

# NSW Public Health Bulletin Supplement

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## New South Wales Mothers and Babies 2006

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# 1. ACKNOWLEDGEMENTS

## Data collection

NSW Midwives Data Collection

Elvis Maio

NSW hospitals' midwives and independent midwives

NSW hospitals' medical record departments

NSW Birth Defects Register

Susan Travis, Christine Erratt

NSW Birth Defects Register Advisory Committee

NSW hospitals' midwives, doctors, and cytogenetic laboratories

Medical record departments, particularly at The Children's Hospital at Westmead, The Sydney Children's Hospital and The John Hunter Hospital

Neonatal Intensive Care Units  
(NICUS) Data Collection

Barbara Bajuk, Trina Vincent

Directors and Clinical Audit Officers of the 10 neonatal intensive care units and the four level five (non-tertiary) hospitals; liaison officers in hospitals in NSW and ACT who have provided maternal and neonatal data.

Maternal death reviews

NSW Maternal and Perinatal Committee

Perinatal death reviews

Hospital morbidity and mortality review committees; Perinatal Outcomes Working Party, NSW Maternal and Perinatal Committee

Linked NSW Midwives Data  
Collection – NSW Admitted Patient  
Data Collection

Kim Lim, Centre for Health Record Linkage

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## NSW Birth Defects Register Advisory Committee 2006

Dr Kristine Barlow-Stewart (chair), Dr Susan Arbuckle, Dr Andrew Berry, Professor David Ellwood, Dr Debra Kennedy, Dr Robert Ogle, Professor David Sillence, Mrs Ros Smith, Mr Stuart Purvis-Smith, Dr Elizabeth Sullivan, Dr Lee Taylor, Ms Susan Travis, Professor Ron Trent, Dr Janet Vaughan, Dr Michael Walsh, Dr Bridget Wilcken, and Ms Dianne Zalis.

## 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).

### 3. METHODS

#### Data sources

##### The New South Wales Midwives Data Collection

The New South Wales Midwives Data Collection (MDC) is a population-based surveillance system covering all births in NSW public and private hospitals, as well as home births. It encompasses all live births and stillbirths of at least 20 weeks gestation or at least 400 grams birth weight.

The MDC relies on the attending midwife or doctor to complete a notification form when a birth occurs. The form, a copy of which is shown at Appendix 4, includes demographic items and items on maternal health, the pregnancy, labour, birth, and perinatal outcomes. Completed forms are sent to the Data Collections and Reporting Unit in the Demand and Performance Evaluation Branch of the NSW Department of Health, where they are compiled into the MDC database. About two-thirds of notifications are submitted electronically from hospital obstetric information systems to the MDC on-line system.

The MDC receives notifications of women whose usual place of residence is outside NSW but who give birth in NSW. However, the MDC does not receive notifications of births outside NSW to women usually resident in NSW.

##### The Neonatal Intensive Care Units' Data Collection

The Neonatal Intensive Care Units' (NICUS) Data Collection is a state-wide audit of infants admitted to neonatal intensive care units and 4 of the level 5 neonatal nurseries in New South Wales (NSW) and the Australian Capital Territory (ACT) during the neonatal period for one of the following reasons:

- gestational age less than 32 weeks;
- birth weight less than or equal to 1,500 grams;
- mechanical ventilation for 4 hours or more;
- continuous positive airways pressure (CPAP) for 4 hours or more;
- major surgery (opening of a body cavity);
- insertion of a central venous line for 4 hours or more.

In 2006 the ten neonatal intensive care units in NSW and ACT were situated at the following perinatal centres: John Hunter Children's Hospital—Newcastle, Liverpool Health Service, Nepean Hospital, Royal Hospital for Women, Royal North Shore Hospital, Royal Prince Alfred Hospital, The Canberra Hospital—Canberra, Westmead Hospital, and at the two paediatric hospitals: Sydney Children's Hospital and The Children's Hospital at Westmead. The four level five neonatal nurseries that joined NICUS between 2002 and 2005 were situated at Blacktown Hospital, Campbelltown Hospital, Gosford Hospital, St George Hospital and Wollongong Hospital. Unfortunately St George Hospital has been unable to provide data since 2004.

The neonatal, maternal and perinatal data which comprise the NICUS Data Collection are collected and collated

within each neonatal intensive care unit and level five nursery by a designated Clinical Audit Officer. The data are compiled into a central database located at the NSW Centre for Perinatal Health Services Research.

##### The Neonatal Intensive Care Units' Follow-up Data Collection

The Neonatal Intensive Care Units' Follow-up Data Collection is a state-wide audit at 2–3 years of age, corrected for prematurity of infants born 22 to 28 weeks gestation and admitted to a neonatal intensive care unit in NSW and the ACT.

All surviving infants were assessed by a developmental assessment team at the following perinatal centres: John Hunter Children's Hospital (Newcastle), Liverpool Health Service, Nepean Hospital, Royal Hospital for Women, Royal North Shore Hospital, Royal Prince Alfred Hospital, The Canberra Hospital (Canberra), Westmead Hospital or at one of the two paediatric hospitals: The Children's Hospital at Westmead, and the Sydney Children's Hospital.

The follow up data that comprise the NICUS Follow-up Data Collection are collected and collated within each of the above hospitals by a designated member of the developmental assessment team. The data are compiled into a central database located at the NSW Centre for Perinatal Health Services Research.

##### The New South Wales Birth Defects Register

The NSW Birth Defects Register (BDR) is a population-based surveillance system established to monitor birth defects detected during pregnancy or at birth, or diagnosed in infants up to one year of age. The BDR was established in 1990 and, under *NSW Public Health Act 1991*, from 1 January 1998 doctors, hospitals, and laboratories have been required to notify birth defects detected during pregnancy, at birth, or up to one year of life. The BDR is administered by the Centre for Epidemiology and Research of the NSW Department of Health.

The activities of the BDR include: annual publication of information on birth defects in NSW; provision of information to area health services to assist in service planning and monitoring of child health, and investigation of specific issues; provision of information in response to specific requests from the public, health professionals, and other government departments; and provision of data to the AIHW National Perinatal Statistics Unit (NPSU) for monitoring of birth defects at a national level. The NPSU is also responsible for providing Australian information on birth defects to the International Clearinghouse for Birth Defects Monitoring Systems, a non-governmental organisation of the World Health Organization.

Sources of notifications to the BDR include: the NSW Midwives Data Collection (MDC), specialist paediatric

hospitals, cytogenetic laboratories, and individual health care providers. The BDR is supported by an advisory committee, comprising a panel of clinical experts representing the following specialities: genetics, dysmorphology, neo-natology, obstetrics and gynaecology, midwifery, bioethics, and epidemiology; and a community representative from the Association of Genetic Support of Australasia.

Data for research purposes may be provided in 2 formats: aggregate information similar to that contained in this report, and data concerning individuals with identifying information removed. All requests for data should be submitted in writing to the Director, Centre for Epidemiology and Research. Requests for data concerning individuals for sufficiently important research purposes will be referred to the NSW Department of Health Ethics Committee. Procedures for release of personal information are described in the Department's Policy Directive PD2006-077 *Data Collections - Disclosure of unit record data held for research or management of health services* which is available on the NSW Department of Health's website at [www.health.nsw.gov.au](http://www.health.nsw.gov.au).

### The NSW Inpatient Statistics Collection

For this report data from the NSW Admitted Patient Data Collection (APDC) was linked to MDC data to produce information on postnatal length of stay in NSW hospitals and mother's health insurance status.

The APDC covers demographic and episode related data for every inpatient who is separated from any public, private, and repatriation hospital, private day procedure centre, or public nursing home in NSW. Separation can result from discharge, transfer, death, or change in service category. The APDC is maintained by the Data Collections and Reporting Unit in the Demand and Performance Evaluation Branch of the NSW Department of Health.

### NSW Maternal and Perinatal Committee

The NSW Maternal and Perinatal Committee is a quality assurance committee established under the *NSW Health Administration Act 1982*, and is privileged under the Act to carry out confidential reviews of both maternal and perinatal deaths. Members are appointed by the Minister for Health.

The Committee reviews each maternal death to identify any possible avoidable factors and to determine whether the death was related to pregnancy (or its management) or whether it was incidental. The Committee also reviews perinatal deaths among live born babies and stillbirths of at least 20 weeks gestation or at least 400 grams birth weight. The information obtained from these reviews assists in the development of policies aimed at improving the health of mothers and newborns in NSW. Information considered by the Committee is confidential.

### Method for estimating level of reporting of maternal Aboriginality

The Aboriginality of the mother, rather than the baby, is reported to the MDC, although mother's Aboriginality is

frequently used as a proxy measure for the baby's Aboriginality. Consequently, maternal Aboriginality was used for this analysis. The number of births reported to Torres Strait Islander mothers is quite small in NSW. Aboriginal and Torres Strait Islander mothers were therefore combined for this analysis. For ease of reference, 'Aboriginal' is used to refer to both Aboriginal or Torres Strait Islander mothers.

Records of births reported to the MDC were linked to birth registration records of the NSW Registry of Births, Deaths and Marriages for births occurring in the 4-year period 2002–2005. Record linkage was carried out at the Centre for Health Record Linkage ([www.cherel.org.au](http://www.cherel.org.au)). The overall linkage rate was 91.0 per cent of MDC records and 98.5 per cent of birth registration records.

Capture–recapture methods are used to adjust estimates of counts to reflect ascertainment level or undercounting. Capture–recapture was carried out using the method described by McCarty et al.<sup>1</sup> Analysis was carried out using SAS version 9.1.3. Analyses concerning geographic location were based on health area of residence as reported to the MDC.

### References

1. McCarty DJ, Tull ES, Moy CS, Kwok CK, LaPorte RE. Ascertainment corrected rates: Applications of Capture–Recapture Methods. *Int J Epidemiol* 1993; 22(3): 559–565.

### Definitions

#### Aboriginal and Torres Strait Islander

Women who identify themselves to be of Australian Aboriginal and Torres Strait Islander heritage.

#### Age corrected for prematurity

Age corrected for prematurity: until the child is 3 years old, the age of the baby is calculated from the due date and not the date of birth.

#### Apgar score

A numerical scoring system routinely administered one and 5 minutes after birth to evaluate the condition of the baby. The score ranges from 0–10 (10 being perfect). It takes account of 5 physical signs, each of which is assigned a component score of 0, 1 or 2: heart rate, respiration, muscle tone, reflexes, and colour.

#### Augmentation

Artificial rupture of the membranes or use of oxytocic drugs after spontaneous onset of labour.

#### Birth defect

Any structural defect or chromosomal abnormality detected during pregnancy, at birth, or in the first year of life, excluding birth injuries and minor anomalies such as skin tags, talipes, birthmarks, or clicky hips. From 1994, the following conditions were included in the NSW Birth Defects Register: congenital hypothyroidism, cystic fibrosis, phenylketonuria, and thalassaemia major.

### Birth weight

The newborn infant's first bare weight in grams. Low birth weight: birth weight less than 2,500 grams.

Very low birth weight: birth weight less than 1,500 grams.  
Extremely low birth weight: birth weight less than 1,000 grams.

### Caesarean section

Birth of the fetus through an abdominal incision. Elective caesarean section: a caesarean section (planned or unplanned) performed before the onset of labour. Emergency caesarean section: a caesarean section performed after the onset of labour, whether or not the onset of labour was spontaneous.

### Confinement

Refers to a woman having given birth. In a multiple pregnancy, one confinement will result in more than one birth.

### Epidural

Injection of analgesic agent outside the dura mater which covers the spinal canal; includes lumbar, spinal, and epidural anaesthetics.

### Episiotomy

An incision of the perineum and vagina to enlarge the vulval orifice.

### Functional disability:<sup>1</sup>

None–minimal: No developmental delay: Griffiths 7 Mental Developmental Scales (GMDS) general quotient (GQ) or Bayley Scales of Infant Development-II (BSID-II) mental developmental index (MDI) 1 standard deviation below the mean to 3 standard deviations above the mean;

Mild: Developmental delay: GMDS or BSIDII between 1 and 2 standard deviations below the mean; Mild cerebral palsy: able to walk without aids at 2–3 years of age, corrected for prematurity;

Moderate: Developmental delay: GMDS or BSIDII between 2 and 3 standard deviations below the mean; Moderate cerebral palsy: able to walk with the assistance of aids at 2–3 years of age, corrected for prematurity; Sensorineural or conductive deafness: requiring amplification with bilateral hearing aids or unilateral–bilateral cochlear implant;

Severe: Developmental delay: GMDS or BSIDII 3 or more standard deviations below the mean; Bilateral blindness: with a visual acuity of <6/60 in the better eye; Severe cerebral palsy: unable to walk with the assistance of aids at 2–3 years of age, corrected for prematurity.

### Gestational age

The duration of pregnancy in completed weeks from the first day of the last normal menstrual period. Where

accurate information on the date of the last menstrual period is not available, a clinical estimate of gestational age may be obtained from ultrasound during the first half of pregnancy or by examination of the newborn infant. The 'best estimate' is used here.

### Griffiths Mental Developmental Scales (GMDS)

The mean for the General Quotient (GQ) of the Griffiths Mental Developmental Scales (GMDS) is 100.2 and the standard deviation (SD) is 12.8.

The mean for the mental developmental index (MDI) of the Bayley Scales of Infant Development-II (BSID-II) is 100 and the standard deviation (SD) is 15.

### Induction of labour

*Oxytocics–prostaglandins*: the initiation of labour by the use of oxytocic agents, prostaglandins, or their derivatives (oral, intravaginal or intravenous).

*ARM only*: the initiation of labour by artificial rupture of membranes.

*Oxytocics–prostaglandins and ARM*: both medical and surgical induction as defined above (combined medical and surgical induction).

### Intraventricular haemorrhage (IVH)

Worst level of intraventricular haemorrhage (IVH) seen on either right or left side by either ultrasound or post-mortem examination.

None: ultrasound–post-mortem shows no haemorrhage

Grade 1: subependymal germinal matrix haemorrhage

Grade 2: intraventricular haemorrhage with no ventricular dilatation

Grade 3: intraventricular haemorrhage with ventricle distended with blood

Grade 4: intraparenchymal haemorrhage not examined: No ultrasound or post-mortem examination

### Live birth

The complete expulsion or extraction from its mother of a baby of at least 400 grams or 20 weeks gestation who, after being born, breathes or shows any evidence of life such as a heartbeat.

### Major surgery

Any surgery that requires opening of a body cavity.

### Mechanical ventilation

Use of a mechanical ventilator to provide intermittent positive pressure respiration for a baby for 4 hours or more.

### Necrotising enterocolitis (NEC)

Clinically diagnosed: received treatment for NEC (includes suspending feeds, blood cultures and treatment with antibiotics such as clindamycin–gentamycin).

Proven radiologically or at operation: radiological signs include intra-mural or intra-hepatic air, perforation or a 'fixed loop'.

### Neonatal death

The death of a live born infant within 28 days of birth.

## Neonatal period

The first 28 completed days of life.

## Neonatal mortality rate

The number of neonatal deaths per 1,000 live births.

## Patent ductus arteriosus (PDA)

Clinical signs of PDA such as typical murmur, active precordium, bounding pulses, cardiomegaly, or pulmonary vascular congestion on x-ray. May be confirmed on ultrasound examination.

## Parity

The total number of live births and stillbirths of the mother before the pregnancy or birth under consideration.

## Perinatal death

A stillbirth or neonatal death.

## Perinatal mortality rate

The number of perinatal deaths (stillbirths and neonatal deaths) per 1,000 total births in a year (live births and stillbirths combined).

## Perineal status

- 1st degree tear: a perineal graze—laceration—tear involving: the fourchette, hymen, labia, skin, vagina, or vulva.
- 2nd degree tear: a perineal laceration or tear involving the pelvic floor or perineal muscles or vaginal muscles.
- 3rd degree tear: a perineal laceration—tear involving the anal sphincter or rectovaginal septum.
- 4th degree tear: a third degree perineal laceration or tear which also involves the anal mucosa or rectal mucosa.

## Plurality

The number of fetuses or babies from the pregnancy. On this basis pregnancy may be classified as single or multiple.

## Premature infant

An infant born before 37 completed weeks gestation.

## Premature labour

The spontaneous onset of labour (regular painful contractions with progressive cervical changes) before 37 completed weeks of gestation.

## Retinopathy of prematurity

Worst stage of retinopathy of prematurity (ROP) in either eye during the initial hospital admission.

None seen: no changes seen

Stage I: demarcation line present

Stage II: ridge present

Stage III: ridge with extra-retinal fibrovascular proliferation

Stage IV: retinal detachment

## Systemic infection in the infant

Clinical or radiological signs of infection together with

growth of a known pathogen from a systemic site—does not include tracheal aspirate.

## Transfer (NICUS only)

Maternal transfer before birth (prenatal): the transfer of a pregnant woman to a tertiary obstetric hospital. Neonatal transfer after birth (postnatal): the transfer of an infant from the hospital of birth to a tertiary NICU.

## Spontaneous abortion

The spontaneous expulsion of a fetus less than 20 weeks gestation and less than 400 grams birth weight.

## Stillbirth

The complete expulsion or extraction from its mother of a product of conception of at least 20 weeks gestation or 400 grams birth weight who did not, at any time after birth, breathe, or show any evidence of life such as a heartbeat.

## Termination of pregnancy

A procedure intentionally performed to terminate a pregnancy before 20 completed weeks gestation.

## References

1. The Victorian Infant Collaborative Study Group. Postnatal corticosteroids and sensorineural outcome at 5 years of age. *J Paediatr Child Health* 2000; 36:256–261.

## Explanatory notes

### Antenatal complications (NICUS)

These specifically include antepartum haemorrhage, placenta praevia, placenta abruptio, prolonged rupture of membranes, gestational diabetes, threatened preterm labour, hypertensive disease of pregnancy and rhesus isoimmunisation. There is also an open-ended ‘other antenatal complications’ option. The most common problems specified in this option are cervical incompetence, polyhydramnios, oligohydramnios, chorioamnionitis, threatened miscarriage, and problems secondary to multiple pregnancy.

### Rates of birth defects

The BDR collects data pertaining to birth defects regardless of the outcome of pregnancy. This includes notifications of live births, stillbirths, terminations of pregnancy and spontaneous abortions. Birth defect rates are calculated using births (that is, live births and stillbirths) as the denominator, because denominator populations for pregnancies less than 20 weeks gestation are unknown. The numerators are described in the relevant sections.

The source of denominator population data on births is the MDC. The MDC was selected because its definitions are consistent with those applied by the BDR. Denominator populations compatible with the BDR were derived from the MDC by including only those births that occurred to NSW residents.

Caution should be exercised when comparing the birth defect rates tabled in this document with those reported in the AIHW National Perinatal Statistics Unit’s Congenital Anomalies in Australia Report or interstate birth defects

registers. Variations may be due to differences in coding practices, in categories of birth defects included in each Register and differences in the upper age limit for notification of cases.

#### Place of residence of mother

The mother's usual residence was the basis for coding to statistical local areas and NSW health areas.

#### Labour

The category labour—spontaneous with oxytocics—prostaglandins was used where labour was augmented with artificial rupture of membranes as well as oxytocics or prostaglandins.

#### Levels of neonatal care

##### Tertiary

Level 3: Neonatal Intensive Care Unit (NICU)—a unit that provides high-dependency specialist nursing and medical care for all newborn infants including sustained life support such as mechanical ventilation and has staff neonatologists and neonatal registrars.

##### Non-tertiary

*Level 2a:* Neonatal Care—a unit that can give high-level oxygen, can start mechanical ventilation if necessary, and has paediatric house staff.

*Level 2b:* Neonatal Care—a unit that can give low-level oxygen and has a paediatrician on call.

#### Level of maternity hospital

Level 1: local maternity service (no births), postnatal only for women with normal outcomes.

Level 2: small maternity services, normal-risk pregnancy and births only. Staffed by general practitioners and midwives.

Level 3: country district and smaller metropolitan services, care for mothers and infants at normal - selected moderate risk pregnancies and births. Full resuscitation and theatre facilities available. Rostered obstetricians, resident medical staff and midwives. Accredited general practitioners and specialist anaesthetist on call. Has Level 2b neonatal care.

Level 4: regional - referral - metropolitan district services. Birth and care for mothers and/or babies with moderate risk factors. Obstetricians and paediatricians available 24 hours a day, 7 days a week. Rostered resident medical staff, specialist anaesthetist on call. Has Level 2b neonatal care.

Level 5: regional referral - metropolitan services, care for mothers and infants known to be at high risk. Able to cope with complications arising from these risk factors. Has Level 2a neonatal care.

Level 6: (tertiary) - specialist obstetric services (supra regional). All functions - normal, moderate and high-risk births. Has Level 3 neonatal intensive care.

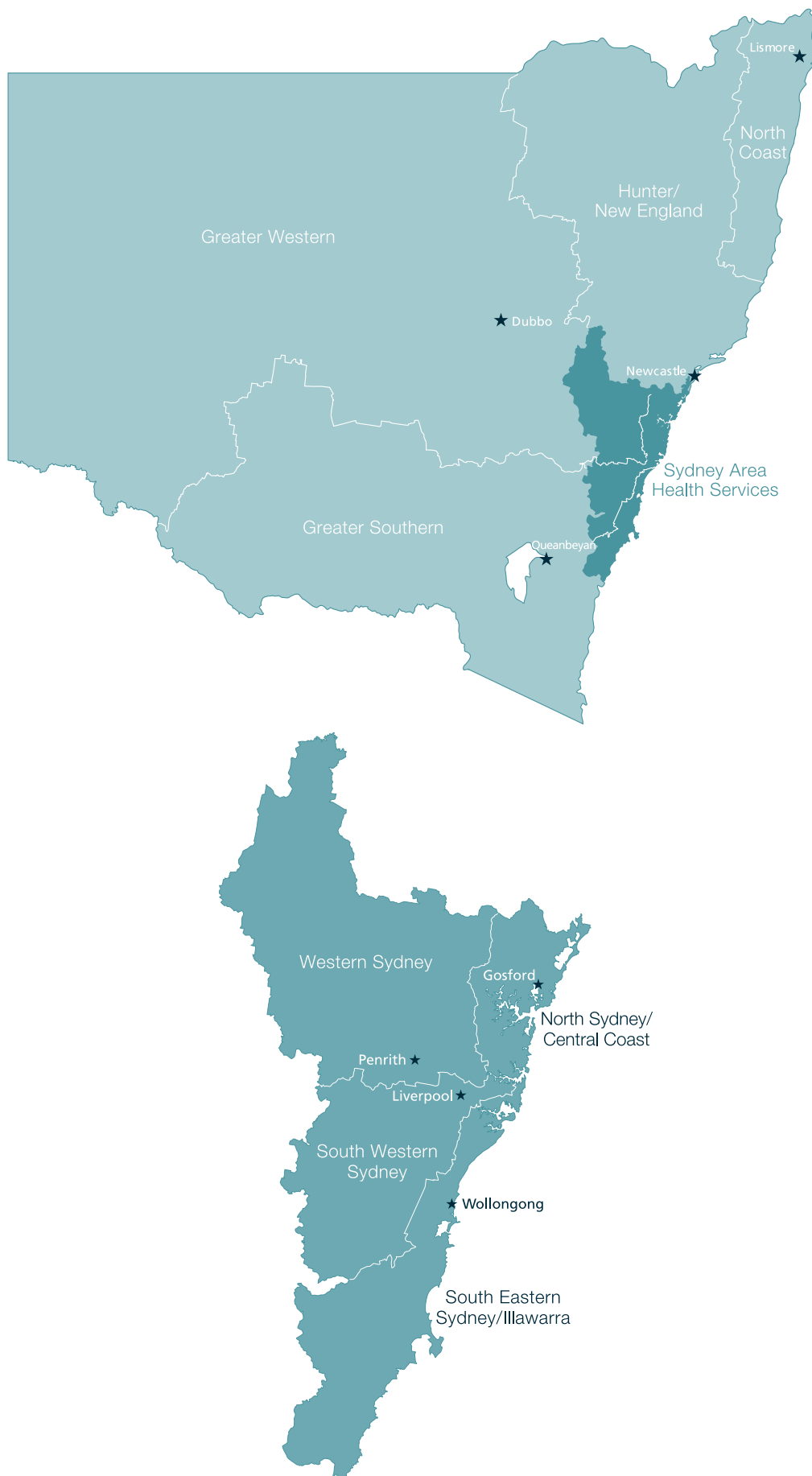
#### Type of birth

The 'vaginal breech' category covers all forms of vaginal breech birth, including forceps to the after-coming head.

#### Perinatal mortality rate

Perinatal deaths include deaths reported to the MDC only. As the MDC form is completed at discharge or transfer of the baby, deaths occurring after this time may not be reported to the MDC. Birth and perinatal death registration data held by the Australian Bureau of Statistics (ABS) give the most complete ascertainment of perinatal deaths for calculation of rates.

## MAP OF NSW HEALTH AREAS



## 4. TRENDS IN NEW SOUTH WALES

### Confinements and births by plurality

There were 92,781 births to 91,315 women reported in 2006 (Table 1). This represents a 2.4 per cent increase in births compared to 2005, and a 8.4 per cent increase

compared to 2004. The number of multiple (twin and triplet) pregnancies has remained stable compared to 2002.

**TABLE 1**

#### PLURALITY, NSW 2002–2006

Plurality	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Confinements</b>										
Singleton	83190	98.3	83677	98.4	82983	98.5	87699	98.4	89890	98.4
Twins	1375	1.6	1330	1.6	1274	1.5	1413	1.6	1386	1.5
Triplets	22	0.0	23	0.0	30	0.0	27	0.0	37	0.0
Quadruplets	0	0.0	2	0.0	1	0.0	1	0.0	2	0.0
Total	84587	100.0	85032	100.0	84288	100.0	89140	100.0	91315	100.0
<b>Births</b>										
Singleton	83190	96.7	83677	96.8	82983	96.9	87699	96.8	89890	96.9
Twins	2749	3.2	2660	3.1	2549	3.0	2826	3.1	2772	3.0
Triplets	66	0.1	69	0.1	90	0.1	81	0.1	111	0.1
Quadruplets	0	0.0	8	0.0	4	0.0	4	0.0	8	0.0
Total	86005	100.0	86414	100.0	85626	100.0	90610	100.0	92781	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

### Health area of residence

In 2006, the largest number of births occurred in the Sydney South West Area, followed by Sydney West and South Eastern Sydney and Illawarra Areas (Table 2).

Compared to 2005, there were increases in the numbers of births in all health areas.

**TABLE 2**

#### MATERNAL HEALTH AREA OF RESIDENCE, NSW 2002–2006

Plurality	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	19105	22.6	22.9	19485	18720	22.2	19713	22.1	20426	22.4
South Eastern Sydney and Illawarra	13699	16.2	13898	16.3	14121	16.8	14619	16.4	15020	16.4
Sydney West	15883	18.8	15942	18.7	15834	18.8	17019	19.1	17210	18.8
Northern Sydney and Central Coast	12818	15.2	13142	15.5	13032	15.5	13697	15.4	14139	15.5
Hunter and New England	10004	11.8	9694	11.4	9672	11.5	10381	11.6	10579	11.6
North Coast	4656	5.5	4587	5.4	4690	5.6	4973	5.6	5100	5.6
Greater Southern	3969	4.7	3834	4.5	3838	4.6	3993	4.5	4059	4.4
Greater Western	3855	4.6	3898	4.6	3784	4.5	3985	4.5	4052	4.4
Other/Not stated	598	0.7	552	0.6	597	0.7	760	0.9	730	0.8
TOTAL	84587	100.0	85032	100.0	84288	100.0	89140	100.0	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Maternal age

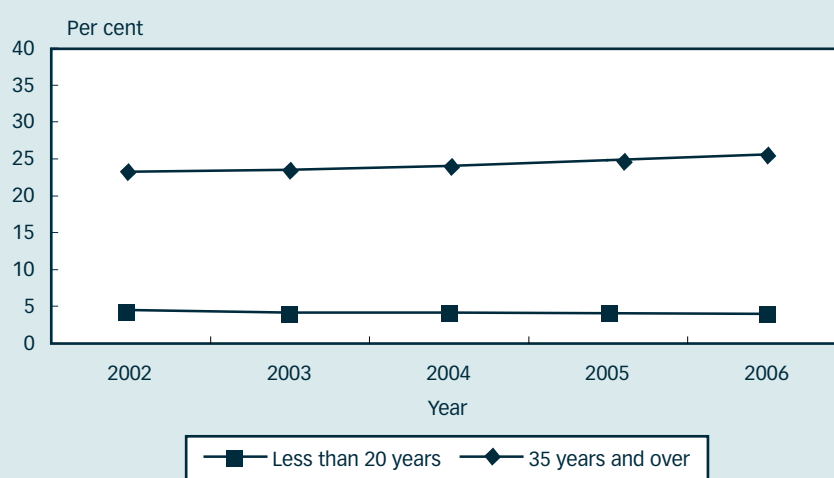
The number of mothers giving birth increased across all age groups in 2006 compared to previous years. The largest increase was among mothers aged 35–39 years.

While the number of teenage mothers increased marginally from 3,440 in 2005 to 3,471 in 2006, the percentage mothers who were teenagers fell marginally from 3.9 to 3.8 per cent. The number of mothers aged 35 years and over increased from 18,441 in 2005 to 19,762 in 2006, an increase from 20.7 to 21.6 per cent of all confinements (Figure 1, Table 3).

The mean maternal age rose from 29.9 to 30.4 years over the 5 years 2002 to 2006. The trend towards later childbirth is evident among both primiparous and multiparous mothers: the proportion of mothers giving birth for the first time who were aged 35 years or more increased from 11.8 to 14.7 per cent over the 5 year period, and the proportion of multiparous mothers who were aged 35 years or more increased from 23.7 to 26.6 per cent. The mean maternal age rose from 28.4 to 29.0 years for primiparous mothers and from 31.3 to 31.6 years for multiparous mothers.

**FIGURE 1**

### MOTHERS AGED LESS THAN 20 YEARS AND 35 YEARS AND OVER, NSW 2002–2006



Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research. NSW Department of Health.

**TABLE 3**

### MATERNAL AGE, NSW 2002–2006

Maternal age (years)	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
Under 15	28	0.0	23	0.0	22	0.0	30	0.0	18	0.0
15–19	3624	4.3	3363	4.0	3365	4.0	3410	3.8	3453	3.8
20–24	12674	15.0	12529	14.7	12095	14.3	12739	14.3	12686	13.9
25–29	24523	29.0	24138	28.4	23113	27.4	24006	26.9	24553	26.9
30–34	27810	32.9	28522	33.5	28906	34.3	30502	34.2	30785	33.7
35–39	13107	15.5	13582	16.0	13808	16.4	15275	17.1	16526	18.1
40–44	2645	3.1	2752	3.2	2819	3.3	3017	3.4	3073	3.4
45+	120	0.1	113	0.1	142	0.2	149	0.2	163	0.2
Not stated	56	0.1	10	0.0	18	0.0	12	0.0	58	0.1
Total	84587	100.0	85032	100.0	84288	100.0	89140	100.0	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Maternal country of birth

In the period 2002–2006, 71 per cent of mothers were born in Australia. In 2006, mothers born in the New Zealand, United Kingdom, China, Vietnam and Lebanon together

accounted for 10.6 per cent of all mothers (Table 4). Further information on maternal country of birth is shown in Chapter 7.

