

# National Indigenous Reform Agreement: PI 07— Proportion of babies born of low birthweight, 2016

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# National Indigenous Reform Agreement: PI 07— Proportion of babies born of low birthweight, 2016

## Identifying and definitional attributes

<b>Metadata item type:</b>	Indicator
<b>Indicator type:</b>	Indicator
<b>Short name:</b>	PI 07—Proportion of babies born of low birthweight, 2016
<b>METEOR identifier:</b>	611176
<b>Registration status:</b>	<a href="#">Indigenous</a> , Superseded 01/07/2016
<b>Description:</b>	The incidence of low birthweight among live-born babies of mothers by Indigenous status, and among live-born babies by Indigenous status.
<b>Rationale:</b>	Low birthweight is associated with increased risk of poor health and death during infancy and increased prevalence of a number of chronic diseases in adulthood. Low birthweight is a particular issue for Indigenous Australians.
<b>Indicator set:</b>	<a href="#">National Indigenous Reform Agreement (2016)</a> <a href="#">Indigenous</a> , Superseded 01/07/2016
<b>Outcome area:</b>	<a href="#">Indigenous children are born and remain healthy</a> <a href="#">Indigenous</a> , Standard 21/07/2010

## Collection and usage attributes

**Computation description:** Rates are calculated for Indigenous and non-Indigenous Australians.

Rate ratios and rate differences are calculated for comparisons between Indigenous and non-Indigenous Australians.

For variability bands: variability bands are to be calculated for rates (single year data and for total data for 3 years combined) using the standard method (see definition below).

For trends: percentage change and statistical significance of change is to be calculated (required for reporting of progress over time).

Presentation:

Number, rate per 100 infants (percentage), rate ratio, rate difference and variability bands.

'Low birthweight' is defined as less than 2,500 grams.

Excludes multiple births and stillbirths.

Analysis by state/territory is based on the usual residence of the mother.

Excludes non-residents of external territories and where state/territory of residence was not stated.

Definitions:

Standard method for variability band computation:

Rates derived from administrative data counts are not subject to sampling error but may still be subject to natural random variation, especially for small counts. A 95% confidence interval for an estimate is a range of values which is very likely (95 times out of 100) to contain the true unknown value. Where the 95% confidence intervals of two estimates do not overlap it can be concluded that there is a statistically significant difference between the two estimates. This is the standard method used in Australian Institute of Health and Welfare (AIHW) publications for which formulas can be sourced from Breslow and Day (1987) in the publication 'Statistical methods in cancer research'. Typically in the standard method, the observed rate is assumed to have natural variability in the numerator count (for example, deaths, hospital visits) but not in the population denominator count. Also, the rate is assumed to have been generated from a normal distribution ("Bell curve"). Random variation in the numerator count is assumed to be centred around the true value—that is, there is no systematic bias.

**Computation:**

Rate:  $100 \times (\text{Numerator} \div \text{Denominator})$ .

Rate ratio: Indigenous rate divided by non-Indigenous rate.

Rate difference: Indigenous rate minus non-Indigenous rate.

Percentage change: Calculated by multiplying the average annual change over the period by the number of data points less 1. This is then divided by the rate for the first year in the series and multiplied by 100.

The average annual change in rates, rate ratios and rate differences are calculated using linear regression which uses the least squares method to calculate a straight line that best fits the data and returns an array that best describes the line. The simple linear regression line,  $Y = a + bX$ , 'slope' (b) estimate was used to determine the average annual change in the data over the period. The formula used to calculate the slope estimate and standard error of the slope in Microsoft Excel is:

LINEST: (known\_y's, known\_x's, true) entered as an array formula (Ctrl, Shift, Enter).

Statistical significance of change: The 95% confidence intervals (CIs) for the standard error of the slope estimate (average annual change) are used to determine whether the apparent increases or decreases in the data are statistically significant at the  $p < 0.05$  level. The formula used to calculate the CIs for the standard error of the slope estimate is:

$$95\% \text{ CI}(x) = x \pm 1.96 \times \text{SE}(x)$$

where  $x$  is the average annual change (slope estimate). If the upper and lower 95% confidence intervals do not include zero, then it can be concluded that there is statistical evidence of an increasing or decreasing trend in the data over the study period.

Variability band: to be calculated using the standard method for estimating 95% confidence intervals as follows:

Crude rate:

$$CI(CR)_{95\%} = CR \pm 100 \times 1.96 \times \sqrt{\frac{\frac{CR}{100} \left(1 - \frac{CR}{100}\right)}{n}}$$

Where  $CI$ =confidence interval

$CR$  = crude rate

$n$  = number of live-born singleton infants with known birthweight

**Numerator:**

Number of low birthweight live-born singleton infants.

