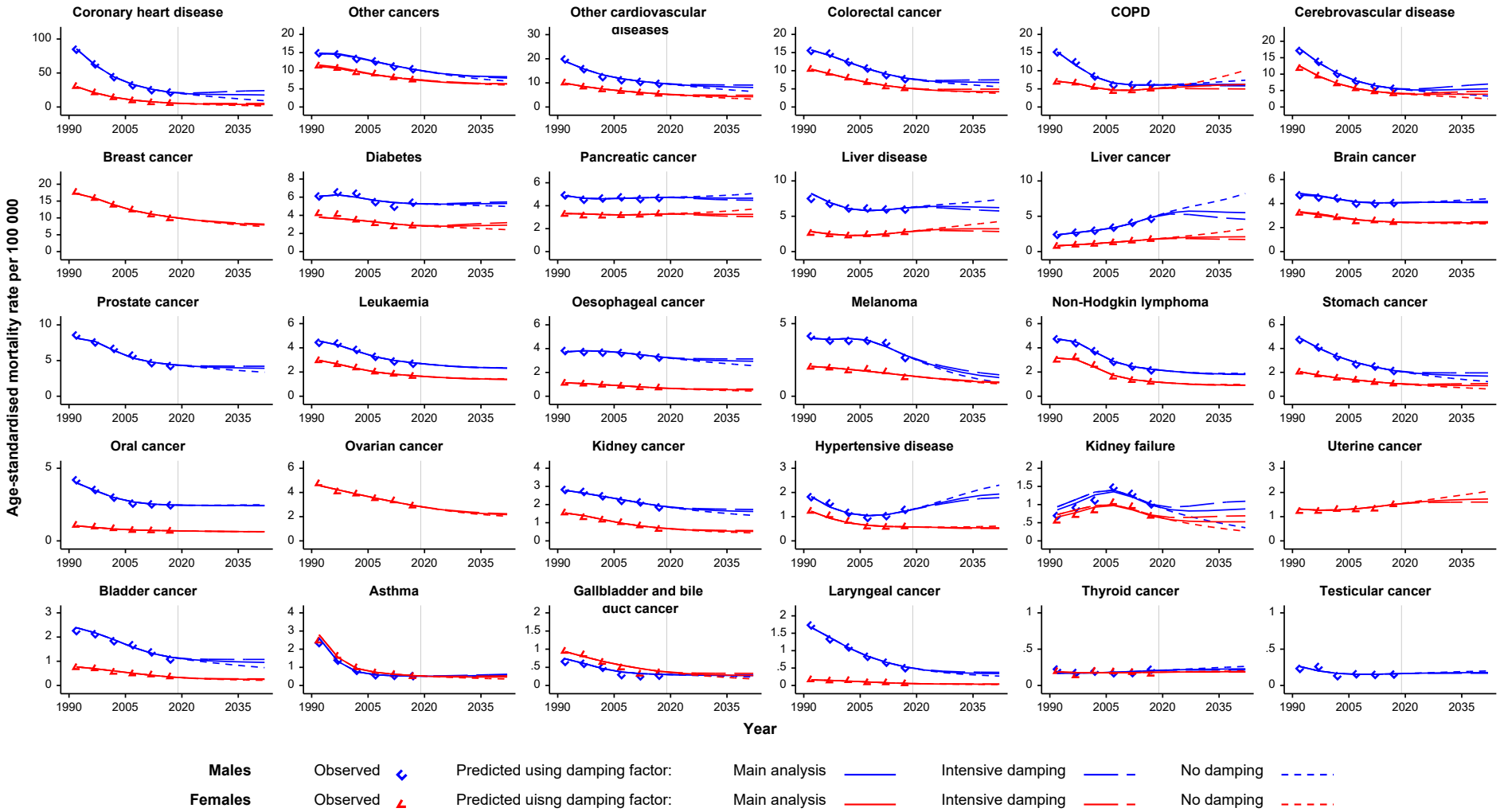
3. Sensitivity analyses using different damping factors

Figure S42. Projections of age-standardised mortality rates for all causes using different damping factors



All rates are age-standardised to the Segi World standard population.
Damping factors: 0.92 for main analyses; 0.82 for 'intensive' damping; 0.99 to approximate 'no damping'.

Figure S43. Age standardised mortality rates for noncommunicable diseases using age-period-cohort models with different damping factors



All rates are age-standardised to the Segi World standard population.
Damping factors: 0.92 for main analyses; 0.82 for 'intensive' damping; 0.99 to approximate 'no damping'.

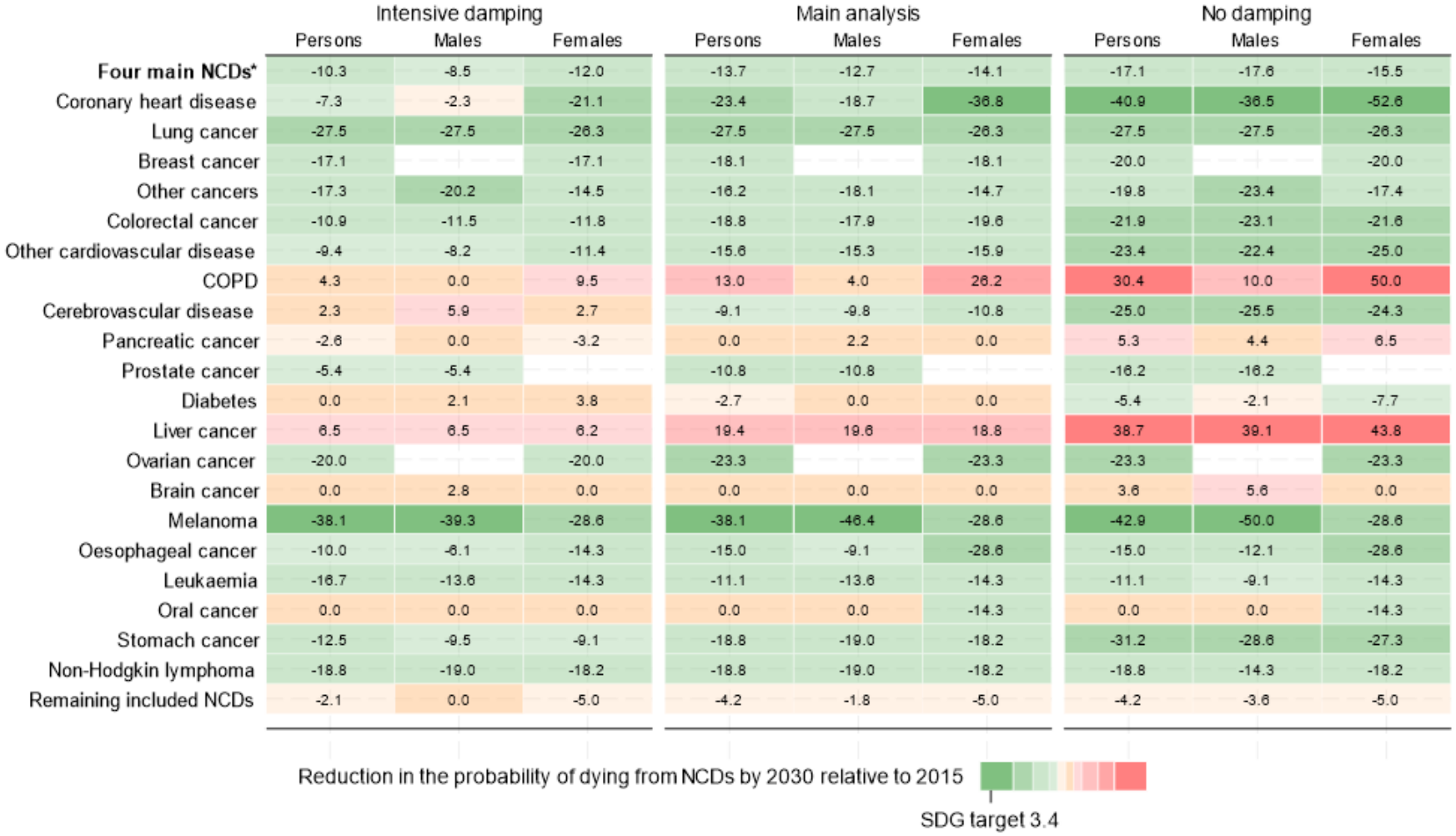
Figure S44. Probability of dying from the four main non-communicable diseases (%) in 2015 and 2030 for those aged 30-69 years in Australia: sensitivity analyses using different damping factors for projections to 2030

NCD: non-communicable disease.

* The four main NCDs include cancer, cardiovascular disease, diabetes and chronic respiratory diseases including asthma and chronic obstructive pulmonary disease. Probability of dying from the top 20 causes within the four main NCDs are reported.

Damping factors: 0.92 for main analyses; 0.82 for 'intensive' damping; 0.99 to approximate 'no damping'.

Figure S45. Relative reduction in probability of dying from the four main NCDs in 2030 relative to 2015 levels for age 30-69 years in Australia: sensitivity analyses using different damping factors



NCD: non-communicable disease.
* The four main NCDs include cancer, cardiovascular disease, diabetes and chronic respiratory diseases including asthma and chronic obstructive pulmonary disease. Probability of dying from the top 20 causes within the four main NCDs are reported.
Damping factors: 0.92 for main analyses; 0.82 for 'intensive' damping; 0.99 to approximate 'no damping'.
The Sustainable Development Goals (SDG) target 3.4: to reduce premature mortality from NCDs by a third by 2030 (relative to 2015 levels).