**TABLE 4**

### MATERNAL COUNTRY OF BIRTH, NSW 2002–2006#

Country of birth	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
Australia	61640	72.9	61432	72.2	60961	72.3	64246	72.1	65226	71.4
New Zealand	1998	2.4	2121	2.5	1989	2.4	2233	2.5	2343	2.6
United Kingdom	2344	2.8	2368	2.8	2229	2.6	2172	2.4	2288	2.5
China	1830	2.2	1586	1.9	1672	2.0	1767	2.0	1787	2.0
Vietnam	1773	2.1	1863	2.2	1684	2.0	1652	1.9	1720	1.9
Lebanon	1663	2.0	1696	2.0	1594	1.9	1608	1.8	1547	1.7
India	747	0.9	810	1.0	888	1.1	1094	1.2	1294	1.4
Philippines	1156	1.4	1192	1.4	1083	1.3	1160	1.3	1220	1.3
Iraq	545	0.6	648	0.8	621	0.7	681	0.8	743	0.8
Fiji	655	0.8	691	0.8	686	0.8	670	0.8	697	0.8
South Africa	486	0.6	486	0.6	547	0.6	579	0.6	598	0.7
Indonesia	494	0.6	489	0.6	519	0.6	541	0.6	578	0.6
South Korea	301	0.4	328	0.4	389	0.5	419	0.5	485	0.5
United States of America	346	0.4	355	0.4	372	0.4	359	0.4	428	0.5
Pakistan	266	0.3	260	0.3	291	0.3	345	0.4	396	0.4
Hong Kong	307	0.4	301	0.4	314	0.4	332	0.4	338	0.4
Afghanistan	133	0.2	143	0.2	159	0.2	263	0.3	335	0.4
Bangladesh	212	0.3	198	0.2	233	0.3	293	0.3	327	0.4
Sri Lanka	324	0.4	299	0.4	310	0.4	320	0.4	324	0.4
Malaysia	262	0.3	271	0.3	283	0.3	339	0.4	315	0.3
Thailand	268	0.3	253	0.3	277	0.3	290	0.3	309	0.3
Ireland	267	0.3	333	0.4	281	0.3	325	0.4	299	0.3
Western Samoa	310	0.4	303	0.4	289	0.3	306	0.3	298	0.3
Japan	283	0.3	293	0.3	260	0.3	339	0.4	288	0.3
Sudan	69	0.1	117	0.1	154	0.2	226	0.3	283	0.3
Cambodia	279	0.3	295	0.3	274	0.3	268	0.3	276	0.3
Turkey	266	0.3	265	0.3	268	0.3	251	0.3	269	0.3
Canada	192	0.2	225	0.3	237	0.3	227	0.3	262	0.3
Germany	188	0.2	237	0.3	205	0.2	211	0.2	240	0.3
Tonga	271	0.3	219	0.3	246	0.3	222	0.2	212	0.2
Chile	250	0.3	187	0.2	172	0.2	194	0.2	189	0.2
Iran	137	0.2	192	0.2	159	0.2	176	0.2	181	0.2
Serbia and Montenegro	0	0.0	0	0.0	0	0.0	168	0.2	163	0.2
Poland	106	0.1	116	0.1	130	0.2	127	0.1	163	0.2
Egypt	160	0.2	173	0.2	159	0.2	177	0.2	162	0.2
France	109	0.1	96	0.1	119	0.1	122	0.1	138	0.2
Former Yugoslavia	531	0.6	571	0.7	464	0.6	135	0.2	132	0.1
Syria	151	0.2	154	0.2	159	0.2	147	0.2	132	0.1
Papua New Guinea	135	0.2	148	0.2	156	0.2	106	0.1	126	0.1
North Korea	151	0.2	206	0.2	153	0.2	140	0.2	124	0.1
Russian Federation (not USSR)	105	0.1	106	0.1	115	0.1	151	0.2	121	0.1
Singapore	117	0.1	129	0.2	119	0.1	146	0.2	121	0.1
Macedonia	0	0.0	0	0.0	0	0.0	106	0.1	105	0.1
Taiwan	78	0.1	96	0.1	80	0.1	107	0.1	102	0.1
Other/Not stated	2682	3.2	2781	3.3	2988	3.5	3400	3.8	3631	4.0
TOTAL	84587	100.0	85032	100.0	84288	100.0	89140	100.0	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

#Countries of birth for which there were 100 or more confinements in 2006.

## Maternal Aboriginality

The reported number of Aboriginal or Torres Strait Islander mothers giving birth increased from 2,155 in 2002 to 2,611

in 2006, an increase from 2.5 to 2.9 per cent of all mothers (Table 5). Further information on maternal Aboriginality and reporting of Aboriginality is shown in Chapter 7.

**TABLE 5**

### MATERNAL ABORIGINALITY, NSW 2002–2006

Plurality	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
Aboriginal or Torres Strait Islander	2155	2.5	2161	2.5	2308	2.7	2474	22.1	20426	22.4
Non-Aboriginal or Torres Strait Islander	82383	97.4	13898	97.4	81948	97.2	86570	97.1	88176	96.6
Not stated	49	0.1	40	0.0	32	0.0	96	0.1	52	0.8
TOTAL	84587	100.0	85032	100.0	84288	100.0	89140	100.0	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Previous pregnancies

In recent years there were no substantial changes in the reported number of previous pregnancies greater than 20 weeks gestation (Table 6). The proportion of mothers giving birth for the first time has been stable at 41 to 42 per cent, while the proportion of mothers giving birth to a

second to fifth baby has been stable at about 56 to 58 per cent. The number of women giving birth for the sixth 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.

**TABLE 6**

### PREVIOUS PREGNANCIES, NSW 2002–2006

No. previous pregnancies (>20 weeks gestation)	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
0	35035	41.4	35879	42.2	35796	42.5	37073	41.6	37855	41.5
1–4	48169	56.9	47847	56.3	47136	55.9	50566	56.7	51443	56.3
5+	1290	1.5	1258	1.5	1312	1.6	1441	1.6	1579	1.7
Not stated	93	0.1	48	0.1	44	0.1	60	0.1	438	0.5
TOTAL	84587	100.0	85032	100.0	84288	100.0	89140	100.0	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Duration of pregnancy at first antenatal visit

Since 2002, the proportion of mothers starting antenatal care at 20-plus weeks gestation has declined slightly from 12.5 to 11.2 per cent. (Table 7)

**TABLE 7**

### DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT, NSW 2002–2006

Duration of pregnancy (weeks)	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
0–19	73116	86.4	73615	86.6	73775	87.5	78456	88.0	79874	87.5
20+	10614	12.5	10929	12.9	9934	11.8	10169	11.4	10218	11.2
Not stated	857	1.0	488	0.6	579	0.7	515	0.6	1223	1.3
TOTAL	84587	100.0	85032	100.0	84288	100.0	89140	100.0	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Smoking in pregnancy

The proportion of mothers reporting any smoking during pregnancy declined between 2002 and 2006: in 2002, 13,829 (16.3 per cent) mothers reported smoking in pregnancy, 12,875 (15.1 per cent) in 2003, 12,472 (14.8 per cent) in 2004, 12,738 (14.3 per cent) in 2005 and 12,307 (13.5%) in 2006.

Of mothers who smoked during pregnancy in 2006, 4.2 per cent stopped smoking before the second half of pregnancy. Over the 5-year period, among those who smoked in the second half of pregnancy, there was a trend towards smoking fewer cigarettes per day (Table 8).

**TABLE 8**

### MOTHERS WHO SMOKED AT ALL DURING PREGNANCY BY NUMBER OF CIGARETTES SMOKED IN THE SECOND HALF OF PREGNANCY, NSW 2002–2006

Cigarettes smoked in the second half of the pregnancy	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
None	556	4.0	427	3.3	485	3.9	552	4.3	514	4.2
1–10 per day	6639	48.0	6451	50.1	6303	50.5	6483	50.9	6243	50.7
More than 10 per day	6347	45.9	5680	44.1	5378	43.1	5129	40.3	5016	40.8
Smoked, amount not stated	279	2.0	317	2.5	297	2.4	572	4.5	455	3.7
Not stated	8	0.1	0	0.0	9	0.1	2	0.0	79	0.6
TOTAL	13829	100.0	12875	100.0	12472	100.0	12738	100.0	12307	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Place of birth

In 2006, the majority of mothers planned to give birth in a hospital labour ward, and 3.4 per cent of mothers planned to give birth in a birth centre (Table 9). About 60 per cent of mothers who planned to give birth in a birth centre

actually did so. The total number of reported planned homebirths rose slightly from 130 in 2002 to 172 in 2006, while the reported number of planned homebirths that occurred at home rose from 99 in 2002 to 125 in 2006.

**TABLE 9**

### MATERNAL PLACE OF BIRTH, NSW 2002–2006

Place of birth	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
Hospital	81230	96.0	81441	95.8	80701	95.7	85660	96.1	87567	95.9
Birth centre	2030	2.4	2075	2.4	2003	2.4	1830	2.1	1878	2.1
Planned birth centre/hospital admission	881	1.0	1029	1.2	1126	1.3	1128	1.3	1240	1.4
Planned homebirth	99	0.1	109	0.1	93	0.1	112	0.1	125	0.1
Planned homebirth/ hospital admission	31	0.0	23	0.0	21	0.0	40	0.0	47	0.1
Born before arrival	316	0.4	355	0.4	344	0.4	369	0.4	388	0.4
Not stated	0	0.0	0	0.0	0	0.0	1	0.0	70	0.1
TOTAL	84587	100.0	85032	100.0	84288	100.0	89140	100.0	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Hypertension and diabetes

In 2006, gestational diabetes was reported in 4.8 per cent of mothers, rising from 4.4 per cent in 2002, while rates of diabetes mellitus have remained stable at about 0.6 per cent over the 5-year period (Table 10). During 2006, there

was a change in the format for reporting hypertension in pregnancy. Overall, hypertension in pregnancy was reported among 5.7% of mothers in 2006, slightly lower than the rate of 6.8% reported in 2002.

**TABLE 10**  
**MATERNAL HYPERTENSION OR DIABETES, NSW 2002–2006**

Condition	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
Diabetes	462	0.5	505	0.6	464	0.6	503	0.6	541	0.6
Gestational diabetes	3693	4.4	3792	4.5	3592	4.3	4165	4.7	4375	4.8
Essential hypertension	940	1.1	879	1.0	940	1.1	842	0.9	804	0.9
Pre-eclampsia #	4839	5.7	4645	5.5	4606	5.5	4553	5.1	3198	3.5
Pregnancy induced hypertension ##										
– proteinuric	–	–	–	–	–	–	–	–	612	0.7
– non-proteinuric	–	–	–	–	–	–	–	–	626	0.7
TOTAL	84587	100.0	85032	100.0	84288	100.0	89140	100.0	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

# Reported in the 2005 format, *n*=55,078

## Reported in the 2006 format, *n*=36,237.

## Labour

The rate of spontaneous onset of labour fell from 61.1 per cent in 2002 to 58.2 per cent in 2006 (Table 11). Nine per cent of spontaneous labours were augmented with oxytocics or prostaglandins in 2006. The rate of induction of labour was 24.7 per cent in 2006, similar to previous years. The most common reported reason for induction of labour in

2006 was prolonged pregnancy (41 or more weeks) (31.0 per cent), followed by prelabour rupture of membranes (10.7 per cent), hypertensive disease (10.2 per cent), diabetes (5.1 per cent), suspected intrauterine growth retardation (3.9 per cent), fetal death (1.1 per cent), and fetal distress (1.1 per cent).

**TABLE 11**  
**ONSET AND AUGMENTATION OF LABOUR, NSW 2002–2006**

Onset of labour	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
Spontaneous	37615	44.5	38110	44.8	37137	44.1	38027	42.7	38706	42.4
Spontaneous augmented with ARM	6422	7.6	5992	7.0	6090	7.2	6152	6.9	6318	6.9
Spontaneous augmented with oxytocics/ prostaglandins	7644	9.0	7258	8.5	7580	9.0	7812	8.8	8146	8.9
No labour	11720	13.9	12820	15.1	12930	15.3	14467	16.2	15516	17.0
Induced – oxytocics/ prostaglandins	7414	8.8	7265	8.5	7049	8.4	7417	8.3	7306	8.0
Induced – ARM only	1193	1.4	1331	1.6	1267	1.5	1595	1.8	1447	1.6
Induced – ARM+oxytocics/ prostaglandins	12262	14.5	11965	14.1	11912	14.1	13273	14.9	13389	14.7
Induced – other#	305	0.4	289	0.3	322	0.4	384	0.4	417	0.5
Not stated	12	0.0	2	0.0	1	0.0	13	0.0	70	0.1
TOTAL	84587	100.0	85032	100.0	84288	100.0	89140	100.0	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

# This category includes other forms of induction such as Foley's catheter.

## Birth

Among NSW mothers, the rate of normal vaginal birth decreased from 64.2 per cent in 2002 to 60.4 per cent in 2006 (Table 12). The caesarean section rate increased from 24.9 to 28.8 per cent. The rate of instrumental birth remained steady at 10 to 11 per cent. Operative and instrumental deliveries are more common among privately

than publicly insured mothers (Table 13). Among privately insured mothers the rate of normal vaginal birth fell from 53.6 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 fell from 71.1 to 67.1 per cent and the caesarean section rate rose from 20.1 to 24.2 per cent.

**TABLE 12**  
**TYPE OF BIRTH, NSW 2002–2006**

Type of delivery	2002		2003		Year		2005		2006	
					2004					
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal vaginal	54271	64.2	53424	62.8	52366	62.1	4568	61.2	55187	60.4
Forceps	3034	3.6	2875	3.4	2762	3.3	2801	3.1	2885	3.2
Vacuum extraction	5855	6.9	5788	6.8	5902	7.0	6372	7.1	6332	6.9
Vaginal breech	353	0.4	371	0.4	347	0.4	322	0.4	366	0.4
Elective caesarean section	11720	13.9	12820	15.1	12930	15.3	14467	16.2	15507	17.0
Emergency caesarean section#	9335	11.0	9744	11.5	9974	11.8	10610	11.9	10827	11.9
Not stated	19	0.0	10	0.0	7	0.0	0	0.0	211	0.2
TOTAL	84587	100.0	85032	100.0	84288	100.0	89140	100.0	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

#Emergency caesarean section includes caesarean sections where the onset of labour was not stated.

**TABLE 13**  
**MATERNAL HEALTH INSURANCE STATUS BY TYPE OF BIRTH, NSW 2001–2005**

Insurance status – type of birth	2001		2002		Year		2004		2005	
					2003					
	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Public</b>										
Normal vaginal	39535	71.1	37301	70.0	38142	68.6	37323	67.8	38912	67.1
Forceps	1691	3.0	1435	2.7	1450	2.6	1382	2.5	1356	2.3
Vacuum extraction	2902	5.2	3005	5.6	3178	5.7	3177	5.8	3450	5.9
Vaginal breech	289	0.5	245	0.5	279	0.5	257	0.5	241	0.4
Elective caesarean section	5725	10.3	5782	10.8	6520	11.7	6629	12.0	7458	12.9
Emergency caesarean section#	5474	9.8	5519	10.4	6069	10.9	6264	11.4	6602	11.4
Not stated	3	0.0	7	0.0	0	0.0	0	0.0	0	0.0
TOTAL	55619	100.0	53294	100.0	55638	100.0	55032	100.0	58019	100.0
<b>Private</b>										
Normal vaginal	14729	53.6	15146	52.2	14105	50.7	13761	50.3	14130	48.9
Forceps	1688	6.1	1579	5.4	1404	5.0	1335	4.9	1388	4.8
Vacuum extraction	2556	9.3	2802	9.7	2567	9.2	2627	9.6	2788	9.7
Vaginal breech	75	0.3	82	0.3	70	0.3	62	0.2	65	0.2
Elective caesarean section	5118	18.6	5688	19.6	6102	21.9	6056	22.1	6743	23.3
Emergency caesarean section#	3309	12.0	3681	12.7	3559	12.8	3512	12.8	3777	13.1
Not stated	10	0.0	12	0.0	10	0.0	7	0.0	0	0.0
TOTAL	27485	100.0	28990	100.0	27817	100.0	27360	100.0	28891	100.0
<b>TOTAL##</b>										
Normal vaginal	55206	65.4	54271	64.2	53424	62.8	52366	62.1	54568	61.2
Forceps	3398	4.0	3034	3.6	2875	3.4	2762	3.3	2801	3.1
Vacuum extraction	5499	6.5	5855	6.9	5788	6.8	5902	7.0	6372	7.1
Vaginal breech	383	0.5	353	0.4	371	0.4	347	0.4	322	0.4
Elective caesarean section	10986	13.0	11720	13.9	12820	15.1	12930	15.3	14467	16.2
Emergency caesarean section#	8894	10.5	9335	11.0	9744	11.5	9974	11.8	10610	11.9
Not stated	13	0.0	19	0.0	10	0.0	7	0.0	0	0.0
TOTAL	84379	100.0	84587	100.0	85032	100.0	84288	100.0	89140	100.0

Source: Linked data of the NSW Midwives Data Collection and NSW Admitted Patient Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

# Emergency caesarean section includes caesarean sections where the onset of labour was not stated.

## Total includes mothers where type of health insurance was not stated.

## Baby sex

There were no significant changes in the pattern of baby sex since 2002, with slightly more male babies born than females in each year. In 2006, 47,985 (51.7 per cent) of babies were male, 44,702 (48.2 per cent) were female, 11 were of indeterminate sex, and sex was not reported for 83 babies. This compares with babies born in 2002, when 44,058 (51.2 per cent) of 86,005 babies were male, 41,858 (48.7 per cent) were female, 15 were of indeterminate sex, and sex was not reported for 74 babies.

## Gestational age

In 2006, 7.4 per cent of babies were born prematurely (less than 37 weeks gestation), compared to 7.1 per cent in 2002 (Table 14). Over the 5 year period, about 90 per cent of babies were born at term (37–41 weeks gestation), and about 2 per cent were postmature (41-plus weeks gestation).

**TABLE 14**  
**BIRTHS BY GESTATIONAL AGE, NSW 2002–2006**

Gestational age (weeks)	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
20–27	594	0.7	585	0.7	605	0.7	622	0.7	669	0.7
28–31	612	0.7	639	0.7	667	0.8	654	0.7	675	0.7
32–36	4865	5.7	4810	5.6	4975	5.8	5248	5.8	5490	5.9
37–41	77865	90.5	78241	90.5	77614	90.6	82367	90.9	84424	91.0
42 +	2047	2.4	2128	2.5	1761	2.1	1709	1.9	1499	1.6
<20	1	0.0	1	0.0	0	0.0	0	0.0	5	0.0
Not stated	21	0.0	10	0.0	4	0.0	10	0.0	19	0.0
TOTAL	86005	100.0	86414	100.0	85626	100.0	90610	100.0	92781	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Birth weight

Since 2002, the rate of low birth weight (less than 2,500 grams) has been about just over 6 per cent (Table 15). The rate was 6.4 per cent in 2006.

**TABLE 15**  
**BIRTHS BY BIRTH WEIGHT, NSW 2002–2006**

Birth weight (grams)	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 500	212	0.2	223	0.3	214	0.2	227	0.3	239	0.3
500–999	399	0.5	393	0.5	395	0.5	392	0.4	411	0.4
1000–1499	469	0.5	497	0.6	558	0.7	513	0.6	562	0.6
1500–1999	1083	1.3	1049	1.2	1059	1.2	1100	1.2	1167	1.3
2000–2499	3344	3.9	3221	3.7	3231	3.8	3452	3.8	3554	3.8
2500–2999	12838	14.9	12877	14.9	12797	14.9	13675	15.1	13906	15.0
3000–3499	30504	35.5	30803	35.6	30238	35.3	32451	35.8	33074	35.6
3500–3999	26676	31.0	26982	31.2	26570	31.0	27822	30.7	28705	30.9
4000–4499	8921	10.4	8810	10.2	8931	10.4	9298	10.3	9389	10.1
4500+	1509	1.8	1507	1.7	1584	1.8	1613	1.8	1649	1.8
Not stated	50	0.1	52	0.1	49	0.1	67	0.1	125	0.1
TOTAL	86005	100.0	86414	100.0	85626	100.0	90610	100.0	92781	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Apgar score

In 2006, 2.0 per cent of babies were born with an Apgar score of less than 7 at 5 minutes and 1.1 per cent were

born with a score less than 4 (Table 16). These rates are similar to those of previous years.

**TABLE 16**

### BIRTHS BY APGAR SCORE AT 5 MINUTES, NSW 2002–2006#

Apgar score	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
0–4	902	1.0	899	1.0	921	1.1	963	1.1	1007	1.1
5–6	893	1.0	865	1.0	844	1.0	833	0.9	890	1.0
7+	84033	97.7	84473	97.8	83653	97.7	88621	97.8	90645	97.7
Not stated	177	0.2	177	0.2	208	0.2	193	0.2	239	0.3
TOTAL	86005	100.0	86414	100.0	85626	100.0	90610	100.0	92781	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

# Includes stillbirths and live births.

## Perinatal outcome

In the period 2002–2006 the perinatal mortality rate varied from 8.6 to 9.0 per 1,000 (Table 17). In 2006, 72.1 per cent of all reported perinatal deaths were stillbirths and 27.9 per cent were neonatal deaths.

In 2006, of the 821 perinatal deaths in NSW, 790 (96.2 per cent) were reported among planned hospital births, 13 (1.6 per cent) among planned birth centre births, 2 occurred in planned home births, and 15 were among babies born before arrival at hospital.

**TABLE 17**

### BIRTHS BY PERINATAL OUTCOME, NSW 2002–2006#

Year	Liveborn surviving		Stillborn		Neonatal death		Death – age not stated		Not stated		Total births		Perinatal death rate/1,000 births
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
2002	85222	99.1	515	0.6	233	0.3	0	0.0	35	0.0	86005	100.0	8.7
2003	85669	99.1	523	0.6	221	0.3	0	0.0	1	0.0	86414	100.0	8.6
2004	84849	99.1	561	0.7	212	0.2	0	0.0	4	0.0	85626	100.0	9.0
2005	89786	99.1	535	0.6	257	0.3	0	0.0	32	0.0	90610	100.0	8.7
2006	91840	99.0	592	0.6	229	0.2	6	0.0	114	0.1	92781	100.0	8.8

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

# Perinatal deaths include deaths reported to the MDC only. As the MDC form is completed at discharge or transfer of the baby, deaths occurring after this time may not be reported to the MDC

## Maternal deaths

In the period 1990–2005, 167 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 (Table 18). Table 19 shows maternal deaths by cause in NSW for 2005.

**TABLE 18**

### MATERNAL DEATHS BY YEAR, NSW 2002–2006#

Year	Direct		Indirect		Classification Total direct and indirect		Incidental		TOTAL	
	No.	Ratio/ 100,000	No.	Ratio/ 100,000	No.	Ratio/ 100,000	No.	Ratio/ 100,000	No.	Ratio/ 100,000
1990	4	4.6	6	6.9	10	11.6	2	2.3	12	13.9
1991	4	4.7	1	1.2	5	5.8	1	1.2	6	7.0
1992	5	5.7	1	1.1	6	6.8	5	5.7	11	12.5
1993	6	6.9	1	1.2	7	8.1	6	6.9	13	15.0
1994	8	9.2	1	1.2	9	10.4	3	3.5	12	13.8
1995	7	8.1	2	2.3	9	10.4	6	7.0	15	17.4
1996	6	7.0	1	1.2	7	8.2	5	5.9	12	14.1
1997	7	8.1	2	2.3	9	10.5	5	5.8	14	16.1
1998	4	4.7	4	4.7	8	9.4	3	3.5	11	12.9
1999##	4	4.7	1	1.2	5	5.8	6	7.0	12	14.0
2000	4	4.7	5	5.9	9	10.7	1	1.2	10	11.9
2001	4	4.7	4	4.7	8	9.5	1	1.2	9	10.7
2002	2	2.4	2	2.4	4	4.7	1	1.2	5	5.9
2003	1	1.2	3	3.5	4	4.7	3	3.5	7	8.2
2004###	2	2.3	2	2.3	4	4.7	2	2.3	7	8.2
2005*	4	4.5	4	4.5	8	9.0	1	1.1	11	12.0

Source: NSW Maternal and Perinatal Committee.

# Includes all deaths of women who were pregnant at the time of death, or who died within 42 days of childbirth. Direct deaths include those resulting from obstetric complications of the pregnant state, including its management. Indirect deaths include those resulting from pre-existing disease or disease which developed during pregnancy and was not due to direct obstetric causes but which may have been aggravated by the physiological effects of pregnancy. Incidental deaths are those where the pregnancy is unlikely to have contributed significantly to the death.<sup>1</sup>

## Total for 1999 includes one death of undetermined cause.

### Total for 2004 includes one open coronial case.

\* Total for 2005 includes one death of undetermined cause.

**TABLE 19**

### MATERNAL DEATHS BY CAUSE, NSW 2005#

Classification	Cause	No.
Direct	Suicide by hanging	2
Direct	Ruptured ectopic pregnancy	1
Direct	Thromboembolism	1
Indirect	Arrhythmia of unknown origin	1
Indirect	Suicide by hanging associated with pre-existing depression	1
Indirect	Heart failure	1
Indirect	Carcinoma of the stomach	1
Incidental	Bronchopneumonia associated with cystic fibrosis	1
Unclassifiable	Collapse – cause unknown	2
Total		11

Source: NSW Maternal and Perinatal Committee.

# Includes all deaths of women who were pregnant at the time of death, or who died within 42 days of childbirth. Direct deaths include those resulting from obstetric complications of the pregnant state, including its management. Indirect deaths include those resulting from pre-existing disease or disease which developed during pregnancy and was not due to direct obstetric causes but which may have been aggravated by the physiological effects of pregnancy. Incidental deaths are those where the pregnancy is unlikely to have contributed significantly to the death.<sup>1</sup>

## Reference

1. Sullivan EA, Hall B and King, JF. *Maternal deaths in Australia 2003–2005*. Maternal deaths series no. 3 Cat. No. PER 42. Sydney: AIHW National Perinatal Statistics Unit, 2007.

## 5. AREA HEALTH SERVICES

Information on the health of Aboriginal and Torres Strait Islander mothers and mothers born in non-English speaking countries is shown in Chapters 7 and 8 respectively.

### Confinements

The largest numbers of mothers who gave birth in 2006 were resident in the Sydney South West Area (20,426, 22.4 per cent), followed by the Sydney West Area (17,210, 18.8 per cent) and the South Eastern Sydney and Illawarra (15,020, 16.4 per cent) Area (Table 20).

### Maternal age

The proportion of women giving birth at less than 20 years of age varied from 1.6 per cent in the Northern Sydney and Central Coast Area to 8.9 per cent in the Greater Western Area, while the proportion of mothers giving birth at 35 years of age or more ranged from 13.1 per cent in the Greater Western Area to 31.4 per cent in the Northern Sydney and Central Coast Area (Table 20).

### Maternal country of birth

Seventy-nine per cent of women who gave birth in NSW in 2006 were born in English speaking countries, 11.7 per cent were born in Asian countries, and 4.6 per cent were born in the Middle East or Africa (Table 21). The highest proportions of mothers born in non-English speaking countries were in the Sydney South West and Sydney West Areas. In the Sydney South West Area, the majority of mothers born in non-English speaking countries were born in South East Asia, and the Middle East and Africa. In the Sydney West Area, the most common maternal countries of birth were in the Middle East and Africa, and in Southern Asia.

### Maternal Aboriginality

In 2006, 2.9 per cent of mothers were reported to be Aboriginal or Torres Strait Islander (Table 22). The proportion of Aboriginal or Torres Strait Islander mothers varied from 0.7 per cent in the Northern Sydney and Central Coast Area to 13.8 per cent in the Greater Western Area.

**TABLE 20**

#### MATERNAL AGE AND HEALTH AREA OF RESIDENCE, NSW 2006

Health Area	Maternal age (years)																	
	12–19		20–24		25–29		30–34		35–39		40–44		45 +		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	602	2.9	2786	13.6	5729	28.0	6859	33.6	3707	18.1	702	3.4	34	0.2	7	0.0	20426	100.0
South Eastern Sydney and Illawarra	326	2.2	1388	9.2	3669	24.4	5769	38.4	3208	21.4	622	4.1	34	0.2	4	0.0	15020	100.0
Sydney West	642	3.7	2739	15.9	5278	30.7	5519	32.1	2543	14.8	464	2.7	21	0.1	4	0.0	17210	100.0
Northern Sydney and Central Coast	228	1.6	1044	7.4	2897	20.5	5533	39.1	3727	26.4	677	4.8	31	0.2	2	0.0	14139	100.0
Hunter and New England	683	6.5	1893	17.9	3081	29.1	3181	30.1	1460	13.8	259	2.4	16	0.2	6	0.1	10579	100.0
North Coast	361	7.1	1054	20.7	1368	26.8	1420	27.8	748	14.7	137	2.7	10	0.2	2	0.0	5100	100.0
Greater Southern	246	6.1	837	20.6	1148	28.3	1134	27.9	580	14.3	106	2.6	8	0.2	0	0.0	4059	100.0
Greater Western	359	8.9	836	20.6	1149	28.4	1151	28.4	438	10.8	85	2.1	7	0.2	27	0.7	4052	100.0
Other – not stated	24	3.3	109	14.9	234	32.1	219	30.0	115	15.8	21	2.9	2	0.3	6	0.8	730	100.0
TOTAL	3471	3.8	12686	13.9	24553	26.9	30785	33.7	16526	18.1	3073	3.4	163	0.2	58	0.1	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

**TABLE 21****MATERNAL COUNTRY OF BIRTH AND HEALTH AREA OF RESIDENCE, NSW 2006#**

Health Area	Country of birth group																					
	English speaking		Central and South America		Melanesia, Micronesia, and Polynesia		Southern Europe		Western and Northern Europe		Eastern Europe, Russia, Central Asian and Baltic States		Middle East and Africa		South East Asia		North East Asia		Southern Asia		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	12614	62.1	292	1.4	673	3.3	418	2.1	141	0.7	140	0.7	2030	10.0	2363	11.6	897	4.4	748	3.7	20316	100.0
South Eastern Sydney and Illawarra	11964	80.7	175	1.2	126	0.8	219	1.5	180	1.2	149	1.0	456	3.1	645	4.3	650	4.4	266	1.8	14830	100.0
Sydney West	11833	69.0	115	0.7	533	3.1	138	0.8	74	0.4	114	0.7	1379	8.0	969	5.6	682	4.0	1323	7.7	17160	100.0
Northern Sydney and Central Coast	11639	82.6	137	1.0	94	0.7	92	0.7	210	1.5	126	0.9	226	1.6	470	3.3	774	5.5	321	2.3	14089	100.0
Hunter and New England	10150	96.1	17	0.2	48	0.5	20	0.2	44	0.4	16	0.2	49	0.5	115	1.1	61	0.6	40	0.4	10560	100.0
North Coast	4891	96.2	11	0.2	15	0.3	3	0.1	37	0.7	5	0.1	28	0.6	54	1.1	27	0.5	14	0.3	5085	100.0
Greater Southern	3884	96.0	6	0.1	31	0.8	4	0.1	19	0.5	3	0.1	23	0.6	31	0.8	17	0.4	27	0.7	4045	100.0
Greater Western	3911	97.4	5	0.1	9	0.2	4	0.1	11	0.3	7	0.2	16	0.4	29	0.7	11	0.3	12	0.3	4015	100.0
Other-not stated	629	86.9	7	1.0	9	1.2	3	0.4	9	1.2	4	0.6	9	1.2	22	3.0	24	3.3	8	1.1	724	100.0
TOTAL	71515	78.7	765	0.8	1538	1.7	901	1.0	725	0.8	564	0.6	4216	4.6	4698	5.2	3143	3.5	2759	3.0	90824	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

#Excludes 491 mothers for which country of birth was not stated. Maternal countries of birth and country of birth groups are shown in Appendix 3.

