

## 1.24 Maternal mortality

**Maternal deaths of Aboriginal and Torres Strait Islander women expressed as a rate per 100,000 Indigenous confinements and rate ratio**

### Data sources

Data for this measure come from the National Maternal Deaths Data collection and the publications *Maternal deaths in Australia 1997–1999* (AIHW: Slaytor et al. 2004), *Maternal deaths in Australia 2000–2002* (AIHW: Sullivan & King 2006) and *Maternal deaths in Australia 2003–2005* (AIHW: Sullivan et al. 2008) published by the AIHW National Perinatal Statistics Unit.

Each state and territory has a review process for maternal deaths. Death data are supplied on a request basis to the AIHW National Perinatal Statistics Unit in paper-based and electronic format using the national maternal death data form.

Information identifying Indigenous status has been available since 1970 but only for cases classified as direct maternal deaths. Information identifying Indigenous status for indirect and incidental deaths has been collected only since 1991. It has therefore been possible to calculate the maternal mortality rate for Aboriginal and Torres Strait Islander women since 1991.

Maternal deaths where Indigenous status was unknown have been included in rates with non-Indigenous deaths before the 1997–1999 triennium. All calculations of maternal mortality by Indigenous status from 1997–1999 onwards exclude deaths where Indigenous status is unknown. In 1997–1999, Indigenous status was reported for 77 (89%) of the 87 maternal deaths.

In line with international conventions, the maternal mortality rate is calculated using direct and indirect deaths, excluding incidental deaths, and uses the total number of confinements of at least 20 weeks gestation or 400 grams birthweight as the denominator.

Each state and territory has a perinatal collection based on birth notification forms completed by midwives and other staff, using information obtained from mothers and from hospital and other records. These data are provided in electronic format annually to the AIHW National Perinatal Statistics Unit, and are used to calculate the denominator for rates.

A maternal death is defined by the World Health Organization as ‘The death of a woman while pregnant or within 42 days of the termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes’ (WHO 1992). This definition includes deaths of women from pregnancy, terminations of pregnancy, spontaneous abortion, miscarriage and ectopic pregnancy, but it excludes deaths from assisted reproduction technologies where pregnancy has not occurred.

**Direct deaths** result from obstetric complications of the pregnant state (pregnancy, labour and puerperium), from interventions, omissions or incorrect treatment, or from a chain of events resulting from any of the above. They are complications of the pregnancy itself (for

example, eclampsia, amniotic fluid embolism, rupture of the uterus, postpartum haemorrhage).

**Indirect deaths** result from pre-existing disease or disease that developed during pregnancy and was not due to direct obstetric causes, but which may have been aggravated by the physiological effects of pregnancy (for example, heart disease, diabetes, renal disease).

**Incidental deaths** result from conditions occurring during pregnancy, where the pregnancy is unlikely to have contributed significantly to the death, although it is sometimes possible to postulate a distant association (for example, road accidents, malignancies).

**Late maternal deaths** (defined as the death of a woman from direct or indirect obstetric causes more than 42 days but less than 1 year after termination of pregnancy) have not been included in the analysis as they have not been routinely collected in Australia until recently.

## Analyses

### Maternal mortality

- For the period 2003–2005, there were six maternal deaths of Aboriginal and Torres Strait Islander women, two direct maternal deaths and four indirect maternal deaths. These deaths accounted for 10.0% of the 60 maternal deaths where Indigenous status was known.
- The maternal mortality rate for Aboriginal and Torres Strait Islander women was 23 per 100,000 confinements in 1991–1993, 17 per 100,000 confinements in 1994–1996, 24 per 100,000 confinements in 1997–99, 46 per 100,000 in 2000–2002 and 22 per 100,000 in 2003–2005 (Table 1.24.1).
- The maternal mortality rates for Indigenous women were between two and five times the maternal mortality rates for non-Indigenous women over the past five 3-year groupings 1991–1993, 1994–1996, 1997–1999, 2000–2002 and 2003–2005.
- The maternal mortality rate for Indigenous women was variable over the past five 3-year groupings. Although rates were similar for 1991–1993, 1997–1999 and 2003–2005 (between 22 and 24 per 100,000), the rate in 1994–1996 was lower at around 17 per 100,000 confinements and the rate for 2000–2002 was much higher at around 46 per 100,000 confinements. (Figure 1.24.1).
- These rates must be interpreted with caution because of the incomplete recording of Indigenous status and the small numbers of maternal deaths each year. As a result of incomplete ascertainment of Indigenous status, the Indigenous maternal mortality rates are likely to be underestimations of the true rates.

**Table 1.24.1: Indigenous maternal mortality rates, 1991–1993 to 2003–2005**

Years	Direct & indirect deaths	Total Indigenous confinements <sup>(a)</sup>	Indigenous maternal mortality rate <sup>(a)</sup>	Non-Indigenous maternal mortality rate <sup>(a)(b)</sup>	Rate ratio <sup>(c)</sup>
1991–1993	5	21,539	23.2	5.9	3.9
1994–1996	4	22,996	17.4	8.3	2.1
1997–1999	6	25,530	23.5	6.7	3.5
2000–2002	12	26,128	45.9	8.7	5.3*
2003–2005	6	27,901	21.5	7.4	2.9

\* Represents results with statistically significant differences in the Indigenous/other comparisons at the  $p < 0.05$  level.