Table S8. Projected age-standardised premature mortality rate for all causes combined and for different cause of death categories for 2040-2044: sensitivity analyses using different damping factors

		Main results		Intensive damping		No damping	
	Observed 2015-2019	Projected in 2040-2044 (95% UI)	Change in rates % (95% UI)[a]	Projected in 2040-2044 (95% UI)	Change in rates % (95% UI)[a]	Projected in 2040-2044 (95% UI)	Change in rates % (95% UI)[a]
All causes	162·4	141·7 (114·9, 177·4)	-12·7 (-29·2, 9·2)	145·5 (122·8, 173·6)	-10·4 (-24·4, 6·9)	143·6 (106·8, 203·1)	-11·6 (-34·2, 25·1)
Cancer	61·9	49·9 (39·5, 63·0)	-19·4 (-36·2, 1·8)	50·5 (41·7, 61·0)	-18·4 (-32·6, -1·5)	49·3 (36·5, 67·5)	-20·4 (-41·0, 9·0)
Lung cancer	12·2	7·1 (4·5, 9·6)	-41·8 (-63·1, -21·3)	7·1 (4·6, 9·5)	-41·8 (-62·3, -22·1)	7·1 (4·5, 9·6)	-41·8 (-63·1, -21·3)
Colorectal cancer	6·4	5·5 (4·4, 7·0)	-14·1 (-31·2, 9·4)	6·2 (5·2, 7·5)	-3·1 (-18·8, 17·2)	4·6 (3·5, 6·4)	-28·1 (-45·3, 0·0)
Breast cancer	5	4·1 (3·6, 4·5)	-18·0 (-28·0, -10·0)	4·2 (3·8, 4·6)	-16·0 (-24·0, -8·0)	3·8 (3·2, 4·5)	-24·0 (-36·0, -10·0)
Pancreatic cancer	4	3·9 (3·4, 4·6)	-2·5 (-15·0, 15·0)	3·7 (3·3, 4·2)	-7·5 (-17·5, 5·0)	4·4 (3·4, 5·6)	10·0 (-15·0, 40·0)
Liver cancer	3·2	3·8 (3·0, 4·7)	18·8 (-6·2, 46·9)	3·1 (2·5, 3·8)	-3·1 (-21·9, 18·8)	5·6 (4·2, 7·6)	75·0 (31·2, 137·5)
Brain cancer	3·3	3·2 (2·3, 4·5)	-3·0 (-30·3, 36·4)	3·3 (2·7, 4·1)	0·0 (-18·2, 24·2)	3·3 (2·3, 4·9)	0·0 (-30·3, 48·5)
Prostate cancer	2·1	1·9 (1·6, 2·1)	-9·5 (-23·8, 0·0)	2·0 (1·8, 2·3)	-4·8 (-14·3, 9·5)	1·6 (1·3, 1·9)	-23·8 (-38·1, -9·5)
Leukaemia	2·2	1·9 (1·4, 2·6)	-13·6 (-36·4, 18·2)	1·8 (1·5, 2·3)	-18·2 (-31·8, 4·5)	1·9 (1·2, 3·6)	-13·6 (-45·5, 63·6)
Oesophageal cancer	2	1·7 (1·4, 2·1)	-15·0 (-30·0, 5·0)	1·8 (1·6, 2·1)	-10·0 (-20·0, 5·0)	1·5 (1·1, 2·0)	-25·0 (-45·0, 0·0)
Melanoma	2	1·1 (0·9, 1·4)	-45·0 (-55·0, -30·0)	1·2 (1·0, 1·5)	-40·0 (-50·0, -25·0)	0·9 (0·7, 1·2)	-55·0 (-65·0, -40·0)
Non-Hodgkin lymphoma	1·7	1·4 (1·0, 1·9)	-17·6 (-41·2, 11·8)	1·3 (1·1, 1·7)	-23·5 (-35·3, 0·0)	1·4 (0·9, 2·5)	-17·6 (-47·1, 47·1)
Stomach cancer	1·6	1·3 (1·0, 1·6)	-18·8 (-37·5, 0·0)	1·5 (1·3, 1·8)	-6·2 (-18·8, 12·5)	0·9 (0·6, 1·3)	-43·8 (-62·5, -18·8)
Oral cancer	1·6	1·5 (1·2, 1·9)	-6·2 (-25·0, 18·8)	1·5 (1·2, 1·9)	-6·2 (-25·0, 18·8)	1·5 (1·1, 2·1)	-6·2 (-31·2, 31·2)
Ovarian cancer	1·5	1·1 (0·9, 1·3)	-26·7 (-40·0, -13·3)	1·2 (1·0, 1·3)	-20·0 (-33·3, -13·3)	1·0 (0·9, 1·3)	-33·3 (-40·0, -13·3)
Kidney cancer	1·3	1·1 (0·7, 1·6)	-15·4 (-46·2, 23·1)	1·1 (0·8, 1·5)	-15·4 (-38·5, 15·4)	0·9 (0·5, 1·6)	-30·8 (-61·5, 23·1)
Uterine cancer	0·8	0·9 (0·8, 1·0)	12·5 (0·0, 25·0)	0·8 (0·7, 0·9)	0·0 (-12·5, 12·5)	1·1 (0·8, 1·3)	37·5 (0·0, 62·5)
Bladder cancer	0·7	0·6 (0·5, 0·8)	-14·3 (-28·6, 14·3)	0·7 (0·5, 0·8)	0·0 (-28·6, 14·3)	0·5 (0·4, 0·6)	-28·6 (-42·9, -14·3)
Gallbladder and bile duct cancer	0·3	0·3 (0·2, 0·4)	0·0 (-33·3, 33·3)	0·3 (0·2, 0·4)	0·0 (-33·3, 33·3)	0·2 (0·1, 0·4)	-33·3 (-66·7, 33·3)
Laryngeal cancer	0·3	0·2 (0·1, 0·3)	-33·3 (-66·7, 0·0)	0·2 (0·1, 0·3)	-33·3 (-66·7, 0·0)	0·1 (0·1, 0·3)	-66·7 (-66·7, 0·0)
Thyroid cancer	0·2	0·2 (0·1, 0·3)	0·0 (-50·0, 50·0)	0·2 (0·1, 0·3)	0·0 (-50·0, 50·0)	0·2 (0·1, 0·5)	0·0 (-50·0, 150·0)
Testicular cancer	0·2	0·2 (0·1, 0·4)	0·0 (-50·0, 100·0)	0·2 (0·1, 0·3)	0·0 (-50·0, 50·0)	0·2 (0·1, 0·7)	0·0 (-50·0, 250·0)
Other cancers	9	7·3 (6·3, 8·6)	-18·9 (-30·0, -4·4)	7·1 (6·4, 8·0)	-21·1 (-28·9, -11·1)	6·6 (5·5, 7·9)	-26·7 (-38·9, -12·2)
Cardiovascular disease	**27·1**	**22·5 (19·8, 25·8)**	**-17·0 (-26·9, -4·8)**	**28·2 (25·6, 31·3)**	**4·1 (-5·5, 15·5)**	**14·5 (11·7, 18·4)**	**-46·5 (-56·8, -32·1)**
Coronary heart disease	13·7	10·5 (9·7, 11·3)	-23·4 (-29·2, -17·5)	14·3 (13·5, 15·3)	4·4 (-1·5, 11·7)	5·3 (4·7, 6·0)	-61·3 (-65·7, -56·2)
Cerebrovascular disease	4·9	4·7 (4·0, 5·5)	-4·1 (-18·4, 12·2)	5·8 (5·1, 6·6)	18·4 (4·1, 34·7)	2·9 (2·3, 3·7)	-40·8 (-53·1, -24·5)
Hypertensive disease	0·9	1·2 (0·9, 1·7)	33·3 (0·0, 88·9)	1·1 (0·9, 1·5)	22·2 (0·0, 66·7)	1·4 (0·9, 2·3)	55·6 (0·0, 155·6)
Other cardiovascular disease	7·6	6·1 (5·3, 7·3)	-19·7 (-30·3, -3·9)	6·9 (6·1, 7·9)	-9·2 (-19·7, 3·9)	4·8 (3·9, 6·3)	-36·8 (-48·7, -17·1)
Respiratory diseases	**9·9**	**9·7 (8·2, 12·1)**	**-2·0 (-17·2, 22·2)**	**9·1 (7·9, 10·8)**	**-8·1 (-20·2, 9·1)**	**11·8 (9·2, 17·9)**	**19·2 (-7·1, 80·8)**
COPD	5·7	6·2 (5·5, 7·4)	8·8 (-3·5, 29·8)	5·4 (4·9, 6·1)	-5·3 (-14·0, 7·0)	8·8 (7·1, 13·1)	54·4 (24·6, 129·8)
Asthma	0·5	0·5 (0·3, 0·9)	0·0 (-40·0, 80·0)	0·6 (0·4, 0·9)	20·0 (-20·0, 80·0)	0·4 (0·2, 1·2)	-20·0 (-60·0, 140·0)
Other respiratory diseases	3·7	3·0 (2·4, 3·7)	-18·9 (-35·1, 0·0)	3·2 (2·6, 3·8)	-13·5 (-29·7, 2·7)	2·6 (1·9, 3·6)	-29·7 (-48·6, -2·7)
Digestive diseases	**6·6**	**6·8 (5·6, 8·3)**	**3·0 (-15·2, 25·8)**	**6·5 (5·5, 7·7)**	**-1·5 (-16·7, 16·7)**	**7·7 (5·8, 10·3)**	**16·7 (-12·1, 56·1)**
Liver disease	4·3	4·7 (3·9, 5·6)	9·3 (-9·3, 30·2)	4·3 (3·6, 5·0)	0·0 (-16·3, 16·3)	5·8 (4·5, 7·5)	34·9 (4·7, 74·4)
Other digestive diseases	2·3	2·1 (1·7, 2·7)	-8·7 (-26·1, 17·4)	2·2 (1·9, 2·7)	-4·3 (-17·4, 17·4)	1·9 (1·4, 2·8)	-17·4 (-39·1, 21·7)
Diseases of the nervous system	**6·7**	**6·3 (5·3, 7·5)**	**-6·0 (-20·9, 11·9)**	**5·7 (4·9, 6·7)**	**-14·9 (-26·9, 0·0)**	**7·7 (6·2, 10·0)**	**14·9 (-7·5, 49·3)**
Endocrine and metabolic diseases	**6·4**	**6·4 (5·1, 8·3)**	**0·0 (-20·3, 29·7)**	**6·7 (5·6, 8·2)**	**4·7 (-12·5, 28·1)**	**5·8 (4·2, 8·7)**	**-9·4 (-34·4, 35·9)**
Diabetes	4·1	4·1 (3·4, 4·9)	0·0 (-17·1, 19·5)	4·3 (3·7, 5·0)	4·9 (-9·8, 22·0)	3·7 (2·8, 4·7)	-9·8 (-31·7, 14·6)