**TABLE 22****MATERNAL ABORIGINALITY AND HEALTH AREA OF RESIDENCE, NSW 2006**

Health Area	Aboriginality							
	Aboriginal – Torres Strait Islander		Non-Aboriginal – Torres Strait Islander		Not Stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Sydney South West	213	1.0	20112	98.5	101	0.5	20426	100.0
South Eastern Sydney and Illawarra	228	1.5	14596	97.2	196	1.3	15020	100.0
Sydney West	284	1.7	16893	98.2	33	0.2	17210	100.0
Northern Sydney and Central Coast	105	0.7	13998	99.0	36	0.3	14139	100.0
Hunter and New England	594	5.6	9969	94.2	16	0.2	10579	100.0
North Coast	406	8.0	4668	91.5	26	0.5	5100	100.0
Greater Southern	193	4.8	3841	94.6	25	0.6	4059	100.0
Greater Western	561	13.8	3406	84.1	85	2.1	4052	100.0
Other – not stated	27	3.7	693	94.9	10	1.4	730	100.0
TOTAL	2611	2.9	88176	96.6	528	0.6	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Duration of pregnancy at first antenatal visit

In 2006, 87.5 per cent of mothers commenced antenatal care prior to 20 weeks gestation. This percentage varied from 87.2

per cent in the Hunter and New England Area to 93.9 per cent in the Northern Sydney and Central Coast Area (Table 23).

**TABLE 23**

### DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT AND HEALTH AREA OF RESIDENCE, NSW 2006

Health Area	Duration of pregnancy at first antenatal visit (weeks)							
	0–19		20–plus		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Sydney South West	16314	79.9	3647	17.9	465	2.3	20426	100.0
South Eastern Sydney and Illawarra	13580	90.4	1202	8.0	238	1.6	15020	100.0
Sydney West	15017	87.3	2132	12.4	61	0.4	17210	100.0
Northern Sydney and Central Coast	13280	93.9	788	5.6	71	0.5	14139	100.0
Hunter and New England	9220	87.2	1288	12.2	71	0.7	10579	100.0
North Coast	4615	90.5	405	7.9	80	1.6	5100	100.0
Greater Southern	3636	89.6	361	8.9	62	1.5	4059	100.0
Greater Western	3554	87.7	340	8.4	158	3.9	4052	100.0
Other – not stated	658	90.1	55	7.5	17	2.3	730	100.0
TOTAL	79874	87.5	10218	11.2	1223	1.3	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Smoking in pregnancy

In 2006, 12.8 per cent of mothers reported smoking in the second half of pregnancy (Table 24). The lowest reported rate was among mothers resident in the Northern

Sydney and Central Coast Area (6.8 per cent) and the highest rate among residents of the Greater Western Area (27.5 per cent).

**TABLE 24**

### NUMBER OF CIGARETTES SMOKED IN THE SECOND HALF OF PREGNANCY, NSW 2006

Health Area	Cigarettes smoked in the second half of pregnancy											
	None		1–10 per day		More than 10 per day		Smoked amount not stated		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	17280	84.6	1038	5.1	812	4.0	95	0.5	1201	5.9	20426	100.0
South Eastern Sydney and Illawarra	13647	90.9	805	5.4	378	2.5	47	0.3	143	1.0	15020	100.0
Sydney West	15078	87.6	1065	6.2	791	4.6	134	0.8	142	0.8	17210	100.0
Northern Sydney and Central Coast	13091	92.6	562	4.0	352	2.5	49	0.3	85	0.6	14139	100.0
Hunter and New England	8299	78.4	1201	11.4	998	9.4	72	0.7	9	0.1	10579	100.0
North Coast	3929	77.0	593	11.6	520	10.2	40	0.8	18	0.4	5100	100.0
Greater Southern	3115	76.7	477	11.8	442	10.9	9	0.2	16	0.4	4059	100.0
Greater Western	2894	71.4	440	10.9	669	16.5	5	0.1	44	1.1	4052	100.0
Other – not stated	596	81.6	62	8.5	54	7.4	4	0.5	14	1.9	730	100.0
TOTAL	77929	85.3	6243	6.8	5016	5.5	455	0.5	1672	1.8	91315	100.0
Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.												

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Place of birth

Ninety-six per cent of mothers chose to deliver in a hospital birthing suite in 2006, compared to 3.4 per cent who planned a birth centre birth and 0.2 per cent who planned a home birth (Table 25). Planned birth centre births were most commonly reported in the South Eastern Sydney and Illawarra, Sydney West and Sydney South West Areas.

## Labour

In 2006, the onset of labour was spontaneous in 58.2 per cent of confinements (Table 26). Labour was induced in 24.7 per cent of confinements and no labour (elective caesarean section) was reported in 17.0 per cent. The rate of spontaneous onset of labour was highest among residents of the North Coast Area (65.6 per cent). The highest rate of induction of labour was among residents of the Sydney West Area (27.7 per cent).

**TABLE 25**

### PLACE OF BIRTH AND HEALTH AREA OF RESIDENCE, NSW 2006

Health Area	Place of birth															
	Hospital		Birth Centre		Planned birth centre/ hospital admission		Planned homebirth		Planned homebirth / hospital admission		Born before arrival		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	19999	97.9	223	1.1	98	0.5	11	0.1	6	0.0	79	0.4	10	0.0	20426	100.0
South Eastern Sydney and Illawarra	14151	94.2	425	2.8	349	2.3	15	0.1	12	0.1	44	0.3	24	0.2	15020	100.0
Sydney West	16268	94.5	404	2.3	444	2.6	12	0.1	6	0.0	74	0.4	2	0.0	17210	100.0
Northern Sydney and Central Coast	13875	98.1	149	1.1	53	0.4	12	0.1	1	0.0	46	0.3	3	0.0	14139	100.0
Hunter and New England	9675	91.5	652	6.2	181	1.7	6	0.1	3	0.0	62	0.6	0	0.0	10579	100.0
North Coast	4963	97.3	10	0.2	43	0.8	36	0.7	9	0.2	36	0.7	3	0.1	5100	100.0
Greater Southern	3982	98.1	5	0.1	38	0.9	11	0.3	2	0.0	20	0.5	1	0.0	4059	100.0
Greater Western	3949	97.5	7	0.2	29	0.7	7	0.2	6	0.1	27	0.7	27	0.7	4052	100.0
Other – not stated	705	96.6	3	0.4	5	0.7	15	2.1	2	0.3	0	0.0	0	0.0	730	100.0
TOTAL	87567	95.9	1878	2.1	1240	1.4	125	0.1	47	0.1	388	0.4	70	0.1	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

**TABLE 26**

### ONSET AND AUGMENTATION OF LABOUR AND HEALTH AREA OF RESIDENCE, NSW 2006

Health Area	Onset of labour																			
	Spontaneous		Spontaneous augmented with ARM		Spontaneous augmented with oxytocics - prostaglandins#		No labour		Induced oxytocics/ prostaglandins		Induced - ARM only		Induced - ARM + oxytocics/ prostaglandins		Induced - other##		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	9434	46.2	1022	5.0	2120	10.4	3214	15.7	1598	7.8	231	1.1	2674	13.1	122	0.6	11	0.1	20426	100.0
South Eastern Sydney and Illawarra	5981	39.8	1055	7.0	1399	9.3	2771	18.4	1059	7.1	238	1.6	2393	15.9	98	0.7	26	0.2	15020	100.0
Sydney West	7007	40.7	1179	6.9	1439	8.4	2810	16.3	1415	8.2	253	1.5	3051	17.7	54	0.3	2	0.0	17210	100.0
Northern Sydney and Central Coast	5611	39.7	821	5.8	1289	9.1	2973	21.0	1044	7.4	215	1.5	2140	15.1	43	0.3	3	0.0	14139	100.0
Hunter and New England	4651	44.0	687	6.5	880	8.3	1570	14.8	863	8.2	234	2.2	1666	15.7	28	0.3	0	0.0	10579	100.0
North Coast	2312	45.3	616	12.1	418	8.2	720	14.1	430	8.4	70	1.4	516	10.1	13	0.3	5	0.1	5100	100.0
Greater Southern	1785	44.0	412	10.2	268	6.6	641	15.8	471	11.6	95	2.3	366	9.0	15	0.4	6	0.1	4059	100.0
Greater Western	1609	39.7	465	11.5	259	6.4	710	17.5	368	9.1	104	2.6	481	11.9	39	1.0	17	0.4	4052	100.0
Other – not stated	316	43.3	61	8.4	74	10.1	107	14.7	58	7.9	7	1.0	102	14.0	5	0.7	0	0.0	730	100.0
TOTAL	38706	42.4	6318	6.9	8146	8.9	1706	7306	8.0	1447	1.6	13389	14.7	417	0.5	70	0.1	91315	100.0	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

# May include artificial rupture of membranes.

## This category includes other forms of induction such as Foley's catheter.

## Birth

Sixty per cent of confinements were by normal vaginal birth, 10.1 per cent were instrumental and 28.8 per cent were by caesarean section (Table 27). The highest rate of normal vaginal birth was among residents of the North Coast Area (69.5 per cent), while the highest rates of instrumental birth were among residents of South Eastern Sydney and Illawarra Area (13.4 per cent). The caesarean section rate varied from 24.6 per cent among mothers resident in the North Coast Area to 34.5 per cent in the Northern Sydney and Central Coast Area.

## Birth weight

In 2006, 6.4 per cent of births were low birth weight (less than 2,500 grams). These comprised 0.7 per cent of birth weight less than 1,000 grams, 0.6 per cent in the 1,000 to 1,499 gram range and 5.1 per cent in the 1,500 to 2,499 gram range (Table 28). Rates of low birth weight ranged from 4.7 per cent in Greater Southern Area to 7.5 per cent in the Hunter and New England Area.

**TABLE 27**

### TYPE OF BIRTH BY HEALTH AREA OF RESIDENCE, NSW 2006

Health Area	Place of birth															
	Normal vaginal		Forceps		Vacuum extraction		Vaginal breech		Elective caesarean section		Emergency caesarean section#		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	12985	63.6	482	2.4	1490	7.3	84	0.4	3209	15.7	2140	10.5	36	0.2	20426	100.0
South Eastern	8141	54.2	500	3.3	1515	10.1	61	0.4	2770	18.4	1967	13.1	66	0.4	15020	100.0
Sydney and Illawarra																
Sydney West	10628	61.8	681	4.0	874	5.1	57	0.3	2807	16.3	2151	12.5	12	0.1	17210	100.0
Northern Sydney and Central Coast	7480	52.9	518	3.7	1212	8.6	36	0.3	2973	21.0	1904	13.5	16	0.1	14139	100.0
Hunter and New England	6811	64.4	367	3.5	626	5.9	57	0.5	1570	14.8	1140	10.8	8	0.1	10579	100.0
North Coast	3515	68.9	103	2.0	181	3.5	30	0.6	720	14.1	535	10.5	16	0.3	5100	100.0
Greater Southern	2576	63.5	145	3.6	232	5.7	7	0.2	641	15.8	448	11.0	10	0.2	4059	100.0
Greater Western	2569	63.4	75	1.9	170	4.2	29	0.7	710	17.5	458	11.3	41	1.0	4052	100.0
Other – not stated	482	66.0	14	1.9	32	4.4	5	0.7	107	14.7	84	11.5	6	0.8	730	100.0
TOTAL	55187	60.4	2885	3.2	6332	6.9	366	0.4	15507	17.0	10827	11.9	211	0.2	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

# Emergency caesarean section includes caesarean section where the onset of labour was not stated.

**TABLE 28**

### BIRTH WEIGHT AND HEALTH AREA OF RESIDENCE, NSW 2006

Health Area	Birthweight (grams)																					
	Less than 500		500– 999		1000– 1499		1500– 1999		2000– 2499		2500– 2999		3000– 3499		2500– 3999		4000– 4499		4500+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	53	0.3	90	0.4	134	0.6	275	1.3	820	4.0	3384	16.3	7605	36.7	6195	29.9	1856	8.9	300	1.4	20750	100.0
South Eastern Sydney and Illawarra	33	0.2	75	0.5	100	0.7	186	1.2	581	3.8	2245	14.7	5521	36.1	4800	31.4	1489	9.7	232	1.5	15285	100.0
Sydney West	51	0.3	85	0.5	125	0.7	217	1.2	670	3.8	2704	15.5	6375	36.4	5240	30.0	1706	9.8	306	1.7	17491	100.0
Northern Sydney and Central Coast	33	0.2	53	0.4	71	0.5	180	1.3	464	3.2	1893	13.2	5167	35.9	4684	32.6	1568	10.9	263	1.8	14384	100.0
Hunter and New England	36	0.3	49	0.5	63	0.6	168	1.6	454	4.2	1587	14.8	3557	33.1	3333	31.0	1218	11.3	254	2.4	10735	100.0
North Coast	14	0.3	14	0.3	23	0.4	45	0.9	207	4.0	786	15.2	1717	33.2	1657	32.0	590	11.4	117	2.3	5175	100.0
Greater Southern	4	0.1	6	0.1	13	0.3	37	0.9	133	3.2	576	14.0	1409	34.3	1339	32.6	493	12.0	94	2.3	4111	100.0
Greater Western	12	0.3	28	0.7	24	0.6	50	1.2	192	4.7	627	15.3	1453	35.4	1247	30.4	387	9.4	73	1.8	4107	100.0
Other – not stated	3	0.4	11	1.5	9	1.2	9	1.2	33	4.4	104	14.0	270	36.3	210	28.3	82	11.0	10	1.3	743	100.0
TOTAL	239	0.3	411	0.4	562	0.6	1167	1.3	3554	3.8	13906	15.0	33074	35.6	28705	30.9	9389	10.1	1649	1.8	92781	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Gestational age

The majority of births (91.0 per cent) were at term, and 1.6 per cent were post-term (42-plus weeks). The 7.4 per cent of preterm births comprised 0.7 per cent born at less than 28 weeks, 0.7 per cent at 28–31 weeks, and 5.9 per

cent at 32–36 weeks. The highest rate of preterm birth was in the Hunter and New England Area (8.9 per cent), while the lowest was 5.4 per cent in the Greater Southern Area (Table 29).

**TABLE 29**

### BIRTHS BY GESTATIONAL AGE AND HEALTH AREA OF RESIDENCE, NSW 2006

Health Area	Gestational age (weeks)													
	< 28		28–31		32–36		37–41		42+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	141	0.7	144	0.7	1194	5.8	18850	90.8	410	2.0	11	0.1	20750	100.0
South Eastern Sydney and Illawarra	119	0.8	122	0.8	901	5.9	13787	90.2	355	2.3	1	0.0	15285	100.0
Sydney West	136	0.8	132	0.8	1052	6.0	16024	91.6	145	0.8	2	0.0	17491	100.0
Northern Sydney and Central Coast	87	0.6	94	0.7	776	5.4	13196	91.7	229	1.6	2	0.0	14384	100.0
Hunter and New England	86	0.8	102	1.0	767	7.1	9593	89.4	187	1.7	0	0.0	10735	100.0
North Coast	31	0.6	29	0.6	311	6.0	4734	91.5	69	1.3	1	0.0	5175	100.0
Greater Southern	17	0.4	11	0.3	195	4.7	3825	93.0	63	1.5	0	0.0	4111	100.0
Greater Western	44	1.1	28	0.7	249	6.1	3751	91.3	33	0.8	2	0.0	4107	100.0
Other – not stated	24	3.3	109	14.9	234	32.1	219	30.0	115	15.8	6	0.8	730	100.0
TOTAL	3471	3.8	12686	13.9	24553	26.9	30785	33.7	16526	18.1	58	0.1	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Infant feeding

In 2006, infant feeding on discharge from hospital was reported for 36,481 live births. The majority of babies (74.8 per cent) were reported to be fully breast-fed, 12.3 per cent were having infant formula only, and a further 2.1

per cent were having a combination of breast-feeding and infant formula. Rates of full breast-feeding varied from 65.0 per cent in the Sydney South West Area to 85.7 per cent in the Northern Sydney and Central Coast Area.

**TABLE 30**

### LIVE BIRTHS BY INFANT FEEDING ON DISCHARGE AND HEALTH AREA OF RESIDENCE, NSW 2006

Health Area	Infant feeding													
	Breast feeding only		Expressed breast milk only		Infant formula only		Breast-feeding and infant formula		Other combination		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	2636	65.0	48	1.2	586	14.5	197	4.9	129	3.2	458	11.3	4054	100.0
South Eastern Sydney and Illawarra	5478	77.1	168	2.4	954	13.4	151	2.1	176	2.5	182	2.6	7109	100.0
Sydney West	2590	60.0	42	1.0	431	10.0	84	1.9	129	3.0	1038	24.1	4314	100.0
Northern Sydney and Central Coast	3783	85.7	29	0.7	224	5.1	67	1.5	101	2.3	208	4.7	4412	100.0
Hunter and New England	2241	73.6	37	1.2	419	13.8	67	2.2	55	1.8	225	7.4	3044	100.0
North Coast	4164	82.8	44	0.9	497	9.9	68	1.4	95	1.9	159	3.2	5027	100.0
Greater Southern	3005	75.7	35	0.9	657	16.5	88	2.2	67	1.7	118	3.0	3970	100.0
Greater Western	2863	73.2	27	0.7	653	16.7	48	1.2	37	0.9	283	7.2	3911	100.0
Other – not stated	524	81.9	10	1.6	74	11.6	2	0.3	10	1.6	20	3.1	640	100.0
TOTAL	27284	74.8	440	1.2	4495	12.3	772	2.1	799	2.2	2691	7.4	36481	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Perinatal outcomes

The perinatal mortality rate in 2006 was 8.8 per 1,000 births. This includes all births and deaths of babies of at least 400 grams birth weight or at least 20 weeks gestation

(Table 31). The rate varied from 6.3 per 1,000 in the Greater Southern Area to 10.5 per 1,000 in the Greater Western Area.

**TABLE 31**

### PERINATAL MORTALITY BY HEALTH AREA OF RESIDENCE, NSW 2006#

Health Area	Perinatal outcome												
	Liveborn surviving		Stillborn		Neonatal death		Not stated		Death – age not stated		Total births		Perinatal mortality / 1000 births
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Sydney South West	20527	98.9	129	0.6	59	0.3	35	0.2	0	0.0	20750	100.0	9.1
South Eastern Sydney and Illawarra	15129	99.0	112	0.7	36	0.2	7	0.0	1	0.0	15285	100.0	9.7
Sydney West	17307	98.9	119	0.7	34	0.2	31	0.2	0	0.0	17491	100.0	8.7
Northern Sydney and Central Coast	14277	99.3	72	0.5	30	0.2	5	0.0	0	0.0	14384	100.0	7.1
Hunter and New England	10630	99.0	75	0.7	30	0.3	0	0.0	0	0.0	10735	100.0	9.8
North Coast	5120	98.9	37	0.7	9	0.2	7	0.1	2	0.0	5175	100.0	8.9
Greater Southern	4083	99.3	18	0.4	8	0.2	1	0.0	1	0.0	4111	100.0	6.3
Greater Western	4036	98.3	25	0.6	18	0.4	26	0.6	2	0.0	4107	100.0	10.5
Other – not stated	731	98.4	5	0.7	5	0.7	2	0.3	0	0.0	743	100.0	–
TOTAL	91840	99.0	592	0.6	229	0.2	114	0.1	6	0.0	92781	100.0	8.8

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

# Perinatal deaths include deaths reported to the MDC only. As the MDC form is completed at discharge or transfer of the baby; deaths occurring after this time may not be reported to the MDC.

## Live births by statistical local areas

**TABLE 32**

### LIVE BIRTHS BY HEALTH AREA AND STATISTICAL LOCAL AREA OF RESIDENCE, NSW 2006

Health Area – Statistical Local Area	No.	%	Health Area – Statistical Local Area	No.	%
<b>Sydney South West</b>			Sutherland Shire – East	1325	8.7
Ashfield	565	2.7	Sutherland Shire – West	1524	10.0
Bankstown – North-East	1226	6.0	Sydney – Inner	152	1.0
Bankstown – North-West	972	4.7	Sydney – South	156	1.0
Bankstown – South	721	3.5	Sydney – East	417	2.7
Burwood	309	1.5	Waverley	975	6.4
Camden	817	4.0	Wollongong – Inner	1186	7.8
Campbelltown – North	1203	5.8	Wollongong – Balance	1221	8.1
Campbelltown – South	1094	5.3	Woollahra	737	4.9
Canada Bay – Concord	439	2.1	TOTAL	15166	100.0
Canada Bay – Drummoyne	572	2.8	<b>Northern Sydney and Central Coast</b>		
Canterbury	2334	11.3	Gosford – East	706	4.9
Fairfield – East	1739	8.4	Gosford – West	1276	8.9
Fairfield – West	889	4.3	Hornsby – North	789	5.5
Leichhardt	1020	5.0	Hornsby – South	1107	7.7
Liverpool – East	1889	9.2	Hunters Hill	169	1.2
Liverpool – West	1161	5.6	Ku-ring-gai	899	6.3
Marrickville	1229	6.0	Lane Cove	488	3.4
Strathfield	347	1.7	Manly	587	4.1
Sydney – Inner	3	0.0	Mosman	373	2.6
Sydney – South	540	2.6	North Sydney	895	6.3
Sydney – West	390	1.9	Pittwater	690	4.8
Wingecarribee	455	2.2	Ryde	1265	8.8
Wollondilly	672	3.3	Warringah	2092	14.6
TOTAL	20586	100.0	Willoughby	1035	7.2
<b>Sydney West</b>			Wyong – North-East	1019	7.1
Auburn	1246	7.2	Wyong – South and West	917	6.4
Baulkham Hills – Central	935	5.4	TOTAL	14307	100.0
Baulkham Hills – North	767	4.4	<b>Hunter and New England</b>		
Baulkham Hills – South	443	2.6	Armidale Dumaresq – City	227	2.1
Blacktown – North	1609	9.3	Armidale Dumaresq – Balance	99	0.9
Blacktown – South-East	1559	9.0	Cessnock	671	6.3
Blacktown – South-West	1787	10.3	Dungog	78	0.7
Blue Mountains	910	5.2	Glen Innes Severn (A)	115	1.1
Hawkesbury	934	5.4	Gloucester	51	0.5
Holroyd	1683	9.7	Greater Taree	489	4.6
Lithgow	243	1.4	Great Lakes	338	3.2
Parramatta – Inner	672	3.9	Gunnedah	155	1.5
Parramatta – North-East	514	3.0	Guyra	53	0.5
Parramatta – North-West	526	3.0	Gwydir (A)	67	0.6
Parramatta – South	646	3.7	Inverell – Pt A	71	0.7
Penrith – East	1558	9.0	Inverell – Pt B	154	1.4
Penrith – West	1309	7.5	Lake Macquarie – East	692	6.5
TOTAL	17341	100.0	Lake Macquarie – North	978	9.2
<b>South Eastern Sydney and Illawarra</b>			Lake Macquarie – West	544	5.1
Botany	538	3.5	Liverpool Plains (A)	81	0.8
Hurstville	1006	6.6	Maitland	975	9.1
Kiama	187	1.2	Moree Plains	199	1.9
Kogarah	708	4.7	Muswellbrook	277	2.6
Randwick	1726	11.4	Narrabri	184	1.7
Rockdale	1438	9.5	Newcastle – Inner City	667	6.3
Shellharbour	816	5.4	Newcastle – Outer West	604	5.7
Shoalhaven – Pt A	398	2.6	Newcastle – Throsby	720	6.8
Shoalhaven – Pt B	656	4.3	Port Stephens	731	6.9

**TABLE 32 (continued)****LIVE BIRTHS BY HEALTH AREA AND STATISTICAL LOCAL AREA OF RESIDENCE, NSW 2006**

Health Area – Statistical Local Area	No.	%	Health Area – Statistical Local Area	No.	%
Singleton	353	3.3	Lockhart	31	0.8
Tamworth Regional – Pt A	566	5.3	Murray	9	0.2
Tamworth Regional – Pt B	189	1.8	Murrumbidgee	27	0.7
Tenterfield	36	0.3	Narrandera	97	2.4
Upper Hunter Shire	201	1.9	Palerang – Pt A	28	0.7
Uralla	55	0.5	Palerang – Pt B	8	0.2
Walcha	40	0.4	Queanbeyan	215	5.3
TOTAL	10660	100.0	Snowy River	75	1.8
<b>North Coast</b>			Temora	66	1.6
Ballina	376	7.3	Tumbarumba	19	0.5
Bellingen	130	2.5	Tumut	125	3.1
Byron	277	5.4	Upper Lachlan	88	2.2
Clarence Valley – Coast	167	3.3	Urana	10	0.2
Clarence Valley – Grafton	273	5.3	Wagga Wagga – Pt A	757	18.5
Clarence Valley – Balance	97	1.9	Wagga Wagga – Pt B	112	2.7
Coffs Harbour – Pt A	601	11.7	Wakool	7	0.2
Coffs Harbour – Pt B	159	3.1	Yass Valley (A)	14	0.3
Hastings – Pt A	442	8.6	Young	145	3.5
Hastings – Pt B	304	5.9	Other	2	0.0
Kempsey	375	7.3	TOTAL	4092	100.0
Kyogle	86	1.7	<b>Greater Western</b>		
Lismore – Pt A	393	7.7	Bathurst Regional – Pt A	409	10.1
Lismore – Pt B	184	3.6	Bathurst Regional – Pt B	48	1.2
Nambucca	210	4.1	Blayney – Pts A and B	86	2.1
Richmond Valley – Casino	129	2.5	Bogan	66	1.6
Richmond Valley – Balance	162	3.2	Bourke	49	1.2
Tweed – Tweed-Heads	452	8.8	Brewarrina	27	0.7
Tweed – Tweed Coast	90	1.8	Broken Hill	217	5.4
Tweed – Pt B	224	4.4	Cabonne – Pts A, B and C	128	3.2
TOTAL	5131	100.0	Central Darling	18	0.4
<b>Greater Southern</b>			Cobar	92	2.3
Albury	7	0.2	Coonamble	69	1.7
Bega Valley	287	7.0	Cowra	143	3.5
Berrigan	21	0.5	Dubbo – Pt A	610	15.0
Bland	74	1.8	Dubbo – Pt B	59	1.5
Bom – Balance	26	0.6	Forbes	117	2.9
Boorowa	16	0.4	Gilgandra	71	1.8
Carrathool	39	1.0	Lachlan	86	2.1
Conargo	20	0.5	Mid-Western Regional – Pt A	261	6.4
Coolamon	49	1.2	Mid-Western Regional – Pt B	35	0.9
Cooma-Monaro	84	2.1	Narromine	107	2.6
Cootamundra	82	2.0	Oberon	126	3.1
Deniliquin	103	2.5	Orange	598	14.7
Eurobodalla	383	9.4	Parkes	225	5.5
Greater Argyle – Goulburn	255	6.2	Walgett	105	2.6
Greater Argyle – Balance	29	0.7	Warren	31	0.8
Greater Hume Shire – Pt B	27	0.7	Warrumbungle Shire	110	2.7
Griffith	366	8.9	Weddin	48	1.2
Gundagai	44	1.1	Wellington	106	2.6
Harden	33	0.8	Wentworth	5	0.1
Hay	48	1.2	Other	4	0.1
Jerilderie	13	0.3	TOTAL	4056	100.0
Junee	79	1.9	<b>Other – Not stated</b>	736	100.0
Leeton	172	4.2	<b>TOTAL NSW</b>	92075	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## 6. NSW HOSPITALS

### Onset and augmentation of labour

Tables 33 and 34 show onset or augmentation of labour for area health services and individual hospitals by maternity service level where at least 200 mothers gave birth in 2006.

**TABLE 33**

#### ONSET OR AUGMENTATION OF LABOUR BY HEALTH AREA OF HOSPITAL, NSW 2006

Health Area	Onset of labour																			
	Spontaneous		Spontaneous augmented with ARM		Spontaneous augmented with oxytocics/ prostagl <sup>#</sup>		No labour		Induced oxytocics/ prostaglandins		Induced – ARM only		Induced – ARM + oxytocics/ prostaglandins		Induced – other <sup>##</sup>		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	8276	50.5	685	4.2	1713	10.5	2219	13.5	1277	7.8	173	1.1	1930	11.8	105	0.6	2	0.0	16380	100.0
South Eastern Sydney and Illawarra	5220	48.6	641	6.0	843	7.9	1590	14.8	712	6.6	144	1.3	1505	14.0	80	0.7	0	0.0	10735	100.0
Sydney West	5830	43.9	878	6.6	1046	7.9	2036	15.3	1108	8.3	194	1.5	2160	16.3	36	0.3	2	0.0	13290	100.0
Northern Sydney and Central Coast	3455	45.0	545	7.1	781	10.2	1162	15.1	662	8.6	70	0.9	999	13.0	1	0.0	0	0.0	7675	100.0
Hunter and New England	3978	45.5	614	7.0	753	8.6	1180	13.5	767	8.8	185	2.1	1249	14.3	25	0.3	1	0.0	8752	100.0
North Coast	2478	45.2	646	11.8	472	8.6	765	14.0	457	8.3	72	1.3	570	10.4	13	0.2	4	0.1	5477	100.0
Greater Southern	1524	44.6	397	11.6	247	7.2	478	14.0	372	10.9	83	2.4	297	8.7	14	0.4	5	0.1	3417	100.0
Greater Western	1548	40.6	456	12.0	246	6.5	597	15.7	347	9.1	100	2.6	460	12.1	40	1.0	18	0.5	3812	100.0
Private hospitals	6270	29.0	1456	6.7	2044	9.4	5489	25.4	1604	7.4	426	2.0	4219	19.5	101	0.5	38	0.2	21647	100.0
TOTAL*	38706	42.4	6318	6.9	8146	8.9	15516	17.0	7306	8.0	1447	1.6	13389	14.7	417	0.5	70	0.1	91315	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

# May include artificial rupture of membranes.

## This category includes other forms of induction such as Foley's catheter.

\* TOTAL includes 130 homebirths assisted by independent midwives.