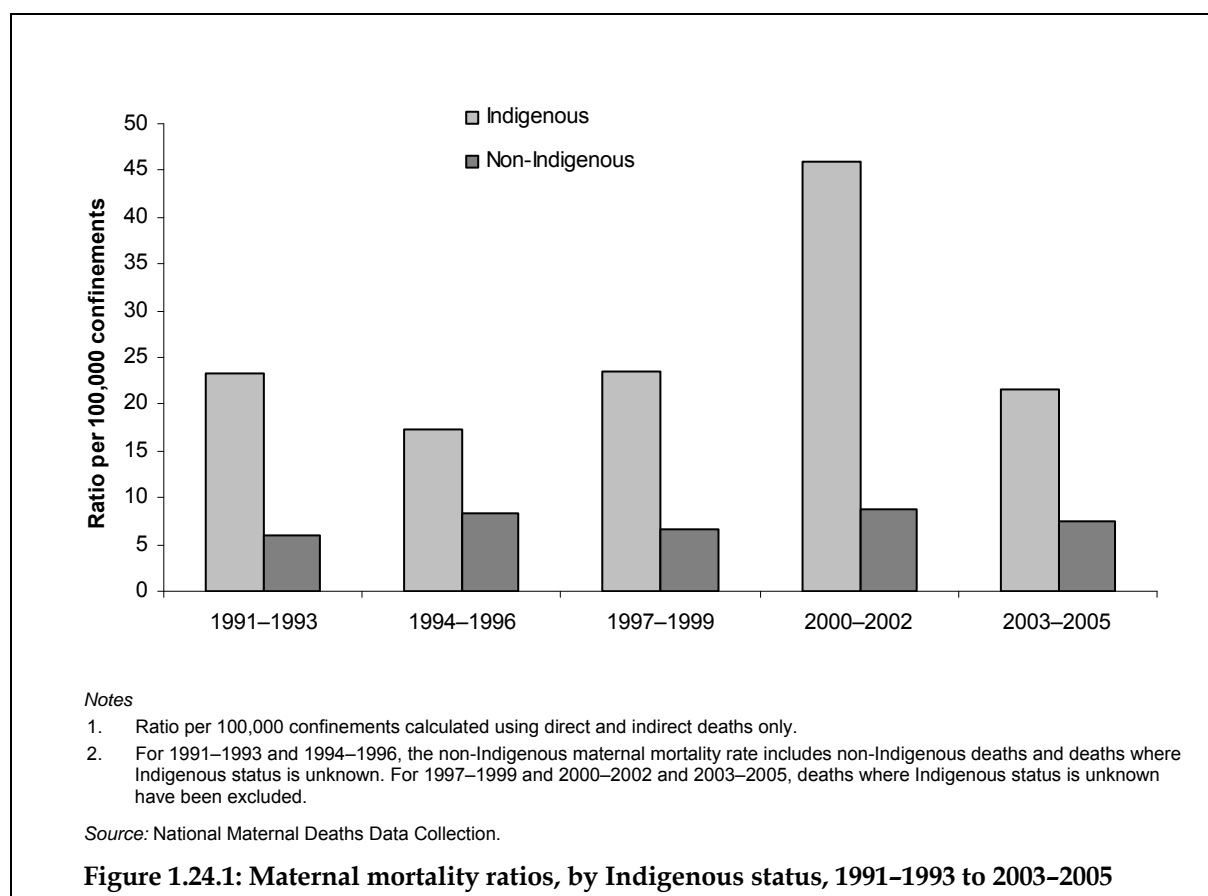
(a) Ratio per 100,000 confinements calculated using direct and indirect deaths only.

(b) For 1991–1993 and 1994–1996, the non-Indigenous maternal mortality rate includes non-Indigenous deaths and deaths where Indigenous status is unknown. For 1997–1999, 2000–2002 and 2003–2005, deaths where Indigenous status is unknown have been excluded.

(c) Maternal mortality rate for Indigenous mothers divided by maternal mortality rate for non-Indigenous mothers.

Note: Excludes incidental deaths.

Source: National Maternal Deaths Data Collection.



## **Data quality concerns**

### **Maternal mortality**

#### ***Maternal deaths***

*Note that the small number of Indigenous maternal deaths may be statistically variable and caution must be used in comparison and interpretation of these statistics.*

#### ***Indigenous status question***

*All states and territories have a specific data item in the National Maternal Mortality Database to record Indigenous status.*

#### ***Under-identification***

*Incomplete recording of Indigenous status leads to under-coverage of Indigenous mothers in this data collection. Between 1997 and 1999, Indigenous status was recorded for 75 (83%) of the 90 maternal deaths during childbirth. This represents a decline in recording of Indigenous status from 92% in 1991–1993 (AIHW: Slaytor et al. 2004). It is hoped that Indigenous identification will improve in the future, so that the proportion of maternal deaths where Indigenous status was not recorded will be reduced.*

*All jurisdictions are working towards improving the quality of the Indigenous status data.*

## **References**

- AIHW: Slaytor EK, Sullivan EA & King JF 2004. Maternal deaths in Australia 1997–1999. Maternal deaths series no. 1. Cat. no. PER 24. Sydney: AIHW (Australian Institute of Health and Welfare) National Perinatal Statistics Unit.
- AIHW: Sullivan EA & King JF 2006. Maternal deaths in Australia 2000–2002. Maternal deaths series no. 2. Cat. no. PER 32. Sydney: AIHW National Perinatal Statistics Unit.
- AIHW: Sullivan EA, Hall B & King JF 2008. Maternal deaths in Australia 2003–2005. Maternal deaths series no. 3. Cat. no. PER 42. Sydney: AIHW National Perinatal Statistics Unit.
- WHO (World Health Organization) 1992. International statistical classification of disease and related health problems. Tenth Revision. Volume II. Geneva: WHO.