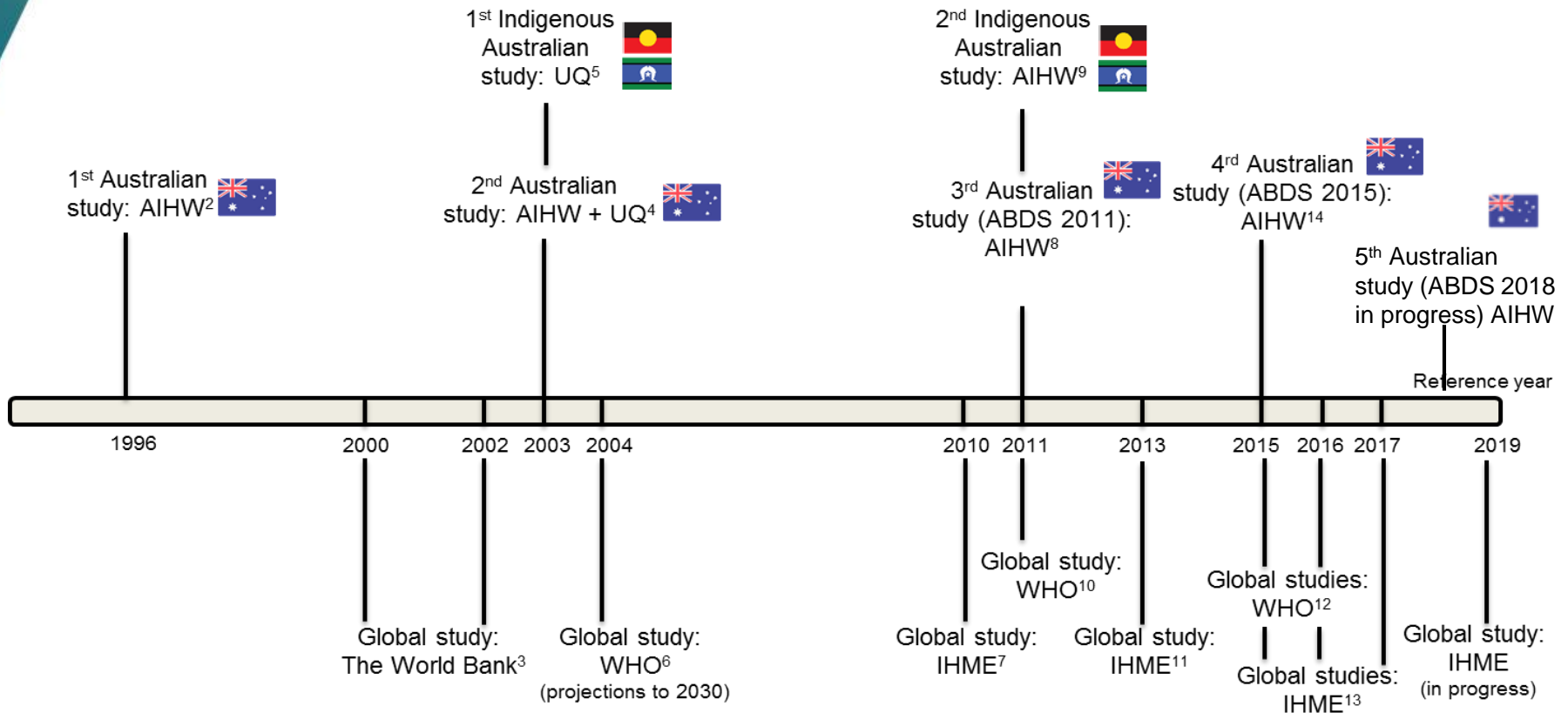# Key developments and results from the Australian Burden of Disease Study

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History of burden of disease studies: Australia and International

Australian Burden of Disease Study 2015

- 4th Australian burden of disease study
    - 200+ diseases
    - 38 risk factors
- sub-national estimates:
    - state/territory, remoteness area, SES group
- 3 time points (2003, 2011, 2015)
- Expert Advisory Group and expert panels
- ABDS system to enable ongoing updates
- Results published June 2019
    - 3 reports (summary, detailed, methods)
    - 2 interactive data visualisations

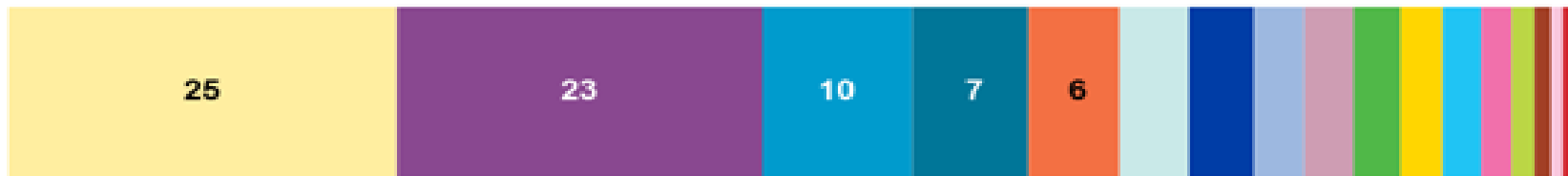   **<http://www.aihw.gov.au/burden-of-disease/>.**