Other endocrine and metabolic diseases	2·3	2·4 (1·7, 3·4)	4·3 (-26·1, 47·8)	2·4 (1·9, 3·2)	4·3 (-17·4, 39·1)	2·2 (1·3, 4·0)	-4·3 (-43·5, 73·9)
Infectious and parasitic diseases	**2·5**	**1·6 (1·2, 2·1)**	**-36·0 (-52·0, -16·0)**	**1·6 (1·4, 2·0)**	**-36·0 (-44·0, -20·0)**	**1·6 (1·0, 2·5)**	**-36·0 (-60·0, 0·0)**
Mental and behavioural disorders	**2**	**2·6 (2·1, 3·2)**	**30·0 (5·0, 60·0)**	**2·0 (1·7, 2·4)**	**0·0 (-15·0, 20·0)**	**4·4 (3·4, 5·8)**	**120·0 (70·0, 190·0)**
Congenital malformations	**3**	**2·5 (1·7, 3·6)**	**-16·7 (-43·3, 20·0)**	**2·6 (2·1, 3·4)**	**-13·3 (-30·0, 13·3)**	**2·3 (1·1, 4·7)**	**-23·3 (-63·3, 56·7)**
Conditions in the perinatal period	**4·3**	**2·4 (2·1, 2·7)**	**-44·2 (-51·2, -37·2)**	**2·4 (2·1, 2·7)**	**-44·2 (-51·2, -37·2)**	**2·4 (2·1, 2·7)**	**-44·2 (-51·2, -37·2)**
Genitourinary diseases	**1·4**	**1·4 (1·0, 2·2)**	**0·0 (-28·6, 57·1)**	**1·5 (1·1, 2·0)**	**7·1 (-21·4, 42·9)**	**1·0 (0·6, 1·7)**	**-28·6 (-57·1, 21·4)**
Kidney failure	0·8	0·7 (0·5, 1·0)	-12·5 (-37·5, 25·0)	0·9 (0·7, 1·1)	12·5 (-12·5, 37·5)	0·3 (0·2, 0·5)	-62·5 (-75·0, -37·5)
Other genitourinary diseases	0·6	0·7 (0·5, 1·2)	16·7 (-16·7, 100·0)	0·6 (0·4, 0·8)	0·0 (-33·3, 33·3)	0·7 (0·4, 1·2)	16·7 (-33·3, 100·0)
Musculoskeletal diseases	**1**	**0·8 (0·6, 1·1)**	**-20·0 (-40·0, 10·0)**	**0·9 (0·7, 1·1)**	**-10·0 (-30·0, 10·0)**	**0·7 (0·5, 1·1)**	**-30·0 (-50·0, 10·0)**
Diseases of the blood	**0·6**	**0·6 (0·3, 0·9)**	**0·0 (-50·0, 50·0)**	**0·6 (0·4, 0·9)**	**0·0 (-33·3, 50·0)**	**0·5 (0·2, 1·1)**	**-16·7 (-66·7, 83·3)**
Diseases of the skin	**0·3**	**0·3 (0·1, 0·6)**	**0·0 (-66·7, 100·0)**	**0·3 (0·1, 0·6)**	**0·0 (-66·7, 100·0)**	**0·3 (0·1, 0·8)**	**0·0 (-66·7, 166·7)**
External causes	**25·8**	**24·4 (19·6, 31·1)**	**-5·4 (-24·0, 20·5)**	**23·8 (19·8, 29·1)**	**-7·8 (-23·3, 12·8)**	**28·4 (21·0, 41·6)**	**10·1 (-18·6, 61·2)**
Suicide	10·8	11·9 (10·1, 14·1)	10·2 (-6·5, 30·6)	11·7 (10·2, 13·5)	8·3 (-5·6, 25·0)	12·7 (10·0, 16·0)	17·6 (-7·4, 48·1)
Accidental poisoning	5	4·9 (3·8, 6·4)	-2·0 (-24·0, 28·0)	3·7 (3·0, 4·7)	-26·0 (-40·0, -6·0)	9·5 (6·8, 13·6)	90·0 (36·0, 172·0)
Land transport accidents	4·5	2·8 (2·2, 3·5)	-37·8 (-51·1, -22·2)	3·5 (3·0, 4·1)	-22·2 (-33·3, -8·9)	1·8 (1·2, 2·6)	-60·0 (-73·3, -42·2)
Assault	1	0·9 (0·5, 1·7)	-10·0 (-50·0, 70·0)	1·0 (0·6, 1·6)	0·0 (-40·0, 60·0)	0·7 (0·3, 2·1)	-30·0 (-70·0, 110·0)
Accidental drowning	0·7	0·6 (0·3, 1·4)	-14·3 (-57·1, 100·0)	0·6 (0·4, 1·1)	-14·3 (-42·9, 57·1)	0·6 (0·1, 3·2)	-14·3 (-85·7, 357·1)
Other external causes	3·8	3·2 (2·7, 4·0)	-15·8 (-28·9, 5·3)	3·3 (2·8, 4·1)	-13·2 (-26·3, 7·9)	3·2 (2·5, 4·2)	-15·8 (-34·2, 10·5)
Other causes	3·1	3·0 (2·1, 4·4)	-3·2 (-32·3, 41·9)	2·6 (2·0, 3·6)	-16·1 (-35·5, 16·1)	4·4 (2·8, 7·4)	41·9 (-9·7, 138·7)

a. Overall percentage change in the age-standardised rate for 2040-2044 compared to the rate observed in 2015-2019. All rates are age-standardised to the Segi World standard population.

Damping factors: 0.92 for main analyses; 0.82 for ‘intensive’ damping; 0.99 to approximate ‘no damping’.

Table S9. Projected total numbers of premature deaths for all causes combined and for different cause of death categories for 2040-2044: sensitivity analyses using different damping factors

	Main results			Intensive damping			No damping		
	Projected in 2040-2044 (95% UI)	Change in deaths % (95% UI)[a]	% within total	Projected in 2040-2044 (95% UI)	Change in deaths % (95% UI)[a]	% within total	Projected in 2040-2044 (95% UI)	Change in deaths % (95% UI)[a]	% within total
All causes	**334 894 (271 665–405 884)**	**22·8 (-0·4, 48·8)**	**100·0**	**342 078 (289 883–399 564)**	**25·4 (6·3, 46·5)**	**100·0**	**343 696 (252 714–457 564)**	**26·0 (-7·4, 67·7)**	**100·0**
Cancer	**123 901 (99 454–153 980)**	**10·7 (-11·1, 37·6)**	**38·1**	**125 120 (104 200–149 343)**	**11·8 (-6·9, 33·5)**	**37·9**	**122 699 (91 827–164 991)**	**9·7 (-17·9, 47·4)**	**37·6**
Lung cancer	18 561 (12 379–24 743)	-19·3 (-46·2, 7·6)	6·6	18 561 (12 576–24 545)	-19·3 (-45·3, 6·7)	6·5	18 561 (12 450–24 671)	-19·3 (-45·9, 7·2)	6·5
Colorectal cancer	13 101 (10 763–16 308)	12·1 (-7·9, 39·5)	3·9	14 732 (12 523–17 553)	26·0 (7·1, 50·2)	4·2	11 033 (8422–14 788)	-5·6 (-28·0, 26·5)	3·6
Breast cancer	9537 (8558–10 623)	9·1 (-2·1, 21·5)	3·0	9827 (9032–10 689)	12·4 (3·3, 22·3)	3·0	8934 (7530–10 608)	2·2 (-13·8, 21·4)	2·8
Pancreatic cancer	10 096 (8687–11 734)	34·9 (16·1, 56·8)	2·9	9621 (8599–10 764)	28·5 (14·9, 43·8)	2·8	11 212 (8721–14 421)	49·8 (16·5, 92·7)	3·1
Liver cancer	9461 (7556–11 853)	61·3 (28·8, 102·1)	2·7	7835 (6377–9624)	33·6 (8·7, 64·1)	2·4	14 259 (10 622–19 173)	143·1 (81·1, 226·9)	3·4
Brain cancer	7170 (5261–9860)	34·5 (-1·3, 85·0)	2·1	7254 (5989–8814)	36·1 (12·4, 65·4)	2·0	7540 (5201–10 981)	41·5 (-2·4, 106·0)	2·1
Prostate cancer	5366 (4708–6113)	26·4 (10·9, 44·0)	1·6	5754 (5141–6445)	35·5 (21·1, 51·8)	1·6	4608 (3827–5545)	8·6 (-9·8, 30·6)	1·5
Leukaemia	4403 (3460–5844)	15·0 (-9·7, 52·6)	1·3	4360 (3591–5365)	13·8 (-6·2, 40·1)	1·3	4497 (3158–7453)	17·4 (-17·5, 94·6)	1·3
Oesophageal cancer	4334 (3597–5231)	17·3 (-2·7, 41·6)	1·3	4650 (4067–5329)	25·8 (10·1, 44·2)	1·3	3730 (2736–5102)	0·9 (-26·0, 38·1)	1·2
Melanoma	2632 (2122–3262)	-24·8 (-39·4, -6·8)	1·0	2900 (2409–3501)	-17·1 (-31·2, 0·0)	1·0	2152 (1632–2853)	-38·5 (-53·4, -18·5)	0·9
Non-Hodgkin lymphoma	3437 (2624–4635)	10·9 (-15·4, 49·5)	1·0	3360 (2764–4141)	8·4 (-10·8, 33·6)	1·0	3629 (2308–6088)	17·1 (-25·5, 96·4)	1·1
Stomach cancer	3255 (2634–4032)	13·8 (-7·9, 41·0)	1·0	3811 (3265–4452)	33·3 (14·2, 55·7)	1·1	2317 (1626–3318)	-19·0 (-43·1, 16·0)	0·8
Oral cancer	3669 (2886–4665)	29·9 (2·2, 65·1)	1·1	3646 (2956–4501)	29·1 (4·6, 59·3)	1·0	3715 (2669–5188)	31·5 (-5·5, 83·6)	1·1
Ovarian cancer	2749 (2341–3228)	1·4 (-13·6, 19·1)	0·9	2833 (2442–3288)	4·5 (-9·9, 21·3)	0·9	2575 (2120–3129)	-5·0 (-21·8, 15·5)	0·8
Kidney cancer	2636 (1867–3800)	15·1 (-18·5, 65·9)	0·8	2835 (2145–3798)	23·8 (-6·3, 65·9)	0·8	2278 (1330–4015)	-0·5 (-41·9, 75·3)	0·7
Uterine cancer	2280 (1968–2643)	57·8 (36·2, 82·9)	0·6	2113 (1875–2379)	46·2 (29·8, 64·6)	0·6	2696 (2169–3350)	86·6 (50·1, 131·8)	0·7
Bladder cancer	1603 (1258–2042)	14·1 (-10·5, 45·3)	0·5	1791 (1413–2271)	27·5 (0·6, 61·6)	0·5	1262 (981–1626)	-10·2 (-30·2, 15·7)	0·4
Gallbladder and bile duct cancer	711 (484–1050)	16·6 (-20·7, 72·1)	0·2	813 (622–1059)	33·3 (2·0, 73·6)	0·2	539 (275–1079)	-11·6 (-54·9, 76·9)	0·2
Laryngeal cancer	464 (313–692)	-11·6 (-40·4, 31·8)	0·1	512 (367–733)	-2·5 (-30·1, 39·6)	0·2	368 (214–640)	-29·9 (-59·2, 21·9)	0·1
Thyroid cancer	552 (349–872)	55·5 (-1·7, 145·6)	0·2	527 (372–751)	48·5 (4·8, 111·5)	0·1	612 (302–1,254)	72·4 (-14·9, 253·2)	0·2
Testicular cancer	166 (79–357)	50·9 (-28·2, 224·5)	0·1	157 (90–272)	42·7 (-18·2, 147·3)	0·1	186 (54–673)	69·1 (-50·9, 511·8)	0·1
Other cancers	17 718 (15 560–20 393)	8·8 (-4·4, 25·3)	5·3	17 228 (15 585–19 069)	5·8 (-4·3, 17·1)	5·3	15 996 (13 480–19 036)	-1·7 (-17·2, 16·9)	5·1
Cardiovascular disease	**57 788 (51 383–65 512)**	**17·2 (4·2, 32·8)**	**16·9**	**72 576 (66 220–79 872)**	**47·2 (34·3, 61·9)**	**19·5**	**37 085 (30 447–46 292)**	**-24·8 (-38·3, -6·1)**	**13·4**
Coronary heart disease	26 875 (24 933–28 998)	7·1 (-0·6, 15·6)	8·0	36 919 (34 713–39 285)	47·1 (38·4, 56·6)	9·8	13 633 (12 198–15 293)	-45·7 (-51·4, -39·0)	5·7
Cerebrovascular disease	12 507 (10 681–14 658)	37·6 (17·5, 61·3)	3·5	15 606 (13 768–17 685)	71·7 (51·5, 94·6)	4·0	7772 (6083–9930)	-14·5 (-33·1, 9·2)	2·7
Hypertensive disease	3208 (2336–4416)	81·8 (32·4, 150·2)	0·8	2975 (2306–3848)	68·6 (30·7, 118·0)	0·8	3780 (2317–6184)	114·2 (31·3, 250·4)	0·9
Other cardiovascular disease	15 198 (13 433–17 440)	13·6 (0·4, 30·4)	4·6	17 076 (15 433–19 054)	27·7 (15·4, 42·5)	4·9	11 900 (9849–14 885)	-11·0 (-26·4, 11·3)	4·0
Respiratory diseases	**25 494 (21 866–30 651)**	**36·4 (17·0, 64·0)**	**7·3**	**23 827 (20 965–27 505)**	**27·5 (12·1, 47·1)**	**6·8**	**31 105 (24 876–43 836)**	**66·4 (33·1, 134·5)**	**8·0**
COPD	17 010 (15 144–19 694)	50·9 (34·4, 74·7)	4·7	14 729 (13 465–16 355)	30·7 (19·5, 45·1)	4·2	23 797 (19 579–32 895)	111·2 (73·7, 191·9)	5·7
Asthma	1104 (627–1946)	38·0 (-21·6, 143·2)	0·3	1219 (833–1793)	52·4 (4·1, 124·1)	0·3	893 (329–2443)	11·6 (-58·9, 205·4)	0·3
Other respiratory diseases	7380 (6095–9011)	11·4 (-8·0, 36·0)	2·2	7879 (6667–9357)	18·9 (0·6, 41·2)	2·3	6415 (4968–8498)	-3·2 (-25·0, 28·3)	2·0
Digestive diseases	**16 117 (13 285–19 592)**	**39·5 (15·0, 69·6)**	**4·6**	**15 407 (13 115–18 138)**	**33·3 (13·5, 57·0)**	**4·4**	**18 098 (13 685–24 042)**	**56·6 (18·4, 108·1)**	**4·9**
Liver disease	10 732 (8986–12 847)	45·8 (22·1, 74·6)	3·1	9758 (8376–11 394)	32·6 (13·8, 54·8)	2·8	13 232 (10 272–17 109)	79·8 (39·6, 132·5)	3·4

