

## 2. EXECUTIVE SUMMARY

This is the tenth annual report on mothers and babies in NSW. The report draws information from a variety of sources including: the NSW Midwives Data Collection (MDC), the NSW Birth Defects Register (BDR), the Neonatal Intensive Care Units' Data Collection (NICUS), and the Neonatal Intensive Care Units' Follow-up Data Collection. Information on causes of maternal deaths in NSW was obtained through the work of the NSW Maternal and Perinatal Committee. From 1 January 2006, confidential reviews of perinatal deaths among live born babies and stillbirths of at least 20 weeks gestation or 400 grams birth weight are also carried out by the Committee.

### Trends in NSW

Between 2002 and 2004, the numbers of births in NSW remained stable at about 86,000 per annum. In 2005, the number of births increased to 90,610, a rise of 5.8 per cent compared to 2004. In 2006, the number of births increased to 92,781, a rise of 7.9 per cent compared to 2004.

The increase in births occurred mainly in the Sydney area, with the Sydney South West, Sydney West and Northern Sydney and Central Coast Areas reporting over 1,000 more births in 2006 than 2004.

The largest increase in births occurred among mothers aged 35–39 years. While the number of births to teenage mothers was slightly higher in 2006 compared to 2005 and 2004, the rate of increase was less than other maternal age groups, and the overall percentage of births to teenage mothers followed the trend of previous years, falling slightly from 4.0 per cent of all births in 2004 to 3.9 per cent in 2005 and 3.8 per cent in 2006.

Births to Aboriginal and Torres Strait Islander mothers also increased in 2005 and 2006, with most of the increase occurring among mothers aged 20–34 years. Births to teenage mothers followed the same pattern as for non-Aboriginal mothers, with the number of births increasing slightly and the overall proportion of births to teenage mothers following the downward trend of previous years—from 22.3 per cent in 2002 to 20.5 per cent in 2006.

The increase in births in 2006 occurred evenly among mothers who were giving birth for the first time and mothers who had given birth previously. The number of women giving birth for the fifth or subsequent time rose by 22.3 per cent from 1,290 in 2002 to 1,579 in 2006—however, these mothers comprised only 1.7 per cent of all mothers in 2006.

Following the pattern of previous years, about 28 per cent mothers were born overseas in 2006, most commonly in New Zealand (2.6 per cent), the United Kingdom (2.5 per cent), China (2.0 per cent) and Vietnam (1.9 per cent).

Between 2002 and 2006, the proportion of mothers planning to give birth in a birth centre remained stable at 3–4 per

cent, while the reported number of mothers planning a home birth varied between 130 and 172 over the 5 year period.

The rate of normal vaginal birth fell from 64.2 per cent in 2002 to 60.4 per cent in 2006. Over the 5 years, the caesarean section rate increased from 24.9 to 28.8 per cent and the rate of instrumental birth remained steady at 10 to 11 per cent. Caesarean section birth continues to be more common among privately than publicly insured mothers. The changing pattern in type of birth is evident in both groups between 2001 and 2005. Among privately insured mothers the rate of normal vaginal birth decreased from 53.6 per cent in 2001 to 48.9 per cent in 2005 and the caesarean section rate increased from 30.7 to 36.4 per cent. Among publicly insured mothers the rate of normal vaginal birth decreased from 71.1 to 67.1 per cent and the caesarean section rate increased from 20.1 to 24.2 per cent.

Since 2002, 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 2006. The percentage of babies born prematurely (less than 37 weeks gestation) has remained stable at about 7 per cent and was 7.4 per cent in 2006. The perinatal mortality rate varied from 8.6 to 9.6 per 1,000 births over the 5 year period.

In the period 1990–2005, 166 deaths were reported among pregnant women or women who gave birth less than 6 weeks previously. Of these, 51 (30.7 per cent) died of incidental causes not related to the pregnancy or its management, 72 (43.4 per cent) deaths were found to be directly due to pregnancy or its management, and 40 (24.1 per cent) deaths were found to result from pre-existing disease or disease which developed during pregnancy (not due to direct obstetric causes), but which may have been aggravated by the physiologic effects of pregnancy.

### Aboriginal and Torres Strait Islander Mothers and Babies

Between 2002 and 2006, the proportion of Aboriginal or Torres Strait Islander mothers who commenced antenatal care at less than 20 weeks gestation rose from 67.2 to 74.8 per cent (Table 74). This compares with 87.9 per cent of non-Aboriginal or Torres Strait Islander mothers who commenced antenatal care at less than 20 weeks gestation in 2006.

In 2006, 53.6 per cent of Aboriginal and Torres Strait Islander mothers reported smoking at some time during pregnancy, compared to 58.0 per cent in 2002. This compares with 12.3 per cent of non-Aboriginal or Torres Strait Islander mothers who reported smoking at some time during pregnancy in 2006.

