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| Maternal Mortality and Severe Acute Maternal Morbidity |
| Victoria’s Mothers, Babies and Children 2016 |

# 5. Maternal Mortality and Severe Acute Maternal Morbidity

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## Table 5.1: Maternal mortality ratios in Victoria 1988-2016 (per 100,000 confinements)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | Direct deaths | Indirect deaths | Confinements a | Maternal mortality ratio b |
| 1988 | 3 | 5 | 62,854 | 12.7 |
| 1989 | 2 | 3 | 63,419 | 7.9 |
| 1990 | 6 | 3 | 66,004 | 13.6 |
| 1991 | 1 | 3 | 64,338 | 6.2 |
| 1992 | 2 | 2 | 65,404 | 6.1 |
| 1993 | 3 | 0 | 63,795 | 4.7 |
| 1994 | 2 | 3 | 63,983 | 7.8 |
| 1995 | 4 | 3 | 62,734 | 11.2 |
| 1996 | 2 | 0 | 62,028 | 3.2 |
| 1997 | 2 | 2 | 61,312 | 6.5 |
| 1998 | 2 | 1 | 61,071 | 4.9 |
| 1999 | 2 | 2 | 61,588 | 6.5 |
| 2000 | 2 | 2 | 61,571 | 6.5 |
| 2001 | 1 | 4 | 61,108 | 8.2 |
| 2002 | 5 | 2 | 62,023 | 11.3 |
| 2003 | 0 | 3 | 62,403 | 4.8 |
| 2004 | 4 | 8 | 62,543 | 19.2 |
| 2005 | 3 | 4 | 65,429 | 10.7 |
| 2006 | 1 | 6 | 68,547 | 10.2 |
| 2007 | 1 | 9 | 71,190 | 14.0 |
| 2008 | 2 | 1 | 71,323 | 4.2 |
| 2009 | 1 | 4 | 71,986 | 6.9 |
| 2010 | 3 | 3 | 73,302 | 8.2 |
| 2011 | 3 | 4 | 72,951 | 9.6 |
| 2012 | 4 | 6 | 77,183 | 13.0 |
| 2013 | 2 | 5 | 77,130 | 9.1 |
| 2014 | 2 | 4 | 77,930 | 7.7 |
|  2015 c | 1 | 3 | 78,147 | 5.1 |
| 2016 | 7 | 4 | 79,319 | 13.9 |

a Includes confinements related to termination of pregnancy

b Per 100,000 confinements. Ratio calculated using direct and indirect deaths

c The single direct death is included in 2015, however the death did not occur in Victoria. A Victorian resident, who had her obstetric care in Victoria, died from sepsis related to preterm rupture of membranes. She died at a health service interstate. Excluding her death from the Victorian Maternal Mortality ratio (MMR) decreases the MMR to 3.8

Note that this table refers only to direct and indirect deaths occurring within 42 days of the birth. Excluded from this table are all late maternal deaths (indirect or direct deaths occurring 42-364 days after birth) and incidental maternal deaths.

## Table 5.2: Maternal mortality ratios by triennia, Victoria and Australia 1988-2016

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Triennium | Direct deaths | Indirect deaths | Confinements | Victoria Maternal mortality ratio a | Australia Maternal mortality ratio a, b |
| 1988 – 1990 | 11 | 11 | 192,277 | 11.4 | 9.3 |
| 1991 – 1993 | 6 | 5 | 193,537 | 5.7 | 6.2 |
| 1994 – 1996 | 8 | 6 | 188,745 | 7.4 | 8.6 |
| 1997 – 1999 | 6 | 5 | 183,971 | 6.0 | 8.4 |
| 2000 – 2002 | 8 | 8 | 184,702 | 8.7 | 11.1 |
| 2003 – 2005 | 7 | 15 | 190,375 | 11.6 | 8.4 |
| 2006 – 2008 | 4 | 16 | 211,060 | 9.5 | 6.9 |
| 2009 – 2011 | 7 | 11 | 218,239 | 8.2 | 7.2 |
| 2012 – 2014 | 8 | 15 | 232,243 | 9.9 | n/a |
| 2013 – 2015 **C** | 5 | 12 | 233,207 | 7.3 | n/a |
| 2014 – 2016 **C** | 10 | 11 | 235,396 | 8.9 | n/a |

a Per 100,000 confinements. Ratio calculated using direct and indirect deaths occurring within 42 days of the birth

b Source of Australian mortality ratios: Australian Institute of Health and Welfare 2015, Maternal deaths in Australia 2008-2012, AIHW, Canberra.

c Note that 2013 and 2014 are included twice in this table, that is, a rolling triennia was used so that the 2014 -2016 data could be represented.

 n/a - not available

## Figure 5.1. Maternal mortality ratios by triennia, Victoria and Australia 1988-2016



a The years 2013 and 2015 are included twice and the year 2014 is included three times, as rolling triennia were used for the two most recent triennia so that the 2014, 2015 and 2016 data could be represented.

b At the time of publication the latest provisional Australian data for 2012–2014 indicated the rate was between 6.4 and 6.7.