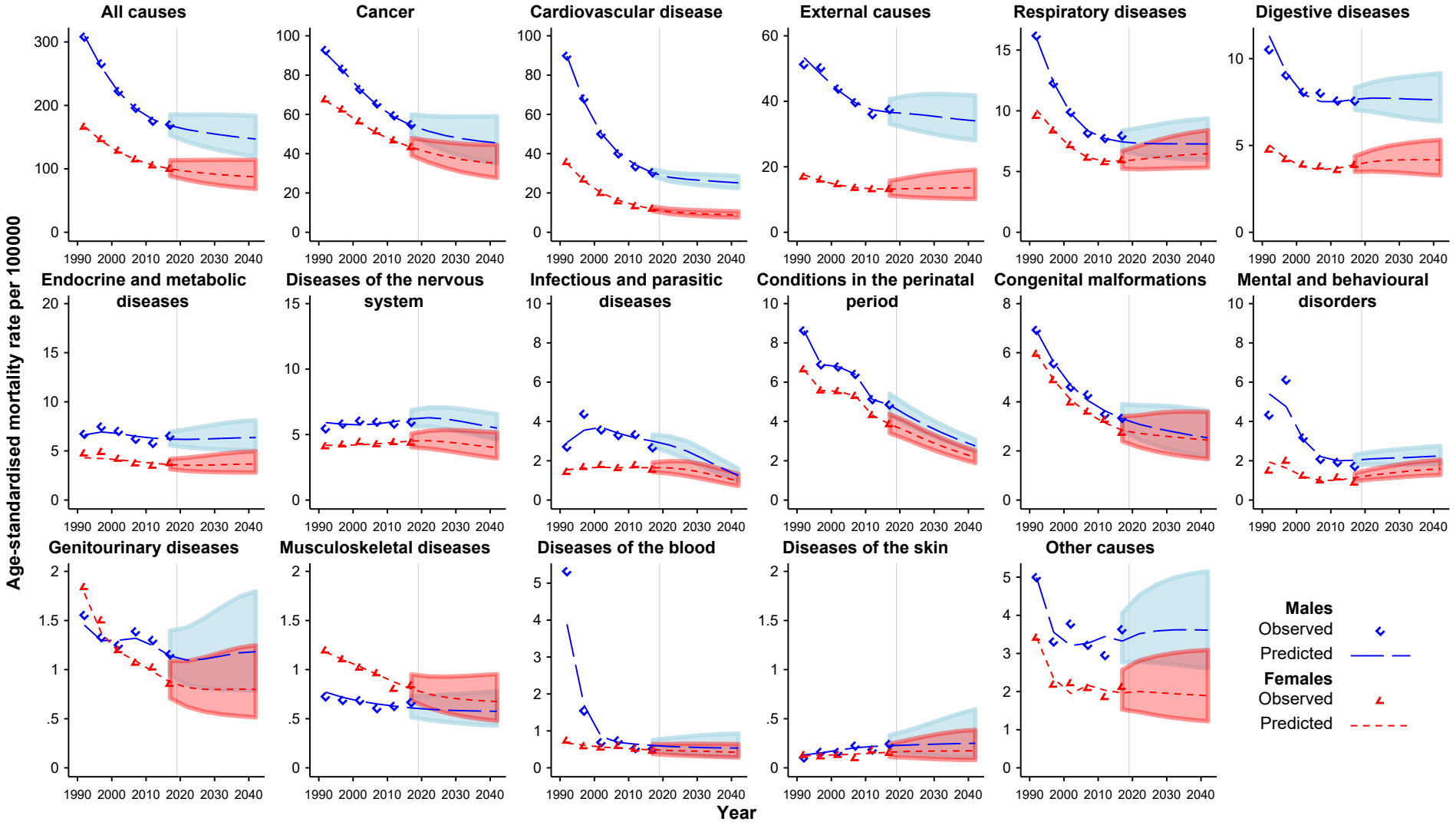
Other digestive diseases	5385 (4299–6745)	28·4 (2·5, 60·8)	1·5	5649 (4739–6744)	34·7 (13·0, 60·8)	1·6	4866 (3413–6933)	16·0 (-18·6, 65·3)	1·5
Diseases of the nervous system	**15 250 (13 160–17 797)**	**32·7 (14·5, 54·8)**	**4·7**	**13 730 (12 103–15 656)**	**19·4 (5·3, 36·2)**	**4·3**	**19 237 (15 724–23 865)**	**67·4 (36·8, 107·6)**	**5·3**
Endocrine and metabolic diseases	**20 719 (12 981–20 165)**	**84·0 (15·3, 79·1)**	**6·1**	**19 381 (14 094–20 240)**	**72·1 (25·2, 79·8)**	**5·8**	**24 328 (10 669–20 686)**	**116·1 (-5·2, 83·7)**	**6·7**
Diabetes	10 625 (8944–12 630)	39·5 (17·5, 65·9)	3·0	11 189 (9673–12 953)	46·9 (27·0, 70·1)	3·1	9527 (7439–12 211)	25·1 (-2·3, 60·4)	2·8
Other endocrine and metabolic diseases	5469 (4037–7535)	50·0 (10·8, 106·7)	1·5	5651 (4421–7287)	55·0 (21·3, 99·9)	1·5	5091 (3230–8475)	39·7 (-11·4, 132·5)	1·4
Infectious and parasitic diseases	**4057 (3149–5230)**	**-1·8 (-23·8, 26·6)**	**1·5**	**4123 (3457–4924)**	**-0·2 (-16·3, 19·2)**	**1·5**	**3914 (2527–6089)**	**-5·2 (-38·8, 47·4)**	**1·5**
Mental and behavioural disorders	**6491 (5335–7970)**	**69·3 (39·1, 107·8)**	**1·8**	**5078 (4258–6097)**	**32·4 (11·0, 59·0)**	**1·5**	**11 368 (8793–14 881)**	**196·4 (129·3, 288·0)**	**2·5**
Congenital malformations	**2974 (2048–4335)**	**6·6 (-26·6, 55·4)**	**0·9**	**3057 (2371–3960)**	**9·6 (-15·0, 41·9)**	**0·9**	**2848 (1461–5608)**	**2·1 (-47·6, 101·0)**	**0·9**
Conditions in the perinatal period	**2039 (1801–2311)**	**-26·4 (-35·0, -16·6)**	**0·8**	**2039 (1801–2311)**	**-26·4 (-35·0, -16·6)**	**0·7**	**2039 (1801–2311)**	**-26·4 (-35·0, -16·6)**	**0·7**
Genitourinary diseases	**3858 (2610–5753)**	**43·4 (-3·0, 113·9)**	**1·1**	**4020 (3094–5253)**	**49·4 (15·0, 95·3)**	**1·1**	**2640 (1565–4473)**	**-1·9 (-41·8, 66·3)**	**0·9**
Kidney failure	1915 (1372–2681)	17·5 (-15·8, 64·5)	0·5	2464 (1973–3079)	51·2 (21·0, 88·9)	0·7	873 (586–1300)	-46·4 (-64·0, -20·2)	0·4
Other genitourinary diseases	1943 (1238–3072)	83·3 (16·8, 189·8)	0·5	1556 (1121–2174)	46·8 (5·8, 105·1)	0·4	1767 (979–3173)	66·7 (-7·6, 199·3)	0·5
Musculoskeletal diseases	**2104 (1568–2818)**	**16·9 (-12·9, 56·6)**	**0·6**	**2172 (1699–2755)**	**20·7 (-5·6, 53·1)**	**0·6**	**1849 (1291–2654)**	**2·7 (-28·3, 47·4)**	**0·6**
Diseases of the blood	**1209 (776–1926)**	**32·9 (-14·7, 111·6)**	**0·4**	**1307 (939–1829)**	**43·6 (3·2, 101·0)**	**0·4**	**1036 (511–2264)**	**13·8 (-43·8, 148·8)**	**0·3**
Diseases of the skin	**739 (337–1609)**	**42·1 (-35·2, 209·4)**	**0·2**	**707 (339–1462)**	**36·0 (-34·8, 181·2)**	**0·2**	**831 (324–2098)**	**59·8 (-37·7, 303·5)**	**0·2**
External causes	**46 045 (37 391–57 790)**	**31·5 (6·8, 65·0)**	**13·3**	**44 447 (37 268–53 582)**	**26·9 (6·4, 53·0)**	**12·8**	**55 086 (40 981–78 356)**	**57·3 (17·0, 123·7)**	**14·4**
Suicide	22 061 (18 783–25 941)	51·7 (29·1, 78·3)	6·1	21 590 (18 769–24 874)	48·4 (29·0, 71·0)	5·9	23 680 (18 794–29 883)	62·8 (29·2, 105·5)	6·3
Accidental poisoning	9585 (7483–12 363)	38·4 (8·1, 78·5)	2·8	7170 (5746–8983)	3·5 (-17·0, 29·7)	2·2	18 808 (13 404–26 840)	171·6 (93·6, 287·6)	4·0
Land transport accidents	4990 (4013–6203)	-12·8 (-29·9, 8·3)	1·6	6099 (5199–7160)	6·5 (-9·2, 25·1)	1·8	3293 (2323–4690)	-42·5 (-59·4, -18·1)	1·3
Assault	1473 (851–2662)	24·3 (-28·2, 124·6)	0·4	1596 (1029–2550)	34·7 (-13·2, 115·2)	0·4	1246 (543–3240)	5·1 (-54·2, 173·4)	0·4
Accidental drowning	920 (435–2125)	10·2 (-47·9, 154·5)	0·3	966 (586–1645)	15·7 (-29·8, 97·0)	0·3	831 (210–4479)	-0·5 (-74·9, 436·4)	0·3
Other external causes	7016 (5826–8496)	20·8 (0·3, 46·2)	2·2	7026 (5939–8370)	20·9 (2·2, 44·1)	2·1	7228 (5707–9224)	24·4 (-1·8, 58·8)	2·2
Other causes	6109 (4521–8445)	48·3 (9·7, 105·0)	1·7	5087 (3960–6637)	23·5 (-3·9, 61·1)	1·5	9533 (6232–15 118)	131·4 (51·3, 266·9)	2·2