**TABLE 34**

#### ONSET AND AUGMENTATION OF LABOUR BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006<sup>#</sup>

Maternity service level–hospital	Onset and augmentation of labour																			TOTAL	
	Spontaneous		Spontaneous augmented with ARM		Spontaneous augmented with oxytocics/ prostagl <sup>##</sup>		No labour		Induced oxytocics/ prostaglandins		Induced – ARM only		Induced – ARM + oxytocics/ prostaglandins		Induced – other <sup>###</sup>		Not stated				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Level 6																					
Royal Prince Alfred*	2414	49.7	0	0.0	748	15.4	724	14.9	377	7.8	55	1.1	534	11.0	6	0.1	1	0.0	4859	100.0	
Royal North Shore	938	40.3	157	6.7	258	11.1	416	17.9	182	7.8	23	1.0	355	15.2	1	0.0	0	0.0	2330	100.0	
Royal Hospital for Women	2135	52.3	88	2.2	256	6.3	758	18.6	276	6.8	75	1.8	457	11.2	35	0.9	0	0.0	4080	100.0	
Liverpool	1375	46.0	261	8.7	283	9.5	452	15.1	262	8.8	19	0.6	303	10.1	35	1.2	0	0.0	2990	100.0	
Nepean	1458	43.2	234	6.9	124	3.7	574	17.0	254	7.5	81	2.4	640	19.0	12	0.4	0	0.0	3377	100.0	
Westmead	1543	36.3	369	8.7	516	12.1	711	16.7	377	8.9	34	0.8	688	16.2	10	0.2	1	0.0	4249	100.0	
John Hunter	1786	48.5	179	4.9	344	9.3	470	12.8	274	7.4	91	2.5	532	14.4	9	0.2	0	0.0	3685	100.0	
TOTAL	11649	45.6	1288	5.0	2529	9.9	4105	16.1	2002	7.8	378	1.5	3509	13.7	108	0.4	2	0.0	25570	100.0	

TABLE 34 (continued)

ONSET AND AUGMENTATION OF LABOUR BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006<sup>#</sup>

Maternity service level–hospital	Onset and augmentation of labour																			
	Spontaneous		Spontaneous augmented with ARM		Spontaneous augmented with oxytocics/ prostagl <sup>##</sup>		No labour		Induced oxytocics/ prosta-glandins		Induced – ARM only		Induced – ARM + oxy-totics/ prosta-glandins		Induced – other <sup>###</sup>		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Level 5																				
Gosford	940	38.1	251	10.2	281	11.4	387	15.7	258	10.5	14	0.6	333	13.5	0	0.0	0	0.0	2464	100.0
St. George	1278	53.3	131	5.5	214	8.9	294	12.3	159	6.6	21	0.9	278	11.6	22	0.9	0	0.0	2397	100.0
Blacktown	1496	48.5	139	4.5	241	7.8	403	13.1	252	8.2	21	0.7	520	16.9	11	0.4	0	0.0	3083	100.0
Lismore Base	619	47.6	144	11.1	78	6.0	216	16.6	114	8.8	25	1.9	102	7.8	1	0.1	1	0.1	1300	100.0
Tweed Heads	467	42.1	107	9.7	137	12.4	136	12.3	74	6.7	14	1.3	170	15.3	2	0.2	1	0.1	1108	100.0
Dubbo Base	452	35.1	193	15.0	117	9.1	170	13.2	80	6.2	64	5.0	191	14.9	8	0.6	11	0.9	1286	100.0
Wollongong	714	32.3	372	16.8	258	11.7	192	8.7	120	5.4	27	1.2	521	23.6	5	0.2	0	0.0	2209	100.0
Maitland	742	50.6	39	2.7	88	6.0	206	14.0	140	9.5	28	1.9	214	14.6	10	0.7	0	0.0	1467	100.0
Wagga Wagga Base	300	40.5	84	11.4	60	8.1	92	12.4	87	11.8	16	2.2	96	13.0	5	0.7	0	0.0	740	100.0
TOTAL	7008	43.7	1460	9.1	1474	9.2	2096	13.1	1284	8.0	230	1.4	2425	15.1	64	0.4	13	0.1	16054	100.0
Level 4																				
Canterbury	889	54.4	54	3.3	203	12.4	180	11.0	192	11.8	13	0.8	100	6.1	3	0.2	0	0.0	1634	100.0
Hornsby	508	49.3	38	3.7	104	10.1	169	16.4	84	8.1	8	0.8	120	11.6	0	0.0	0	0.0	1031	100.0
Manly	404	50.9	30	3.8	71	9.0	97	12.2	67	8.4	16	2.0	108	13.6	0	0.0	0	0.0	793	100.0
Mona Vale	328	48.2	33	4.9	65	9.6	91	13.4	71	10.4	9	1.3	83	12.2	0	0.0	0	0.0	680	100.0
Sutherland	546	52.6	35	3.4	71	6.8	126	12.1	74	7.1	7	0.7	167	16.1	12	1.2	0	0.0	1038	100.0
Auburn	715	58.0	48	3.9	114	9.2	133	10.8	90	7.3	4	0.3	127	10.3	2	0.2	0	0.0	1233	100.0
Campbelltown	1207	48.8	159	6.4	157	6.3	336	13.6	176	7.1	52	2.1	347	14.0	38	1.5	1	0.0	2473	100.0
Bankstown-Lidcombe	1066	54.8	65	3.3	110	5.6	255	13.1	128	6.6	11	0.6	305	15.7	7	0.4	0	0.0	1947	100.0
Hawkesbury	390	45.8	37	4.3	15	1.8	152	17.9	85	10.0	45	5.3	126	14.8	0	0.0	1	0.1	851	100.0
Coffs Harbour	334	36.3	153	16.6	92	10.0	170	18.5	67	7.3	7	0.8	93	10.1	4	0.4	1	0.1	921	100.0
Port Macquarie Base	307	43.2	87	12.2	67	9.4	90	12.7	55	7.7	10	1.4	93	13.1	2	0.3	0	0.0	711	100.0
Tamworth Base	334	40.9	81	9.9	68	8.3	132	16.2	68	8.3	10	1.2	121	14.8	3	0.4	0	0.0	817	100.0
Manning Base	266	38.3	91	13.1	72	10.4	93	13.4	43	6.2	15	2.2	113	16.3	0	0.0	1	0.1	694	100.0
Orange Base	287	34.0	122	14.5	49	5.8	150	17.8	49	5.8	14	1.7	148	17.5	22	2.6	3	0.4	844	100.0
Goulburn Base	153	47.7	36	11.2	50	15.6	59	18.4	17	5.3	0	0.0	3	0.9	1	0.3	2	0.6	321	100.0
Griffith Base	219	52.8	36	8.7	29	7.0	60	14.5	25	6.0	26	6.3	16	3.9	3	0.7	1	0.2	415	100.0
Other hospitals	116	98.3	2	1.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	118	100.0
TOTAL	8069	48.8	1107	6.7	1337	8.1	2293	13.9	1291	7.8	247	1.5	2070	12.5	97	0.6	10	0.1	16521	100.0
Level 3																				
Blue Mountains	170	59.9	10	3.5	17	6.0	34	12.0	14	4.9	2	0.7	37	13.0	0	0.0	0	0.0	284	100.0
Fairfield	1022	56.1	114	6.3	158	8.7	210	11.5	92	5.0	5	0.3	209	11.5	13	0.7	0	0.0	1823	100.0
Grafton Base	195	45.1	42	9.7	47	10.9	61	14.1	56	13.0	3	0.7	28	6.5	0	0.0	0	0.0	432	100.0
Kempsey	156	47.6	37	11.3	18	5.5	26	7.9	56	17.1	2	0.6	33	10.1	0	0.0	0	0.0	328	100.0
Murwillumbah	161	44.6	33	9.1	22	6.1	66	18.3	29	8.0	8	2.2	38	10.5	4	1.1	0	0.0	361	100.0
Armidale	150	31.3	71	14.8	42	8.8	83	17.3	47	9.8	14	2.9	72	15.0	0	0.0	0	0.0	479	100.0
Inverell	40	14.8	29	10.7	52	19.2	65	24.0	26	9.6	4	1.5	54	19.9	1	0.4	0	0.0	271	100.0
Moree	78	37.9	19	9.2	35	17.0	19	9.2	28	13.6	1	0.5	26	12.6	0	0.0	0	0.0	206	100.0
Mudgee	134	52.3	14	5.5	17	6.6	35	13.7	28	10.9	8	3.1	20	7.8	0	0.0	0	0.0	256	100.0
Bathurst Base	303	51.4	39	6.6	18	3.1	114	19.4	77	13.1	9	1.5	23	3.9	2	0.3	4	0.7	589	100.0
Lithgow	58	27.2	41	19.2	19	8.9	29	13.6	36	16.9	7	3.3	22	10.3	1	0.5	0	0.0	213	100.0
Parkes	113	54.9	10	4.9	5	2.4	43	20.9	26	12.6	0	0.0	8	3.9	1	0.5	0	0.0	206	100.0
Moruya	157	40.8	76	19.7	22	5.7	52	13.5	35	9.1	8	2.1	34	8.8	1	0.3	0	0.0	385	100.0

TABLE 34 (continued)

ONSET AND AUGMENTATION OF LABOUR BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006<sup>#</sup>

Maternity service level–hospital	Onset and augmentation of labour																			
	Spontaneous		Spontaneous augmented with ARM		Spontaneous augmented with oxytocics/ prostagl <sup>##</sup>		No labour		Induced oxytocics/ prostaglandins		Induced – ARM only		Induced – ARM + oxytocics/ prostaglandins		Induced – other <sup>###</sup>		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Queanbeyan	138	52.9	20	7.7	16	6.1	29	11.1	36	13.8	2	0.8	17	6.5	1	0.4	2	0.8	261	100.0
Bowral	303	46.3	32	4.9	54	8.3	62	9.5	50	7.6	18	2.8	132	20.2	3	0.5	0	0.0	654	100.0
Shoalhaven	483	54.3	14	1.6	27	3.0	203	22.8	72	8.1	13	1.5	71	8.0	6	0.7	0	0.0	889	100.0
Muswellbrook	127	53.4	10	4.2	11	4.6	23	9.7	28	11.8	12	5.0	27	11.3	0	0.0	0	0.0	238	100.0
Broken Hill Base	112	48.3	16	6.9	6	2.6	41	17.7	37	15.9	2	0.9	15	6.5	3	1.3	0	0.0	232	100.0
Other hospitals	763	40.7	239	12.7	110	5.9	261	13.9	249	13.3	35	1.9	210	11.2	8	0.4	1	0.1	1876	100.0
TOTAL	4663	46.7	866	8.7	696	7.0	1456	14.6	1022	10.2	153	1.5	1076	10.8	44	0.4	7	0.1	9983	100.0
Level 2																				
Wyong	221	85.3	34	13.1	2	0.8	2	0.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	259	100.0
Singleton	98	48.5	15	7.4	12	5.9	21	10.4	21	10.4	6	3.0	28	13.9	1	0.5	0	0.0	202	100.0
Other hospitals	556	61.8	88	9.8	50	5.6	54	6.0	82	9.1	7	0.8	62	6.9	0	0.0	0	0.0	899	100.0
TOTAL	875	64.3	137	10.1	64	4.7	77	5.7	103	7.6	13	1.0	90	6.6	1	0.1	0	0.0	1360	100.0
Private																				
Mater, North Sydney	580	26.1	148	6.7	246	11.1	721	32.5	186	8.4	73	3.3	254	11.5	9	0.4	1	0.0	2218	100.0
North Shore Priv.	805	31.0	119	4.6	285	11.0	779	30.0	100	3.9	48	1.9	436	16.8	21	0.8	0	0.0	2593	100.0
Sydney Adventist	1035	46.8	0	0.0	0	0.0	506	22.9	103	4.7	26	1.2	536	24.3	4	0.2	0	0.0	2210	100.0
North Gosford Priv.	186	21.4	56	6.5	68	7.8	248	28.6	99	11.4	20	2.3	180	20.7	10	1.2	1	0.1	868	100.0
Hurstville Community	164	19.4	63	7.4	116	13.7	227	26.8	53	6.3	9	1.1	214	25.3	0	0.0	0	0.0	846	100.0
Kareena Private	108	18.7	34	5.9	52	9.0	185	32.0	54	9.3	12	2.1	132	22.8	2	0.3	0	0.0	579	100.0
St. George Priv.	416	23.4	140	7.9	242	13.6	456	25.7	186	10.5	54	3.0	265	14.9	12	0.7	6	0.3	1777	100.0
Prince of Wales Private	373	21.9	206	12.1	192	11.3	504	29.6	120	7.0	38	2.2	225	13.2	17	1.0	28	1.6	1703	100.0
The Hills Private	313	26.0	111	9.2	135	11.2	202	16.8	80	6.7	10	0.8	348	28.9	4	0.3	0	0.0	1203	100.0
Sydney South-west Private	345	29.4	87	7.4	153	13.0	233	19.8	88	7.5	20	1.7	242	20.6	5	0.4	2	0.2	1175	100.0
Nepean Private	237	27.0	99	11.3	55	6.3	216	24.6	90	10.3	12	1.4	162	18.5	6	0.7	0	0.0	877	100.0
Westmead Private	515	26.6	158	8.2	250	12.9	415	21.4	156	8.1	27	1.4	412	21.3	3	0.2	0	0.0	1936	100.0
Figtree Private	214	21.3	107	10.6	82	8.2	212	21.1	57	5.7	9	0.9	321	31.9	3	0.3	0	0.0	1005	100.0
Newcastle Private	684	37.8	59	3.3	116	6.4	372	20.5	110	6.1	52	2.9	413	22.8	5	0.3	0	0.0	1811	100.0
Calvary, Wagga Wagga	242	41.0	28	4.7	18	3.1	139	23.6	101	17.1	12	2.0	50	8.5	0	0.0	0	0.0	590	100.0
Other hospitals	53	20.7	41	16.0	34	13.3	74	28.9	21	8.2	4	1.6	29	11.3	0	0.0	0	0.0	256	100.0
TOTAL	6270	29.0	1456	6.7	2044	9.4	5489	25.4	1604	7.4	426	2.0	4219	19.5	101	0.5	38	0.2	21647	100.0
TOTAL NSW**	38706	42.4	6318	6.9	8146	8.9	15516	17.0	7306	8.0	1447	1.6	13389	14.7	417	0.5	70	0.1	91315	100.0

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health

<sup>#</sup> Hospitals where at least 200 mothers gave birth are identified individually. Obstetric service levels are described on page 13 of the Methods chapter.<sup>##</sup> May include artificial rupture of membranes.<sup>###</sup> This category includes other forms of induction such as Foley's catheter.<sup>\*</sup> Royal Prince Alfred Hospital reports augmentation by oxytocin/prostaglandin only.<sup>\*\*</sup> TOTAL NSW includes 130 homebirths assisted by independent midwives and 50 mothers who gave birth at level 1 hospitals.

## Type of birth

Tables 35 and 36 show type of birth for area health services and individual hospitals by maternity service level where at least 200 mothers gave birth in 2006.

**TABLE 35**

### TYPE OF BIRTH BY HEALTH AREA OF HOSPITAL, NSW 2006

Health Area	Type of birth															
	Normal vaginal		Forceps		Vacuum extraction		Vaginal breech		Elective caesarean section		Emergency caesarean section <sup>a</sup>		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	11065	67.6	302	1.8	1112	6.8	85	0.5	2212	13.5	1600	9.8	4	0.0	16380	100.0
South Eastern Sydney / Illawarra	6480	60.4	298	2.8	946	8.8	51	0.5	1590	14.8	1370	12.8	0	0.0	10735	100.0
Sydney West	8498	63.9	395	3.0	631	4.7	53	0.4	2034	15.3	1676	12.6	3	0.0	13290	100.0
Northern Sydney and Central Coast	4622	60.2	289	3.8	567	7.4	25	0.3	1162	15.1	1010	13.2	0	0.0	7675	100.0
Hunter and New England	5921	67.7	292	3.3	400	4.6	65	0.7	1180	13.5	886	10.1	8	0.1	8752	100.0
North Coast	3794	69.3	111	2.0	184	3.4	29	0.5	765	14.0	578	10.6	16	0.3	5477	100.0
Greater Southern	2271	66.5	111	3.2	186	5.4	5	0.1	478	14.0	358	10.5	8	0.2	3417	100.0
Greater Western	2480	65.1	73	1.9	164	4.3	24	0.6	597	15.7	432	11.3	42	1.1	3812	100.0
Private hospitals	9937	45.9	1014	4.7	2142	9.9	27	0.1	5489	25.4	2917	13.5	121	0.6	21647	100.0
TOTAL *	55187	60.4	2885	3.2	6332	6.9	366	0.4	15507	17.0	10827	11.9	211	0.2	91315	100.0

Source: NSW Midwives Data Collection (HOIST), Centre for Epidemiology and Research, NSW Health Department.

# Emergency caesarean section includes caesarean section where the onset of labour was not stated.

\* Total includes 130 homebirths assisted by independent midwives.

**TABLE 36**

### TYPE OF BIRTH BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW, 2006#

Maternity service level –								Type of birth									
hospital	Normal vaginal		Forceps		Vacuum extraction		Vaginal breech		Elective caesarean section		Emergency caesarean section**		Not stated		TOTAL		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Level 6																	
Royal Prince Alfred	2912	59.9	169	3.5	385	7.9	29	0.6	718	14.8	646	13.3	0	0.0	4859	100.0	
Royal North Shore	1314	56.4	150	6.4	127	5.5	9	0.4	416	17.9	314	13.5	0	0.0	2330	100.0	
Royal Hospital for Women	2168	53.1	180	4.4	364	8.9	28	0.7	758	18.6	582	14.3	0	0.0	4080	100.0	
Liverpool	2004	67.0	36	1.2	214	7.2	27	0.9	452	15.1	257	8.6	0	0.0	2990	100.0	
Nepean	2049	60.7	70	2.1	190	5.6	13	0.4	574	17.0	481	14.2	0	0.0	3377	100.0	
Westmead	2551	60.0	198	4.7	162	3.8	24	0.6	710	16.7	603	14.2	1	0.0	4249	100.0	
John Hunter	2439	66.2	187	5.1	182	4.9	44	1.2	470	12.8	363	9.9	0	0.0	3685	100.0	
TOTAL	15437	60.4	990	3.9	1624	6.4	174	0.7	4098	16.0	3246	12.7	1	0.0	25570	100.0	
Level 5																	
Gosford	1401	56.9	37	1.5	233	9.5	5	0.2	387	15.7	401	16.3	0	0.0	2464	100.0	
St. George	1483	61.9	52	2.2	243	10.1	10	0.4	294	12.3	315	13.1	0	0.0	2397	100.0	
Blacktown	2082	67.5	87	2.8	169	5.5	7	0.2	403	13.1	335	10.9	0	0.0	3083	100.0	
Lismore Base	843	64.8	33	2.5	19	1.5	4	0.3	216	16.6	180	13.8	5	0.4	1300	100.0	
Tweed Heads	761	68.7	18	1.6	48	4.3	7	0.6	136	12.3	135	12.2	3	0.3	1108	100.0	
Dubbo Base	879	68.4	31	2.4	42	3.3	15	1.2	170	13.2	121	9.4	28	2.2	1286	100.0	
Wollongong	1515	68.6	17	0.8	222	10.0	9	0.4	192	8.7	254	11.5	0	0.0	2209	100.0	
Maitland	1013	69.1	10	0.7	59	4.0	8	0.5	206	14.0	171	11.7	0	0.0	1467	100.0	
Wagga Wagga Base	476	64.3	32	4.3	41	5.5	1	0.1	92	12.4	98	13.2	0	0.0	740	100.0	
TOTAL	10453	65.1	317	2.0	1076	6.7	66	0.4	2096	13.1	2010	12.5	36	0.2	16054	100.0	

TABLE 36 (continued)

TYPE OF BIRTH BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW, 2006<sup>#</sup>

Maternity service level –																
hospital	Type of birth															
	Normal vaginal		Forceps		Vacuum extraction		Vaginal breech		Elective caesarean section		Emergency caesarean section**		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Level 4																
Canterbury	1117	68.4	23	1.4	124	7.6	3	0.2	180	11.0	187	11.4	0	0.0	1634	100.0
Hornsby	618	59.9	55	5.3	63	6.1	2	0.2	169	16.4	124	12.0	0	0.0	1031	100.0
Manly	514	64.8	34	4.3	52	6.6	2	0.3	97	12.2	94	11.9	0	0.0	793	100.0
Mona Vale	415	61.0	13	1.9	84	12.4	4	0.6	91	13.4	73	10.7	0	0.0	680	100.0
Sutherland	694	66.9	22	2.1	89	8.6	2	0.2	126	12.1	105	10.1	0	0.0	1038	100.0
Auburn	953	77.3	15	1.2	36	2.9	3	0.2	132	10.7	93	7.5	1	0.1	1233	100.0
Campbelltown	1800	72.8	17	0.7	98	4.0	8	0.3	335	13.5	211	8.5	4	0.2	2473	100.0
Bankstown-Lidcombe	1379	70.8	33	1.7	138	7.1	7	0.4	255	13.1	135	6.9	0	0.0	1947	100.0
Hawkesbury	528	62.0	16	1.9	37	4.3	4	0.5	152	17.9	114	13.4	0	0.0	851	100.0
Coffs Harbour	605	65.7	18	2.0	44	4.8	6	0.7	170	18.5	75	8.1	3	0.3	921	100.0
Port Macquarie Base	496	69.8	22	3.1	28	3.9	3	0.4	90	12.7	72	10.1	0	0.0	711	100.0
Tamworth Base	478	58.5	45	5.5	44	5.4	4	0.5	132	16.2	110	13.5	4	0.5	817	100.0
Manning Base	464	66.9	8	1.2	44	6.3	3	0.4	93	13.4	82	11.8	0	0.0	694	100.0
Orange Base	493	58.4	26	3.1	55	6.5	2	0.2	150	17.8	108	12.8	10	1.2	844	100.0
Goulburn Base	183	57.0	31	9.7	8	2.5	1	0.3	59	18.4	35	10.9	4	1.2	321	100.0
Griffith Base	271	65.3	8	1.9	22	5.3	1	0.2	60	14.5	52	12.5	1	0.2	415	100.0
Other hospitals	118	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	118	100.0
TOTAL	11126	67.3	386	2.3	966	5.8	55	0.3	2291	13.9	1670	10.1	27	0.2	16521	100.0
Level 3																
Blue Mountains	197	69.4	3	1.1	27	9.5	0	0.0	34	12.0	23	8.1	0	0.0	284	100.0
Fairfield	1407	77.2	5	0.3	84	4.6	8	0.4	210	11.5	109	6.0	0	0.0	1823	100.0
Grafton Base	294	68.1	10	2.3	12	2.8	2	0.5	61	14.1	52	12.0	1	0.2	432	100.0
Kempsey	269	82.0	3	0.9	4	1.2	4	1.2	26	7.9	22	6.7	0	0.0	328	100.0
Murwillumbah	231	64.0	6	1.7	14	3.9	1	0.3	66	18.3	42	11.6	1	0.3	361	100.0
Armidale	325	67.8	15	3.1	9	1.9	1	0.2	83	17.3	46	9.6	0	0.0	479	100.0
Inverell	160	59.0	20	7.4	0	0.0	0	0.0	65	24.0	25	9.2	1	0.4	271	100.0
Moree	149	72.3	4	1.9	10	4.9	1	0.5	19	9.2	23	11.2	0	0.0	206	100.0
Mudgee	179	69.9	1	0.4	17	6.6	1	0.4	35	13.7	22	8.6	1	0.4	256	100.0
Bathurst Base	360	61.1	9	1.5	14	2.4	2	0.3	114	19.4	89	15.1	1	0.2	589	100.0
Lithgow	138	64.8	6	2.8	10	4.7	2	0.9	29	13.6	27	12.7	1	0.5	213	100.0
Parkes	130	63.1	3	1.5	0	0.0	0	0.0	43	20.9	30	14.6	0	0.0	206	100.0
Moruya	244	63.4	25	6.5	17	4.4	0	0.0	52	13.5	47	12.2	0	0.0	385	100.0
Queanbeyan	192	73.6	1	0.4	19	7.3	2	0.8	29	11.1	15	5.7	3	1.1	261	100.0
Bowral	446	68.2	19	2.9	69	10.6	3	0.5	62	9.5	55	8.4	0	0.0	654	100.0
Shoalhaven	535	60.2	23	2.6	21	2.4	2	0.2	203	22.8	105	11.8	0	0.0	889	100.0
Muswellbrook	172	72.3	0	0.0	19	8.0	2	0.8	23	9.7	22	9.2	0	0.0	238	100.0
Broken Hill Base	143	61.6	2	0.9	9	3.9	2	0.9	41	17.7	35	15.1	0	0.0	232	100.0
Other hospitals	1320	70.4	16	0.9	121	6.4	0	0.0	261	13.9	153	8.2	5	0.3	1876	100.0
TOTAL	6891	69.0	171	1.7	476	4.8	33	0.3	1456	14.6	942	9.4	14	0.1	9983	100.0

**TABLE 36 (continued)****TYPE OF BIRTH BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW, 2006<sup>#</sup>**

TABLE 2: DATA BY MATERNITY SERVICE LEVEL, 2012, 2013, 2014																
Maternity service level –							Type of birth									
hospital	Normal vaginal		Forceps		Vacuum extraction		Vaginal breech		Elective caesarean section		Emergency caesarean section**		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Level 2																
Wyong	242	93.4	0	0.0	8	3.1	3	1.2	2	0.8	4	1.5	0	0.0	259	100.0
Singleton	166	82.2	0	0.0	11	5.4	1	0.5	21	10.4	3	1.5	0	0.0	202	100.0
Other hospitals	769	85.5	7	0.8	29	3.2	2	0.2	54	6.0	35	3.9	3	0.3	899	100.0
TOTAL	1177	86.5	7	0.5	48	3.5	6	0.4	77	5.7	42	3.1	3	0.2	1360	100.0
Private																
Mater, North Sydney	803	36.2	81	3.7	293	13.2	4	0.2	721	32.5	303	13.7	13	0.6	2218	100.0
North Shore Private	1099	42.4	59	2.3	266	10.3	3	0.1	779	30.0	387	14.9	0	0.0	2593	100.0
Sydney Adventist	1158	52.4	112	5.1	137	6.2	4	0.2	506	22.9	293	13.3	0	0.0	2210	100.0
North Gosford Private	368	42.4	15	1.7	100	11.5	2	0.2	248	28.6	133	15.3	2	0.2	868	100.0
Hurstville Community	365	43.1	17	2.0	124	14.7	0	0.0	227	26.8	113	13.4	0	0.0	846	100.0
Kareena Private	190	32.8	76	13.1	50	8.6	1	0.2	185	32.0	77	13.3	0	0.0	579	100.0
St. George Priv.	750	42.2	97	5.5	185	10.4	2	0.1	456	25.7	277	15.6	10	0.6	1777	100.0
Prince of Wales Private	614	36.1	57	3.3	184	10.8	1	0.1	504	29.6	259	15.2	84	4.9	1703	100.0
The Hills Private	694	57.7	115	9.6	68	5.7	0	0.0	202	16.8	122	10.1	2	0.2	1203	100.0
Sydney South-west Private	667	56.8	28	2.4	129	11.0	0	0.0	233	19.8	113	9.6	5	0.4	1175	100.0
Nepean Private	424	48.3	44	5.0	54	6.2	1	0.1	216	24.6	138	15.7	0	0.0	877	100.0
Westmead Private	994	51.3	178	9.2	111	5.7	4	0.2	415	21.4	232	12.0	2	0.1	1936	100.0
Figtree Private	518	51.5	23	2.3	157	15.6	2	0.2	212	21.1	91	9.1	2	0.2	1005	100.0
Newcastle Private	886	48.9	73	4.0	215	11.9	1	0.1	372	20.5	264	14.6	0	0.0	1811	100.0
Calvary, Wagga Wagga	292	49.5	29	4.9	46	7.8	1	0.2	139	23.6	83	14.1	0	0.0	590	100.0
Other hospitals	115	44.9	10	3.9	23	9.0	1	0.4	74	28.9	32	12.5	1	0.4	256	100.0
TOTAL	9937	45.9	1014	4.7	2142	9.9	27	0.1	5489	25.4	2917	13.5	121	0.6	21647	100.0
TOTAL NSW*	55187	60.4	2885	3.2	6332	6.9	366	0.4	15507	17.0	10827	11.9	211	0.2	91315	100.0

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. Obstetric service levels are described on page 13 of the Methods chapter.<sup>##</sup> Emergency caesarean section includes caesarean sections where the onset of labour was not stated

\* TOTAL NSW includes 130 homebirths assisted by independent midwives and 50 mothers who gave birth at level 1 hospitals..

## Pain relief

Tables 37 and 38 show type of pain relief provided to women for area health services and individual hospitals by maternity service level where at least 200 mothers gave birth in 2006.

In addition to the types of pain relief shown, a further 24,982 (27.3 per cent) women were reported to have received local anaesthetic to the perineum, and 662 (0.7 per cent) received a pudendal block.

**TABLE 37**

### PAIN RELIEF BY HEALTH AREA OF HOSPITAL, NSW 2006

Health Area	Pain relief											
	Epidural – spinal##		General anaesthetic		IM narcotics		Nitrous oxide		Nil		TOTAL#	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	5014	30.6	789	4.8	3071	18.7	5929	36.2	2720	16.6	16380	100.0
South Eastern Sydney and Illawarra	4925	45.9	283	2.6	1591	14.8	4636	43.2	1245	11.6	10735	100.0
Sydney West	5287	39.8	783	5.9	2384	17.9	6299	47.4	1274	9.6	13290	100.0
Northern Sydney and Central Coast	3359	43.8	255	3.3	1844	24.0	3356	43.7	558	7.3	7675	100.0
Hunter and New England	2664	30.4	386	4.4	1922	22.0	4157	47.5	1222	14.0	8752	100.0
North Coast	1800	32.9	185	3.4	1237	22.6	2624	47.9	1079	19.7	5477	100.0
Greater Southern	1007	29.5	145	4.2	906	26.5	1769	51.8	570	16.7	3417	100.0
Greater Western	1158	30.4	242	6.3	766	20.1	1935	50.8	641	16.8	3812	100.0
Private hospitals	14497	67.0	469	2.2	2091	9.7	7426	34.3	955	4.4	21647	100.0
TOTAL*	39711	43.5	3537	3.9	15813	17.3	38133	41.8	10380	11.4	91315	100.0

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

# Row percentages do not sum to 100 per cent as a woman may have more than one type of analgesia.

## The category 'Epidural-spinal' includes epidural, spinal, combined epidural and spinal, and caudal pain relief.

\* TOTAL includes 130 homebirths assisted by independent midwives.