Methodological approach

- **Largely follows GBD methodological framework**
  - Prevalent YLDs, no age weighting or discounting
  - GBD inputs (Disability weights, life table)
- **Some modifications to better suit Australian context**
  - Australian-specific disease/injury and risk factor lists
  - better use of direct detailed Australian data (less modelling required)
  - majority of estimates calculated directly from single best data source
  - Australian-specific redistribution methods for YLL
  - ABDS data quality framework

Leading disease groups causing burden

Non-fatal burden (YLD)

| 25 | 23 | 10 | 7 | 6 | | | | | | | | | |

Fatal burden (YLL)

| 34 | 22 | 14 | 7 | 5 | | | | | | | |

Total burden (DALY)

| 18 | 14 | 13 | 12 | 9 | 8 | 7 | | | | | |
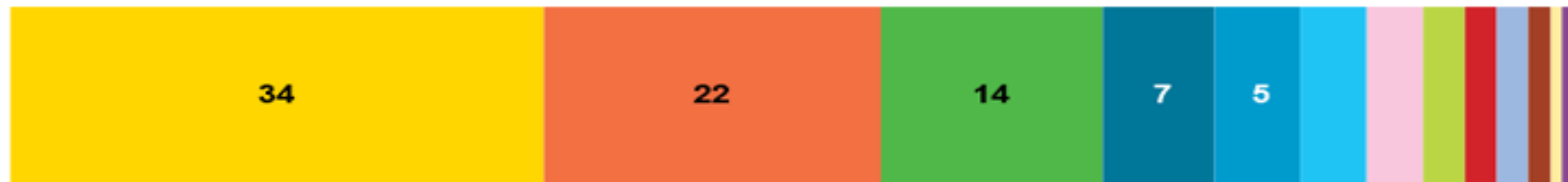
Legend:
- Cancer
- Cardiovascular
- Mental
- Musculoskeletal
- Injuries
- Respiratory
- Neurological
- Gastrointestinal
- Infant/congenital
- Endocrine
- Oral
- Hearing/vision
- Skin
- Infections
- Kidney/urinary
- Blood/metabolic
- Reproductive/maternal

Top 5 diseases by age (DALY)

Age group (years)

Rank	Under 5	5–14	15–24	25–44	45–64	65+
1st	Pre-term/lbw complications	Asthma	Suicide/self-inflicted injuries	Suicide/self-inflicted injuries	Coronary heart disease	Coronary heart disease
2nd	Birth trauma/ asphyxia	Anxiety disorders	Anxiety disorders	Back pain and problems	Back pain and problems	Dementia
3rd	SIDS	Depressive disorders	Depressive disorders	Anxiety disorders	Lung cancer	COPD
4th	Cardiovascular defects	Conduct disorder	Asthma	Depressive disorders	Osteoarthritis	Stroke
5th	Asthma	Dental caries	Alcohol use disorders	Poisoning	Anxiety disorders	Lung cancer

Australians getting healthier (or at least dying less)

There were **substantial improvements** in population health between 2003 and 2015 with:

Total burden
11%

Fatal burden
20%

Non-fatal burden
2%
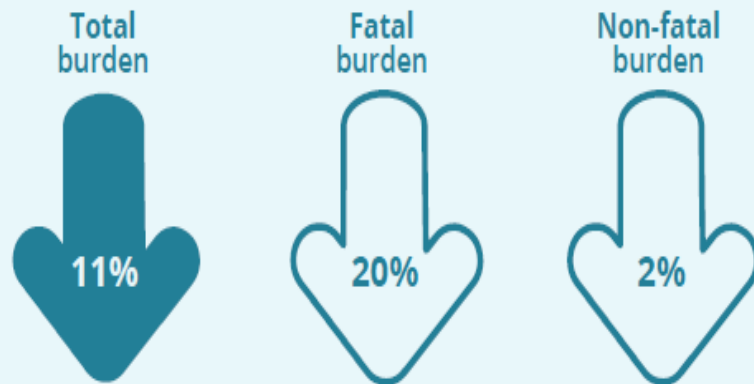
Biggest **absolute reduction** in burden (DALY rate) came from:

- Cardiovascular diseases
- Cancer
- Musculoskeletal conditions
- Infant and congenital conditions

Biggest **absolute increase** in burden (DALY rate) came from:

- Neurological conditions

AIHW

More than a third (38%) of burden is preventable

Disease group	Tobacco use	Overweight & obesity	Dietary risks[a]	High blood pressure	High blood plasma glucose
Cancer	22.1	7.8	4.2	. .	2.9
Cardiovascular	11.5	19.3	40.2	38.0	4.9
Respiratory	41.0	8.0	0.3	. .	. .
Endocrine	3.7	44.6	34.2	. .	98.0
Kidney/urinary	. .	35.6	7.7	34.1	53.7