a. Overall percentage change in the number of premature deaths for 2040-2044 compared to the number of deaths observed in 2015-2019.
Damping factors: 0.92 for main analyses; 0.82 for ‘intensive’ damping; 0.99 to approximate ‘no damping’.

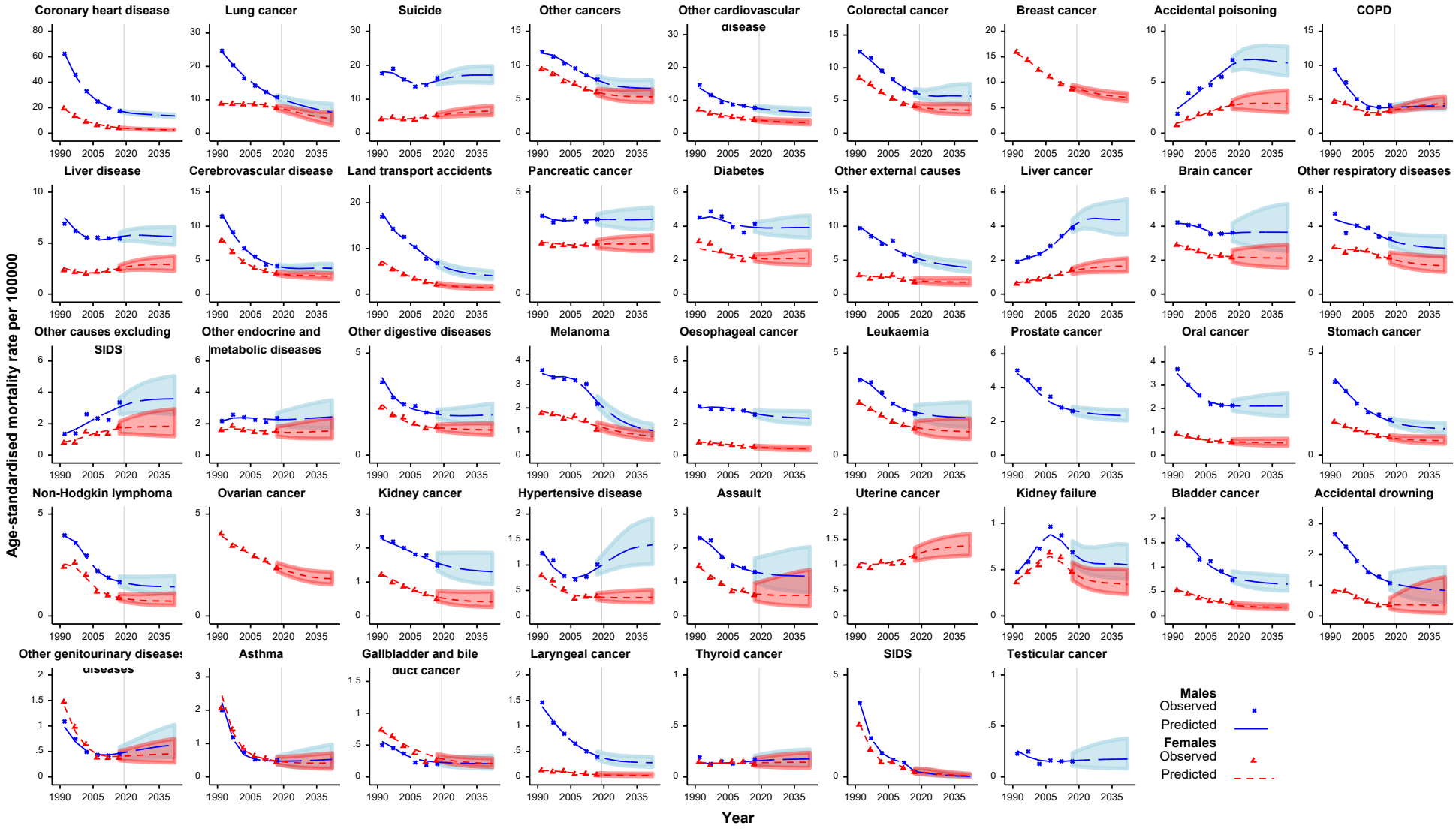
4. Sensitivity analyses with upper age limit of 70 years for premature mortality

Figure S46. Observed and projected age-standardised premature mortality rates for 1990–2044 for all causes combined and for different cause of death categories: sensitivity analysis with upper age limit of 70 years for premature mortality

A. Level 1 cause of death categories



B. Level 2 cause of death categories



All rates are age-standardised to the Segi World standard population. The shaded area represents the 95% uncertainty interval.

Figure S47. Estimated annual potential years of life lost due to premature death for different cause of death categories by sex and age group, 1990–2044, Australia: sensitivity analysis with upper age limit of 70 years for premature mortality

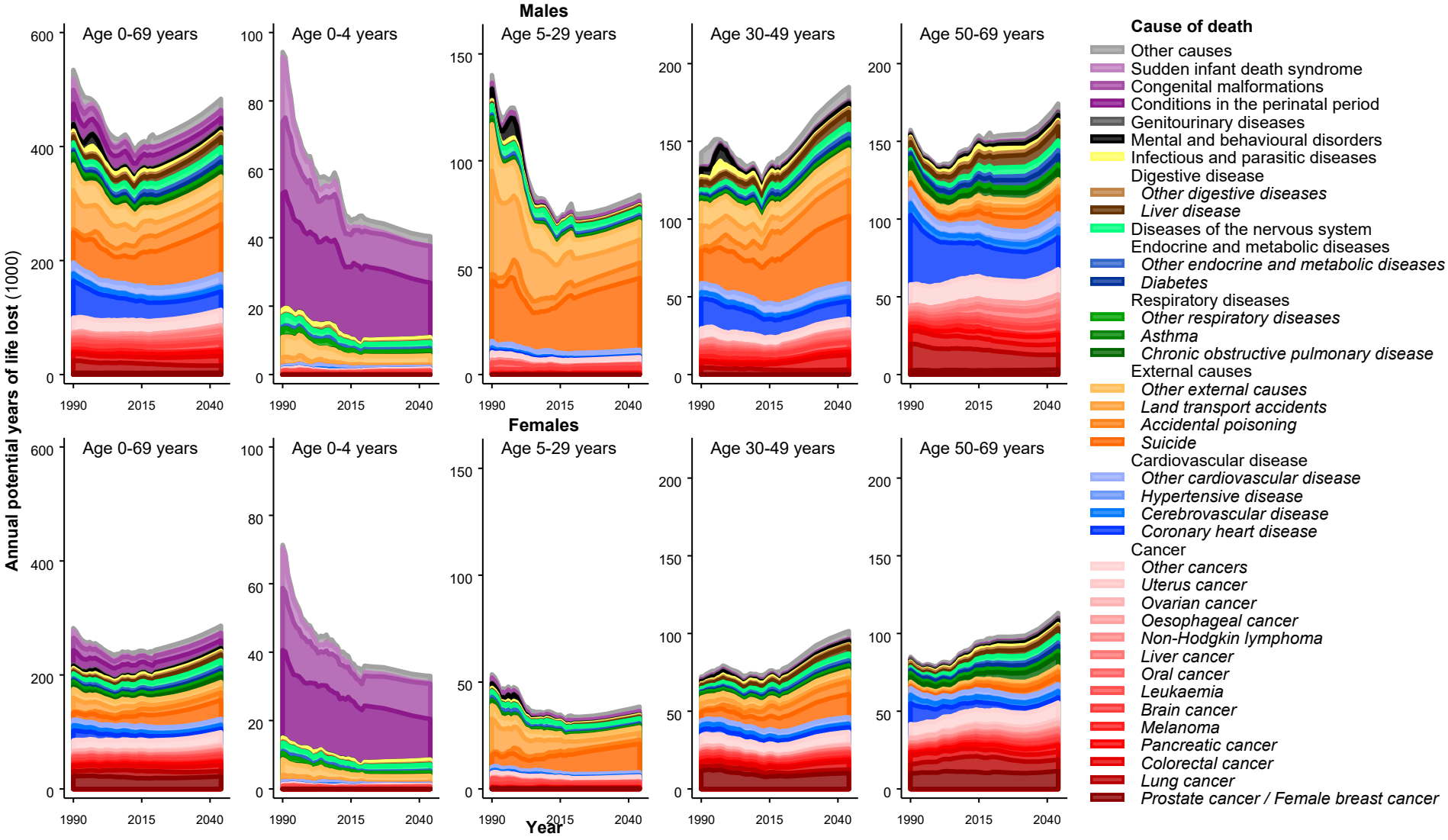


Table S10. Sensitivity analysis: Observed (2015-2019) and projected (2040-2044) age-standardised premature mortality rates per 100 000 and numbers of premature deaths for all causes combined and for different cause of death categories age up to 69 years, Australia (ranked by the total numbers of premature deaths observed in 2015-2019)