Since 2002, 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 about one and a half times higher than among babies born to non-Aboriginal or Torres Strait Islander mothers. The perinatal mortality rate among babies born to Aboriginal and Torres Strait Islander mothers was 12.1 per 1,000 in 2006, compared to a rate of 8.7 per 1,000 experienced by babies born to non-Aboriginal or Torres Strait Islander mothers.

### Neonatal Intensive Care

There were 2,296 infants registered in the Neonatal Intensive Care Units' Data Collection in 2006 representing a registration rate of 23.5 per 1,000 live births. Ninety-five (4.1 per cent) infants registered in 2006 were born to Aboriginal and/or Torres Strait Islander mothers.

The 2,296 infants were born to 2,083 mothers, nearly 90 per cent of whom were residents of the Sydney South West, Sydney West, Northern Sydney and Central Coast, South Eastern Sydney and Illawarra and Hunter and New England Health Areas. The age of mothers ranged from 14 to 50 years with a mean age of 30 years. Antenatal complications were reported for 88.7 per cent of mothers. The proportion of women receiving antenatal corticosteroids for lung maturation has increased each year since 1992, with 71.5 per cent of mothers receiving steroids in 2006.

Thirty-six per cent of infants registered in 2006 were born following a booked tertiary centre birth and 34.1 per cent were born following maternal transfer. Twenty-eight per cent were transferred to a tertiary centre following birth and 4.4 per cent were transferred from one tertiary centre to another during the first day of life.

Nearly three-quarters (74.6 per cent) of the infants registered in 2006 were born in a tertiary centre. There is an inverse relationship between gestational age and birth in a tertiary centre.

Boys comprised 59.1 per cent of the 2006 cohort and girls 40.9 per cent. Most infants (77.4 per cent) were from a singleton pregnancy, 19.6 per cent were from a twin pregnancy, 2.7 per cent were from a triplet pregnancy and 0.3 per cent were from a quadruplet pregnancy.

Seventy-four per cent of infants registered during 2006 were preterm (less than 37 weeks gestation), 39.6 per cent were very preterm (less than 32 weeks gestation) and 11.3 per cent were extremely preterm (less than 28 weeks gestation). Nearly one in six (17.8 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 2006 (87.2 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. Surfactant was given to 37.1 per cent of infants; the majority (57.6 per cent) of ventilated infants with a diagnosis of Respiratory Distress Syndrome received surfactant.

Proven systemic infection (blood and cerebrospinal fluid) was present in 9.4 per cent of infants, treated patent ductus arteriosus in 15.7 per cent, intraventricular haemorrhage in 12.3 per cent, necrotising enterocolitis in 2.8 per cent, and major surgery in 3.9 per cent. Severe grades (Grade 3 or 4) of retinopathy of prematurity were present in 3 per cent of infants less than 32 weeks gestation, of whom 69.2 per cent had laser therapy to prevent retinal detachment.

Overall, 94.9 per cent of infants without a major congenital anomaly survived to six-months of age. Survival improved with gestational age up to 36 weeks after which it decreased slightly. Of the infants who died, most (60.6 per cent) died at less than one week of age and a further 26.3 per cent died at less than 29 days of age. The six-month survival rate for infants born at 23-27 weeks gestational was significantly higher for those born in a tertiary centre compared to those born in a non-tertiary centre.

### Extremely Preterm Follow-up

From 1998 to 2003, 69.3 per cent of 22 to 28 weeks gestation infants were live born. Eighty-eight per cent of live born infants were admitted to a neonatal intensive care unit and 77.5 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 1,771 children available for follow up at 2-3 years of age, corrected for prematurity. The follow up rate was 78.6 per cent. The median (25th, 75th) age of assessment was 35.5 (29.5, 36.8) months.

Of the 1,392 children with information at 2-3 years of age, corrected for prematurity, 10.6 per cent had cerebral palsy, 0.8 per cent were bilaterally blind, 4.9 per cent were bilaterally deaf and 11.0 per cent had a moderate to severe developmental delay.

Overall 17.3 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 2000-2006, defects of the cardiovascular system were most commonly reported, followed by defects of the musculoskeletal system and defects of the genitourinary system. This is a similar pattern to previous years.

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 838 perinatal deaths in 2006 were reviewed. Overall, 164 (19.6 per cent) perinatal deaths reviewed for 2006 were unexplained. The next most common obstetric antecedents of death were fetal abnormality ( $n=186$ , 22.2 per cent), spontaneous preterm labour ( $n=164$ , 19.6 per cent) and antepartum haemorrhage ( $n=69$ , 8.2 per cent). Post-mortem examinations were carried out in 33.9 per cent of all perinatal deaths. The most common cause of neonatal death was extreme prematurity ( $n=103$ , 40.6 per cent), followed by congenital abnormalities ( $n=59$ , 23.2 per cent).