



Australian Government
Australian Institute of
Health and Welfare

Redistribution Down Under: dealing with ill-defined deaths in the Australian Burden of Disease Study

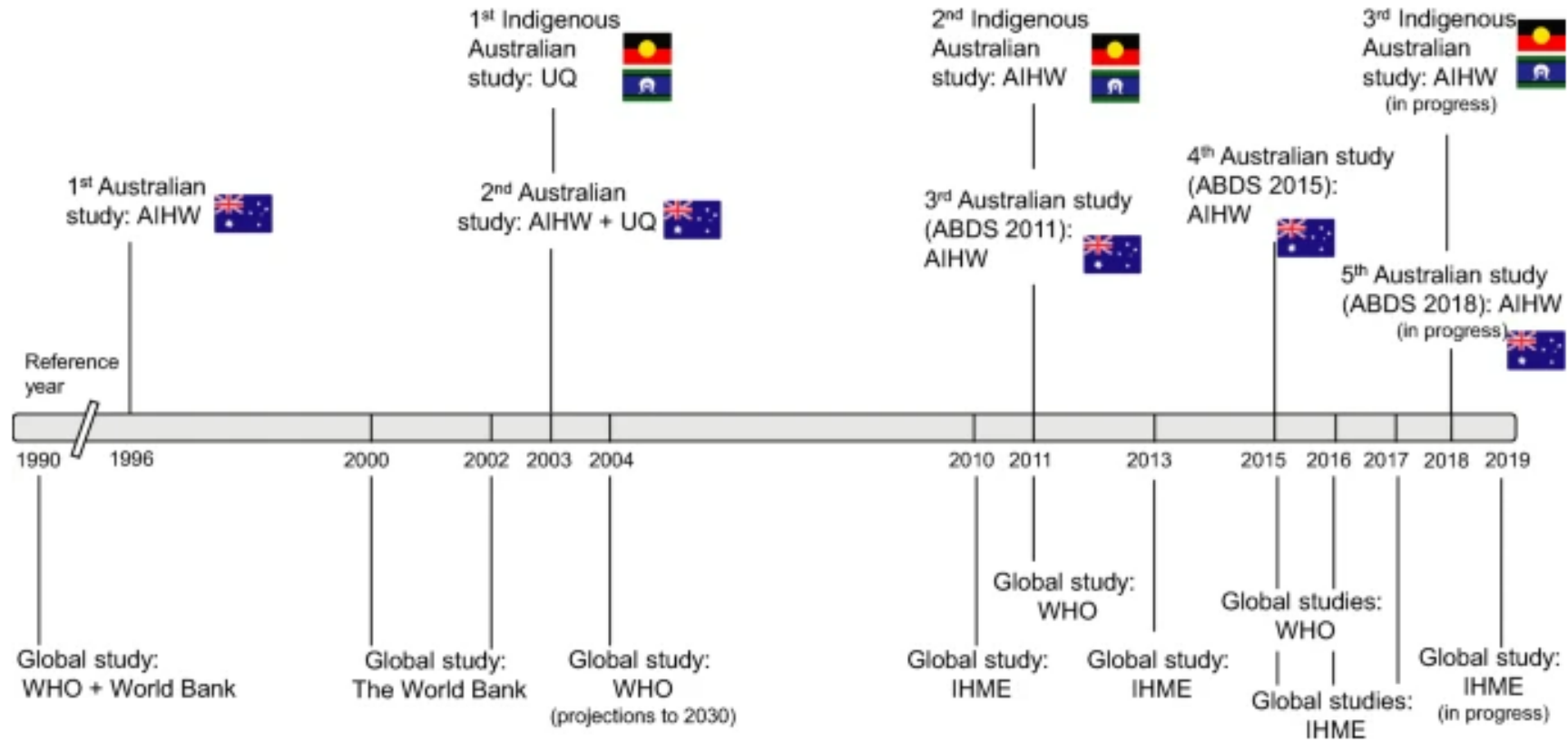
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The logo for the Australian Institute of Health and Welfare (AIHW), consisting of the letters 'AIHW' in a bold, sans-serif font. Each letter is a different color: 'A' is blue, 'I' is green, 'H' is red, and 'W' is purple.

AIHW

Stronger evidence,
better decisions,
improved health and welfare

Australian Burden of Disease Study



<https://archpublichealth.biomedcentral.com/articles/10.1186/s13690-020-00467-2>

<https://www.aihw.gov.au/reports-data/health-conditions-disability-deaths/burden-of-disease/overview>



AIHW National Mortality Database

- Information on the cause of deaths is sourced from the Registrars of Births, Deaths, and Marriages in each state and territory, and also from the National Coronial System for unexplained deaths under coroners' investigation.
- The AIHW gets a copy of the cause of death unit record file twice a year.
- There are preliminary, revised and final versions, where the cause of death can be updated when more information become available for those coroners' deaths.

Redistributing deaths

In BoD, all deaths must be allocated to a disease, but in ABDS 2018, 9.8% of deaths (15,675) had problems with this allocation.

Reason for redistribution	Examples
Implausible as the UCOD	Hypertension, paraplegia
Intermediate causes	Septicaemia, pneumonitis
Immediate causes	Cardiac arrest, respiratory failure
Ill-defined or unspecified causes	Non-specific cancers, undetermined intent, unknown causes



Three methods for redistributing deaths

1. Direct evidence
2. Indirect multiple causes of death
3. Proportional allocation



1. Direct evidence

Uses alternative data sources to obtain underlying cause of death distribution:

- Cancer registry data for ill-defined or unspecified-site cancer deaths
- Compared patterns of final and preliminary COD for deaths with unknown causes or undetermined intent

Around 40% of redistributed deaths



2. Indirect multiple causes of death

If problematic cause is often reported as ACOD, redistribution uses an algorithm based on UCOD of these pas ACODs:

- Derived directly from all deaths that have multiple causes of death over the past 20+ years
- Heart failure, hypertension, pneumonitis, septicaemia

Around 37% of redistributed deaths



3. Proportional allocation

Uses observed patterns of causes of death in ‘target diseases’

Eg: Accidental exposure to unspecified factor for external causes (X59) are reassigned to injuries only.

13% of redistributed deaths used this method

Methods for redistributing deaths: ABDS 2018

Changes made to ABDS 2018 methods include:

1. C26.0 deaths were assigned to bowel cancer, instead of being redistributed as part of the ABDS algorithm for ill-defined digestive cancers.
2. Updated algorithms were used for cancer of other and ill-defined digestive organs (C26–excluding C26.0) and cancers of ill-defined, secondary unknown primary sites (C76–C80).
3. Updated algorithm for septicaemia. Changes to selection rules for coding causes of death in recent years have allowed more chronic conditions, such as cancers, coded to Part 2 of the death certificate (associated causes), to be selected as the underlying cause of death when septicaemia appears in Part 1 (underlying cause) of the death certificate.
4. Redistribution of ICD-10 code X59 Exposure to unspecified factor. Previously these were redistributed proportionately across injuries. Using similar methods to AIHW injury reports, we used associated causes of death (fracture codes) to identify additional falls (2,766 deaths), thereby resulting in less X59 deaths being needed to be redistributed (727 deaths).



Australian Burden of Disease Study vs GBD

- ABDS methods: ~10% of deaths were identified for redistribution.
- GBD algorithms: ~18% of Australian identified for redistribution
- Difference largely due to the cause list: some causes of death redistributed in the GBD study were directly allocated to a specified cause in ABDS