

## 2. EXECUTIVE SUMMARY

This is the seventh report on mothers and babies in NSW to combine the annual reports of the NSW Midwives Data Collection (MDC), the Neonatal Intensive Care Units' Data Collection (NICUS), and the NSW Birth Defects Register (BDR).

From 1 January 1998, the MDC includes data elements necessary for most of the Australian Council on Healthcare Standards–Royal Australian and New Zealand College of Obstetricians and Gynaecologists (ACHS–RANZCOG) clinical indicators for obstetrics. A summary of the indicators for all NSW hospitals combined, and comparative information for participating Australian hospitals, is included in Chapter 10 of this report.

Information on causes of maternal deaths in NSW was obtained through the work of the NSW Maternal and Perinatal Committee. From 1 January 2000, confidential reviews of perinatal deaths among babies of at least 22 weeks gestation or 500 grams birthweight are also carried out by the Committee. Chapter 11 describes the results of the review for deaths occurring in 2003.

### Trends in NSW

There were 86,414 births to 85,032 women in 2003. The number of teenage mothers continues to decline, falling from 4,099 (4.8 per cent of all mothers) in 1999 to 3,386 (4.0 per cent) in 2003; while the number of mothers aged 35 years and over increased from 14,668 in 1999 to 16,447 in 2003, an increase from 17.1 to 19.3 per cent of all confinements.

About one in four mothers were born overseas in 2003, most commonly in the United Kingdom (2.8 per cent), New Zealand (2.5 per cent), Vietnam (2.2 per cent), and Lebanon (2.0 per cent).

The reported number of Aboriginal and Torres Strait Islander mothers giving birth increased slightly from 2,059 in 1999 (2.4 per cent of all mothers) to 2,161 in 2003 (2.6 per cent of all mothers). Part of this increase is likely to be due to an increased willingness of mothers to be identified as Aboriginal or Torres Strait Islander.

The proportion of mothers planning to give birth in a birth centre fell slightly from 3.9 per cent in 1999 to 3.7 per cent in 2003, while the reported number of mothers planning a home birth decreased from 182 to 132 over the five year period.

The rate of normal vaginal birth fell from 68.6 per cent in 1999 to 62.8 per cent in 2003. Over the five years, the caesarean section rate increased from 19.7 to 26.5 per cent and the rate of instrumental delivery remained steady at 10 to 11 per cent. Caesarean section delivery continues to be more common among privately than publicly insured mothers. The changing pattern in type of delivery is evident in both groups between 1998 and 2002. Among

privately insured mothers the rate of normal vaginal birth decreased from 58.7 to 52.4 per cent and the caesarean section rate increased from 24.9 to 32.2 per cent. Among publicly insured mothers the rate of normal vaginal birth decreased from 73.8 to 70.4 per cent and the rate of caesarean section increased from 16.8 to 20.9 per cent.

Since 1999, the rate of low birthweight (less than 2,500 grams) has been steady at about six per cent. The rate was 6.2 per cent in 2003. The percentage of babies born prematurely (less than 37 weeks gestation) has remained stable at about 7 per cent.

The perinatal mortality rate varied from 8.6 to 9.6 per 1,000 births over the five year period. About two-thirds of all perinatal deaths were stillbirths and one third were neonatal deaths.

In the period 1990–2001, 137 deaths were reported among pregnant women or women who gave birth less than six weeks previously. Ninety-two of these were classified as directly or indirectly associated with the pregnant state, while 44 were incidental (not related to pregnancy) and one was of undetermined cause.

### Aboriginal and Torres Strait Islander Mothers and Babies

In 2003, 70.6 per cent of Aboriginal and Torres Strait Islander mothers commenced antenatal care before 20 weeks gestation compared with 87.0 per cent of non-Aboriginal and Torres Strait Islander mothers. About one in five Aboriginal and Torres Strait Islander mothers were teenagers. Since 1999, the rates of low birthweight (less than 2,500 grams) and prematurity (less than 37 weeks gestation) in Aboriginal and Torres Strait Islander babies have been over 10 per cent. These rates are one and a half times to two times higher than the rates for NSW overall. The perinatal mortality rate among babies born to Aboriginal and Torres Strait Islander mothers was 15.1 per 1,000 in 2003, higher than the rate of 8.4 per 1,000 experienced by babies born to non-Aboriginal or Torres Strait Islander mothers.

### Neonatal Intensive Care

There were 2,098 infants registered in the Neonatal Intensive Care Units' Data Collection in 2003 representing a registration rate of 23.2 per 1,000 live births. Sixty-four (3.1 per cent) infants registered in 2003 were born to Aboriginal or Torres Strait Islander mothers.

