

## 2. EXECUTIVE SUMMARY

This is the eighth 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).

This year there are 2 supplementary chapters: Chapter 9 includes a report on a follow-up study of extremely preterm infants; and Chapter 13 presents the results of a study examining the usefulness of hospital morbidity data for surveillance of conditions occurring in the perinatal period.

In addition, for the first time Chapter 11 includes the Australian Council on Healthcare Standards–Royal Australian and New Zealand College of Obstetricians and Gynaecologists (ACHS–RANZCOG) clinical indicators for obstetrics for individual hospitals where 200 or more births occurred in 2004.

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 birth weight are also carried out by the Committee. Chapter 12 describes the results of the review for deaths occurring in 2004.

### Trends in NSW

There were 85,626 births to 84,288 women in 2004. The number of teenage mothers continues to decline, falling from 3,853 (4.4 per cent of all mothers) in 2000 to 3,387 (4.0 per cent) in 2004; while the number of mothers aged 35 years and over increased from 15,334 in 2000 to 16,769 in 2004, an increase from 17.7 to 19.9 per cent of all confinements.

About 28 per cent mothers were born overseas in 2004, most commonly in the United Kingdom (2.6 per cent), New Zealand (2.4 per cent), Vietnam (2.0 per cent), and China (2.0 per cent).

The reported number of Aboriginal and Torres Strait Islander mothers giving birth increased slightly from 2,105 in 2000 (2.4 per cent of all mothers) to 2,308 in 2004 (2.7 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 remained stable at about 3.7 per cent, while the reported number of mothers planning a home birth decreased from 146 to 114 over the 5 year period.

The rate of normal vaginal birth fell from 67.1 per cent in 2000 to 62.1 per cent in 2004. Over the 5 years, the caesarean section rate increased from 21.3 to 27.2 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 1999 and 2003. Among privately insured mothers the rate of normal vaginal birth decreased from 57.6 to 50.8 per cent and the caesarean section rate increased from 26.3 to 34.7 per cent. Among publicly insured mothers the rate of normal vaginal birth decreased from 72.8 to 68.7 per cent and the rate of caesarean section increased from 17.1 to 22.5 per cent.

Since 1999, the rate of low birth weight (less than 2,500 grams) has been steady at about 6 per cent. The rate was 6.4 per cent in 2004. 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 5 year period. About two-thirds of all perinatal deaths were stillbirths and one-third were neonatal deaths.

In the period 1990–2003, 149 deaths were reported among pregnant women or women who gave birth less than 6 weeks previously. One hundred of these were classified as directly or indirectly associated with the pregnant state, while 48 were incidental (not related to pregnancy) and one was of undetermined cause.

### Aboriginal and Torres Strait Islander Mothers and Babies

In 2004, 70.1 per cent of Aboriginal and Torres Strait Islander mothers commenced antenatal care before 20 weeks gestation compared with 88.0 per cent of non-Aboriginal and Torres Strait Islander mothers. About one in 5 Aboriginal and Torres Strait Islander mothers were teenagers. Since 2000, the rates of low birth weight (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 2 times higher than the rates for NSW overall. The perinatal mortality rate among babies born to Aboriginal and Torres Strait Islander mothers was 11.6 per 1,000 in 2004, higher than the rate of 9.0 per 1,000 experienced by babies born to non-Aboriginal or Torres Strait Islander mothers.

### Neonatal Intensive Care

There were 2,231 infants registered in the Neonatal Intensive Care Units' Data Collection in 2004 representing a registration rate of 24.8 per 1,000 live births. Ninety-two (4.1 per cent) infants registered in 2004 were born to Aboriginal and/or Torres Strait Islander mothers.

The 2,231 infants were born to 2,038 mothers, nearly 80 per cent of whom were residents of the Sydney South West, Sydney West, Northern Sydney & Central Coast, South Eastern Sydney & Illawarra and Hunter & New England Health Areas. The age of mothers ranged from 15 to 48 years with a mean age of 29.8 years. Antenatal complications were reported for 88.1 per cent of mothers. The proportion of women receiving antenatal corticosteroids for lung maturation has increased each year since 1992, with 86.7 per cent of mothers receiving steroids in 2004.