**TABLE 38**

### PAIN RELIEF BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW, 2006#

Hospital	Pain relief											
	Epidural – spinal##		General anaesthetic		IM narcotics		Nitrous oxide		Nil		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Level 6</b>												
Royal Prince Alfred*	2156	44.4	195	4.0	0	0.0	830	17.1	915	18.8	4859	100.0
Royal North Shore	1196	51.3	69	3.0	463	19.9	1118	48.0	133	5.7	2330	100.0
Royal Hospital for Women	2331	57.1	67	1.6	538	13.2	1251	30.7	425	10.4	4080	100.0
Liverpool	969	32.4	161	5.4	1109	37.1	1262	42.2	235	7.9	2990	100.0
Nepean	1471	43.6	229	6.8	769	22.8	1727	51.1	256	7.6	3377	100.0
Westmead	2187	51.5	270	6.4	517	12.2	1820	42.8	258	6.1	4249	100.0
John Hunter	1270	34.5	153	4.2	983	26.7	1695	46.0	440	11.9	3685	100.0
TOTAL	11580	45.3	1144	4.5	4379	17.1	9703	37.9	2662	10.4	25570	100.0
<b>Level 5</b>												
Gosford	1046	42.5	93	3.8	709	28.8	1023	41.5	138	5.6	2464	100.0
St. George	1010	42.1	70	2.9	341	14.2	1118	46.6	328	13.7	2397	100.0
Blacktown	1006	32.6	147	4.8	649	21.1	1523	49.4	321	10.4	3083	100.0
Lismore Base	594	45.7	47	3.6	235	18.1	573	44.1	157	12.1	1300	100.0
Tweed Heads	372	33.6	34	3.1	307	27.7	564	50.9	211	19.0	1108	100.0
Dubbo Base	367	28.5	98	7.6	372	28.9	690	53.7	175	13.6	1286	100.0
Wollongong	715	32.4	94	4.3	375	17.0	1385	62.7	255	11.5	2209	100.0
Maitland	414	28.2	58	4.0	190	13.0	712	48.5	238	16.2	1467	100.0
Wagga Wagga Base	278	37.6	23	3.1	224	30.3	388	52.4	108	14.6	740	100.0
TOTAL	5802	36.1	664	4.1	3402	21.2	7976	49.7	1931	12.0	16054	100.0

**TABLE 38 (continued)****PAIN RELIEF BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW, 2006<sup>#</sup>**

Maternity service level –					Pain relief							
Hospital	Epidural – spinal <sup>##</sup>		General anaesthetic		IM narcotics		Nitrous oxide		Nil		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Level 4												
Canterbury	479	29.3	56	3.4	193	11.8	229	14.0	513	31.4	1634	100.0
Hornsby	490	47.5	48	4.7	220	21.3	447	43.4	66	6.4	1031	100.0
Manly	328	41.4	27	3.4	137	17.3	371	46.8	76	9.6	793	100.0
Mona Vale	295	43.4	15	2.2	277	40.7	263	38.7	62	9.1	680	100.0
Sutherland	487	46.9	19	1.8	106	10.2	505	48.7	108	10.4	1038	100.0
Auburn	179	14.5	87	7.1	209	17.0	597	48.4	283	23.0	1233	100.0
Campbelltown	638	25.8	81	3.3	663	26.8	1306	52.8	408	16.5	2473	100.0
Bankstown-Lidcombe	396	20.3	98	5.0	356	18.3	1094	56.2	243	12.5	1947	100.0
Hawkesbury	286	33.6	39	4.6	143	16.8	395	46.4	93	10.9	851	100.0
Coffs Harbour	290	31.5	41	4.5	159	17.3	414	45.0	181	19.7	921	100.0
Port Macquarie Base	235	33.1	20	2.8	195	27.4	385	54.1	122	17.2	711	100.0
Tamworth Base	352	43.1	67	8.2	108	13.2	418	51.2	93	11.4	817	100.0
Manning Base	207	29.8	36	5.2	210	30.3	332	47.8	91	13.1	694	100.0
Orange Base	329	39.0	39	4.6	154	18.2	420	49.8	133	15.8	844	100.0
Goulburn Base	101	31.5	27	8.4	52	16.2	194	60.4	22	6.9	321	100.0
Griffith Base	124	29.9	16	3.9	182	43.9	204	49.2	55	13.3	415	100.0
Other hospitals	0	0.0	0	0.0	10	8.5	48	40.7	39	33.1	118	100.0
TOTAL	5216	31.6	716	4.3	3374	20.4	7622	46.1	2588	15.7	16521	100.0
Level 3												
Blue Mountains	87	30.6	5	1.8	54	19.0	120	42.3	34	12.0	284	100.0
Fairfield	166	9.1	182	10.0	470	25.8	879	48.2	336	18.4	1823	100.0
Grafton Base	122	28.2	25	5.8	105	24.3	237	54.9	73	16.9	432	100.0
Kempsey	63	19.2	8	2.4	105	32.0	178	54.3	82	25.0	328	100.0
Murwillumbah	124	34.3	10	2.8	102	28.3	179	49.6	60	16.6	361	100.0
Armidale	117	24.4	23	4.8	104	21.7	225	47.0	28	5.8	479	100.0
Inverell	89	32.8	3	1.1	41	15.1	116	42.8	56	20.7	271	100.0
Moree	47	22.8	6	2.9	34	16.5	104	50.5	53	25.7	206	100.0
Mudgee	50	19.5	12	4.7	56	21.9	143	55.9	44	17.2	256	100.0
Bathurst Base	190	32.3	48	8.1	14	2.4	272	46.2	96	16.3	589	100.0
Lithgow	71	33.3	6	2.8	43	20.2	117	54.9	29	13.6	213	100.0
Parkes	61	29.6	26	12.6	12	5.8	68	33.0	65	31.6	206	100.0
Moruya	129	33.5	23	6.0	101	26.2	175	45.5	81	21.0	385	100.0
Queanbeyan	45	17.2	18	6.9	45	17.2	121	46.4	71	27.2	261	100.0
Bowral	210	32.1	16	2.4	280	42.8	329	50.3	70	10.7	654	100.0
Shoalhaven	344	38.7	33	3.7	198	22.3	338	38.0	101	11.4	889	100.0
Muswellbrook	45	18.9	0	0.0	55	23.1	122	51.3	38	16.0	238	100.0
Broken Hill Base	85	36.6	5	2.2	42	18.1	120	51.7	41	17.7	232	100.0
Other hospitals	442	23.6	64	3.4	466	24.8	1000	53.3	351	18.7	1876	100.0
TOTAL	2487	24.9	513	5.1	2327	23.3	4843	48.5	1709	17.1	9983	100.0

**TABLE 38 (continued)****PAIN RELIEF BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW, 2006<sup>#</sup>**

Maternity service level –												Pain relief			
Hospital	Epidural – spinal**		General anaesthetic		IM narcotics		Nitrous oxide		Nil		TOTAL				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Level 2															
Wyong	4	1.5	3	1.2	28	10.8	86	33.2	44	17.0	259	100.0			
Singleton	33	16.3	3	1.5	51	25.2	119	58.9	31	15.3	202	100.0			
Other hospitals	90	10.0	24	2.7	156	17.4	348	38.7	308	34.3	899	100.0			
TOTAL	127	9.3	30	2.2	235	17.3	553	40.7	383	28.2	1360	100.0			
Private															
Mater, North Sydney	1623	73.2	50	2.3	179	8.1	660	29.8	96	4.3	2218	100.0			
North Shore Priv.	1908	73.6	42	1.6	123	4.7	697	26.9	62	2.4	2593	100.0			
Sydney Adventist	1487	67.3	60	2.7	184	8.3	777	35.2	58	2.6	2210	100.0			
North Gosford Priv.	487	56.1	15	1.7	99	11.4	307	35.4	86	9.9	868	100.0			
Hurstville Community	641	75.8	15	1.8	34	4.0	241	28.5	27	3.2	846	100.0			
Kareena Private	493	85.1	10	1.7	8	1.4	76	13.1	23	4.0	579	100.0			
St. George Priv.	1364	76.8	41	2.3	92	5.2	537	30.2	56	3.2	1777	100.0			
Prince of Wales Private	1476	86.7	7	0.4	40	2.3	433	25.4	52	3.1	1703	100.0			
The Hills Private	723	60.1	29	2.4	113	9.4	396	32.9	69	5.7	1203	100.0			
Sydney South-west Private	496	42.2	48	4.1	366	31.1	655	55.7	53	4.5	1175	100.0			
Nepean Private	482	55.0	27	3.1	186	21.2	462	52.7	42	4.8	877	100.0			
Westmead Private	1184	61.2	48	2.5	213	11.0	696	36.0	84	4.3	1936	100.0			
Figtree Private	600	59.7	26	2.6	49	4.9	397	39.5	50	5.0	1005	100.0			
Newcastle Private	1097	60.6	30	1.7	261	14.4	725	40.0	101	5.6	1811	100.0			
Calvary, Wagga Wagga	302	51.2	12	2.0	120	20.3	255	43.2	73	12.4	590	100.0			
Other hospitals	134	52.3	9	3.5	24	9.4	112	43.8	23	9.0	256	100.0			
TOTAL	14497	67.0	469	2.2	2091	9.7	7426	34.3	955	4.4	21647	100.0			
TOTAL NSW**	39711	43.5	3537	3.9	15813	17.3	38133	41.8	10380	11.4	91315	100.0			

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. Obstetric service levels are described on page 13 of the Methods chapter. Row percentages do not sum to 100 per cent as a woman may have more than one type of analgesia.

<sup>##</sup> The category 'Epidural-spinal' includes epidural, spinal, combined epidural and spinal, and caudal pain relief.

\* Royal Prince Alfred Hospital does not report pain relief with IM narcotics.

\*\* TOTAL NSW includes 130 homebirths assisted by independent midwives and 50 mothers who gave birth at level 1 hospitals.

## Perineal status

Tables 39 and 40 show the perineal status in vaginal births for area health services and individual hospitals by maternity service level where at least 200 mothers gave birth in 2006.

In addition to the perineal outcomes described in the table, there were a total of 85 cases of fourth degree tear reported in 2006.

**TABLE 39**

### VAGINAL BIRTHS BY PERINEAL STATUS AND HEALTH AREA OF HOSPITAL, NSW 2006

Health Area	Perineal status																	
	Intact		1st degree tear/ graze		2nd degree tear		3rd or 4th degree tear		Episiotomy		Combined tear and episiotomy		Other		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	3566	28.4	2695	21.5	3483	27.7	284	2.3	1353	10.8	7	0.1	1165	9.3	11	0.1	12564	100.0
South Eastern Sydney and Illawarra	1759	22.6	2557	32.9	2081	26.8	170	2.2	816	10.5	22	0.3	370	4.8	0	0.0	7775	100.0
Sydney West	2357	24.6	2619	27.3	2206	23.0	146	1.5	1335	13.9	160	1.7	749	7.8	5	0.1	9577	100.0
Northern Sydney and Central Coast	1277	23.2	1521	27.6	1589	28.9	166	3.0	475	8.6	85	1.5	390	7.1	0	0.0	5503	100.0
Hunter and New England	1966	29.4	2081	31.2	1379	20.6	151	2.3	512	7.7	169	2.5	417	6.2	3	0.0	6678	100.0
North Coast	1602	38.9	1145	27.8	925	22.5	51	1.2	244	5.9	81	2.0	60	1.5	10	0.2	4118	100.0
Greater Southern	1033	40.1	666	25.9	515	20.0	22	0.9	226	8.8	60	2.3	48	1.9	3	0.1	2573	100.0
Greater Western	1078	39.3	729	26.6	492	17.9	29	1.1	266	9.7	56	2.0	39	1.4	52	1.9	2741	100.0
Private hospitals	2644	20.2	2567	19.6	3747	28.6	103	0.8	3312	25.2	418	3.2	286	2.2	43	0.3	13120	100.0
TOTAL*	17344	26.8	16622	25.7	16429	25.4	1125	1.7	8539	13.2	1058	1.6	3526	5.4	127	0.2	64770	100.0

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

\* TOTAL includes 130 homebirths assisted by independent midwives.

**TABLE 40**

### PERINEAL STATUS AMONG VAGINAL BIRTHS BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW, 2006<sup>#</sup>

Maternity service level – hospital		Perineal status																TOTAL	
		Intact		1st degree tear/ graze		2nd degree tear		3rd or 4th degree tear		Episiotomy		Combined tear and episiotomy		Other		Not stated			
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Level 6																			
Royal Prince Alfred	607	17.4	498	14.2	1336	38.2	146	4.2	322	9.2	0	0.0	586	16.8	0	0.0	3495	100.0	
Royal North Shore	296	18.5	351	21.9	498	31.1	57	3.6	231	14.4	25	1.6	142	8.9	0	0.0	1600	100.0	
Royal Hospital for Women	498	18.2	854	31.2	735	26.8	69	2.5	418	15.3	12	0.4	154	5.6	0	0.0	2740	100.0	
Liverpool	571	25.0	629	27.6	534	23.4	41	1.8	372	16.3	2	0.1	132	5.8	0	0.0	2281	100.0	
Nepean	577	24.8	707	30.4	508	21.9	36	1.6	241	10.4	44	1.9	209	9.0	0	0.0	2322	100.0	
Westmead	592	20.2	697	23.7	770	26.2	42	1.4	547	18.6	57	1.9	230	7.8	0	0.0	2935	100.0	
John Hunter	615	21.6	994	34.9	655	23.0	102	3.6	180	6.3	79	2.8	227	8.0	0	0.0	2852	100.0	
TOTAL	3756	20.6	4730	26.0	5036	27.6	493	2.7	2311	12.7	219	1.2	1680	9.2	0	0.0	18225	100.0	
Level 5																			
Gosford	533	31.8	469	28.0	449	26.8	49	2.9	50	3.0	36	2.1	90	5.4	0	0.0	1676	100.0	
St. George	432	24.2	514	28.7	589	32.9	30	1.7	139	7.8	6	0.3	78	4.4	0	0.0	1788	100.0	
Blacktown	494	21.1	706	30.1	534	22.8	44	1.9	354	15.1	30	1.3	183	7.8	0	0.0	2345	100.0	
Lismore Base	249	27.7	318	35.4	228	25.4	15	1.7	48	5.3	31	3.4	9	1.0	1	0.1	899	100.0	
Tweed Heads	318	38.1	233	27.9	205	24.6	12	1.4	51	6.1	7	0.8	4	0.5	4	0.5	834	100.0	
Dubbo Base	347	35.9	295	30.5	125	12.9	11	1.1	146	15.1	15	1.6	17	1.8	11	1.1	967	100.0	
Wollongong	403	22.9	719	40.8	451	25.6	32	1.8	155	8.8	3	0.2	0	0.0	0	0.0	1763	100.0	

TABLE 40 (continued)

PERINEAL STATUS AMONG VAGINAL BIRTHS BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW, 2006<sup>#</sup>

Maternity service level –																		
hospital	Perineal status																	
	Intact		1st degree tear/ graze		2nd degree tear		3rd or 4th degree tear		Episiotomy		Combined tear and episiotomy		Other		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Maitland	326	29.9	358	32.8	212	19.4	25	2.3	37	3.4	18	1.7	114	10.5	0	0.0	1090	100.0
Wagga Wagga Base	202	36.7	153	27.8	126	22.9	6	1.1	18	3.3	19	3.5	26	4.7	0	0.0	550	100.0
TOTAL	3304	27.7	3765	31.6	2919	24.5	224	1.9	998	8.4	165	1.4	521	4.4	16	0.1	11912	100.0
Level 4																		
Canterbury	376	29.7	262	20.7	374	29.5	41	3.2	102	8.1	1	0.1	111	8.8	0	0.0	1267	100.0
Hornsby	110	14.9	193	26.2	246	33.3	27	3.7	97	13.1	9	1.2	56	7.6	0	0.0	738	100.0
Manly	92	15.3	190	31.6	184	30.6	16	2.7	60	10.0	6	1.0	54	9.0	0	0.0	602	100.0
Mona Vale	116	22.5	201	39.0	123	23.8	15	2.9	31	6.0	5	1.0	25	4.8	0	0.0	516	100.0
Sutherland	212	26.3	231	28.6	205	25.4	20	2.5	51	6.3	1	0.1	87	10.8	0	0.0	807	100.0
Auburn	399	39.6	265	26.3	154	15.3	14	1.4	103	10.2	10	1.0	57	5.7	5	0.5	1007	100.0
Campbelltown	668	34.7	526	27.4	406	21.1	14	0.7	139	7.2	0	0.0	168	8.7	2	0.1	1923	100.0
Bankstown- Lidcombe	653	41.9	232	14.9	362	23.2	11	0.7	226	14.5	2	0.1	71	4.6	0	0.0	1557	100.0
Hawkesbury	181	30.9	138	23.6	153	26.2	5	0.9	52	8.9	10	1.7	46	7.9	0	0.0	585	100.0
Coffs Harbour	291	43.2	165	24.5	126	18.7	6	0.9	48	7.1	14	2.1	20	3.0	3	0.4	673	100.0
Port Macquarie Base	221	40.3	117	21.3	149	27.1	13	2.4	26	4.7	17	3.1	6	1.1	0	0.0	549	100.0
Tamworth Base	183	32.0	154	27.0	126	22.1	6	1.1	76	13.3	19	3.3	6	1.1	1	0.2	571	100.0
Manning Base	224	43.2	143	27.6	96	18.5	7	1.3	28	5.4	10	1.9	11	2.1	0	0.0	519	100.0
Orange Base	217	37.7	113	19.6	147	25.5	6	1.0	37	6.4	16	2.8	11	1.9	29	5.0	576	100.0
Goulburn Base	69	30.9	24	10.8	46	20.6	1	0.4	76	34.1	5	2.2	0	0.0	2	0.9	223	100.0
Griffith Base	119	39.4	105	34.8	48	15.9	6	2.0	19	6.3	3	1.0	2	0.7	0	0.0	302	100.0
Other hospitals	36	30.5	38	32.2	27	22.9	0	0.0	3	2.5	0	0.0	14	11.9	0	0.0	118	100.0
TOTAL	4167	33.2	3097	24.7	2972	23.7	208	1.7	1174	9.4	128	1.0	745	5.9	42	0.3	12533	100.0
Level 3																		
Blue Mountains	60	26.4	59	26.0	61	26.9	5	2.2	16	7.0	3	1.3	23	10.1	0	0.0	227	100.0
Fairfield	498	33.1	385	25.6	369	24.5	29	1.9	157	10.4	1	0.1	65	4.3	0	0.0	1504	100.0
Grafton Base	145	45.6	69	21.7	74	23.3	2	0.6	21	6.6	1	0.3	6	1.9	0	0.0	318	100.0
Kempsey	158	56.4	50	17.9	54	19.3	0	0.0	14	5.0	2	0.7	2	0.7	0	0.0	280	100.0
Murwillumbah	97	38.5	76	30.2	45	17.9	1	0.4	26	10.3	2	0.8	4	1.6	1	0.4	252	100.0
Armidale	122	34.9	70	20.0	66	18.9	1	0.3	66	18.9	14	4.0	11	3.1	0	0.0	350	100.0
Inverell	68	37.8	43	23.9	12	6.7	2	1.1	46	25.6	8	4.4	1	0.6	0	0.0	180	100.0
Moree	76	46.3	32	19.5	45	27.4	1	0.6	4	2.4	5	3.0	1	0.6	0	0.0	164	100.0
Mudgee	71	35.9	59	29.8	43	21.7	2	1.0	18	9.1	5	2.5	0	0.0	0	0.0	198	100.0
Bathurst Base	159	41.3	111	28.8	73	19.0	3	0.8	17	4.4	8	2.1	5	1.3	9	2.3	385	100.0
Lithgow	54	34.6	47	30.1	26	16.7	0	0.0	22	14.1	6	3.8	1	0.6	0	0.0	156	100.0
Parkes	70	52.6	13	9.8	36	27.1	3	2.3	8	6.0	3	2.3	0	0.0	0	0.0	133	100.0
Moruya	112	39.2	90	31.5	46	16.1	1	0.3	22	7.7	6	2.1	9	3.1	0	0.0	286	100.0
Queanbeyan	79	36.9	72	33.6	51	23.8	1	0.5	7	3.3	2	0.9	2	0.9	0	0.0	214	100.0
Bowral	193	35.9	163	30.4	102	19.0	2	0.4	35	6.5	1	0.2	32	6.0	9	1.7	537	100.0
Shoalhaven	174	29.9	210	36.1	82	14.1	19	3.3	46	7.9	0	0.0	50	8.6	0	0.0	581	100.0
Muswellbrook	69	35.8	61	31.6	35	18.1	3	1.6	9	4.7	2	1.0	14	7.3	0	0.0	193	100.0
Broken Hill Base	82	52.6	54	34.6	8	5.1	0	0.0	11	7.1	1	0.6	0	0.0	0	0.0	156	100.0
Other hospitals	624	42.8	338	23.2	278	19.1	11	0.8	136	9.3	41	2.8	25	1.7	4	0.3	1457	100.0
TOTAL	2911	38.4	2002	26.4	1506	19.9	86	1.1	681	9.0	111	1.5	251	3.3	23	0.3	7571	100.0

TABLE 40 (continued)

PERINEAL STATUS AMONG VAGINAL BIRTHS BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW, 2006<sup>#</sup>

Maternity service level –																			Perineal status							
hospital	Intact		1st degree tear/ graze		2nd degree tear		3rd or 4th degree tear		Episiotomy		Combined tear and episiotomy		Other		Not stated		TOTAL									
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%								
Level 2																										
Wyong	94	37.2	79	31.2	62	24.5	2	0.8	3	1.2	4	1.6	9	3.6	0	0.0	253	100.0								
Singleton	81	45.5	50	28.1	34	19.1	0	0.0	7	3.9	1	0.6	5	2.8	0	0.0	178	100.0								
Other hospitals	302	37.4	272	33.7	138	17.1	6	0.7	51	6.3	12	1.5	25	3.1	1	0.1	807	100.0								
TOTAL	477	38.5	401	32.4	234	18.9	8	0.6	61	4.9	17	1.4	39	3.2	1	0.1	1238	100.0								
Private																										
Mater, North Sydney	203	17.2	195	16.5	332	28.1	10	0.8	308	26.1	99	8.4	30	2.5	4	0.3	1181	100.0								
North Shore Priv.	189	13.2	284	19.9	468	32.8	14	1.0	390	27.3	1	0.1	81	5.7	0	0.0	1427	100.0								
Sydney Adventist	263	18.6	365	25.9	341	24.2	4	0.3	371	26.3	58	4.1	9	0.6	0	0.0	1411	100.0								
North Gosford Private	122	25.2	118	24.3	126	26.0	4	0.8	74	15.3	28	5.8	11	2.3	2	0.4	485	100.0								
Hurstville Community	66	13.0	132	26.1	121	23.9	2	0.4	135	26.7	40	7.9	10	2.0	0	0.0	506	100.0								
Kareena Private	63	19.9	57	18.0	92	29.0	1	0.3	81	25.6	9	2.8	14	4.4	0	0.0	317	100.0								
St. George Priv.	217	21.0	241	23.3	289	27.9	14	1.4	195	18.9	63	6.1	15	1.5	0	0.0	1034	100.0								
Prince of Wales Private	170	19.9	157	18.3	219	25.6	0	0.0	266	31.1	13	1.5	7	0.8	24	2.8	856	100.0								
The Hills Private	244	27.8	154	17.6	280	31.9	4	0.5	166	18.9	10	1.1	19	2.2	0	0.0	877	100.0								
Sydney South-west Private	183	22.2	168	20.4	189	22.9	5	0.6	253	30.7	8	1.0	7	0.8	11	1.3	824	100.0								
Nepean Private	115	22.0	78	14.9	148	28.3	1	0.2	158	30.2	15	2.9	8	1.5	0	0.0	523	100.0								
Westmead Private	269	20.9	207	16.1	332	25.8	3	0.2	429	33.3	12	0.9	34	2.6	1	0.1	1287	100.0								
Figtree Private	134	19.1	86	12.3	217	31.0	4	0.6	221	31.6	21	3.0	17	2.4	0	0.0	700	100.0								
Newcastle Private	281	23.9	229	19.5	401	34.1	28	2.4	211	18.0	9	0.8	16	1.4	0	0.0	1175	100.0								
Calvary, Wagga Wagga	99	26.9	59	16.0	145	39.4	5	1.4	27	7.3	25	6.8	7	1.9	1	0.3	368	100.0								
Other hospitals	26	17.4	37	24.8	47	31.5	4	2.7	27	18.1	7	4.7	1	0.7	0	0.0	149	100.0								
TOTAL	2644	20.2	2567	19.6	3747	28.6	103	0.8	3312	25.2	418	3.2	286	2.2	43	0.3	13120	100.0								
TOTAL NSW*	17344	26.8	16622	25.7	16429	25.4	1125	1.7	8539	13.2	1058	1.6	3526	5.4	127	0.2	64770	100.0								

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. Obstetric service levels are described on page 13 of the Methods chapter.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives and 50 mothers who gave birth at level 1 hospitals..

## Birth weight

Tables 41 and 42 show the birth weight of babies for area health services and individual hospitals by maternity

service level where at least 200 mothers gave birth in 2006.

**TABLE 41**

### BIRTHS BY BIRTH WEIGHT AND HEALTH AREA OF HOSPITAL, NSW 2006

Health Area	Birth weight (grams)											
	Less than 1000		1000–1499		1500–2499		2500+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	158	0.9	178	1.1	959	5.8	15322	92.0	41	0.2	16658	100.0
South Eastern Sydney and Illawarra	108	1.0	60	0.5	623	5.7	10112	92.6	16	0.1	10919	100.0
Sydney West	137	1.0	148	1.1	827	6.1	12419	91.7	12	0.1	13543	100.0
Northern Sydney and Central Coast	59	0.8	54	0.7	402	5.2	7282	93.3	5	0.1	7802	100.0
Hunter and New England	85	1.0	77	0.9	579	6.5	8142	91.5	14	0.2	8897	100.0
North Coast	24	0.4	17	0.3	255	4.6	5251	94.6	5	0.1	5552	100.0
Greater Southern	7	0.2	8	0.2	144	4.2	3292	95.2	7	0.2	3458	100.0
Greater Western	29	0.8	6	0.2	194	5.0	3611	93.6	16	0.4	3856	100.0
Private hospitals	43	0.2	14	0.1	737	3.4	21163	96.3	9	0.0	21966	100.0
TOTAL *	650	0.7	562	0.6	4721	5.1	86723	93.5	125	0.1	92781	100.0

Source: NSW Midwives Data Collection (HOIST), Centre for Epidemiology and Research, NSW Department of Health.

\* TOTAL includes 130 homebirths assisted by independent midwives.

**TABLE 42**

### BIRTHS BY BIRTH WEIGHT, HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006<sup>#</sup>

Maternity service level – Hospital	Birth weight (grams)											
	Less than 1000		1000–1499		1500–2499		2500+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Level 6</b>												
Liverpool	63	2.0	87	2.8	269	8.7	2670	86.3	6	0.2	3095	100.0
John Hunter	71	1.9	67	1.8	363	9.6	3279	86.5	10	0.3	3790	100.0
Royal Hospital for Women	72	1.7	41	1.0	255	6.1	3798	90.9	12	0.3	4178	100.0
Nepean	37	1.1	51	1.5	261	7.6	3099	89.7	5	0.1	3453	100.0
Westmead	74	1.7	87	2.0	345	7.9	3872	88.4	3	0.1	4381	100.0
Royal North Shore	45	1.9	47	2.0	194	8.1	2113	88.0	2	0.1	2401	100.0
Royal Prince Alfred	64	1.3	79	1.6	289	5.8	4517	91.0	14	0.3	4963	100.0
TOTAL	426	1.6	459	1.7	1976	7.5	23348	88.9	52	0.2	26261	100.0
<b>Level 5</b>												
Blacktown	13	0.4	7	0.2	143	4.6	2955	94.7	1	0.0	3119	100.0
Lismore Base	3	0.2	5	0.4	76	5.7	1238	93.5	2	0.2	1324	100.0
St. George	15	0.6	5	0.2	116	4.8	2294	94.3	2	0.1	2432	100.0
Maitland	7	0.5	2	0.1	65	4.4	1403	95.0	0	0.0	1477	100.0
Wollongong	18	0.8	13	0.6	145	6.5	2068	92.2	0	0.0	2244	100.0
Tweed Heads	5	0.4	7	0.6	52	4.6	1060	94.2	1	0.1	1125	100.0
Dubbo Base	15	1.1	2	0.2	71	5.4	1211	92.8	6	0.5	1305	100.0
Gosford	8	0.3	5	0.2	129	5.2	2345	94.2	3	0.1	2490	100.0
Wagga Wagga Base	3	0.4	4	0.5	51	6.8	694	92.2	1	0.1	753	100.0
TOTAL	87	0.5	50	0.3	848	5.2	15268	93.8	16	0.1	16269	100.0

**TABLE 42 (continued)****BIRTHS BY BIRTH WEIGHT, HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006<sup>#</sup>**

Maternity service level – Hospital	Birth weight (grams)											
	Less than 1000		1000–1499		1500–2499		2500+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Level 4</b>												
Coffs Harbour	5	0.5	1	0.1	46	4.9	879	94.4	0	0.0	931	100.0
Griffith Base	1	0.2	2	0.5	16	3.8	402	95.0	2	0.5	423	100.0
Mona Vale	3	0.4	0	0.0	21	3.0	666	96.5	0	0.0	690	100.0
Manly	1	0.1	0	0.0	19	2.4	781	97.5	0	0.0	801	100.0
Campbelltown	12	0.5	4	0.2	145	5.8	2326	93.0	14	0.6	2501	100.0
Tamworth Base	3	0.4	2	0.2	44	5.3	780	94.1	0	0.0	829	100.0
Orange Base	6	0.7	2	0.2	51	5.9	791	92.1	9	1.0	859	100.0
Goulburn Base	1	0.3	2	0.6	13	4.0	309	94.8	1	0.3	326	100.0
Auburn	5	0.4	2	0.2	37	3.0	1187	96.2	3	0.2	1234	100.0
Hawkesbury	6	0.7	0	0.0	25	2.9	828	96.4	0	0.0	859	100.0
Canterbury	5	0.3	1	0.1	60	3.7	1573	95.9	2	0.1	1641	100.0
Bankstown-Lidcombe	8	0.4	3	0.2	89	4.5	1864	94.8	2	0.1	1966	100.0
Port Macquarie Base	2	0.3	0	0.0	31	4.3	690	95.4	0	0.0	723	100.0
Sutherland	1	0.1	0	0.0	36	3.5	1000	96.3	1	0.1	1038	100.0
Manning Base	2	0.3	1	0.1	30	4.3	664	95.3	0	0.0	697	100.0
Hornsby	1	0.1	1	0.1	31	3.0	1009	96.8	0	0.0	1042	100.0
Other hospitals	0	0.0	0	0.0	0	0.0	118	100.0	0	0.0	118	100.0
TOTAL	62	0.4	21	0.1	694	4.2	15867	95.1	34	0.2	16678	100.0
<b>Level 3</b>												
Moruya	1	0.3	0	0.0	28	7.1	367	92.4	1	0.3	397	100.0
Fairfield	6	0.3	2	0.1	78	4.3	1745	95.2	2	0.1	1833	100.0
Grafton Base	3	0.7	3	0.7	18	4.1	411	94.5	0	0.0	435	100.0
Kempsey	3	0.9	0	0.0	12	3.7	313	95.4	0	0.0	328	100.0
Murwillumbah	2	0.5	1	0.3	13	3.5	354	95.7	0	0.0	370	100.0
Broken Hill Base	1	0.4	1	0.4	11	4.7	223	94.5	0	0.0	236	100.0
Queanbeyan	1	0.4	0	0.0	5	1.9	254	97.3	1	0.4	261	100.0
Shoalhaven	2	0.2	1	0.1	67	7.4	834	92.2	1	0.1	905	100.0
Lithgow	2	0.9	0	0.0	10	4.7	201	94.4	0	0.0	213	100.0
Bathurst Base	2	0.3	0	0.0	29	4.9	562	94.8	0	0.0	593	100.0
Inverell	1	0.4	2	0.7	12	4.4	260	94.5	0	0.0	275	100.0
Blue Mountains	0	0.0	1	0.4	6	2.1	277	97.5	0	0.0	284	100.0
Muswellbrook	0	0.0	1	0.4	5	2.1	232	97.5	0	0.0	238	100.0
Armidale	0	0.0	1	0.2	31	6.4	453	93.0	2	0.4	487	100.0
Bowral	0	0.0	2	0.3	29	4.4	627	95.1	1	0.2	659	100.0
Mudgee	0	0.0	0	0.0	5	1.9	252	98.1	0	0.0	257	100.0
Parkes	0	0.0	0	0.0	5	2.4	202	97.6	0	0.0	207	100.0
Moree	0	0.0	0	0.0	7	3.4	200	96.6	0	0.0	207	100.0
Other hospitals	2	0.1	0	0.0	48	2.6	1827	97.2	2	0.1	1879	100.0
TOTAL	26	0.3	15	0.1	419	4.2	9594	95.3	10	0.1	10064	100.0
<b>Level 2</b>												
Wyang	1	0.4	1	0.4	8	3.1	250	96.2	0	0.0	260	100.0
Singleton	0	0.0	1	0.5	4	2.0	197	97.5	0	0.0	202	100.0
Other hospitals	1	0.1	0	0.0	22	2.4	875	97.1	3	0.3	901	100.0
TOTAL	2	0.1	2	0.1	34	2.5	1322	97.0	3	0.2	1363	100.0

**TABLE 42 (continued)****BIRTHS BY BIRTH WEIGHT, HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006<sup>#</sup>**

Maternity service level – Hospital	Birth weight (grams)											
	Less than 1000		1000–1499		1500–2499		2500+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Private</b>												
Newcastle Private	6	0.3	0	0.0	62	3.4	1764	96.2	1	0.1	1833	100.0
St. George Private	3	0.2	2	0.1	81	4.5	1728	95.2	2	0.1	1816	100.0
Westmead Private	6	0.3	1	0.1	83	4.2	1871	95.4	0	0.0	1961	100.0
Sydney Adventist	6	0.3	4	0.2	80	3.6	2151	96.0	0	0.0	2241	100.0
Sydney Southwest Private	1	0.1	0	0.0	40	3.4	1145	96.5	1	0.1	1187	100.0
North Gosford Private	1	0.1	1	0.1	25	2.8	852	96.9	0	0.0	879	100.0
Mater, North Sydney	3	0.1	2	0.1	73	3.2	2172	96.5	1	0.0	2251	100.0
North Shore Private	12	0.5	1	0.0	93	3.5	2542	96.0	0	0.0	2648	100.0
The Hills Private	1	0.1	0	0.0	35	2.9	1179	97.0	0	0.0	1215	100.0
Figtree Private	1	0.1	1	0.1	26	2.5	993	97.1	2	0.2	1023	100.0
Kareena Private	2	0.3	0	0.0	15	2.6	563	97.1	0	0.0	580	100.0
Calvary, Wagga Wagga	1	0.2	1	0.2	14	2.4	579	97.3	0	0.0	595	100.0
Prince of Wales Private	0	0.0	1	0.1	56	3.2	1672	96.6	2	0.1	1731	100.0
Hurstville Community	0	0.0	0	0.0	31	3.6	826	96.4	0	0.0	857	100.0
Nepean Private	0	0.0	0	0.0	21	2.4	870	97.6	0	0.0	891	100.0
Other hospitals	0	0.0	0	0.0	2	0.8	256	99.2	0	0.0	258	100.0
TOTAL	43	0.2	14	0.1	737	3.4	21163	96.3	9	0.0	21966	100.0
<b>TOTAL NSW*</b>	650	0.7	562	0.6	4721	5.1	86723	93.5	125	0.1	92781	100.0

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. Obstetric service levels are described on page 13 of the Methods chapter.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives and 50 mothers who gave birth at level 1 hospitals.