	Age-standardised mortality rate			Number of premature deaths			
	Observed 2015-2019	Projected in 2040-2044 (95% UI)	Change in rates % (95% UI)[b]	Observed 2015-2019	Projected in 2040-2044 (95% UI)	Change in deaths % (95% UI)[b]	Total projected in 2020-2044 (95% UI)
Total - all causes	**134·2**	**116·5 (93·2, 148·0)**	**-13·2 (-30·6, 10·3)**	**200 640**	**234 832 (187 619–290 421)**	**17·0 (-6·5, 44·7)**	**1 109 166 (918 038–1 316 671)**
Males - all causes	**169·5**	**146·8 (119·3, 183·2)**	**-13·4 (-29·6, 8·1)**	**125 255**	**144 859 (117 646–177 249)**	**15·7 (-6·1, 41·5)**	**684 013 (574 388–804 983)**
Cancer	**54·9**	**45·4 (35·0, 59·0)**	**-17·3 (-36·2, 7·5)**	**44 195**	**47 731 (37 104–61 163)**	**8·0 (-16·0, 38·4)**	**228 053 (188 099–277 525)**
Lung cancer	*10·8*	*6·2 (3·7, 8·8)*	*-42·6 (-65·7, -18·5)*	*9015*	*6761 (4057–9465)*	*-25·0 (-55·0, 5·0)*	*37 837 (29 379–46 297)*
Colorectal cancer	*6·3*	*5·7 (4·4, 7·5)*	*-9·5 (-30·2, 19·0)*	*5095*	*5813 (4582–7611)*	*14·1 (-10·1, 49·4)*	*26 621 (21 954–33 057)*
Liver cancer	*3·9*	*4·4 (3·5, 5·6)*	*12·8 (-10·3, 43·6)*	*3230*	*4725 (3752–5950)*	*46·3 (16·2, 84·2)*	*21 364 (17 775–25 737)*
Pancreatic cancer	*3·7*	*3·7 (3·2, 4·3)*	*0·0 (-13·5, 16·2)*	*3040*	*3937 (3397–4561)*	*29·5 (11·7, 50·0)*	*17 786 (15 660–20 209)*
Brain cancer	*3·6*	*3·6 (2·5, 5·3)*	*0·0 (-30·6, 47·2)*	*2705*	*3564 (2526–5091)*	*31·8 (-6·6, 88·2)*	*16 016 (11 997–21 649)*
Prostate cancer	*2·6*	*2·3 (2·0, 2·7)*	*-11·5 (-23·1, 3·8)*	*2275*	*2609 (2286–2970)*	*14·7 (0·5, 30·5)*	*12 338 (10 961–13 891)*
Oesophageal cancer	*2·6*	*2·4 (2·0, 2·8)*	*-7·7 (-23·1, 7·7)*	*2145*	*2532 (2134–3003)*	*18·0 (-0·5, 40·0)*	*11 758 (10 162–13 620)*
Oral cancer	*2·1*	*2·1 (1·7, 2·7)*	*0·0 (-19·0, 28·6)*	*1745*	*2233 (1771–2809)*	*28·0 (1·5, 61·0)*	*10 035 (8267–12 187)*
Melanoma	*2·2*	*1·0 (0·8, 1·3)*	*-54·5 (-63·6, -40·9)*	*1740*	*1070 (847–1348)*	*-38·5 (-51·3, -22·5)*	*6289 (5247–7554)*
Leukaemia	*2·0*	*1·8 (1·4, 2·6)*	*-10·0 (-30·0, 30·0)*	*1540*	*1804 (1411–2424)*	*17·1 (-8·4, 57·4)*	*8447 (6789–10 917)*
Stomach cancer	*1·7*	*1·3 (1·1, 1·6)*	*-23·5 (-35·3, -5·9)*	*1405*	*1394 (1150–1689)*	*-0·8 (-18·1, 20·2)*	*6696 (5675–7898)*
Non-Hodgkin lymphoma	*1·7*	*1·4 (1·1, 2·0)*	*-17·6 (-35·3, 17·6)*	*1345*	*1515 (1154–2044)*	*12·6 (-14·2, 52·0)*	*7049 (5566–9100)*
Kidney cancer	*1·5*	*1·3 (0·9, 1·9)*	*-13·3 (-40·0, 26·7)*	*1205*	*1389 (1001–1951)*	*15·3 (-16·9, 61·9)*	*6534 (4929–8796)*
Bladder cancer	*0·7*	*0·7 (0·5, 0·8)*	*0·0 (-28·6, 14·3)*	*625*	*713 (562–905)*	*14·1 (-10·1, 44·8)*	*3404 (2743–4236)*
Laryngeal cancer	*0·4*	*0·3 (0·2, 0·4)*	*-25·0 (-50·0, 0·0)*	*325*	*300 (210–425)*	*-7·7 (-35·4, 30·8)*	*1465 (1078–1997)*
Gallbladder and bile duct cancer	*0·2*	*0·2 (0·1, 0·3)*	*0·0 (-50·0, 50·0)*	*170*	*223 (137–359)*	*31·2 (-19·4, 111·2)*	*1033 (684–1562)*
Thyroid cancer	*0·2*	*0·2 (0·1, 0·3)*	*0·0 (-50·0, 50·0)*	*140*	*197 (128–300)*	*40·7 (-8·6, 114·3)*	*864 (585–1276)*
Testicular cancer	*0·2*	*0·2 (0·1, 0·4)*	*0·0 (-50·0, 100·0)*	*105*	*156 (74–333)*	*48·6 (-29·5, 217·1)*	*681 (344–1344)*
Other cancers	*7·9*	*6·6 (5·6, 7·8)*	*-16·5 (-29·1, -1·3)*	*6345*	*6796 (5925–7925)*	*7·1 (-6·6, 24·9)*	*31 836 (28 304–36 198)*
Cardiovascular disease	**30·5**	**25·1 (22·4, 28·5)**	**-17·7 (-26·6, -6·6)**	**24 270**	**26 477 (23 694–29 852)**	**9·1 (-2·4, 23·0)**	**124 947 (113 699–138 243)**
Coronary heart disease	*17·6*	*13·6 (12·7, 14·6)*	*-22·7 (-27·8, -17·0)*	*14 155*	*14 491 (13 516–15 544)*	*2·4 (-4·5, 9·8)*	*69 728 (65 619–74 149)*
Cerebrovascular disease	*4·1*	*3·8 (3·3, 4·5)*	*-7·3 (-19·5, 9·8)*	*3330*	*4084 (3492–4785)*	*22·6 (4·9, 43·7)*	*18 454 (16 190–21 092)*
Hypertensive disease	*1·0*	*1·4 (1·0, 1·9)*	*40·0 (0·0, 90·0)*	*825*	*1496 (1095–2056)*	*81·3 (32·7, 149·2)*	*6203 (4733–8187)*
Other cardiovascular disease	*7·7*	*6·3 (5·4, 7·5)*	*-18·2 (-29·9, -2·6)*	*5960*	*6406 (5591–7467)*	*7·5 (-6·2, 25·3)*	*30 562 (27 157–34 815)*
External causes	**37·6**	**34·0 (28·1, 41·7)**	**-9·6 (-25·3, 10·9)**	**24 250**	**30 001 (24 959–36 444)**	**23·7 (2·9, 50·3)**	**138 746 (118 059–164 457)**
Suicide	*16·3*	*17·1 (14·8, 19·8)*	*4·9 (-9·2, 21·5)*	*10 555*	*15 085 (13 082–17 396)*	*42·9 (23·9, 64·8)*	*66 698 (58 782–75 715)*
Accidental poisoning	*7·2*	*6·9 (5·6, 8·5)*	*-4·2 (-22·2, 18·1)*	*4805*	*6342 (5182–7772)*	*32·0 (7·8, 61·7)*	*29 259 (24 553–34 940)*
Land transport accidents	*6·8*	*4·1 (3·3, 5·1)*	*-39·7 (-51·5, -25·0)*	*4150*	*3392 (2754–4185)*	*-18·3 (-33·6, 0·8)*	*17 449 (14 608–20 895)*
Assault	*1·3*	*1·2 (0·7, 2·0)*	*-7·7 (-46·2, 53·8)*	*795*	*967 (596–1614)*	*21·6 (-25·0, 103·0)*	*4433 (2907–6925)*
Accidental drowning	*1·1*	*0·8 (0·4, 1·6)*	*-27·3 (-63·6, 45·5)*	*605*	*635 (339–1197)*	*5·0 (-44·0, 97·9)*	*3083 (1828–5262)*
Other external causes	*4·9*	*3·9 (3·2, 4·7)*	*-20·4 (-34·7, -4·1)*	*3340*	*3580 (3006–4280)*	*7·2 (-10·0, 28·1)*	*17 824 (15 381–20 720)*
Respiratory diseases	**8·0**	**7·3 (6·0, 9·4)**	**-8·8 (-25·0, 17·5)**	**6395**	**7612 (6367–9508)**	**19·0 (-0·4, 48·7)**	**34 662 (29 695–41 775)**
COPD	*4·2*	*4·0 (3·5, 5·0)*	*-4·8 (-16·7, 19·0)*	*3550*	*4400 (3854–5281)*	*23·9 (8·6, 48·8)*	*19 796 (17 602–23 052)*
Asthma	*0·5*	*0·5 (0·3, 1·0)*	*0·0 (-40·0, 100·0)*	*335*	*486 (261–890)*	*45·1 (-22·1, 165·7)*	*2050 (1202–3456)*