Thirty-five per cent of infants registered in 2004 were born following a booked tertiary centre birth and 35.0 per cent were born following maternal transfer. Twenty-nine per cent were transferred to a tertiary centre following birth and 3.3 per cent were transferred from one tertiary centre to another during the first day of life. Nearly three quarters (73.5 per cent) of the infants registered in 2004 were born in a tertiary centre.

Boys comprised 58.8 per cent of the 2004 cohort and girls 41.2 per cent. Most infants (78.7 per cent) were from a singleton pregnancy, 18.8 per cent were from a twin pregnancy, 2.4 per cent were from a triplet pregnancy and 0.2 per cent were from a quadruplet pregnancy.

Seventy-five per cent of infants registered during 2004 were preterm (less than 37 weeks gestation), 40.8 per cent were very preterm (less than 32 weeks gestation) and 11.8 per cent were extremely preterm (less than 28 weeks gestation). Nearly one in 5 (19.3 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 2004 (87.9 per cent) received assisted ventilation (intermittent mandatory ventilation or continuous positive airways pressure ventilation).

Proven systemic infection was present in 9.8 per cent of infants, necrotising enterocolitis in 2.5 per cent, intraventricular haemorrhage in 13.9 per cent, treated patent ductus arteriosus in 15.9 per cent, and major surgery in 3.5 per cent. Severe grades (Grade 3 or 4) of retinopathy of prematurity were present in 2.8 per cent of infants less than 32 weeks gestation, of whom 87.0 per cent had either cryo- or laser therapy to prevent retinal detachment. Surfactant was given to 38.6 per cent of infants; the majority (56.2 per cent) of ventilated infants with a diagnosis of Respiratory Distress Syndrome received surfactant.

Overall, 94.4 per cent of infants without a major congenital anomaly survived to 6 months of age. Survival improved with gestational age up to 35 weeks after which it decreased slightly. Of the infants who died, most (75.0 per cent) died at less than one week of age and a further 18.3 per cent died at less than 29 days of age. The 6 month survival rate for infants born at all gestational ages was similar for those born in a tertiary centre and those born in a non-tertiary centre.

## Extremely Preterm Follow up

From 1998 to 2001 69.0 per cent of 22 to 28 weeks gestation infants were liveborn. Eighty-nine per cent of liveborn infants were admitted to a neonatal intensive care unit and 77.7 per cent of neonatal intensive care unit admissions survived to hospital discharge. A further 1.8 per cent of children died after hospital discharge and before their follow up appointment.

There were 1,214 children available for follow up at 2–3 years of age, corrected for prematurity. The follow up rate was 79.5 per cent. The median (25th, 75th) age of assessment was 35.6 (29.1, 36.9) months. Of the 965 children with information at 2–3 years of age, corrected for prematurity, 11.0 per cent had cerebral palsy, 1.2 per cent were bilaterally blind, 5.2 per cent were bilaterally deaf and 10.8 per cent had a moderate to severe developmental delay.

Overall 15.9 per cent of children had a moderate to severe functional disability due to cerebral palsy, bilateral blindness, deafness requiring bilateral hearing aids or cochlear implants or developmental delay more than 2 standard deviations below the mean on a standardized psychological assessment.

## Birth defects

About 2,000 infants are born with birth defects each year in NSW. In 1998–2004, 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 2003, the reported rate of defects in stillborn and liveborn babies was slightly lower than the previous 5 years combined (35.4 versus 38.1 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

Confidential reports on 643 perinatal deaths in 2004 were reviewed. Overall, 191 (29.7 per cent) perinatal deaths reviewed for 2004 were unexplained. The next most common obstetric antecedents of death were fetal abnormality (n=125, 19.4 per cent), spontaneous preterm labour (n=121, 18.8 per cent), and specific perinatal conditions such as twin-to-twin transfusion and umbilical cord complications (n=43, 6.7 per cent). Post-mortem examinations were carried out in 33.0 per cent of all perinatal deaths.

The most common cause of neonatal death was extreme prematurity (n=67, 34.5 per cent), followed by congenital abnormalities (n=56, 28.9 per cent).