## Gestational age

Tables 43 and 44 show the gestational age of babies for area health services and individual hospitals by maternity

service level where at least 200 mothers gave birth in 2006.

**TABLE 43**

### BIRTHS BY GESTATIONAL AGE AND HEALTH AREA OF HOSPITAL, NSW 2006

Health Area	Gestational age (weeks)											
	< 31		32–33		34–36		37+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	158	0.9	178	1.1	959	5.8	15322	92.0	41	0.2	16658	100.0
South Eastern Sydney / Illawarra	108	1.0	60	0.5	623	5.7	10112	92.6	16	0.1	10919	100.0
Sydney West	137	1.0	148	1.1	827	6.1	12419	91.7	12	0.1	13543	100.0
Northern Sydney and Central Coast	59	0.8	54	0.7	402	5.2	7282	93.3	5	0.1	7802	100.0
Hunter and New England	85	1.0	77	0.9	579	6.5	8142	91.5	14	0.2	8897	100.0
North Coast	24	0.4	17	0.3	255	4.6	5251	94.6	5	0.1	5552	100.0
Greater Southern	7	0.2	8	0.2	144	4.2	3292	95.2	7	0.2	3458	100.0
Greater Western	29	0.8	6	0.2	194	5.0	3611	93.6	16	0.4	3856	100.0
Private hospitals	43	0.2	14	0.1	737	3.4	21163	96.3	9	0.0	21966	100.0
TOTAL *	650	0.7	562	0.6	4721	5.1	86723	93.5	125	0.1	92781	100.0

Source: NSW Midwives Data Collection (HOIST), Centre for Epidemiology and Research, NSW Department of Health.

\* TOTAL includes 130 homebirths assisted by independent midwives.

**TABLE 44**

### BIRTHS BY GESTATIONAL AGE, HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006<sup>#</sup>

Maternity service level –												
Hospital	< 31		32–33		34–36		37+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%			No.	%
Level 6												
John Hunter	179	4.7	109	2.9	318	8.4	3184	84.0	0	0.0	3790	100.0
Royal Hospital for Women	135	3.2	61	1.5	219	5.2	3763	90.1	0	0.0	4178	100.0
Royal Prince Alfred	145	2.9	81	1.6	283	5.7	4452	89.7	2	0.0	4963	100.0
Royal North Shore	108	4.5	73	3.0	120	5.0	2100	87.5	0	0.0	2401	100.0
Liverpool	157	5.1	86	2.8	213	6.9	2639	85.3	0	0.0	3095	100.0
Nepean	104	3.0	82	2.4	243	7.0	3024	87.6	0	0.0	3453	100.0
Westmead	166	3.8	93	2.1	273	6.2	3846	87.8	3	0.1	4381	100.0
TOTAL	994	3.8	585	2.2	1669	6.4	23008	87.6	5	0.0	26261	100.0
Level 5												
Gosford	19	0.8	26	1.0	147	5.9	2298	92.3	0	0.0	2490	100.0
St. George	20	0.8	21	0.9	91	3.7	2300	94.6	0	0.0	2432	100.0
Blacktown	21	0.7	19	0.6	150	4.8	2929	93.9	0	0.0	3119	100.0
Tweed Heads	11	1.0	7	0.6	61	5.4	1045	92.9	1	0.1	1125	100.0
Wollongong	32	1.4	35	1.6	144	6.4	2033	90.6	0	0.0	2244	100.0
Maitland	10	0.7	7	0.5	66	4.5	1394	94.4	0	0.0	1477	100.0
Wagga Wagga Base	11	1.5	6	0.8	49	6.5	687	91.2	0	0.0	753	100.0
Lismore Base	11	0.8	13	1.0	72	5.4	1228	92.7	0	0.0	1324	100.0
Dubbo Base	20	1.5	5	0.4	57	4.4	1222	93.6	1	0.1	1305	100.0
TOTAL	155	1.0	139	0.9	837	5.1	15136	93.0	2	0.0	16269	100.0

**TABLE 44 (continued)**
**BIRTHS BY GESTATIONAL AGE, HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006\***

Maternity service level –					Gestational age (weeks)							
Hospital	< 31		32–33		34–36		37+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%			No.	%
Level 4												
Manly	1	0.1	2	0.2	19	2.4	779	97.3	0	0.0	801	100.0
Auburn	7	0.6	1	0.1	38	3.1	1188	96.3	0	0.0	1234	100.0
Campbelltown	14	0.6	13	0.5	125	5.0	2345	93.8	4	0.2	2501	100.0
Hawkesbury	6	0.7	0	0.0	31	3.6	822	95.7	0	0.0	859	100.0
Coffs Harbour	8	0.9	2	0.2	38	4.1	883	94.8	0	0.0	931	100.0
Port Macquarie Base	2	0.3	6	0.8	50	6.9	665	92.0	0	0.0	723	100.0
Tamworth Base	4	0.5	1	0.1	63	7.6	761	91.8	0	0.0	829	100.0
Orange Base	9	1.0	2	0.2	57	6.6	791	92.1	0	0.0	859	100.0
Griffith Base	4	0.9	2	0.5	21	5.0	396	93.6	0	0.0	423	100.0
Canterbury	7	0.4	3	0.2	54	3.3	1577	96.1	0	0.0	1641	100.0
Bankstown-Lidcombe	10	0.5	5	0.3	78	4.0	1873	95.3	0	0.0	1966	100.0
Goulburn Base	4	1.2	2	0.6	12	3.7	308	94.5	0	0.0	326	100.0
Mona Vale	3	0.4	2	0.3	30	4.3	655	94.9	0	0.0	690	100.0
Sutherland	1	0.1	1	0.1	32	3.1	1004	96.7	0	0.0	1038	100.0
Manning Base	2	0.3	2	0.3	34	4.9	659	94.5	0	0.0	697	100.0
Hornsby	1	0.1	0	0.0	28	2.7	1013	97.2	0	0.0	1042	100.0
Other hospitals	0	0.0	0	0.0	0	0.0	118	100.0	0	0.0	118	100.0
TOTAL	83	0.5	44	0.3	710	4.3	15837	95.0	4	0.0	16678	100.0
Level 3												
Fairfield	9	0.5	6	0.3	65	3.5	1752	95.6	1	0.1	1833	100.0
Grafton Base	6	1.4	2	0.5	22	5.1	405	93.1	0	0.0	435	100.0
Bathurst Base	2	0.3	1	0.2	32	5.4	558	94.1	0	0.0	593	100.0
Moruya	3	0.8	2	0.5	19	4.8	373	94.0	0	0.0	397	100.0
Queanbeyan	1	0.4	0	0.0	4	1.5	256	98.1	0	0.0	261	100.0
Kempsey	3	0.9	0	0.0	16	4.9	309	94.2	0	0.0	328	100.0
Murwillumbah	2	0.5	0	0.0	16	4.3	352	95.1	0	0.0	370	100.0
Bowral	3	0.5	1	0.2	21	3.2	634	96.2	0	0.0	659	100.0
Broken Hill Base	2	0.8	0	0.0	13	5.5	221	93.6	0	0.0	236	100.0
Lithgow	2	0.9	1	0.5	7	3.3	203	95.3	0	0.0	213	100.0
Shoalhaven	4	0.4	8	0.9	60	6.6	833	92.0	0	0.0	905	100.0
Blue Mountains	1	0.4	0	0.0	12	4.2	270	95.1	1	0.4	284	100.0
Inverell	4	1.5	0	0.0	13	4.7	258	93.8	0	0.0	275	100.0
Muswellbrook	1	0.4	0	0.0	6	2.5	231	97.1	0	0.0	238	100.0
Armidale	1	0.2	2	0.4	33	6.8	451	92.6	0	0.0	487	100.0
Moree	0	0.0	0	0.0	2	1.0	205	99.0	0	0.0	207	100.0
Mudgee	0	0.0	0	0.0	7	2.7	250	97.3	0	0.0	257	100.0
Parkes	0	0.0	0	0.0	5	2.4	202	97.6	0	0.0	207	100.0
Other hospitals	3	0.2	3	0.2	41	2.2	1832	97.5	0	0.0	1879	100.0
TOTAL	47	0.5	26	0.3	394	3.9	9595	95.3	2	0.0	10064	100.0
Level 2												
Wyang	2	0.8	1	0.4	6	2.3	251	96.5	0	0.0	260	100.0
Singleton	1	0.5	0	0.0	7	3.5	194	96.0	0	0.0	202	100.0
Other hospitals	5	0.6	1	0.1	24	2.7	871	96.7	0	0.0	901	100.0
TOTAL	8	0.6	2	0.1	37	2.7	1316	96.6	0	0.0	1363	100.0

**TABLE 44 (continued)****BIRTHS BY GESTATIONAL AGE, HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006<sup>#</sup>**

Maternity service level –												
Hospital	< 31		32–33		Gestational age (weeks)				Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%			No.	%
Private												
St. George Private	4	0.2	5	0.3	104	5.7	1702	93.7	1	0.1	1816	100.0
Sydney Southwest Private	1	0.1	0	0.0	43	3.6	1142	96.2	1	0.1	1187	100.0
Mater, North Sydney	6	0.3	11	0.5	88	3.9	2145	95.3	1	0.0	2251	100.0
North Shore Private	12	0.5	8	0.3	110	4.2	2518	95.1	0	0.0	2648	100.0
Sydney Adventist	8	0.4	12	0.5	95	4.2	2126	94.9	0	0.0	2241	100.0
North Gosford Private	3	0.3	4	0.5	38	4.3	834	94.9	0	0.0	879	100.0
The Hills Private	3	0.2	4	0.3	53	4.4	1155	95.1	0	0.0	1215	100.0
Kareena Private	2	0.3	3	0.5	32	5.5	543	93.6	0	0.0	580	100.0
Westmead Private	4	0.2	2	0.1	97	4.9	1858	94.7	0	0.0	1961	100.0
Newcastle Private	5	0.3	3	0.2	99	5.4	1726	94.2	0	0.0	1833	100.0
Hurstville Community	4	0.5	6	0.7	24	2.8	823	96.0	0	0.0	857	100.0
Figtree Private	2	0.2	1	0.1	45	4.4	975	95.3	0	0.0	1023	100.0
Calvary, Wagga Wagga	1	0.2	4	0.7	24	4.0	566	95.1	0	0.0	595	100.0
Prince of Wales Private	1	0.1	1	0.1	74	4.3	1653	95.5	2	0.1	1731	100.0
Nepean Private	0	0.0	0	0.0	35	3.9	856	96.1	0	0.0	891	100.0
Other private hospitals	0	0.0	0	0.0	10	3.9	248	96.1	0	0.0	258	100.0
TOTAL	56	0.3	64	0.3	971	4.4	20870	95.0	5	0.0	21966	100.0
TOTAL NSW*	1349	1.5	862	0.9	4628	5.0	85923	92.6	19	0.0	92781	100.0

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. Obstetric service levels are described on page 13 of the Methods chapter.<sup>\*</sup> TOTAL NSW includes 130 homebirths assisted by independent midwives and 50 mothers who gave birth at level 1 hospitals

## Neonatal resuscitation

Tables 45 and 46 shows the type of neonatal resuscitation for area health services and individual hospitals by

maternity service level where at least 200 mothers gave birth in 2006.

**TABLE 45**

### BIRTHS BY TYPE OF RESUSCITATION AND HEALTH AREA OF HOSPITAL, NSW 2006

Health Area	Resuscitation																	
	None		Suction		Oxygen therapy		IPPR by bag and mask		Intubation and IPPR		External cardiac massage and ventilation		Other		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	12161	73.0	1984	11.9	1387	8.3	957	5.7	68	0.4	46	0.3	21	0.1	34	0.2	16658	100.0
South Eastern Sydney and Illawarra	7860	72.0	1344	12.3	1244	11.4	365	3.3	63	0.6	25	0.2	0	0.0	18	0.2	10919	100.0
Sydney West	8724	64.4	2322	17.1	1649	12.2	634	4.7	194	1.4	16	0.1	2	0.0	2	0.0	13543	100.0
Northern Sydney and Central Coast	4839	62.0	1557	20.0	938	12.0	398	5.1	54	0.7	14	0.2	2	0.0	0	0.0	7802	100.0
Hunter and New England	5295	59.5	1220	13.7	1477	16.6	810	9.1	58	0.7	11	0.1	0	0.0	26	0.3	8897	100.0
North Coast	3143	56.6	958	17.3	980	17.7	431	7.8	14	0.3	14	0.3	0	0.0	12	0.2	5552	100.0
Greater Southern	2129	61.6	479	13.9	587	17.0	213	6.2	16	0.5	16	0.5	0	0.0	18	0.5	3458	100.0
Greater Western	2323	60.2	540	14.0	658	17.1	263	6.8	17	0.4	9	0.2	0	0.0	46	1.2	3856	100.0
Private Hospitals	10445	47.6	6456	29.4	3846	17.5	979	4.5	38	0.2	29	0.1	0	0.0	173	0.8	21966	100.0
<b>TOTAL NSW*</b>	<b>57033</b>	<b>61.5</b>	<b>16865</b>	<b>18.2</b>	<b>12773</b>	<b>13.8</b>	<b>5051</b>	<b>5.4</b>	<b>522</b>	<b>0.6</b>	<b>181</b>	<b>0.2</b>	<b>25</b>	<b>0.0</b>	<b>331</b>	<b>0.4</b>	<b>92781</b>	<b>100.0</b>

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives.

**TABLE 46**

### BIRTHS BY TYPE OF RESUSCITATION, HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006<sup>#</sup>

Maternity service level – hospital	Resuscitation																	
	None		Suction		Oxygen therapy		IPPR by bag and mask		Intubation and IPPR		External cardiac massage and ventilation		Other		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Level 6</b>																		
Royal Prince Alfred	3302	66.5	583	11.7	481	9.7	542	10.9	19	0.4	9	0.2	19	0.4	8	0.2	4963	100.0
Royal North Shore	1319	54.9	652	27.2	243	10.1	136	5.7	47	2.0	4	0.2	0	0.0	0	0.0	2401	100.0
Royal Hospital for Women	3333	79.8	282	6.7	350	8.4	154	3.7	46	1.1	13	0.3	0	0.0	0	0.0	4178	100.0
Liverpool	2087	67.4	504	16.3	269	8.7	177	5.7	38	1.2	11	0.4	0	0.0	9	0.3	3095	100.0
Nepean	2045	59.2	704	20.4	457	13.2	197	5.7	48	1.4	0	0.0	2	0.1	0	0.0	3453	100.0
Westmead	2963	67.6	608	13.9	474	10.8	192	4.4	129	2.9	13	0.3	0	0.0	2	0.0	4381	100.0
John Hunter	2345	61.9	629	16.6	334	8.8	438	11.6	42	1.1	2	0.1	0	0.0	0	0.0	3790	100.0
<b>TOTAL</b>	<b>17394</b>	<b>66.2</b>	<b>3962</b>	<b>15.1</b>	<b>2608</b>	<b>9.9</b>	<b>1836</b>	<b>7.0</b>	<b>369</b>	<b>1.4</b>	<b>52</b>	<b>0.2</b>	<b>21</b>	<b>0.1</b>	<b>19</b>	<b>0.1</b>	<b>26261</b>	<b>100.0</b>
<b>Level 5</b>																		
Gosford	1651	66.3	329	13.2	359	14.4	143	5.7	2	0.1	4	0.2	2	0.1	0	0.0	2490	100.0
St. George	1864	76.6	180	7.4	297	12.2	83	3.4	3	0.1	5	0.2	0	0.0	0	0.0	2432	100.0
Blacktown	1892	60.7	672	21.5	419	13.4	129	4.1	4	0.1	3	0.1	0	0.0	0	0.0	3119	100.0
Lismore Base	691	52.2	276	20.8	237	17.9	112	8.5	4	0.3	2	0.2	0	0.0	2	0.2	1324	100.0
Tweed Heads	693	61.6	49	4.4	273	24.3	101	9.0	4	0.4	3	0.3	0	0.0	2	0.2	1125	100.0
Dubbo Base	856	65.6	128	9.8	201	15.4	89	6.8	4	0.3	3	0.2	0	0.0	24	1.8	1305	100.0

TABLE 46 (continued)

BIRTHS BY TYPE OF RESUSCITATION, HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006<sup>#</sup>

Maternity service level – hospital	Resuscitation																	
	None		Suction		Oxygen therapy		IPPR by bag and mask		Intubation and IPPR		External cardiac massage and ventilation		Other		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Wollongong	1251	55.7	558	24.9	312	13.9	90	4.0	12	0.5	4	0.2	0	0.0	17	0.8	2244	100.0
Maitland	1131	76.6	63	4.3	183	12.4	97	6.6	3	0.2	0	0.0	0	0.0	0	0.0	1477	100.0
Wagga Wagga Base	457	60.7	100	13.3	129	17.1	58	7.7	4	0.5	5	0.7	0	0.0	0	0.0	753	100.0
TOTAL	10486	64.5	2355	14.5	2410	14.8	902	5.5	40	0.2	29	0.2	2	0.0	45	0.3	16269	100.0
<b>Level 4</b>																		
Canterbury	1187	72.3	269	16.4	137	8.3	36	2.2	4	0.2	6	0.4	2	0.1	0	0.0	1641	100.0
Hornsby	702	67.4	129	12.4	162	15.5	46	4.4	1	0.1	2	0.2	0	0.0	0	0.0	1042	100.0
Manly	510	63.7	172	21.5	84	10.5	30	3.7	2	0.2	3	0.4	0	0.0	0	0.0	801	100.0
Mona Vale	352	51.0	246	35.7	68	9.9	23	3.3	0	0.0	1	0.1	0	0.0	0	0.0	690	100.0
Sutherland	672	64.7	211	20.3	143	13.8	9	0.9	1	0.1	1	0.1	0	0.0	1	0.1	1038	100.0
Auburn	1027	83.2	71	5.8	68	5.5	60	4.9	8	0.6	0	0.0	0	0.0	0	0.0	1234	100.0
Campbelltown	2026	81.0	242	9.7	158	6.3	62	2.5	2	0.1	3	0.1	0	0.0	8	0.3	2501	100.0
Bankstown-Lidcombe	1547	78.7	221	11.2	116	5.9	64	3.3	1	0.1	12	0.6	0	0.0	5	0.3	1966	100.0
Hawkesbury	560	65.2	136	15.8	131	15.3	31	3.6	1	0.1	0	0.0	0	0.0	0	0.0	859	100.0
Coffs Harbour	573	61.5	153	16.4	134	14.4	69	7.4	2	0.2	0	0.0	0	0.0	0	0.0	931	100.0
Port Macquarie Base	472	65.3	94	13.0	106	14.7	47	6.5	2	0.3	2	0.3	0	0.0	0	0.0	723	100.0
Tamworth Base	370	44.6	124	15.0	211	25.5	103	12.4	1	0.1	7	0.8	0	0.0	13	1.6	829	100.0
Manning Base	443	63.6	118	16.9	77	11.0	48	6.9	1	0.1	2	0.3	0	0.0	8	1.1	697	100.0
Orange Base	555	64.6	69	8.0	176	20.5	46	5.4	4	0.5	0	0.0	0	0.0	9	1.0	859	100.0
Goulburn Base	197	60.4	36	11.0	67	20.6	19	5.8	3	0.9	2	0.6	0	0.0	2	0.6	326	100.0
Griffith Base	190	44.9	74	17.5	130	30.7	17	4.0	5	1.2	2	0.5	0	0.0	5	1.2	423	100.0
Other hospitals	107	90.7	4	3.4	6	5.1	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0	118	100.0
TOTAL	11490	68.9	2369	14.2	1974	11.8	711	4.3	38	0.2	43	0.3	2	0.0	51	0.3	16678	100.0
<b>Level 3</b>																		
Blue Mountains	175	61.6	55	19.4	41	14.4	11	3.9	2	0.7	0	0.0	0	0.0	0	0.0	284	100.0
Fairfield	1435	78.3	136	7.4	189	10.3	62	3.4	2	0.1	5	0.3	0	0.0	4	0.2	1833	100.0
Grafton Base	171	39.3	183	42.1	38	8.7	39	9.0	2	0.5	2	0.5	0	0.0	0	0.0	435	100.0
Kempsey	237	72.3	16	4.9	46	14.0	25	7.6	0	0.0	4	1.2	0	0.0	0	0.0	328	100.0
Murwillumbah	132	35.7	136	36.8	75	20.3	21	5.7	0	0.0	1	0.3	0	0.0	5	1.4	370	100.0
Armidale	264	54.2	57	11.7	145	29.8	20	4.1	0	0.0	0	0.0	0	0.0	1	0.2	487	100.0
Inverell	20	7.3	17	6.2	214	77.8	21	7.6	3	1.1	0	0.0	0	0.0	0	0.0	275	100.0
Moree	80	38.6	38	18.4	75	36.2	11	5.3	1	0.5	0	0.0	0	0.0	2	1.0	207	100.0
Mudgee	162	63.0	34	13.2	39	15.2	21	8.2	0	0.0	0	0.0	0	0.0	1	0.4	257	100.0
Bathurst Base	210	35.4	242	40.8	76	12.8	57	9.6	5	0.8	0	0.0	0	0.0	3	0.5	593	100.0
Lithgow	62	29.1	76	35.7	59	27.7	14	6.6	2	0.9	0	0.0	0	0.0	0	0.0	213	100.0
Parkes	115	55.6	17	8.2	57	27.5	13	6.3	1	0.5	3	1.4	0	0.0	1	0.5	207	100.0
Moruya	268	67.5	51	12.8	44	11.1	28	7.1	1	0.3	4	1.0	0	0.0	1	0.3	397	100.0
Queanbeyan	189	72.4	30	11.5	30	11.5	7	2.7	1	0.4	1	0.4	0	0.0	3	1.1	261	100.0
Bowral	577	87.6	29	4.4	37	5.6	14	2.1	2	0.3	0	0.0	0	0.0	0	0.0	659	100.0
Shoalhaven	646	71.4	103	11.4	127	14.0	27	3.0	1	0.1	1	0.1	0	0.0	0	0.0	905	100.0
Muswellbrook	160	67.2	31	13.0	21	8.8	23	9.7	3	1.3	0	0.0	0	0.0	0	0.0	238	100.0
Broken Hill Base	174	73.7	20	8.5	24	10.2	16	6.8	1	0.4	0	0.0	0	0.0	1	0.4	236	100.0

TABLE 46 (continued)

BIRTHS BY TYPE OF RESUSCITATION, HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006<sup>#</sup>

Maternity service level – hospital	None		Suction		Oxygen therapy		IPPR by bag and mask		Intubation and IPPR		External cardiac massage and ventilation		Other		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Other hospitals	1111	59.1	288	15.3	346	18.4	113	6.0	2	0.1	4	0.2	0	0.0	15	0.8	1879	100.0
TOTAL	6188	61.5	1559	15.5	1683	16.7	543	5.4	29	0.3	25	0.2	0	0.0	37	0.4	10064	100.0
<b>Level 2</b>																		
Wyong	198	76.2	25	9.6	16	6.2	19	7.3	2	0.8	0	0.0	0	0.0	0	0.0	260	100.0
Singleton	141	69.8	33	16.3	15	7.4	10	5.0	3	1.5	0	0.0	0	0.0	0	0.0	202	100.0
Other hospitals	553	61.4	92	10.2	203	22.5	49	5.4	1	0.1	1	0.1	0	0.0	2	0.2	901	100.0
TOTAL	892	65.4	150	11.0	234	17.2	78	5.7	6	0.4	1	0.1	0	0.0	2	0.1	1363	100.0
<b>Private</b>																		
Mater, North Sydney	1215	54.0	477	21.2	360	16.0	128	5.7	2	0.1	4	0.2	0	0.0	65	2.9	2251	100.0
North Shore Private	1493	56.4	643	24.3	431	16.3	79	3.0	2	0.1	0	0.0	0	0.0	0	0.0	2648	100.0
Sydney Adventist	1047	46.7	866	38.6	209	9.3	111	5.0	4	0.2	3	0.1	0	0.0	1	0.0	2241	100.0
North Gosford Private	504	57.3	176	20.0	163	18.5	33	3.8	0	0.0	0	0.0	0	0.0	3	0.3	879	100.0
Hurstville Community	67	7.8	451	52.6	287	33.5	48	5.6	4	0.5	0	0.0	0	0.0	0	0.0	857	100.0
Kareena Private	48	8.3	361	62.2	140	24.1	29	5.0	0	0.0	2	0.3	0	0.0	0	0.0	580	100.0
St. George Priv.	338	18.6	782	43.1	606	33.4	59	3.2	2	0.1	10	0.6	0	0.0	19	1.0	1816	100.0
Prince of Wales Private	512	29.6	779	45.0	317	18.3	73	4.2	2	0.1	0	0.0	0	0.0	48	2.8	1731	100.0
The Hills Private	894	73.6	142	11.7	128	10.5	40	3.3	6	0.5	0	0.0	0	0.0	5	0.4	1215	100.0
Sydney South-west Private	725	61.1	254	21.4	130	11.0	69	5.8	0	0.0	3	0.3	0	0.0	6	0.5	1187	100.0
Nepean Private	513	57.6	97	10.9	222	24.9	52	5.8	4	0.4	1	0.1	0	0.0	2	0.2	891	100.0
Westmead Private	1270	64.8	398	20.3	194	9.9	73	3.7	4	0.2	4	0.2	0	0.0	18	0.9	1961	100.0
Figtree Private	174	17.0	590	57.7	213	20.8	38	3.7	1	0.1	2	0.2	0	0.0	5	0.5	1023	100.0
Newcastle Private	1182	64.5	267	14.6	293	16.0	84	4.6	7	0.4	0	0.0	0	0.0	0	0.0	1833	100.0
Calvary, Wagga Wagga	318	53.4	118	19.8	107	18.0	51	8.6	0	0.0	0	0.0	0	0.0	1	0.2	595	100.0
Other hospitals	145	56.2	55	21.3	46	17.8	12	4.7	0	0.0	0	0.0	0	0.0	0	0.0	258	100.0
TOTAL	10445	47.6	6456	29.4	3846	17.5	979	4.5	38	0.2	29	0.1	0	0.0	173	0.8	21966	100.0
<b>TOTAL NSW*</b>	57033	61.5	16865	18.2	12773	13.8	5051	5.4	522	0.6	181	0.2	25	0.0	331	0.4	92781	100.0

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. Obstetric service levels are described on page 13 of the Methods chapter.<sup>\*</sup> TOTAL NSW includes 130 homebirths assisted by independent midwives and 50 mothers who gave birth at level 1 hospitals.

## Admission to special care or neonatal intensive care

Tables 47 and 48 show admission of liveborn babies to special care or neonatal intensive care for area health

services and individual hospitals by maternity service level where at least 200 mothers gave birth in 2006.

**TABLE 47**

### LIVE BIRTHS BY ADMISSION TO SPECIAL CARE OR NEONATAL INTENSIVE CARE BY HEALTH AREA OF HOSPITAL, NSW 2006

Health Area	Admission to special care or NICU							
	No		Yes		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%
Sydney South West	14181	85.9	2316	14.0	3	0.0	16500	100.0
South Eastern Sydney and Illawarra	9228	85.3	1587	14.7	3	0.0	10818	100.0
Sydney West	10464	78.1	2932	21.9	0	0.0	13396	100.0
Northern Sydney and Central Coast	6526	84.2	1229	15.8	0	0.0	7755	100.0
Hunter and New England	7275	82.4	1537	17.4	14	0.2	8826	100.0
North Coast	4643	84.4	829	15.1	32	0.6	5504	100.0
Greater Southern	3035	88.1	396	11.5	12	0.3	3443	100.0
Greater Western	3205	84.1	460	12.1	146	3.8	3811	100.0
Private hospitals	18724	85.5	3030	13.8	141	0.6	21895	100.0
<b>TOTAL*</b>	77407	84.1	14317	15.5	351	0.4	92075	100.0

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

\* TOTAL includes 130 homebirths assisted by independent midwives.