The 2,098 infants were born to 1,933 mothers. The age of mothers ranged from 15 to 46 years with a mean of 29.8 years. Antenatal complications were reported for 87.1 per cent of mothers. The proportion of women receiving antenatal corticosteroids for lung maturation was 74.1 per cent in 2003.

Thirty-six per cent of infants registered in 2003 were born following a booked tertiary centre birth and 32.7 per cent were born following maternal transfer. Thirty-one per cent were transferred to a tertiary centre following birth and 5.3 per cent were transferred from one tertiary centre to another during the first day of life.

About two-thirds (68.2 per cent) of the infants registered in 2003 were born in a tertiary centre. There is an inverse relationship between gestational age and birth in a tertiary centre.

Boys comprised 56.1 per cent of the 2003 cohort and girls 43.9 per cent. Most infants (79.9 per cent) were from a singleton pregnancy, 17.8 per cent were from a twin pregnancy, and 2.0 per cent were from a triplet pregnancy.

Seventy-three per cent of infants registered during 2003 were preterm (less than 37 weeks gestation), 40.7 per cent were very preterm (less than 32 weeks gestation) and 11.8 per cent were extremely preterm (less than 28 weeks gestation). About one in six (17.7 per cent) infants had a major or minor congenital anomaly.

Infants with major congenital anomalies were excluded from the analysis of mortality and morbidity. The majority of infants registered in 2003 (84.7 per cent) received assisted ventilation (intermittent mandatory ventilation or continuous positive airways pressure ventilation). The main indication for assisted ventilation varied with gestational age: respiratory distress syndrome, immature lung and transient tachypnoea were more common among preterm groups, whereas meconium aspiration and perinatal asphyxia were more common in term infants.

Proven systemic infection was present in 10.5 per cent of infants, necrotising enterocolitis in 3.7 per cent, intraventricular haemorrhage in 12.9 per cent, treated patent ductus arteriosus in 14.5 per cent, and major surgery in 3.7 per cent. Severe grades (Grade 3, 4 or 5) of retinopathy of prematurity were present in 3.8 per cent of infants less than 32 weeks gestation, of whom 61.3 per cent had either cryo- or laser therapy to prevent retinal detachment. Surfactant was given to 41.4 per cent of infants; the majority (58.7 per cent) of ventilated infants with a diagnosis of Respiratory Distress Syndrome received surfactant.

Overall, 94.3 per cent of infants without a major congenital anomaly survived to six-months of age. Survival improved with gestational age up to 34 weeks after which it decreased slightly. Of the infants who died, most (65.3 per

cent) died at less than one week of age and a further 27.7 per cent died at less than 29 days of age. The six-month survival rate for infants born at 22 to 27 weeks gestation and at term (37-41 weeks) was higher for those born in a tertiary centre compared with those born in a non-tertiary centre. Among infants born at other gestational ages the proportion surviving to six-months of age was similar for those born in a tertiary centre and those born in a non-tertiary centre.

### **Birth defects**

About 2,000 infants are born with birth defects each year in NSW. In 1997–2003, defects of the cardiovascular system were most commonly reported, followed by defects of the musculoskeletal system and defects of the genito-urinary system. This is a similar pattern to previous years.

In 2002, the reported rate of defects in stillborn and liveborn babies was slightly lower than the previous five years combined (34.0 versus 39.6 per 1,000) due to a lower overall birth defect rate among infants.

Birth defects were more common among premature infants compared to full term infants, and among male infants compared to female infants. The rate of birth defects increases with increasing maternal age, especially after age 35. However, as most babies are born to mothers aged less than 35 years, the majority of babies with birth defects were born to younger mothers.

### **Perinatal deaths**

Of the 619 perinatal deaths occurring in 2003 that were of at least 22 weeks gestation or at least 500 grams birthweight, confidential reports on 595 (96.1 per cent) were reviewed. Deaths reviewed comprised 403 stillbirths and 192 neonatal deaths.

Overall, 184 (30.9 per cent) perinatal deaths reviewed for 2003 were unexplained. The next most common obstetric antecedents of death were spontaneous preterm labour ( $n=94$ , 15.8 per cent), fetal abnormalities ( $n=95$ , 16.0 per cent), and specific perinatal conditions such as twin-to-twin transfusion and umbilical cord complications ( $n=51$ , 8.6 per cent). Post-mortem examinations were carried out in 32.4 per cent of all perinatal deaths.

The most common cause of neonatal death was extreme prematurity ( $n=86$ , 44.8 per cent), followed by congenital abnormalities ( $n=37$ , 19.3 per cent).