Other respiratory diseases	*3·3*	*2·7 (2·2, 3·4)*	*-18·2 (-33·3, 3·0)*	*2510*	*2726 (2252–3337)*	*8·6 (-10·3, 32·9)*	*12 816 (10 891–15 267)*
Digestive diseases	**7·6**	**7·6 (6·4, 9·1)**	**0·0 (-15·8, 19·7)**	**5930**	**7823 (6551–9348)**	**31·9 (10·5, 57·6)**	**35 284 (30 473–40 908)**
Liver disease	*5·5*	*5·7 (4·8, 6·6)*	*3·6 (-12·7, 20·0)*	*4275*	*5804 (4969–6777)*	*35·8 (16·2, 58·5)*	*26 294 (23 102–29 916)*
Other digestive diseases	*2·1*	*2·0 (1·5, 2·5)*	*-4·8 (-28·6, 19·0)*	*1655*	*2019 (1582–2571)*	*22·0 (-4·4, 55·3)*	*8990 (7371–10 992)*
Endocrine and metabolic diseases	**6·5**	**6·4 (5·1, 8·1)**	**-1·5 (-21·5, 24·6)**	**5055**	**7804 (5321–8242)**	**54·4 (5·3, 63·0)**	**36 702 (24 468–35 380)**
Diabetes	*4·1*	*3·9 (3·3, 4·6)*	*-4·9 (-19·5, 12·2)*	*3355*	*4183 (3558–4928)*	*24·7 (6·1, 46·9)*	*18 913 (16 499–21 705)*
Other endocrine and metabolic diseases	*2·4*	*2·4 (1·7, 3·5)*	*0·0 (-29·2, 45·8)*	*1700*	*2395 (1763–3314)*	*40·9 (3·7, 94·9)*	*10 339 (7969–13 675)*
Diseases of the nervous system	**6·0**	**5·5 (4·6, 6·6)**	**-8·3 (-23·3, 10·0)**	**4395**	**5409 (4631–6345)**	**23·1 (5·4, 44·4)**	**26 363 (23 227–30 062)**
Infectious and parasitic diseases	**2·7**	**1·2 (1·0, 1·6)**	**-55·6 (-63·0, -40·7)**	**1995**	**1216 (957–1544)**	**-39·0 (-52·0, -22·6)**	**9039 (7490–10 943)**
Conditions in the perinatal period	**4·9**	**2·8 (2·5, 3·1)**	**-42·9 (-49·0, -36·7)**	**1580**	**1167 (1045–1302)**	**-26·1 (-33·9, -17·6)**	**6738 (6036–7520)**
Congenital malformations	**3·3**	**2·5 (1·8, 3·6)**	**-24·2 (-45·5, 9·1)**	**1475**	**1418 (986–2048)**	**-3·9 (-33·2, 38·8)**	**7265 (5350–9905)**
Mental and behavioural disorders	**1·7**	**2·2 (1·8, 2·7)**	**29·4 (5·9, 58·8)**	**1380**	**2317 (1915–2823)**	**67·9 (38·8, 104·6)**	**10 095 (8508–12 079)**
Genitourinary diseases	**1·2**	**1·2 (0·8, 1·8)**	**0·0 (-33·3, 50·0)**	**930**	**1257 (839–1901)**	**35·2 (-9·8, 104·4)**	**5492 (3908–7789)**
Kidney failure	*0·7*	*0·6 (0·4, 0·8)*	*-14·3 (-42·9, 14·3)*	*570*	*602 (432–836)*	*5·6 (-24·2, 46·7)*	*2787 (2085–3696)*
Other genitourinary diseases	*0·4*	*0·6 (0·4, 1·0)*	*50·0 (0·0, 150·0)*	*360*	*655 (407–1065)*	*81·9 (13·1, 195·8)*	*2705 (1823–4093)*
Musculoskeletal diseases	**0·7**	**0·6 (0·4, 0·8)**	**-14·3 (-42·9, 14·3)**	**530**	**602 (446–803)**	**13·6 (-15·8, 51·5)**	**2761 (2149–3538)**
Diseases of the blood	**0·5**	**0·5 (0·3, 0·9)**	**0·0 (-40·0, 80·0)**	**370**	**492 (283–854)**	**33·0 (-23·5, 130·8)**	**2294 (1447–3651)**
Diseases of the skin	**0·2**	**0·2 (0·1, 0·6)**	**0·0 (-50·0, 200·0)**	**200**	**258 (105–604)**	**29·0 (-47·5, 202·0)**	**1129 (568–2239)**
Other causes	**3·6**	**3·6 (2·6, 5·2)**	**0·0 (-27·8, 44·4)**	**2305**	**3275 (2443–4468)**	**42·1 (6·0, 93·8)**	**14 443 (11 212–18 969)**
SIDS	*0·3*	*0·0 (0·0, 0·1)*		*85*	*12 (4–44)*	*-85·9 (-95·3, -48·2)*	*173 (79–419)*
Other causes excluding SIDS	*3·4*	*3·6 (2·6, 5·0)*	*5·9 (-23·5, 47·1)*	*2220*	*3263 (2439–4424)*	*47·0 (9·9, 99·3)*	*14 270 (11 133–18 550)*
Females - all causes	**99·8**	**87·2 (68·1, 114·0)**	**-12·6 (-31·8, 14·2)**	**75 385**	**89 973 (69 973–113 172)**	**19·4 (-7·2, 50·1)**	**425 153 (343 650–511 688)**
Cancer	**43·3**	**35·1 (27·6, 44·5)**	**-18·9 (-36·3, 2·8)**	**35 405**	**38 255 (30 324–48 001)**	**8·0 (-14·4, 35·6)**	**184 325 (153 793–221 369)**
Breast cancer	*8·7*	*7·0 (6·3, 7·9)*	*-19·5 (-27·6, -9·2)*	*7065*	*7605 (6808–8489)*	*7·6 (-3·6, 20·2)*	*36 835 (33 588–40 408)*
Lung cancer	*7·6*	*4·3 (2·4, 6·3)*	*-43·4 (-68·4, -17·1)*	*6605*	*4982 (2765–7200)*	*-24·6 (-58·1, 9·0)*	*28 468 (21 366–35 569)*
Colorectal cancer	*4·2*	*3·5 (2·8, 4·5)*	*-16·7 (-33·3, 7·1)*	*3445*	*3813 (3133–4737)*	*10·7 (-9·1, 37·5)*	*17 868 (15 076–21 504)*
Pancreatic cancer	*2·5*	*2·5 (2·1, 2·9)*	*0·0 (-16·0, 16·0)*	*2165*	*2824 (2408–3313)*	*30·4 (11·2, 53·0)*	*12 777 (11 121–14 697)*
Ovarian cancer	*2·4*	*1·8 (1·5, 2·2)*	*-25·0 (-37·5, -8·3)*	*1990*	*2025 (1717–2389)*	*1·8 (-13·7, 20·1)*	*9834 (8546–11 331)*
Brain cancer	*2·2*	*2·1 (1·6, 2·9)*	*-4·5 (-27·3, 31·8)*	*1660*	*2153 (1608–2893)*	*29·7 (-3·1, 74·3)*	*9755 (7561–12 666)*
Liver cancer	*1·5*	*1·7 (1·3, 2·1)*	*13·3 (-13·3, 40·0)*	*1235*	*1870 (1477–2371)*	*51·4 (19·6, 92·0)*	*8127 (6610–10 006)*
Uterine cancer	*1·2*	*1·4 (1·2, 1·6)*	*16·7 (0·0, 33·3)*	*1015*	*1569 (1348–1827)*	*54·6 (32·8, 80·0)*	*6892 (5992–7935)*
Leukaemia	*1·3*	*1·2 (0·8, 1·8)*	*-7·7 (-38·5, 38·5)*	*990*	*1168 (847–1715)*	*18·0 (-14·4, 73·2)*	*5499 (4104–7704)*
Melanoma	*1·1*	*0·8 (0·6, 1·0)*	*-27·3 (-45·5, -9·1)*	*880*	*843 (668–1060)*	*-4·2 (-24·1, 20·5)*	*4436 (3702–5337)*
Non-Hodgkin lymphoma	*0·9*	*0·7 (0·5, 1·1)*	*-22·2 (-44·4, 22·2)*	*760*	*813 (587–1190)*	*7·0 (-22·8, 56·6)*	*3796 (2863–5283)*
Stomach cancer	*0·9*	*0·7 (0·5, 0·9)*	*-22·2 (-44·4, 0·0)*	*735*	*791 (614–1024)*	*7·6 (-16·5, 39·3)*	*3732 (2991–4661)*
Oral cancer	*0·6*	*0·5 (0·4, 0·7)*	*-16·7 (-33·3, 16·7)*	*480*	*586 (436–790)*	*22·1 (-9·2, 64·6)*	*2713 (2092–3526)*
Oesophageal cancer	*0·5*	*0·4 (0·3, 0·5)*	*-20·0 (-40·0, 0·0)*	*465*	*469 (355–619)*	*0·9 (-23·7, 33·1)*	*2245 (1745–2884)*
Kidney cancer	*0·5*	*0·4 (0·3, 0·7)*	*-20·0 (-40·0, 40·0)*	*425*	*456 (288–756)*	*7·3 (-32·2, 77·9)*	*2215 (1487–3413)*
Bladder cancer	*0·3*	*0·2 (0·1, 0·2)*	*-33·3 (-66·7, -33·3)*	*230*	*207 (158–268)*	*-10·0 (-31·3, 16·5)*	*992 (766–1274)*
Gallbladder and bile duct cancer	*0·3*	*0·2 (0·2, 0·3)*	*-33·3 (-33·3, 0·0)*	*230*	*243 (180–332)*	*5·7 (-21·7, 44·3)*	*1194 (908–1570)*
Thyroid cancer	*0·1*	*0·1 (0·1, 0·2)*	*0·0 (0·0, 100·0)*	*110*	*171 (104–280)*	*55·5 (-5·5, 154·5)*	*766 (494–1190)*
Laryngeal cancer		*0·0 (0·0, 0·1)*		*40*	*35 (15–74)*	*-12·5 (-62·5, 85·0)*	*175 (80–354)*
Other cancers	*6·1*	*5·4 (4·5, 6·5)*	*-11·5 (-26·2, 6·6)*	*4880*	*5632 (4808–6674)*	*15·4 (-1·5, 36·8)*	*26 006 (22 701–30 057)*
Cardiovascular disease	**12·0**	**8·8 (7·4, 10·6)**	**-26·7 (-38·3, -11·7)**	**9795**	**9624 (8213–11 414)**	**-1·7 (-16·2, 16·5)**	**46 988 (41 007–54 388)**
Coronary heart disease	*4·3*	*2·6 (2·2, 3·0)*	*-39·5 (-48·8, -30·2)*	*3600*	*2871 (2526–3274)*	*-20·2 (-29·8, -9·1)*	*14 924 (13 352–16 734)*