**TABLE 48**

### LIVE BIRTHS BY ADMISSION TO SPECIAL CARE OR NEONATAL INTENSIVE CARE, HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006#

Maternity service level – hospital	Admission to Special Care or NICU							
	No		Yes		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
<b>Level 6</b>								
Royal Prince Alfred	4270	86.6	658	13.4	0	0.0	4928	100.0
Royal North Shore	2028	85.3	349	14.7	0	0.0	2377	100.0
Royal Hospital for Women	3564	86.4	563	13.6	0	0.0	4127	100.0
Liverpool	2482	81.6	561	18.4	0	0.0	3043	100.0
Nepean	2441	71.4	980	28.6	0	0.0	3421	100.0
Westmead	3399	79.0	905	21.0	0	0.0	4304	100.0
John Hunter	2965	79.3	772	20.7	0	0.0	3737	100.0
<b>TOTAL</b>	21149	81.5	4788	18.5	0	0.0	25937	100.0
<b>Level 5</b>								
Gosford	2162	87.2	318	12.8	0	0.0	2480	100.0
St. George	2059	85.4	353	14.6	0	0.0	2412	100.0
Blacktown	2517	81.3	580	18.7	0	0.0	3097	100.0
Lismore Base	1060	80.9	244	18.6	6	0.5	1310	100.0
Tweed Heads	893	80.0	212	19.0	11	1.0	1116	100.0
Dubbo Base	996	76.9	226	17.5	73	5.6	1295	100.0
Wollongong	1824	82.1	397	17.9	2	0.1	2223	100.0
Maitland	1275	86.8	194	13.2	0	0.0	1469	100.0
Wagga Wagga Base	619	83.0	127	17.0	0	0.0	746	100.0
<b>TOTAL</b>	13405	83.0	2651	16.4	92	0.6	16148	100.0

**TABLE 48 (continued)****LIVE BIRTHS BY ADMISSION TO SPECIAL CARE OR NEONATAL INTENSIVE CARE, HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006#**

Maternity service level – hospital	Admission to Special Care or NICU							
	No		Yes		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Level 4								
Canterbury	1574	96.6	55	3.4	0	0.0	1629	100.0
Hornsby	771	74.1	269	25.9	0	0.0	1040	100.0
Manly	653	81.8	145	18.2	0	0.0	798	100.0
Mona Vale	549	80.3	135	19.7	0	0.0	684	100.0
Sutherland	901	87.2	131	12.7	1	0.1	1033	100.0
Auburn	947	77.4	277	22.6	0	0.0	1224	100.0
Campbelltown	2122	85.7	350	14.1	3	0.1	2475	100.0
Bankstown-Lidcombe	1708	87.4	247	12.6	0	0.0	1955	100.0
Hawkesbury	704	82.3	151	17.7	0	0.0	855	100.0
Coffs Harbour	789	85.4	134	14.5	1	0.1	924	100.0
Port Macquarie Base	605	84.3	113	15.7	0	0.0	718	100.0
Tamworth Base	488	59.2	332	40.2	5	0.6	825	100.0
Manning Base	611	87.9	84	12.1	0	0.0	695	100.0
Orange Base	678	81.4	112	13.4	43	5.2	833	100.0
Goulburn Base	279	86.1	42	13.0	3	0.9	324	100.0
Griffith Base	300	71.4	120	28.6	0	0.0	420	100.0
Other hospitals	117	99.2	1	0.8	0	0.0	118	100.0
TOTAL	13796	83.4	2698	16.3	56	0.3	16550	100.0
Level 3								
Blue Mountains	255	89.8	29	10.2	0	0.0	284	100.0
Fairfield	1476	81.3	340	18.7	0	0.0	1816	100.0
Grafton Base	360	83.7	70	16.3	0	0.0	430	100.0
Kempsey	305	93.3	22	6.7	0	0.0	327	100.0
Murwillumbah	344	93.5	24	6.5	0	0.0	368	100.0
Armidale	421	86.6	65	13.4	0	0.0	486	100.0
Inverell	259	94.2	14	5.1	2	0.7	275	100.0
Moree	172	83.1	35	16.9	0	0.0	207	100.0
Mudgee	250	97.7	6	2.3	0	0.0	256	100.0
Bathurst Base	529	89.4	54	9.1	9	1.5	592	100.0
Lithgow	201	95.3	10	4.7	0	0.0	211	100.0
Parkes	196	95.1	10	4.9	0	0.0	206	100.0
Moruya	367	92.9	28	7.1	0	0.0	395	100.0
Queanbeyan	249	95.8	6	2.3	5	1.9	260	100.0
Bowral	549	83.9	105	16.1	0	0.0	654	100.0
Shoalhaven	762	84.6	139	15.4	0	0.0	901	100.0
Muswellbrook	230	96.6	8	3.4	0	0.0	238	100.0
Broken Hill Base	211	89.8	22	9.4	2	0.9	235	100.0
Other hospitals	1742	93.0	98	5.2	34	1.8	1874	100.0
TOTAL	8878	88.6	1085	10.8	52	0.5	10015	100.0

**TABLE 48 (continued)****LIVE BIRTHS BY ADMISSION TO SPECIAL CARE OR NEONATAL INTENSIVE CARE, HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006#**

Maternity service level – hospital	No		Admission to Special Care or NICU				TOTAL	
	No.	%	No.	%	Not stated		No.	%
<b>Level 2</b>								
Wyong	246	95.3	12	4.7	0	0.0	258	100.0
Singleton	194	96.5	7	3.5	0	0.0	201	100.0
Other hospitals	859	95.8	34	3.8	4	0.4	897	100.0
TOTAL	1299	95.8	53	3.9	4	0.3	1356	100.0
<b>Private</b>								
Mater, North Sydney	2040	90.8	191	8.5	16	0.7	2247	100.0
North Shore Private	2375	89.9	267	10.1	0	0.0	2642	100.0
Sydney Adventist	1833	82.2	396	17.8	0	0.0	2229	100.0
North Gosford Private	762	86.9	115	13.1	0	0.0	877	100.0
Hurstville Community	742	86.9	112	13.1	0	0.0	854	100.0
Kareena Private	478	82.6	101	17.4	0	0.0	579	100.0
St. George Private	1470	81.3	335	18.5	3	0.2	1808	100.0
Prince of Wales Private	1408	81.6	214	12.4	103	6.0	1725	100.0
The Hills Private	1056	87.1	156	12.9	1	0.1	1213	100.0
Sydney Southwest Private	940	79.5	236	19.9	7	0.6	1183	100.0
Nepean Private	709	79.6	182	20.4	0	0.0	891	100.0
Westmead Private	1566	80.3	377	19.3	8	0.4	1951	100.0
Figtree Private	926	90.8	93	9.1	1	0.1	1020	100.0
Newcastle Private	1639	89.8	187	10.2	0	0.0	1826	100.0
Calvary, Wagga Wagga	542	91.4	51	8.6	0	0.0	593	100.0
Other private hospitals	238	92.6	17	6.6	2	0.8	257	100.0
TOTAL	18724	85.5	3030	13.8	141	0.6	21895	100.0
<b>TOTAL*</b>	77407	84.1	14317	15.5	351	0.4	92075	100.0

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

# Hospitals with more than 200 deliveries are identified individually. Obstetric service levels are described on page 13 of the Methods chapter.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives and 50 mothers who gave birth at level 1 hospitals.

## Baby discharge status

Tables 49 and 50 show the discharge status of babies for area health services and individual hospitals by

maternity service level where at least 200 mothers gave birth in 2006.

**TABLE 49**

### BABY DISCHARGE STATUS BY HEALTH AREA OF HOSPITAL, NSW 2006

Health Area	Baby discharge status													
	Discharged		Transferred		Stillborn		Died		Transferred and died		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	15978	95.9	451	2.7	126	0.8	71	0.4	0	0.0	32	0.2	16658	100.0
South Eastern Sydney and Illawarra	10213	93.5	568	5.2	101	0.9	37	0.3	0	0.0	0	0.0	10919	100.0
Sydney West	12870	95.0	495	3.7	109	0.8	31	0.2	0	0.0	38	0.3	13543	100.0
Northern Sydney and Central Coast	7063	90.5	676	8.7	47	0.6	16	0.2	0	0.0	0	0.0	7802	100.0
Hunter and New England	8033	90.3	760	8.5	71	0.8	32	0.4	1	0.0	0	0.0	8897	100.0
North Coast	5276	95.0	215	3.9	40	0.7	11	0.2	2	0.0	8	0.1	5552	100.0
Greater Southern	3277	94.8	158	4.6	15	0.4	7	0.2	1	0.0	0	0.0	3458	100.0
Greater Western	3138	81.4	659	17.1	21	0.5	13	0.3	1	0.0	24	0.6	3856	100.0
Private Hospitals	21583	98.3	291	1.3	62	0.3	20	0.1	1	0.0	9	0.0	21966	100.0
<b>TOTAL*</b>	<b>87556</b>	<b>94.4</b>	<b>4275</b>	<b>4.6</b>	<b>592</b>	<b>0.6</b>	<b>238</b>	<b>0.3</b>	<b>6</b>	<b>0.0</b>	<b>114</b>	<b>0.1</b>	<b>92781</b>	<b>100.0</b>

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

\* TOTAL includes 130 homebirths assisted by independent midwives.

**TABLE 50**

### BABY DISCHARGE STATUS BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006<sup>#</sup>

Maternity service level – Hospital	Baby discharge status													
	Discharged		Transferred		Stillborn		Died		Transferred and died		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Level 6</b>														
Royal Prince Alfred	4755	95.8	136	2.7	35	0.7	37	0.7	0	0.0	0	0.0	4963	100.0
Royal North Shore	2206	91.9	162	6.7	24	1.0	9	0.4	0	0.0	0	0.0	2401	100.0
Royal Hospital for Women	4073	97.5	25	0.6	51	1.2	29	0.7	0	0.0	0	0.0	4178	100.0
Liverpool	2832	91.5	188	6.1	37	1.2	23	0.7	0	0.0	15	0.5	3095	100.0
Nepean	3250	94.1	165	4.8	32	0.9	6	0.2	0	0.0	0	0.0	3453	100.0
Westmead	4031	92.0	256	5.8	39	0.9	17	0.4	0	0.0	38	0.9	4381	100.0
John Hunter	3473	91.6	236	6.2	53	1.4	28	0.7	0	0.0	0	0.0	3790	100.0
<b>TOTAL</b>	<b>24620</b>	<b>93.8</b>	<b>1168</b>	<b>4.4</b>	<b>271</b>	<b>1.0</b>	<b>149</b>	<b>0.6</b>	<b>0</b>	<b>0.0</b>	<b>53</b>	<b>0.2</b>	<b>26261</b>	<b>100.0</b>
<b>Level 5</b>														
Gosford	2009	80.7	466	18.7	10	0.4	5	0.2	0	0.0	0	0.0	2490	100.0
St. George	2394	98.4	16	0.7	20	0.8	2	0.1	0	0.0	0	0.0	2432	100.0
Blacktown	3063	98.2	30	1.0	22	0.7	4	0.1	0	0.0	0	0.0	3119	100.0
Lismore Base	1238	93.5	71	5.4	11	0.8	1	0.1	0	0.0	3	0.2	1324	100.0
Tweed Heads	1091	97.0	21	1.9	8	0.7	3	0.3	1	0.1	1	0.1	1125	100.0
Dubbo Base	938	71.9	348	26.7	8	0.6	9	0.7	0	0.0	2	0.2	1305	100.0
Wollongong	1720	76.6	497	22.1	21	0.9	6	0.3	0	0.0	0	0.0	2244	100.0
Maitland	1295	87.7	174	11.8	8	0.5	0	0.0	0	0.0	0	0.0	1477	100.0
Wagga Wagga Base	676	89.8	67	8.9	7	0.9	3	0.4	0	0.0	0	0.0	753	100.0
<b>TOTAL</b>	<b>14424</b>	<b>88.7</b>	<b>1690</b>	<b>10.4</b>	<b>115</b>	<b>0.7</b>	<b>33</b>	<b>0.2</b>	<b>1</b>	<b>0.0</b>	<b>6</b>	<b>0.0</b>	<b>16269</b>	<b>100.0</b>

TABLE 50 (continued)

BABY DISCHARGE STATUS BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006<sup>#</sup>

Maternity service level – Hospital	Baby discharge status													
	Discharged		Transferred		Stillborn		Died		Transferred and died		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Level 4</b>														
Canterbury	1610	98.1	16	1.0	12	0.7	3	0.2	0	0.0	0	0.0	1641	100.0
Hornsby	1030	98.8	10	1.0	2	0.2	0	0.0	0	0.0	0	0.0	1042	100.0
Manly	787	98.3	10	1.2	3	0.4	1	0.1	0	0.0	0	0.0	801	100.0
Mona Vale	670	97.1	13	1.9	6	0.9	1	0.1	0	0.0	0	0.0	690	100.0
Sutherland	1029	99.1	4	0.4	5	0.5	0	0.0	0	0.0	0	0.0	1038	100.0
Auburn	1210	98.1	12	1.0	10	0.8	2	0.2	0	0.0	0	0.0	1234	100.0
Campbelltown	2465	98.6	8	0.3	14	0.6	2	0.1	0	0.0	12	0.5	2501	100.0
Bankstown-Lidcombe	1939	98.6	12	0.6	9	0.5	4	0.2	0	0.0	2	0.1	1966	100.0
Hawkesbury	835	97.2	18	2.1	4	0.5	2	0.2	0	0.0	0	0.0	859	100.0
Coffs Harbour	865	92.9	55	5.9	7	0.8	3	0.3	1	0.1	0	0.0	931	100.0
Port Macquarie Base	694	96.0	24	3.3	5	0.7	0	0.0	0	0.0	0	0.0	723	100.0
Tamworth Base	622	75.0	201	24.2	4	0.5	2	0.2	0	0.0	0	0.0	829	100.0
Manning Base	666	95.6	28	4.0	2	0.3	1	0.1	0	0.0	0	0.0	697	100.0
Orange Base	701	81.6	128	14.9	7	0.8	3	0.3	1	0.1	19	2.2	859	100.0
Goulburn Base	311	95.4	13	4.0	2	0.6	0	0.0	0	0.0	0	0.0	326	100.0
Griffith Base	408	96.5	9	2.1	3	0.7	3	0.7	0	0.0	0	0.0	423	100.0
Other hospitals	118	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	118	100.0
TOTAL	15960	95.7	561	3.4	95	0.6	27	0.2	2	0.0	33	0.2	16678	100.0
<b>Level 3</b>														
Blue Mountains	275	96.8	9	3.2	0	0.0	0	0.0	0	0.0	0	0.0	284	100.0
Fairfield	1798	98.1	16	0.9	15	0.8	2	0.1	0	0.0	2	0.1	1833	100.0
Grafton Base	421	96.8	7	1.6	5	1.1	2	0.5	0	0.0	0	0.0	435	100.0
Kempsey	319	97.3	6	1.8	1	0.3	2	0.6	0	0.0	0	0.0	328	100.0
Murwillumbah	361	97.6	7	1.9	2	0.5	0	0.0	0	0.0	0	0.0	370	100.0
Armidale	455	93.4	30	6.2	1	0.2	1	0.2	0	0.0	0	0.0	487	100.0
Inverell	264	96.0	11	4.0	0	0.0	0	0.0	0	0.0	0	0.0	275	100.0
Moree	194	93.7	12	5.8	0	0.0	0	0.0	1	0.5	0	0.0	207	100.0
Mudgee	251	97.7	5	1.9	1	0.4	0	0.0	0	0.0	0	0.0	257	100.0
Bathurst Base	468	78.9	124	20.9	1	0.2	0	0.0	0	0.0	0	0.0	593	100.0
Lithgow	206	96.7	5	2.3	2	0.9	0	0.0	0	0.0	0	0.0	213	100.0
Parkes	197	95.2	8	3.9	1	0.5	1	0.5	0	0.0	0	0.0	207	100.0
Moruya	377	95.0	17	4.3	2	0.5	1	0.3	0	0.0	0	0.0	397	100.0
Queanbeyan	253	96.9	7	2.7	1	0.4	0	0.0	0	0.0	0	0.0	261	100.0
Bowral	579	87.9	75	11.4	4	0.6	0	0.0	0	0.0	1	0.2	659	100.0
Shoalhaven	880	97.2	21	2.3	4	0.4	0	0.0	0	0.0	0	0.0	905	100.0
Muswellbrook	230	96.6	8	3.4	0	0.0	0	0.0	0	0.0	0	0.0	238	100.0
Broken Hill Base	230	97.5	5	2.1	1	0.4	0	0.0	0	0.0	0	0.0	236	100.0
Other hospitals	1789	95.2	84	4.5	0	0.0	0	0.0	1	0.1	5	0.3	1879	100.0
TOTAL	9547	94.9	457	4.5	41	0.4	9	0.1	2	0.0	8	0.1	10064	100.0
<b>Level 2</b>														
Wyong	243	93.5	15	5.8	2	0.8	0	0.0	0	0.0	0	0.0	260	100.0
Singleton	192	95.0	9	4.5	1	0.5	0	0.0	0	0.0	0	0.0	202	100.0
Other hospitals	833	92.5	64	7.1	3	0.3	0	0.0	0	0.0	1	0.1	901	100.0
TOTAL	1268	93.0	88	6.5	6	0.4	0	0.0	0	0.0	1	0.1	1363	100.0

**TABLE 50 (continued)****BABY DISCHARGE STATUS BY HOSPITAL AND MATERNITY SERVICE LEVEL, NSW 2006<sup>#</sup>**

Maternity service level – Hospital	Baby discharge status													
	Discharged		Transferred		Stillborn		Died		Transferred and died		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Private</b>														
Mater, North Sydney	2232	99.2	12	0.5	4	0.2	3	0.1	0	0.0	0	0.0	2251	100.0
North Shore Private	2625	99.1	8	0.3	6	0.2	9	0.3	0	0.0	0	0.0	2648	100.0
Sydney Adventist	2220	99.1	8	0.4	12	0.5	1	0.0	0	0.0	0	0.0	2241	100.0
North Gosford Private	873	99.3	4	0.5	2	0.2	0	0.0	0	0.0	0	0.0	879	100.0
Hurstville Community	848	98.9	6	0.7	3	0.4	0	0.0	0	0.0	0	0.0	857	100.0
Kareena Private	569	98.1	8	1.4	1	0.2	2	0.3	0	0.0	0	0.0	580	100.0
St. George Private	1795	98.8	11	0.6	8	0.4	1	0.1	1	0.1	0	0.0	1816	100.0
Prince of Wales Private	1711	98.8	14	0.8	2	0.1	0	0.0	0	0.0	4	0.2	1731	100.0
The Hills Private	1206	99.3	6	0.5	2	0.2	1	0.1	0	0.0	0	0.0	1215	100.0
Sydney Southwest Private	1175	99.0	8	0.7	3	0.3	0	0.0	0	0.0	1	0.1	1187	100.0
Nepean Private	887	99.6	4	0.4	0	0.0	0	0.0	0	0.0	0	0.0	891	100.0
Westmead Private	1933	98.6	15	0.8	6	0.3	3	0.2	0	0.0	4	0.2	1961	100.0
Figtree Private	1015	99.2	5	0.5	3	0.3	0	0.0	0	0.0	0	0.0	1023	100.0
Newcastle Private	1659	90.5	167	9.1	7	0.4	0	0.0	0	0.0	0	0.0	1833	100.0
Calvary, Wagga Wagga	581	97.6	12	2.0	2	0.3	0	0.0	0	0.0	0	0.0	595	100.0
Other private hospitals	254	98.4	3	1.2	1	0.4	0	0.0	0	0.0	0	0.0	258	100.0
<b>TOTAL</b>	<b>21583</b>	<b>98.3</b>	<b>291</b>	<b>1.3</b>	<b>62</b>	<b>0.3</b>	<b>20</b>	<b>0.1</b>	<b>1</b>	<b>0.0</b>	<b>9</b>	<b>0.0</b>	<b>21966</b>	<b>100.0</b>
<b>TOTAL NSW*</b>	<b>87556</b>	<b>94.4</b>	<b>4275</b>	<b>4.6</b>	<b>592</b>	<b>0.6</b>	<b>238</b>	<b>0.3</b>	<b>6</b>	<b>0.0</b>	<b>114</b>	<b>0.1</b>	<b>92781</b>	<b>100.0</b>

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. Obstetric service levels are described on page 13 of the Methods chapter.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives and 50 mothers who gave birth at level 1 hospitals.

## Postnatal length of stay

Table 51 shows the mother's postnatal length of stay in the hospital of birth for hospitals where at least 200 mothers gave birth in 2006.

**TABLE 51**

### AVERAGE MATERNAL POSTNATAL LENGTH OF STAY IN HOSPITAL OF BIRTH, NSW 2001-2005#

Health area – Hospital	Average postnatal length of stay (days)				
	2001 %	2002 %	2003 %	2004 %	2005 %
<b>Sydney South West</b>					
Canterbury	2.8	2.9	3.0	3.0	2.9
Royal Prince Alfred	3.7	3.8	3.7	3.8	3.7
Fairfield	2.6	2.6	2.6	2.6	2.6
Liverpool	2.7	2.6	2.7	2.8	2.9
Campbelltown	2.5	2.7	2.6	2.5	2.7
Bankstown-Lidcombe	2.8	2.8	2.8	2.7	2.7
Bowral	2.6	2.4	2.3	2.2	2.4
Other hospitals	–	–	2.7	2.8	2.8
TOTAL	2.9	2.9	3.0	3.0	3.0
<b>South Eastern Sydney and Illawarra</b>					
St. George	2.9	2.7	2.8	2.7	2.5
Sutherland	3.0	3.1	3.1	3.1	2.9
Royal Hospital for Women	3.6	3.6	3.5	3.5	3.4
Shoalhaven	2.5	2.4	2.4	2.6	2.6
Wollongong	2.6	2.7	2.7	2.5	2.2
Other hospitals	2.9	2.9	2.6	2.3	2.4
TOTAL	3.1	3.1	3.0	2.9	2.8
<b>Sydney West</b>					
Auburn	2.8	2.9	2.8	2.8	2.8
Blacktown	3.0	2.9	3.1	3.1	3.0
Blue Mountains	3.7	3.6	3.4	3.0	3.0
Nepean	3.3	3.0	3.2	3.2	3.1
Westmead	3.2	3.2	3.2	3.2	3.1
Hawkesbury	3.2	3.3	3.2	3.4	3.3
Other hospitals	3.7	3.0	3.5	3.4	3.0
TOTAL	3.1	3.1	3.2	3.2	3.0
<b>Northern Sydney and Central Coast</b>					
Gosford	2.4	2.5	2.5	2.4	2.1
Wyong	2.2	2.1	2.1	2.1	2.0
Hornsby	3.5	3.1	2.9	2.9	2.8
Manly	3.6	3.6	3.6	3.7	3.6
Mona Vale	3.5	3.5	3.3	3.2	3.0
Royal North Shore	3.7	3.6	3.5	3.3	3.4
Other hospitals	3.1	3.5	3.3	3.1	1.9
TOTAL	3.1	3.1	3.0	3.0	2.8
<b>Hunter and New England</b>					
Armidale	3.8	3.7	3.9	3.8	3.4
Inverell	3.0	3.0	3.0	3.3	3.4
Moree	3.3	3.5	3.5	3.4	3.3
Tamworth Base	3.5	3.3	3.4	3.4	3.2
Manning Base	3.1	3.0	3.1	3.2	3.1
Maitland	2.6	2.5	2.4	2.5	2.4
Muswellbrook	3.4	3.2	3.1	2.8	3.0
Belmont	3.2	3.1	3.1	2.9	2.2
John Hunter	3.4	3.2	3.2	3.2	3.3
Other hospitals	3.4	3.2	3.2	3.1	3.1
TOTAL	3.2	3.1	3.1	3.1	3.0

**TABLE 51 (continued)****AVERAGE MATERNAL POSTNATAL LENGTH OF STAY IN HOSPITAL OF BIRTH, NSW 2002–2006<sup>#</sup>**

Health area – Hospital	Average postnatal length of stay (days)				
	2001 %	2002 %	2003 %	2004 %	2005 %
<b>North Coast</b>					
Coffs Harbour	3.8	3.8	3.9	3.9	3.7
Grafton Base	3.5	3.6	3.6	3.6	3.5
Kempsey	3.2	3.0	3.1	3.1	2.9
Lismore Base	3.0	3.1	3.2	3.5	3.2
Murwillumbah	3.6	3.5	3.4	3.7	3.7
Tweed Heads	3.0	3.1	3.0	3.1	3.1
Port Macquarie Base	3.7	3.8	3.5	3.6	3.4
Other hospitals	2.8	2.6	2.5	2.5	2.6
TOTAL	3.3	3.4	3.3	3.4	3.3
<b>Greater Southern</b>					
Goulburn Base	3.4	3.5	3.4	3.5	3.4
Moruya	2.8	2.9	2.7	2.7	2.7
Queanbeyan	3.1	3.3	3.0	3.0	3.2
Griffith Base	3.1	3.1	3.2	3.2	3.1
Wagga Wagga Base	2.9	3.0	3.0	2.9	2.7
Other hospitals	3.8	3.6	3.7	3.6	3.4
TOTAL	3.4	3.4	3.4	3.3	3.1
<b>Greater Western</b>					
Dubbo Base	2.4	2.5	2.4	2.4	2.8
Mudgee	2.9	3.2	3.2	3.0	2.9
Bathurst Base	3.1	3.2	2.9	3.0	3.0
Orange Base	3.2	3.2	3.1	3.0	2.9
Broken Hill Base	3.6	3.4	3.3	3.6	3.5
Other hospitals	3.3	3.2	3.3	3.1	3.0
TOTAL	3.0	3.0	2.9	2.9	2.9
<b>Private Hospitals</b>					
Mater, North Sydney	4.8	4.5	4.4	4.5	4.4
North Shore Private	4.6	4.5	4.4	4.4	4.4
Sydney Adventist	4.7	4.6	4.6	4.6	4.6
North Gosford Private	4.9	4.7	4.7	4.6	4.8
Hurstville Community	4.4	4.5	4.5	4.5	4.5
Kareena Private	5.2	5.0	4.8	4.5	4.5
St. George Private	5.2	4.9	4.6	4.6	4.6
Prince of Wales Private	4.6	4.7	4.6	4.6	4.5
The Hills Private	5.0	4.8	4.7	4.6	4.6
Sydney Southwest Private	4.6	4.3	4.4	4.3	4.3
Nepean Private	4.5	4.6	4.6	4.6	4.6
Westmead Private	4.9	4.5	4.2	4.0	4.0
Figtree Private	5.4	5.5	5.3	5.2	5.2
Newcastle Private	5.6	5.5	5.9	4.3	4.3
Calvary, Wagga Wagga	4.7	4.6	4.8	4.7	4.8
Other private hospitals	5.0	5.0	4.8	4.9	4.9
TOTAL	4.8	4.7	4.6	4.5	4.5
<b>TOTAL NSW*</b>	3.5	3.5	3.4	3.4	3.4

Source: Linked data of the NSW Midwives Data Collection and the NSW Admitted Patient Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives.

## Clinical Indicators

Selected clinical indicators for obstetrics are reported in this section. The definitions of the clinical indicators follow those described in Version 6 of the Australian Council on Healthcare Standards Clinical Indicator User's Manual 2008.<sup>1</sup>

### Reference

1. Australian Council on Healthcare Standards. *Obstetrics Indicators—Clinical Indicator Users' Manual*, version 6. Sydney: ACHS, 2008.

## Outcome of selected primipara. Indicator 1.1

Definition: The number of selected primipara who have a spontaneous vaginal birth as a percentage of the total number of selected primipara who give birth.

A selected primipara is defined as a woman who is 20–34 years of age at the time of giving birth; giving birth for the first time at greater than 20 weeks gestation; singleton pregnancy; cephalic presentation; and at 37<sup>0</sup> to 41<sup>0</sup> weeks gestation.

Table 52 shows aggregate information for hospitals where at least 200 mothers gave birth in 2006, totals for hospitals within each health area, and the NSW total.

**TABLE 52**

### 1.1 SELECTED PRIMIPARA WHO HAVE A SPONTANEOUS VAGINAL BIRTH BY HOSPITAL, NSW 2002–2006<sup>#</sup>

Health area – hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>Sydney South West</b>					
Canterbury	62.2	64.3	60.9	60.8	59.9
Royal Prince Alfred	60.8	64.4	61.6	62.8	63.4
Fairfield	73.1	72.7	80.6	68.3	77.8
Liverpool	72.0	70.4	64.3	60.9	65.9
Campbelltown	68.8	66.3	64.4	71.7	67.2
Bankstown-Lidcombe	70.4	72.1	60.6	75.2	62.2
Bowral	50.9	47.9	53.3	46.1	49.4
Other hospitals	..	75.8	84.4	59.1	..
TOTAL	66.6	67.3	64.7	64.6	64.9
<b>South Eastern Sydney and Illawarra</b>					
St. George	62.4	60.8	56.7	58.3	53.4
Sutherland	62.3	69.0	61.3	59.3	62.4
Royal Hospital for Women	62.0	62.5	55.7	52.4	49.5
Shoalhaven	56.6	62.6	57.8	58.5	63.0
Wollongong	57.7	56.2	60.4	60.5	61.7
Other hospitals	67.4	64.6	50.0	71.4	61.3
TOTAL	61.4	61.6	57.6	56.6	55.1
<b>Sydney West</b>					
Auburn	74.8	74.2	72.2	73.1	73.4
Blacktown	56.0	57.4	55.7	57.3	58.9
Blue Mountains	60.6	64.8	72.6	52.6	56.8
Nepean	63.1	55.2	58.8	53.7	49.9
Westmead	64.5	59.3	59.0	59.9	57.0
Hawkesbury	56.9	55.1	56.7	54.0	51.6
Lithgow	52.3	52.6	57.1	49.1	40.5
TOTAL	62.5	58.8	59.4	58.3	56.8
<b>Northern Sydney and Central Coast</b>					
Gosford	48.1	52.9	45.3	46.9	44.4
Wyong	72.9	80.7	83.7	85.2	91.7
Hornsby	52.2	53.8	49.8	55.3	52.1
Manly	64.1	66.4	61.5	65.6	63.3
Mona Vale	54.7	55.7	51.8	50.5	57.8
Royal North Shore	61.9	55.6	60.8	58.8	57.7
Other hospitals	71.7	68.2	79.8	100.0	100.0
TOTAL	57.5	57.7	55.9	56.1	55.3

TABLE 52 (continued)

1.1 SELECTED PRIMIPARA WHO HAVE A SPONTANEOUS VAGINAL BIRTH BY HOSPITAL, NSW 2002–2006<sup>#</sup>

Health area – hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>Hunter and New England</b>					
Armidale	65.4	77.1	67.0	66.7	67.0
Inverell	67.5	42.9	50.0	42.6	34.0
Moree	64.5	65.7	68.6	65.4	64.7
Tamworth Base	66.9	60.8	66.4	64.7	44.2
Manning Base	61.7	64.6	57.1	58.5	57.0
Maitland	48.3	60.2	59.2	61.1	61.4
Muswellbrook	62.3	62.3	77.1	47.3	52.6
Singleton	72.5	78.3	61.4	74.2	81.4
John Hunter	64.5	64.2	67.6	62.4	61.1
Other hospitals	68.2	65.4	69.8	67.9	72.4
TOTAL	62.3	63.8	65.2	62.1	59.9
<b>North Coast</b>					
Coffs Harbour	61.0	63.4	64.0	62.3	62.1
Grafton Base	52.7	46.3	41.5	52.6	55.3
Kempsey	85.4	69.8	80.9	76.9	76.3
Lismore Base	59.6	56.2	64.6	55.9	61.8
Murwillumbah	64.0	51.6	47.3	39.8	61.6
Tweed Heads	63.4	68.0	68.3	64.9	66.1
Port Macquarie Base	52.8	47.6	58.1	57.6	62.7
Other hospitals	88.2	90.5	93.2	88.2	81.8
TOTAL	62.0	60.0	63.9	60.1	64.3
<b>Greater Southern</b>					
Goulburn Base	46.2	30.8	38.6	34.4	46.3
Moruya	46.7	47.8	57.6	65.8	60.2
Queanbeyan	63.6	66.7	65.6	74.6	67.1
Griffith Base	53.7	48.4	55.0	61.2	54.2
Wagga Wagga Base	55.9	57.1	55.6	57.5	58.9
Other hospitals	65.8	57.3	59.3	61.1	63.1
TOTAL	58.9	53.6	56.5	59.8	59.9
<b>Greater Western</b>					
Dubbo Base	65.0	63.0	61.8	62.5	62.1
Mudgee	64.7	69.1	65.9	58.6	69.4
Bathurst Base	45.5	56.9	60.4	58.3	59.0
Orange Base	54.7	59.9	52.5	46.1	44.2
Parkes	58.5	47.6	51.9	74.0	69.4
Broken Hill Base	63.3	69.7	65.1	64.7	52.7
Other hospitals	76.3	56.2	67.1	68.8	64.8
TOTAL	59.7	63.9	59.7	59.1	58.2
<b>Private Hospitals</b>					
Mater, North Sydney	35.3	35.5	35.6	37.5	33.4
North Shore Private	37.5	38.8	42.1	35.7	38.5
Sydney Adventist	49.5	47.3	49.6	45.4	44.8
North Gosford Private	39.2	40.8	47.6	34.5	29.6
Hurstville Community	32.9	37.0	38.3	36.3	34.7
Kareena Private	29.8	30.6	25.9	18.7	18.4
St. George Private	41.9	44.0	45.4	38.0	35.1
Prince of Wales Private	42.8	45.4	42.4	38.7	32.6
The Hills Private	54.0	55.8	55.6	42.9	44.3
Sydney Southwest Private	45.7	45.9	45.7	48.7	48.6
Nepean Private	47.0	43.6	44.5	39.1	37.2
Westmead Private	48.2	48.9	41.1	39.0	42.8
Figtree Private	49.7	43.0	45.2	44.4	41.3
Newcastle Private	0.0	0.0	40.6	40.3	38.1
Calvary, Wagga Wagga	34.3	36.7	34.8	43.2	40.1
Other private hospitals	45.8	42.9	41.1	40.4	49.2
TOTAL	42.9	43.1	43.0	39.3	38.3
<b>TOTAL NSW*</b>	57.0	56.7	56.1	54.5	53.9

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. TOTAL for NSW includes homebirths assisted by independent midwives.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives.

## Outcome of selected primipara. Indicator 1.2

Definition: The number of selected primipara who undergo induction of labour as a percentage of the total number of selected primipara who give birth.