Risk factor impact by socio-economic group

DALY rate

Legend: ■ 1 Lowest ■ 2 ■ 3 ■ 4 ■ 5 Highest

Y-axis: 0, 5, 10, 15, 20, 25

Risk factor (x-axis): Tobacco, Overweight /obesity, Diet, Blood pressure, Alcohol, Plasma glucose, Illicit drugs, Cholesterol, Physical inactivity, Occupation, Kidney function, Partner violence
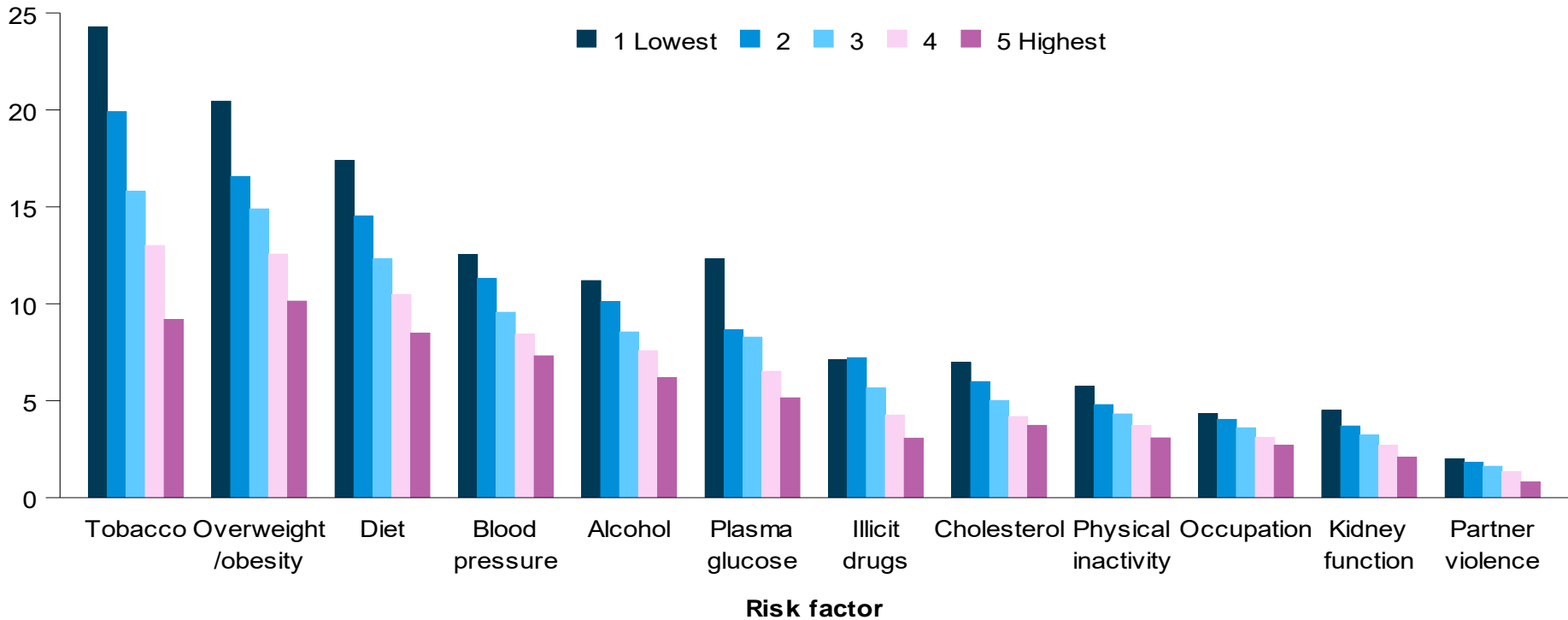
Comparison of ABDS and GBD results: YLD

GBDS YLD ABDS YLD

ABDS   GBDS   YLD '000s

	ABDS	GBDS
Anxiety disorders	150	135
Depressive disorders	135	182
Osteoarthritis	115	53
Asthma	113	80
Chronic obstructive pulmonary disease (COPD)	94	79
Rheumatoid arthritis	92	11
Dementia	80	35
Hearing loss	71	122
Coronary heart disease	67	19
Type 2 diabetes	65	96
Alcohol use disorders	61	32
Bipolar affective disorder	40	51
Severe tooth loss	39	50
Dental caries	39	6
Drug use disorders (excluding alcohol)	37	85
Falls	37	205

Remaining challenges and opportunities

- Remaining data gaps in prevalence for some diseases
- Severity distributions
- Disability weights
- local-level estimates
- Potential for extension analyses (e.g. scenario modelling/projections)
- Disease expenditure comparison
- Incorporating multiple causes of death in YLL
- New risk factors (climate change, social determinants)

Lessons learned

- Engage early and with wide range of experts
- Keep abreast of international developments
- Build and maintain staff capacity and set up the system to enable efficient and ongoing updates
- Seek stakeholder/user feedback on reporting outputs
- Accept that burden of disease methods are continually evolving