Cerebrovascular disease	*3·1*	*2·6 (2·2, 3·1)*	*-16·1 (-29·0, 0·0)*	*2550*	*2952 (2506–3479)*	*15·8 (-1·7, 36·4)*	*13 848 (12 043–15 947)*
Hypertensive disease	*0·4*	*0·4 (0·3, 0·5)*	*0·0 (-25·0, 25·0)*	*335*	*413 (294–584)*	*23·3 (-12·2, 74·3)*	*1877 (1393–2556)*
Other cardiovascular disease	*4·2*	*3·2 (2·7, 4·0)*	*-23·8 (-35·7, -4·8)*	*3310*	*3388 (2887–4077)*	*2·4 (-12·8, 23·2)*	*16 339 (14 219–19 151)*
External causes	**13·2**	**13·6 (10·1, 19·1)**	**3·0 (-23·5, 44·7)**	**8535**	**12 238 (9251–16 732)**	**43·4 (8·4, 96·0)**	**54 226 (42 428–71 269)**
Suicide	*5·4*	*6·5 (5·3, 8·1)*	*20·4 (-1·9, 50·0)*	*3450*	*5769 (4670–7123)*	*67·2 (35·4, 106·5)*	*24 507 (20 328–29 576)*
Accidental poisoning	*2·9*	*2·9 (2·0, 4·2)*	*0·0 (-31·0, 44·8)*	*2025*	*2813 (1977–4016)*	*38·9 (-2·4, 98·3)*	*12 599 (9335–17 102)*
Land transport accidents	*2·2*	*1·4 (1·1, 1·8)*	*-36·4 (-50·0, -18·2)*	*1270*	*1190 (926–1522)*	*-6·3 (-27·1, 19·8)*	*5812 (4671–7234)*
Assault	*0·6*	*0·6 (0·3, 1·4)*	*0·0 (-50·0, 133·3)*	*355*	*467 (233–982)*	*31·5 (-34·4, 176·6)*	*2129 (1167–4066)*
Accidental drowning	*0·4*	*0·3 (0·1, 1·3)*	*-25·0 (-75·0, 225·0)*	*180*	*223 (62–791)*	*23·9 (-65·6, 339·4)*	*1052 (372–3106)*
Other external causes	*1·8*	*1·8 (1·3, 2·3)*	*0·0 (-27·8, 27·8)*	*1255*	*1776 (1383–2298)*	*41·5 (10·2, 83·1)*	*8127 (6555–10 185)*
Respiratory diseases	**5·9**	**6·5 (5·3, 8·4)**	**10·2 (-10·2, 42·4)**	**4925**	**7194 (6045–9001)**	**46·1 (22·7, 82·8)**	**31 688 (27 136–38 411)**
COPD	*3·3*	*4·4 (3·8, 5·5)*	*33·3 (15·2, 66·7)*	*2905*	*5055 (4418–6102)*	*74·0 (52·1, 110·1)*	*21 518 (19 079–25 218)*
Asthma	*0·5*	*0·4 (0·2, 0·7)*	*-20·0 (-60·0, 40·0)*	*335*	*405 (240–693)*	*20·9 (-28·4, 106·9)*	*1835 (1189–2900)*
Other respiratory diseases	*2·2*	*1·7 (1·3, 2·2)*	*-22·7 (-40·9, 0·0)*	*1685*	*1734 (1387–2206)*	*2·9 (-17·7, 30·9)*	*8335 (6868–10 293)*
Diseases of the nervous system	**4·4**	**4·0 (3·2, 5·2)**	**-9·1 (-27·3, 18·2)**	**3295**	**4002 (3291–4943)**	**21·5 (-0·1, 50·0)**	**19 513 (16 690–23 126)**
Digestive diseases	**3·9**	**4·2 (3·3, 5·3)**	**7·7 (-15·4, 35·9)**	**3120**	**4396 (3466–5589)**	**40·9 (11·1, 79·1)**	**19 744 (16 230–24 091)**
Liver disease	*2·5*	*2·9 (2·3, 3·8)*	*16·0 (-8·0, 52·0)*	*1980*	*3086 (2423–3940)*	*55·9 (22·4, 99·0)*	*13 635 (11 191–16 675)*
Other digestive diseases	*1·4*	*1·2 (1·0, 1·6)*	*-14·3 (-28·6, 14·3)*	*1140*	*1310 (1043–1649)*	*14·9 (-8·5, 44·6)*	*6109 (5039–7416)*
Endocrine and metabolic diseases	**3·8**	**3·7 (2·8, 5·0)**	**-2·6 (-26·3, 31·6)**	**2970**	**5590 (3072–5216)**	**88·2 (3·4, 75·6)**	**26 337 (14 165–22 162)**
Diabetes	*2·2*	*2·1 (1·7, 2·6)*	*-4·5 (-22·7, 18·2)*	*1840*	*2384 (1947–2918)*	*29·6 (5·8, 58·6)*	*10 748 (9081–12 743)*
Other endocrine and metabolic diseases	*1·6*	*1·5 (1·1, 2·4)*	*-6·2 (-31·2, 50·0)*	*1130*	*1588 (1125–2298)*	*40·5 (-0·4, 103·4)*	*6824 (5084–9419)*
Conditions in the perinatal period	**3·9**	**2·2 (1·9, 2·5)**	**-43·6 (-51·3, -35·9)**	**1190**	**872 (756–1009)**	**-26·7 (-36·5, -15·2)**	**5110 (4457–5862)**
Congenital malformations	**2·7**	**2·4 (1·7, 3·6)**	**-11·1 (-37·0, 33·3)**	**1175**	**1284 (872–1899)**	**9·3 (-25·8, 61·6)**	**6324 (4555–8831)**
Infectious and parasitic diseases	**1·5**	**1·0 (0·7, 1·3)**	**-33·3 (-53·3, -13·3)**	**1130**	**936 (697–1264)**	**-17·2 (-38·3, 11·9)**	**5994 (4697–7676)**
Mental and behavioural disorders	**0·9**	**1·6 (1·3, 2·1)**	**77·8 (44·4, 133·3)**	**730**	**1726 (1399–2183)**	**136·4 (91·6, 199·0)**	**7120 (5828–8885)**
Genitourinary diseases	**0·9**	**0·8 (0·5, 1·2)**	**-11·1 (-44·4, 33·3)**	**720**	**895 (580–1393)**	**24·3 (-19·4, 93·5)**	**4087 (2832–5934)**
Kidney failure	*0·5*	*0·3 (0·2, 0·5)*	*-40·0 (-60·0, 0·0)*	*405*	*388 (267–571)*	*-4·2 (-34·1, 41·0)*	*1880 (1358–2614)*
Other genitourinary diseases	*0·4*	*0·5 (0·3, 0·7)*	*25·0 (-25·0, 75·0)*	*315*	*507 (313–822)*	*61·0 (-0·6, 161·0)*	*2207 (1474–3320)*
Musculoskeletal diseases	**0·8**	**0·7 (0·5, 1·0)**	**-12·5 (-37·5, 25·0)**	**675**	**726 (517–1023)**	**7·6 (-23·4, 51·6)**	**3434 (2617–4550)**
Diseases of the blood	**0·5**	**0·4 (0·3, 0·6)**	**-20·0 (-40·0, 20·0)**	**330**	**407 (281–608)**	**23·3 (-14·8, 84·2)**	**1957 (1409–2768)**
Diseases of the skin	**0·2**	**0·2 (0·1, 0·4)**	**0·0 (-50·0, 100·0)**	**125**	**187 (86–411)**	**49·6 (-31·2, 228·8)**	**831 (438–1638)**
Other causes	**2·1**	**1·9 (1·2, 3·1)**	**-9·5 (-42·9, 47·6)**	**1265**	**1641 (1123–2486)**	**29·7 (-11·2, 96·5)**	**7475 (5368–10 728)**
SIDS	*0·3*	*0·1 (0·0, 0·2)*		*80*	*22 (9–63)*	*-72·5 (-88·8, -21·2)*	*223 (108–476)*
Other causes excluding SIDS	*1·9*	*1·8 (1·2, 2·9)*	*-5·3 (-36·8, 52·6)*	*1185*	*1619 (1114–2423)*	*36·6 (-6·0, 104·5)*	*7252 (5260–10 252)*

All rates are age-standardised to the Segi World standard population.

5. References

1. Australian Institute of Health and Welfare (AIHW). General Record of Incidence and Mortality (GRIM) books 2021. Available from: https://www.aihw.gov.au/reports/life-expectancy-death/grim-books/contents/grim-books. Accessed 25 June 2023.
2. World Health Organization. ICD-10 : international statistical classification of diseases and related health problems: tenth revision. Geneva: World Health Organization, 2021.
3. World Health Organization. WHO methods and data sources for country-level causes of death 2000-2019. Geneva, World Health Organization, 2020.
4. Luo Q, Yu XQ, Wade S, et al. Lung cancer mortality in Australia: Projected outcomes to 2040. *Lung Cancer* 2018;125:68-76.
5. Australian Bureau of Statistics. Population Projections, Australia, 2017 (base) to 2066. cat. no. 3222.0 2021. Available from: https://www.abs.gov.au/statistics/people/population/population-projections-australia/latest-release. Accessed 25 June 2023.
6. Smith TR, Wakefield J. A Review and Comparison of Age-Period-Cohort Models for Cancer Incidence. *Stat Sci* 2016;31(4):591-610.
7. Sasieni P. Age-period-cohort models in Stata. *The Stata Journal* 2012;12(1):15.
8. Moller B, Fekjaer H, Hakulinen T, et al. Prediction of cancer incidence in the Nordic countries up to the year 2020. *Eur J Cancer Prev* 2002;11 Suppl 1:S1-96.
9. Brown CC, Kessler LG. Projections of lung cancer mortality in the United States: 1985-2025. *J Natl Cancer Inst* 1988;80(1):43-51.
10. Shibuya K, Inoue M, Lopez AD. Statistical modeling and projections of lung cancer mortality in 4 industrialized countries. *IJC* 2005;117(3):476-85.
11. Australian Bureau of Statistics. Population Projections, Australia, 2017 (base) to 2066. cat. no. 3222.0, 2018.
12. Luo Q, Steinberg J, Yu XQ, et al. How well have projected lung cancer rates predicted the actual observed rates? *Asian Pac J Cancer Prev* 2021;22(2):437-45.
13. Bennett JE, Kontis V, Mathers CD, et al. NCD Countdown 2030: pathways to achieving Sustainable Development Goal target 3.4. *The Lancet* 2020;396(10255):918-34.
14. Preston S, Heuveline P, Guillot M. Demography: Measuring and modelling population processes: Wiley-Blackwell 2000.
15. Foreman KJ, Marquez N, Dolgert A, et al. Forecasting life expectancy, years of life lost, and all-cause and cause-specific mortality for 250 causes of death: reference and alternative scenarios for 2016-40 for 195 countries and territories. *The Lancet* 2018;392(10159):2052-90.