

## 2. EXECUTIVE SUMMARY

This is the sixth 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 2002.

### Trends in NSW

There were 86,005 births to 84,587 women in 2002. The number of teenage mothers continues to decline, falling from 4,118 (4.8 per cent of all mothers) in 1998 to 3,652 (4.3 per cent) in 2002; while the number of mothers aged 35 years and over increased from 13,839 in 1998 to 15,872 in 2002, an increase from 16.3 to 18.8 per cent of all births.

About one in four mothers were born overseas in 2002, most commonly in the United Kingdom (2.8 per cent), New Zealand (2.4 per cent), China (2.2 per cent), Vietnam (2.1 per cent), and Lebanon (2.0 per cent).

The reported number of Aboriginal and Torres Strait Islander mothers giving birth increased slightly from 2,043 in 1998 (2.4 per cent of all mothers) to 2,155 in 2002 (2.5 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 4.3 per cent in 1998 to 3.4 per cent in 2002, while the reported number of mothers planning a home birth decreased from 200 to 130 over the five year period.

The rate of normal vaginal birth fell from 69.5 per cent in 1998 to 64.2 per cent in 2002. Over the five years, the caesarean section rate increased from 19.1 to 24.9 per cent and the rate of instrumental delivery remained steady at about 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 1997 and 2001. Among privately insured mothers the rate of normal

vaginal birth decreased from 59.8 to 55.2 per cent and the rate of caesarean section increased from 24.4 to 30.0 per cent. Among publicly insured mothers the rate of normal vaginal birth decreased from 75.1 to 72.6 per cent and the rate of caesarean section increased from 15.4 to 19.4 per cent.

Since 1998, the rate of low birthweight (less than 2,500 grams) was steady at about six per cent. The rate was 6.4 per cent in 2002. 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 8.7 to 9.3 per 1,000 over the five year period. About two-thirds of all perinatal deaths were stillbirths and one third were neonatal deaths.

In the period 1990–2000, 128 deaths were reported among pregnant women or women who gave birth less than six weeks previously. Eighty-four of these were classified as directly or indirectly associated with the pregnant state, while 43 were incidental (not related to pregnancy), and one was of undetermined cause.

### Aboriginal and Torres Strait Islander Mothers and Babies

In 2002, 67.2 per cent of Aboriginal and Torres Strait Islander mothers commenced antenatal care before 20 weeks gestation compared with 86.4 per cent of non-Aboriginal and Torres Strait Islander mothers. About one in five Aboriginal and Torres Strait Islander mothers were teenagers. Since 1998, 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 for NSW overall. The perinatal mortality rate in babies born to Aboriginal and Torres Strait Islander mothers was 11.0 per 1,000 in 2002. This is the lowest rate reported in the last 10 years, but continues to be higher than the rate of 8.6 per 1,000 in babies born to non-Aboriginal or Torres Strait Islander mothers.

### Neonatal Intensive Care

There were 2,003 infants registered in the Neonatal Intensive Care Units' Data Collection (NICUS) in 2002 representing a registration rate of 22.2 per 1,000 live births. Seventy-four (3.7 per cent) infants registered in 2002 were born to Aboriginal or Torres Strait Islander mothers.

The 2,003 infants were born to 1,851 mothers, nearly 80 per cent of whom were residents of the Sydney, Central Coast, Hunter and Illawarra Health Areas. The age of mothers ranged from 14 to 48 years with a mean age of 29.6 years. Antenatal complications were reported for 89.8

per cent of mothers. The proportion of mothers of babies registered in NICUS who received antenatal corticosteroids for lung maturation has increased each year since 1992, with 73.0 per cent of mothers receiving steroids in 2002.

Thirty-one per cent of infants registered in 2002 were born following a booked tertiary centre birth and 36.5 per cent were born following maternal transfer. Thirty-one per cent were transferred to a tertiary centre following birth and 4.3 per cent were transferred from one tertiary centre to another during the first day of life.

Nearly three quarters (71.6 per cent) of the infants registered in 2002 were born in a tertiary centre. There is an inverse relationship between gestational age and birth in a tertiary centre.

Boys comprised 56.9 per cent of the 2002 cohort and girls 43.1 per cent. Most infants (79.6 per cent) were from a singleton pregnancy, 18.9 per cent were from a twin pregnancy, and 1.5 per cent were from a triplet pregnancy.

Seventy-six per cent of infants registered during 2002 were preterm (less than 37 weeks gestation), 44.0 per cent were very preterm (less than 32 weeks gestation) and 13.9 per cent were extremely preterm (less than 28 weeks gestation). Nearly one in five (20.1 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 2002 (91.2 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 13.3 per cent of infants, necrotising enterocolitis in 3.1 per cent, intraventricular haemorrhage in 13.8 per cent, treated patent ductus arteriosus in 15.1 per cent, and major surgery in 4.3 per cent. Severe grades (Grade 3 or 4) of retinopathy of prematurity were present in 4.1 per cent of infants less than 32 weeks gestation, of whom 54.8 per cent had either cryo- or laser therapy to prevent retinal detachment. Surfactant was given to 37.3 per cent of infants; the majority (55.7 per cent) of ventilated infants with a diagnosis of Respiratory Distress Syndrome received surfactant.

Overall, 91.4 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 (76.2 per cent) died at less than one week of age and a further 14.0 per cent died at less than 29 days of age. The six-month survival rate for infants born at 22 to 27 weeks gestation was higher for those born in a non-tertiary centre (79.2 per cent) compared with those born

in a tertiary centre (69.4 per cent). Among infants born at higher 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 1996–2002, 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 2001, the reported rate of defects in stillborn and liveborn babies was slightly lower than the previous five years combined (34.8 versus 41.0 per 1,000).

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 637 perinatal deaths occurring in 2002 that were of at least 22 weeks gestation or at least 500 grams birthweight, confidential reports on 613 (96.2 per cent) were reviewed. Deaths reviewed comprised 411 stillbirths and 202 neonatal deaths.

Overall, about one quarter (26.3 per cent) of all perinatal deaths reviewed for 2002 were unexplained—a decline from 30.0 per cent in 2001. In 2002, postmortem examinations were carried out in 30.3 per cent of deaths, compared to 27.1 per cent of deaths reviewed in 2001.

The next most common obstetric causes of death were spontaneous preterm labour ( $n=126$ , 20.6 per cent), fetal abnormalities ( $n=103$ , 16.8 per cent), antepartum haemorrhage ( $n=52$ , 8.5 per cent), and specific perinatal conditions such as twin-to-twin transfusion and umbilical cord complications ( $n=45$ , 7.3 per cent).

The most common neonatal cause of death was extreme prematurity ( $n=80$ , 39.6 per cent), followed by congenital abnormalities ( $n=82$ , 21.0 per cent).