**Numerator data elements:**

**Data Element / Data Set**

[Birth—birth weight, total grams NNNN](#)

**Data Source**

[AIHW National Perinatal Data Collection \(NPDC\)](#)

**Guide for use**

Data source type: Administrative by-product data

**Data Element / Data Set**

[Birth—birth status, code N](#)

**Data Source**

[AIHW National Perinatal Data Collection \(NPDC\)](#)

**Guide for use**

Data source type: Administrative by-product data

**Data Element / Data Set**

[Birth event—birth plurality, code N](#)

**Data Source**

[AIHW National Perinatal Data Collection \(NPDC\)](#)

**Guide for use**

Data source type: Administrative by-product data

**Denominator:**

Number of live-born singleton infants with known birthweight

**Denominator data elements:**

**Data Element / Data Set**

[Birth—birth status, code N](#)

**Data Source**

[AIHW National Perinatal Data Collection \(NPDC\)](#)

**Guide for use**

Data source type: Administrative by-product data

**Data Element / Data Set**

[Birth event—birth plurality, code N](#)

**Data Source**

[AIHW National Perinatal Data Collection \(NPDC\)](#)

**Guide for use**

Data source type: Administrative by-product data

**Disaggregation:**Indigenous status of the mother**Current Period**—(2011–2013):

For Indigenous and non-Indigenous (number, rate, rate ratio, rate difference and variability bands):

- Total and state/territory: by Indigenous status of the mother.
- Total by remoteness area: by Indigenous status of the mother.

**Time series**—2007, 2008, 2009, 2010, 2011, 2012 (the data for these years have been previously supplied), 2013 (required for 2016 reporting):

For Indigenous and non-Indigenous (number, rate, rate ratio, rate difference, percentage change and variability bands):

- Total and state/territory: by Indigenous status of the mother.
- Total by remoteness area (from 2012 onwards): by Indigenous status of the mother.

Indigenous status of the baby

For 2013 (2012 and 2011 data have been previously supplied), data are required for 2016 reporting.

For Indigenous and non-Indigenous (number, rate, rate ratio, rate difference, and variability bands):

- Total and state/territory: by Indigenous status of the baby.
- Total by remoteness area: by Indigenous status of the baby.

**Disaggregation data elements:****Data Element / Data Set**

[Person—Indigenous status, code N](#)

**Data Source**

[AIHW National Perinatal Data Collection \(NPDC\)](#)

**Guide for use**

Data source type: Administrative by-product data.

Used for Indigenous status of infant which has previously been based solely on the Indigenous status of the mother.

**Data Element / Data Set**

[Person—area of usual residence, statistical area level 2 \(SA2\) code \(ASGS 2011\) N\(9\)](#)

**Data Source**

[AIHW National Perinatal Data Collection \(NPDC\)](#)

**Guide for use**

Data source type: Administrative by-product data

Used for disaggregation by state/territory and remoteness area. Classifications for remoteness area are based on ASGC prior to 2012 and ASGS from 2012.

**Comments:** Most recent data available for 2016 report is 2013.

Aggregated data (2011 to 2013) will be reported for the current reporting period.

Single year data (2007, 2008, 2009, 2010, 2011, 2012 and 2013) will be reported for time series, noting that previously supplied data will be used unless a resupply is provided.

Information is included in the National Perinatal Data Collection (NPDC) for all live births and stillbirths of at least 400 grams birthweight or at least 20 weeks gestation.

Until 2011, the NPDC only included information on the Indigenous status of the *mother*. From 2011, the NPDC included information on the Indigenous status of the *baby* for selected jurisdictions—NSW, Vic, Qld, Tas, the ACT and the NT. However, the mandatory collection of this data item only began from July 2012 following its inclusion in the Perinatal National Minimum Data Set (NMDS). From 2012, data on the baby's Indigenous status is available from all jurisdictions.

Disaggregation by Indigenous status is recommended to be reported using 3-year combined data for the current reporting period due to the small number of low birthweight infants born to Indigenous mothers each year. Single year data are to be reported for time series.

To report trends, the body assessing progress over time may separately request percentage change and statistical significance testing for this indicator directly from the data provider (AIHW).

Variability bands accompanying perinatal data should be used for the purposes of comparisons over time and for national estimates at a point in time for Indigenous/non-Indigenous comparisons.

Baseline year for National Indigenous Reform Agreement (NIRA) target (Halve the gap in mortality rates for Indigenous children under 5 within a decade) is 2008; baseline year for this indicator is 2007; target year is 2018.

## Representational attributes

**Representation class:** Percentage

**Data type:** Real

**Unit of measure:** Person

**Format:** N[N].N

## Indicator conceptual framework

**Framework and dimensions:** [Health Conditions](#)

## Data source attributes

**Data sources:**

### Data Source

[AIHW National Perinatal Data Collection \(NPDC\)](#)

### Frequency

Calendar years ending 31 December each year

### Data custodian

Australian Institute of Health and Welfare

## Accountability attributes

**Reporting requirements:** National Indigenous Reform Agreement.

**Organisation responsible for providing data:** Australian Institute of Health and Welfare.

**Further data development / collection required:** Specification: Long-term.

A data item for Indigenous status of the baby was added to the Perinatal National Minimum Data Set (NMDS) for collection from July 2012 onwards.

## Source and reference attributes

**Steward:** [National Indigenous Reform Agreement Performance Information Management Group](#)

**Reference documents:** Breslow NE & Day NE 1987. Statistical methods in cancer research. Lyon: International Agency for Research on Cancer.

## Relational attributes

**Related metadata references:**

Supersedes [National Indigenous Reform Agreement: PI 07-Proportion of babies born of low birth weight, 2015](#)  
[Indigenous](#), Superseded 18/11/2015

Has been superseded by [National Indigenous Reform Agreement: PI 07—Proportion of babies born of low birthweight, 2017](#)  
[Indigenous](#), Superseded 06/06/2017

See also [National Healthcare Agreement: PI 01-Proportion of babies born of low birth weight, 2015](#)  
[Health](#), Superseded 08/07/2016