## Table 5.3: Causes of maternal deaths, Victoria 2016

|  |  |
| --- | --- |
|   | Total |
| **Direct maternal deaths** | **7** |
| Pulmonary embolus | 3 |
| Eclampsia | 1 |
| Suicide | 1 |
| Severe post-partum haemorrhage | 2 |
| **Indirect maternal deaths** | **4** |
| Suicide/suspected suicide | 4 |
| **Incidental maternal deaths** | **1** |
| Mechanical asphyxia - workplace accident | 1 |
| **Late maternal death (direct or indirect)** | **5** |
| Multiple sclerosis | **1** |
| Suicide | **3** |
| Primary pulmonary hypertension | **1** |
| **Total deaths** | **17** |

Note: This table excludes one late incidental death from homicide that is not classified as a maternal death.

## Table 5.4: Causes of maternal deaths, Victoria 2011-2016

|  |  |  |  |
| --- | --- | --- | --- |
|   | Cause of death | Maternal deaths included in MMR  | Late a maternal deaths |
| **Direct** |  | **19** | **2** |
| (due to a complication of the pregnancy) | Obstetric haemorrhage | 5 |   |
| Thromboembolism | 5 | 1 |
| Anaesthetic related death | 2 |   |
| Amniotic fluid embolus | 2 |   |
| Early pregnancy death - ectopic pregnancy | 1 |   |
| Sepsis b | 1 |   |
| Eclampsia | 1 |   |
| Psychosocial c | 1 | 1 |
| Post partum sepsis – *Streptococcus* Group A | 1 |   |
| **Indirect** |  | **26** | **9** |
| (related to a pre-existing or newly diagnosed condition exacerbated by pregnancy) | Cardiac disease | 8 |   |
| Non-obstetric haemorrhage (includes intracerebral bleeding) | 8 |   |
| Psychosocial c | 6 | 4 |
| Sepsis - acute pyelonephritis | 1 |   |
| Complications of heart transplant for the treatment of peripartum cardiomyopathy |   | 1 |
| Carcinoma of the cervix |   | 1 |
| Bronchopneumonia with associated substance abuse and domestic violence |   | 1 |
| Primary pulmonary hypertension |   | 1 |
| Multiple sclerosis |   | 1 |
| Undetermined | 3 |   |
| **Incidental** |  | **0** | **12** |
| (where the pregnancy is unlikely to have contributed significantly to the death)  | Bronchopneumonia |   | 1 |
| Metastatic melanoma |   | 1 |
| Subarachnoid haemorrhage secondary to endocarditis |   | 1 |
| Prolonged QT syndrome |   | 1 |
| Pulmonary embolus |   | 1 |
| Complications post tubal ligation |   | 1 |
| Psychosocial c |   | 4 |
| Accidental injury |   | 2 |
| **Total** |  | **45** | **23** |

MMR: Maternal mortality ratio

a Late maternal deaths occur after 42 days but within 1 year of the birth and are not included in the maternal mortality ratio.

b This death did not occur in Victoria

c Psychosocial causes include deaths in which a psychiatric condition contributed to the cause of death and encompass wider issues such as family violence and substance misuse. In 2012 the National Maternal Mortality Advisory Committee advised that maternal deaths from suicide where the onset of mental health disorder is first recognised in pregnancy should be classified as “direct” deaths, all other maternal suicides and psychosocial deaths should be classified as “indirect”. Previously many psychosocial deaths unrelated to the pregnancy were classified as “incidental” deaths.

## Table 5.5: Assessment of contributing factors in maternal deaths, Victoria 2011-2016

|  |  |
| --- | --- |
| **Contributing factor** | **Number** |
| **Factors relating to access to care** | **3** |
| Delay in transfer | 1 |
| Delay in access to specialist assistance | 1 |
| Lack of access to specialist care and services | 1 |
| **Factors relating to professional practice** | **33** |
| Anaesthetic issues | 3 |
| Delay in diagnosis and transfer | 4 |
| Failure to review diagnosis in light of diagnostic evidence | 1 |
| Failure to maintain an adequate airway and ventilation | 1 |
| Over reliance on test result despite clinical evidence of placenta accreta | 1 |
| Inadequate communication / communication breakdown | 2 |
| Inadequate management of obstetric haemorrhage (monitoring, diagnosis, resuscitation) | 3 |
| Inadequate investigation and management of sepsis | 1 |
| Suboptimal resuscitation | 3 |
| Suboptimal diabetes management | 1 |
| Inappropriate discharge | 1 |
| Poor organisational management | 1 |
| Poor documentation | 1 |
| Poor crisis management | 1 |
| Inadequate involvement with Koori maternity Services (KMS) | 1 |
| Failure to recognise eclampsia | 1 |
| Lack of recognition of complexity or seriousness of condition by care giver | 2 |
| Delayed involvement of senior experienced staff/Failure to escalate care | 3 |
| Failure to follow recommended best practice: |  |
|  - cessation of anti-depressant medication | 1 |
|  - delayed assessment of coagulation status | 1 |
| **Factors relating to the pregnant woman, her family and social situation** | **22** |
| Declining or not following medical advice | 2 |
| Delay in seeking medical advice/help | 3 |
| Family violence | 3 |
| Maternal mental illness | 6 |
| Lack of recognition by the woman or family of the seriousness of the condition | 1 |
| Social isolation | 1 |
| Substance misuse | 6 |
| **Total** | **58** |

Contributing factors were identified in 32 of all 68 maternal deaths (47%). Multiple contributing factors were present in some cases. Removing the 12 incidental deaths increases the proportion in whom contributing factors were found to 55% (32/56). There were 12 out of 17 cases for 2016 which had contributing factors.

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