A selected primipara is defined as a woman who is 20–34 years of age at the time of giving birth; giving birth for the first

time at greater than 20 weeks gestation; singleton pregnancy; cephalic presentation; and at 37<sup>0</sup> to 41<sup>0</sup> weeks gestation.

Table 53 shows aggregate information for hospitals where at least 200 mothers gave birth in 2006, totals for hospitals within each health area, and the NSW total.

**TABLE 53**

### 1.2 SELECTED PRIMIPARA WHO UNDERGO INDUCTION OF LABOUR BY HOSPITAL, NSW 2002–2006#

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>Sydney South West</b>					
Canterbury	31.2	29.3	30.5	23.4	24.5
Royal Prince Alfred	25.5	24.5	24.7	27.2	22.4
Fairfield	23.3	25.4	24.3	22.8	20.2
Liverpool	27.6	31.4	29.4	31.8	27.1
Campbelltown	29.8	33.5	39.4	26.9	31.9
Bankstown-Lidcombe	26.1	23.3	24.8	23.6	29.5
Bowral	23.9	27.5	26.9	31.6	31.2
Other hospitals	.	12.1	14.8	13.6	.
TOTAL	26.9	26.9	27.2	26.8	25.3
<b>South Eastern Sydney and Illawarra</b>					
St. George	22.1	21.3	21.0	22.2	24.0
Sutherland	30.5	26.6	31.7	30.0	33.1
Royal Hospital for Women	25.9	25.2	22.0	22.4	23.2
Shoalhaven	20.5	19.0	16.1	15.5	18.0
Wollongong	33.9	29.1	30.8	36.2	38.6
Other hospitals	21.7	29.2	12.5	33.3	29.0
TOTAL	26.2	24.8	24.0	25.5	27.1
<b>Sydney West</b>					
Auburn	19.3	21.8	25.6	23.1	23.3
Blacktown	31.3	26.3	28.2	28.3	34.6
Blue Mountains	30.3	23.9	25.8	35.5	27.0
Nepean	32.3	34.2	34.1	43.9	41.0
Westmead	20.2	21.3	25.3	29.4	35.4
Hawkesbury	31.2	20.5	32.3	38.4	40.6
Lithgow	29.5	18.4	35.7	36.4	21.4
TOTAL	26.6	25.7	28.6	32.9	35.4
<b>Northern Sydney and Central Coast</b>					
Gosford	29.3	32.3	29.8	32.7	31.4
Wyong	0.0	0.0	0.0	1.9	0.0
Hornsby	30.8	26.9	26.7	21.2	20.8
Manly	26.3	29.0	29.0	27.6	25.3
Mona Vale	31.2	25.5	22.5	30.0	24.1
Royal North Shore	30.5	26.9	25.2	27.2	31.9
Other hospitals	20.7	27.1	15.5	0.0	0.0
TOTAL	27.9	27.6	25.8	27.3	27.4
<b>Hunter and New England</b>					
Armidale	43.8	31.4	34.9	37.0	34.9
Inverell	27.5	23.8	29.2	33.3	24.5
Moree	33.9	45.7	35.3	25.0	39.2
Tamworth Base	40.4	37.3	39.6	40.6	35.5
Manning Base	28.7	34.0	31.4	28.0	21.9
Maitland	31.6	26.3	31.1	30.9	36.5
Muswellbrook	39.6	34.0	22.9	30.9	36.8

**TABLE 53 (continued)****1.2 SELECTED PRIMIPARA WHO UNDERGO INDUCTION OF LABOUR BY HOSPITAL, NSW 2002–2006#**

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
Singleton	27.5	8.7	20.5	29.0	23.3
John Hunter	27.3	25.7	22.7	29.8	28.9
Other hospitals	29.3	33.0	28.1	31.6	24.8
TOTAL	31.0	29.1	28.2	31.4	30.6
<b>North Coast</b>					
Coffs Harbour	26.3	30.7	26.4	24.6	24.6
Grafton Base	38.5	36.3	38.3	37.9	29.4
Kempsey	31.7	28.3	29.4	41.5	45.8
Lismore Base	28.8	27.9	26.7	24.9	25.7
Murwillumbah	31.0	28.0	17.6	37.3	30.2
Tweed Heads	25.1	26.8	27.2	28.5	31.2
Port Macquarie Base	35.4	31.1	29.8	27.7	36.1
Other hospitals	2.9	4.8	13.5	8.8	6.1
TOTAL	28.1	28.0	26.8	28.2	28.7
<b>Greater Southern</b>					
Goulburn Base	15.4	9.0	5.7	15.6	13.4
Moruya	23.3	15.2	18.2	27.4	26.1
Queanbeyan	21.2	24.1	21.3	28.4	24.1
Griffith Base	30.9	29.8	21.1	25.5	15.7
Wagga Wagga Base	27.4	28.2	32.1	26.8	34.6
Other hospitals	30.0	32.5	33.1	28.5	27.5
TOTAL	27.2	27.6	26.8	26.6	26.3
<b>Greater Western</b>					
Dubbo Base	36.8	35.5	37.5	46.6	30.1
Mudgee	27.5	27.3	12.2	27.6	32.3
Bathurst Base	22.1	21.9	24.2	25.2	29.1
Orange Base	29.6	31.2	34.3	38.9	34.0
Parkes	19.5	19.0	24.1	16.0	30.6
Broken Hill Base	30.6	10.6	9.5	23.5	32.7
Other hospitals	39.5	30.1	31.6	38.8	38.5
TOTAL	30.9	28.6	29.7	35.8	32.1
<b>Private Hospitals</b>					
Mater, North Sydney	32.9	32.3	28.7	28.3	29.8
North Shore Private	31.7	28.9	24.1	26.2	29.0
Sydney Adventist	34.8	34.3	33.7	37.9	34.6
North Gosford Private	32.5	32.1	33.9	47.5	41.2
Hurstville Community	36.4	39.3	36.4	42.7	39.5
Kareena Private	42.2	41.0	41.5	44.9	42.7
St. George Private	29.7	33.6	35.0	35.7	37.5
Prince of Wales Private	27.7	25.5	29.0	30.8	29.8
The Hills Private	42.3	44.7	39.3	49.7	42.6
Sydney Southwest Private	46.7	50.0	44.1	40.4	33.9
Nepean Private	40.9	40.0	44.5	39.5	38.5
Westmead Private	32.3	32.8	34.3	36.9	36.4
Figtree Private	41.3	47.0	48.5	42.0	46.9
Newcastle Private	0.0	0.0	38.6	34.7	37.5
Calvary, Wagga Wagga	44.6	34.2	42.6	28.4	37.5
Other private hospitals	35.9	36.1	29.3	31.3	25.4
TOTAL	35.5	35.7	34.8	36.1	35.5
<b>TOTAL NSW*</b>	29.8	29.2	29.0	30.7	30.7

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health.

# Hospitals with more than 200 deliveries are identified individually. TOTAL for NSW includes homebirths assisted by independent midwives.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives.

## Outcome of selected primipara. Indicator 1.3

Definition: The number of selected primipara who undergo an instrumental vaginal birth as a percentage of the total number of selected primipara who give birth.

A selected primipara is defined as a woman who is 20–34 years of age at the time of giving birth; giving birth for the first

time at greater than 20 weeks gestation; singleton pregnancy; cephalic presentation; and at 37<sup>0</sup> to 41<sup>0</sup> weeks gestation.

Table 54 shows aggregate information for hospitals where at least 200 mothers gave birth in 2006, totals for hospitals within each health area, and the NSW total.

**TABLE 54**

### 1.3 SELECTED PRIMIPARA WHO UNDERGO INSTRUMENTAL VAGINAL BIRTH BY HOSPITAL, NSW 2002–2006#

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>Sydney South West</b>					
Canterbury	25.4	17.3	23.3	20.6	19.1
Royal Prince Alfred	20.5	17.4	19.0	17.4	16.2
Fairfield	19.2	15.1	12.5	16.0	10.4
Liverpool	16.8	15.2	17.0	20.7	19.1
Campbelltown	14.1	15.2	13.2	8.1	11.1
Bankstown-Lidcombe	18.9	17.3	24.0	14.0	20.3
Bowral	34.6	37.1	32.9	40.4	31.8
Other hospitals	–	9.7	7.4	13.6	–
TOTAL	19.5	16.9	18.6	17.6	16.7
<b>South Eastern Sydney and Illawarra</b>					
St. George	22.1	18.9	23.1	22.8	25.5
Sutherland	13.2	14.1	17.4	22.7	21.6
Royal Hospital for Women	20.3	17.6	21.4	25.6	23.9
Shoalhaven	19.9	11.5	17.0	15.5	12.0
Wollongong	22.2	23.7	19.2	19.6	22.0
Other hospitals	15.5	16.7	25.0	9.5	22.6
TOTAL	20.3	18.3	20.7	22.7	22.9
<b>Sydney West</b>					
Auburn	8.4	11.6	13.9	11.6	12.1
Blacktown	23.4	20.7	19.7	21.8	19.9
Blue Mountains	9.1	22.5	9.7	21.1	20.3
Nepean	15.9	21.0	15.3	17.1	20.5
Westmead	18.3	18.9	20.0	14.6	17.2
Hawkesbury	22.9	19.7	14.7	15.2	13.9
Lithgow	6.8	28.9	16.7	14.5	23.8
TOTAL	17.9	19.5	17.8	16.6	18.0
<b>Northern Sydney and Central Coast</b>					
Gosford	25.0	21.5	21.4	22.7	22.5
Wyong	20.3	12.0	10.2	11.1	5.0
Hornsby	24.3	25.8	26.3	22.3	22.5
Manly	17.8	10.3	20.8	16.7	18.1
Mona Vale	30.0	26.6	28.8	23.5	24.6
Royal North Shore	21.0	19.9	16.5	20.1	20.6
Other hospitals	11.0	16.3	9.5	0.0	0.0
TOTAL	22.1	20.0	20.1	20.6	20.8
<b>Hunter and New England</b>					
Armidale	14.6	13.6	11.9	21.0	13.8
Inverell	12.5	9.5	29.2	22.2	20.8
Moree	14.5	14.3	15.7	15.4	17.6
Tamworth Base	19.9	19.6	14.8	15.0	26.9
Manning Base	15.7	18.4	21.4	18.9	21.9
Maitland	21.7	15.3	15.7	14.4	9.9
Muswellbrook	9.4	22.6	4.2	29.1	24.6

**TABLE 54 (continued)****1.3 SELECTED PRIMIPARA WHO UNDERGO INSTRUMENTAL VAGINAL BIRTH BY HOSPITAL, NSW 2002–2006#**

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
Singleton	23.5	21.7	31.8	16.1	14.0
John Hunter	18.5	20.1	16.0	21.9	23.9
Other hospitals	15.0	16.5	15.6	12.8	9.0
TOTAL	17.9	17.8	16.3	18.6	19.5
<b>North Coast</b>					
Coffs Harbour	16.1	17.3	15.2	16.2	14.7
Grafton Base	22.0	21.3	21.3	19.0	18.8
Kempsey	2.4	7.5	10.3	1.5	8.5
Lismore Base	11.9	10.2	10.4	13.2	9.5
Murwillumbah	14.0	17.2	15.4	16.1	11.6
Tweed Heads	14.1	14.7	11.7	15.7	13.2
Port Macquarie Base	30.6	23.2	21.5	22.8	16.0
Other hospitals	11.8	9.5	6.8	11.8	15.2
TOTAL	16.0	15.3	14.0	15.7	13.1
<b>Greater Southern</b>					
Goulburn Base	24.4	38.5	41.4	39.1	26.9
Moruya	13.3	21.7	16.7	20.5	19.3
Queanbeyan	19.7	22.2	24.6	11.9	13.9
Griffith Base	22.0	21.0	22.9	22.4	16.9
Wagga Wagga Base	23.7	23.2	17.9	19.0	20.5
Other hospitals	18.6	24.2	18.0	17.9	16.4
TOTAL	20.7	24.6	21.1	20.1	18.4
<b>Greater Western</b>					
Dubbo Base	18.0	17.0	13.5	15.4	13.8
Mudgee	13.7	7.3	22.0	19.0	12.9
Bathurst Base	17.9	15.3	20.1	17.3	13.4
Orange Base	21.7	17.8	22.7	24.4	25.9
Parkes	14.6	7.1	13.0	0.0	2.8
Broken Hill Base	6.1	6.1	9.5	9.8	16.4
Other hospitals	10.5	15.1	17.1	6.3	15.4
TOTAL	17.1	14.8	17.2	15.9	16.3
<b>Private Hospitals</b>					
Mater, North Sydney	31.9	26.8	30.1	27.0	28.8
North Shore Private	25.5	25.4	22.3	25.4	24.9
Sydney Adventist	25.3	27.4	23.7	25.6	24.1
North Gosford Private	25.1	28.2	23.0	36.5	27.0
Hurstville Community	34.0	35.1	29.2	33.9	29.8
Kareena Private	32.6	33.3	31.7	41.9	38.4
St. George Private	28.6	26.1	26.0	27.5	29.1
Prince of Wales Private	28.3	28.0	30.1	29.4	25.6
The Hills Private	29.0	24.2	26.1	36.8	32.8
Sydney Southwest Private	35.8	34.0	33.6	26.6	24.3
Nepean Private	21.0	21.1	26.4	24.9	25.1
Westmead Private	30.6	27.3	30.4	30.0	27.7
Figtree Private	28.5	30.3	31.3	34.0	35.0
Newcastle Private	0.0	0.0	32.7	29.1	31.9
Calvary, Wagga Wagga	44.0	36.1	34.2	28.4	27.0
Other hospitals	29.2	27.7	32.1	37.4	22.2
TOTAL	29.2	28.0	28.2	29.5	28.1
<b>TOTAL NSW*</b>	21.9	20.9	21.0	21.5	21.1

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health

# Hospitals with more than 200 deliveries are identified individually. TOTAL for NSW includes homebirths assisted by independent midwives.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives.

## Outcome of selected primipara. Indicator 1.4

Definition: The number of selected primipara undergoing caesarean section birth as a percentage of the total number of selected primipara who give birth.

A selected primipara is defined as a woman who is 20–34 years of age at the time of giving birth; giving birth for the first

time at greater than 20 weeks gestation; singleton pregnancy; cephalic presentation; and at 37<sup>0</sup> to 41<sup>0</sup> weeks gestation.

Table 55 shows aggregate information for hospitals where at least 200 mothers gave birth in 2006, totals for hospitals within each health area, and the NSW total.

**TABLE 55**

### 1.4 SELECTED PRIMIPARA WHO UNDERGO CAESAREAN SECTION BY HOSPITAL, NSW 2002–2006<sup>#</sup>

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>Sydney South West</b>					
Canterbury	12.4	18.4	15.7	18.6	21.0
Royal Prince Alfred	18.7	18.1	19.3	19.9	20.4
Fairfield	7.6	12.1	6.9	15.7	11.8
Liverpool	11.2	14.5	18.6	18.4	15.0
Campbelltown	17.1	18.5	22.4	20.2	21.5
Bankstown-Lidcombe	10.7	10.6	15.4	10.8	17.5
Bowral	14.5	15.0	13.8	13.5	18.8
Other hospitals	–	14.5	8.1	27.3	–
TOTAL	13.9	15.8	16.8	17.8	18.4
<b>South Eastern Sydney and Illawarra</b>					
St. George	15.5	20.3	20.1	18.9	21.1
Sutherland	24.5	16.9	21.3	18.0	16.0
Royal Hospital for Women	17.7	19.9	22.9	22.1	26.6
Shoalhaven	23.5	25.9	25.2	26.1	25.0
Wollongong	20.1	20.1	20.4	19.9	16.2
Other hospitals	17.1	18.8	25.0	19.0	16.1
TOTAL	18.4	20.1	21.8	20.7	21.9
<b>Sydney West</b>					
Auburn	16.8	14.2	13.9	15.3	14.4
Blacktown	20.7	21.9	24.6	21.0	21.2
Blue Mountains	30.3	12.7	17.7	26.3	23.0
Nepean	21.0	23.8	25.9	29.2	29.6
Westmead	17.3	21.8	21.0	25.5	25.8
Hawkesbury	20.2	25.2	28.6	30.8	34.4
Lithgow	40.9	18.4	26.2	36.4	35.7
TOTAL	19.6	21.7	22.8	25.1	25.2
<b>Northern Sydney and Central Coast</b>					
Gosford	26.9	25.6	33.3	30.3	33.1
Wyong	6.8	7.2	6.1	3.7	3.3
Hornsby	23.5	20.4	23.9	22.3	25.4
Manly	18.1	23.3	17.6	17.6	18.5
Mona Vale	15.3	17.7	19.4	26.0	17.6
Royal North Shore	17.1	24.6	22.7	21.1	21.7
Other hospitals	17.2	15.5	10.7	0.0	0.0
TOTAL	20.4	22.3	24.0	23.3	23.9
<b>Hunter and New England</b>					
Armidale	20.0	9.3	21.1	12.3	19.3
Inverell	20.0	47.6	20.8	35.2	45.3
Moree	21.0	20.0	15.7	19.2	17.6
Tamworth Base	13.2	19.6	18.8	20.3	27.4
Manning Base	22.6	17.0	21.4	22.6	21.2
Maitland	30.0	24.5	25.1	24.5	28.7
Muswellbrook	28.3	15.1	18.8	23.6	22.8

**TABLE 55 (continued)****1.4 SELECTED PRIMIPARA WHO UNDERGO CAESAREAN SECTION BY HOSPITAL, NSW 2002–2006<sup>#</sup>**

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
Singleton	3.9	0.0	6.8	9.7	4.7
John Hunter	17.0	15.8	16.4	15.7	15.0
Other hospitals	16.9	18.1	14.6	19.3	18.6
TOTAL	19.8	18.4	18.5	19.3	20.4
<b>North Coast</b>					
Coffs Harbour	22.9	19.3	20.8	21.5	22.4
Grafton Base	25.3	32.5	37.2	28.4	25.9
Kempsey	12.2	22.6	8.8	21.5	15.3
Lismore Base	28.5	33.6	25.0	31.0	28.6
Murwillumbah	22.0	31.2	37.4	44.1	26.7
Tweed Heads	22.5	17.3	20.0	19.3	20.4
Port Macquarie Base	16.7	29.3	20.4	19.6	21.3
Other hospitals	0.0	0.0	0.0	0.0	0.0
TOTAL	22.0	24.7	22.1	24.2	22.2
<b>Greater Southern</b>					
Goulburn Base	29.5	30.8	20.0	26.6	25.4
Moruya	40.0	30.4	25.8	13.7	20.5
Queanbeyan	16.7	11.1	9.8	13.4	17.7
Griffith Base	24.4	30.6	22.0	16.3	28.9
Wagga Wagga Base	20.4	19.8	26.5	23.5	20.5
Other hospitals	15.6	18.5	22.7	21.0	20.5
TOTAL	20.3	21.9	22.4	20.1	21.5
<b>Greater Western</b>					
Dubbo Base	16.9	19.9	24.7	22.1	20.6
Mudgee	21.6	23.6	12.2	22.4	17.7
Bathurst Base	36.6	27.7	19.5	24.5	27.6
Orange Base	23.6	22.3	24.7	29.5	28.9
Parkes	26.8	45.2	35.2	26.0	27.8
Broken Hill Base	30.6	24.2	25.4	25.5	30.9
Other hospitals	13.2	28.8	15.8	25.0	17.6
TOTAL	23.2	24.3	23.1	25.0	24.0
<b>Private Hospitals</b>					
Mater, North Sydney	32.7	37.6	34.3	35.6	36.9
North Shore Private	37.0	35.8	35.6	38.8	36.6
Sydney Adventist	25.3	25.3	26.7	28.9	31.1
North Gosford Private	35.7	30.9	29.4	29.0	42.5
Hurstville Community	33.2	27.9	32.5	29.8	35.5
Kareena Private	37.6	36.0	42.4	39.4	43.2
St. George Private	29.5	29.8	28.6	34.6	35.1
Prince of Wales Private	28.9	26.3	27.5	31.9	35.2
The Hills Private	17.0	20.0	18.3	20.3	22.6
Sydney Southwest Private	18.5	20.1	20.7	24.6	26.6
Nepean Private	32.0	35.4	29.1	35.9	37.7
Westmead Private	20.8	23.8	28.5	30.9	29.5
Figtree Private	21.8	26.7	23.5	21.6	23.8
Newcastle Private	100.0	100.0	26.8	30.6	30.0
Calvary, Wagga Wagga	21.7	27.2	30.3	28.4	32.9
Other hospitals	25.0	29.4	26.8	22.2	28.6
TOTAL	27.8	28.8	28.8	31.2	32.9
<b>TOTAL NSW*</b>	21.1	22.3	22.9	24.0	24.7

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. TOTAL for NSW includes homebirths assisted by independent midwives.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives.

## Vaginal birth following caesarean section. Indicator 2.1

Definition: Total number of women delivering vaginally following a previous primary caesarean section as a percentage of the total number of women delivering who have had a previous primary caesarean section and no

intervening pregnancies greater than 20 weeks gestation. Table 56 shows aggregate information for hospitals where at least 200 mothers gave birth in 2006, totals for hospitals within each health area, and the NSW total.

**TABLE 56**

### 2.1 VAGINAL BIRTH AFTER PREVIOUS PRIMARY CAESAREAN SECTION BY HOSPITAL, NSW 2002–2006<sup>#</sup>

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>Sydney South West</b>					
Canterbury	24.8	22.1	27.5	19.9	18.2
Royal Prince Alfred	23.5	22.5	22.5	18.6	23.1
Fairfield	34.1	18.6	20.2	2.4	0.0
Liverpool	20.8	13.4	15.5	20.3	14.5
Campbelltown	16.7	24.7	18.1	17.9	13.8
Bankstown-Lidcombe	25.6	20.5	18.9	20.0	9.8
Bowral	25.0	10.4	24.5	9.6	41.0
Other hospitals	–	50.0	–	–	–
TOTAL	23.1	20.1	20.6	17.4	13.7
<b>South Eastern Sydney and Illawarra</b>					
St. George	19.7	22.2	15.2	14.8	17.2
Sutherland	14.3	15.7	16.2	15.4	4.5
Royal Hospital for Women	13.1	13.3	10.6	8.9	7.0
Shoalhaven	19.1	23.4	15.2	8.7	3.4
Wollongong	25.2	21.6	31.0	14.9	24.3
Other hospitals	23.1	27.3	100.0	0.0	16.7
TOTAL	17.5	17.9	16.3	11.9	12.3
<b>Sydney West</b>					
Auburn	26.5	30.0	6.8	0.0	4.0
Blacktown	23.2	21.8	18.0	22.9	18.2
Blue Mountains	12.5	33.3	33.3	20.0	0.0
Nepean	18.6	16.9	16.6	14.0	19.8
Westmead	28.2	20.9	17.5	19.1	19.5
Hawkesbury	26.3	14.8	14.5	16.9	11.4
Lithgow	7.1	17.6	25.0	25.0	27.8
TOTAL	23.9	20.6	17.0	17.5	18.1
<b>Northern Sydney and Central Coast</b>					
Gosford	22.7	16.9	10.5	13.9	7.7
Wyong	–	–	–	–	100.0
Hornsby	6.2	12.7	11.0	9.0	8.0
Manly	4.4	7.0	12.1	10.6	17.5
Mona Vale	11.5	12.9	11.4	13.0	14.5
Royal North Shore	7.5	11.2	16.1	10.6	13.0
Other hospitals	23.3	5.3	5.3	–	–
TOTAL	13.6	12.5	12.3	11.8	11.2
<b>Hunter and New England</b>					
Armidale	46.4	33.3	25.6	14.7	7.9
Inverell	8.3	9.5	11.1	7.1	25.0
Moree	33.3	34.6	13.6	23.8	30.8
Tamworth Base	24.3	8.3	14.8	16.5	17.7
Manning Base	40.8	35.7	21.7	14.9	21.9
Maitland	11.0	16.4	10.9	15.0	17.0
Muswellbrook	27.8	25.0	46.2	13.8	22.2
Singleton	0.0	0.0	12.5	0.0	7.7

**TABLE 56 (continued)****2.1 VAGINAL BIRTH AFTER PREVIOUS PRIMARY CAESAREAN SECTION BY HOSPITAL, NSW 2002–2006<sup>#</sup>**

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
John Hunter	28.0	25.9	21.9	16.7	22.7
Other hospitals	10.8	12.0	14.4	15.5	10.5
TOTAL	22.9	21.5	18.3	15.5	19.6
<b>North Coast</b>					
Coffs Harbour	13.5	9.5	13.1	10.7	21.5
Grafton Base	17.5	9.1	16.7	6.3	10.6
Kempsey	55.0	40.7	15.4	16.7	61.5
Lismore Base	28.4	17.6	24.8	12.0	22.5
Murwillumbah	22.4	11.5	9.3	17.6	11.1
Tweed Heads	26.3	16.0	21.1	16.2	18.0
Port Macquarie Base	14.5	14.3	21.5	13.7	21.7
Other hospitals	100.0	0.0	50.0	100.0	100.0
TOTAL	22.9	15.4	19.0	13.4	20.5
<b>Greater Southern</b>					
Goulburn Base	36.7	13.0	28.9	19.4	21.2
Moruya	20.0	0.0	16.7	11.4	17.1
Queanbeyan	30.0	21.7	52.4	15.8	25.0
Griffith Base	9.8	24.3	25.6	9.8	23.8
Wagga Wagga Base	16.0	17.5	17.8	15.5	11.1
Other hospitals	20.8	11.8	19.1	18.0	19.1
TOTAL	20.2	14.9	23.4	15.8	18.5
<b>Greater Western</b>					
Dubbo Base	29.5	34.4	31.1	21.3	17.6
Mudgee	10.0	9.5	11.8	0.0	8.3
Bathurst Base	7.7	14.8	17.8	12.2	20.0
Orange Base	18.5	20.8	16.3	12.3	9.8
Parkes	21.7	9.1	33.3	13.3	10.7
Broken Hill Base	22.2	26.3	32.0	16.0	12.5
Other hospitals	25.0	7.5	28.6	32.1	25.8
TOTAL	19.7	20.4	23.7	16.1	15.4
<b>Private Hospitals</b>					
Mater, North Sydney	5.8	6.4	5.5	7.3	4.2
North Shore Private	6.6	6.8	5.4	4.2	6.2
Sydney Adventist	7.0	3.6	7.1	3.2	5.6
North Gosford Private	6.2	3.8	8.0	3.6	3.8
Hurstville Community	7.1	6.7	6.1	3.6	2.8
Kareena Private	4.1	2.8	3.0	1.6	5.1
St. George Private	11.6	6.8	4.4	6.8	2.1
Prince of Wales Private	7.9	4.6	3.5	5.5	4.4
The Hills Private	14.6	11.2	11.4	10.8	10.0
Sydney Southwest Private	11.6	12.6	9.8	4.3	7.8
Nepean Private	16.7	8.4	11.5	6.1	11.5
Westmead Private	22.5	17.9	16.6	9.6	11.1
Figtree Private	12.8	7.5	11.6	16.0	11.5
Newcastle Private	0.0	0.0	7.6	12.4	9.3
Calvary, Wagga Wagga	18.2	15.6	19.7	17.2	13.4
Other hospitals	9.7	12.2	10.1	6.3	7.1
TOTAL	9.6	7.8	8.0	6.9	6.7
<b>TOTAL NSW*</b>	17.2	14.8	14.6	12.4	12.7

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. TOTAL for NSW includes homebirths assisted by independent midwives.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives.

## Major perineal tears and surgical repair of the perineum. Indicator 3.1

Definition: Total number of selected primipara with an intact perineum as a percentage of the total number of selected primipara delivering vaginally.

A selected primipara is defined as a woman who is 20–34 years of age at the time of giving birth; giving birth for the first

time at greater than 20 weeks gestation; singleton pregnancy; cephalic presentation; and at 37<sup>0</sup> to 41<sup>0</sup> weeks gestation.

Table 57 shows aggregate information for hospitals where at least 200 mothers gave birth in 2006, totals for hospitals within each health area, and the NSW total.

**TABLE 57**

### 3.1 SELECTED PRIMIPARA DELIVERING VAGINALLY WITH AN INTACT PERINEUM BY HOSPITAL, NSW 2002–2006<sup>#</sup>

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>Sydney South West</b>					
Canterbury	15.7	22.0	19.7	24.9	28.1
Royal Prince Alfred	22.6	21.7	23.7	30.6	28.4
Fairfield	17.5	25.0	18.1	25.1	24.8
Liverpool	20.0	18.5	23.3	24.3	19.1
Campbelltown	27.1	26.1	29.8	27.5	30.2
Bankstown-Lidcombe	17.0	14.4	20.1	17.0	29.5
Bowral	30.8	28.1	27.5	22.3	29.2
Other hospitals	–	30.9	25.9	31.8	–
TOTAL	21.1	21.8	23.0	26.1	26.8
<b>South Eastern Sydney and Illawarra</b>					
St. George	24.0	29.3	27.0	26.5	27.0
Sutherland	32.7	29.0	29.6	26.9	24.0
Royal Hospital for Women	25.7	25.8	29.0	28.0	30.9
Shoalhaven	29.5	35.6	30.7	30.0	32.0
Wollongong	25.2	24.6	23.0	24.4	22.0
Other hospitals	26.4	28.1	62.5	28.6	32.3
TOTAL	25.9	27.4	27.7	27.0	27.6
<b>Sydney West</b>					
Auburn	26.6	24.4	28.6	27.6	24.3
Blacktown	28.9	27.6	29.2	23.6	24.1
Blue Mountains	42.4	26.8	33.9	32.9	32.4
Nepean	31.7	30.0	32.8	32.5	33.8
Westmead	22.9	25.8	24.4	29.4	29.5
Hawkesbury	35.2	41.0	40.1	40.6	39.3
Lithgow	52.3	31.6	35.7	41.8	38.1
TOTAL	28.3	28.3	29.1	29.7	29.5
<b>Northern Sydney and Central Coast</b>					
Gosford	38.5	38.0	43.8	39.9	40.0
Wyong	30.5	31.3	28.6	33.3	15.0
Hornsby	27.5	22.9	27.4	24.9	27.9
Manly	23.3	29.4	21.3	28.1	24.2
Mona Vale	28.2	27.6	28.8	31.0	24.1
Royal North Shore	18.8	26.9	26.2	24.5	27.5
Other hospitals	23.4	19.4	13.1	10.5	20.0
TOTAL	27.8	29.8	30.3	30.0	29.9
<b>Hunter and New England</b>					
Armidale	30.8	21.2	31.2	23.5	32.1
Inverell	25.0	47.6	22.9	42.6	50.9
Moree	45.2	37.1	35.3	36.5	27.5
Tamworth Base	26.5	25.5	25.5	25.1	37.1
Manning Base	34.8	38.1	32.9	39.0	35.1
Maitland	37.9	36.5	35.5	34.9	34.2
Muswellbrook	54.7	24.5	39.6	29.1	29.8

**TABLE 57 (continued)****3.1 SELECTED PRIMIPARA DELIVERING VAGINALLY WITH AN INTACT PERINEUM BY HOSPITAL, NSW 2002–2006<sup>#</sup>**

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
Singleton	27.5	30.4	22.7	32.3	27.9
John Hunter	24.4	22.1	19.6	21.6	18.4
Other hospitals	29.9	34.0	29.9	34.2	26.9
TOTAL	30.4	29.0	27.2	28.4	27.3
<b>North Coast</b>					
Coffs Harbour	40.5	36.6	31.5	40.4	39.2
Grafton Base	39.6	46.3	46.8	41.4	42.4
Kempsey	46.3	50.9	36.8	46.2	32.2
Lismore Base	42.6	42.0	30.6	37.0	36.2
Murwillumbah	36.0	38.7	48.4	51.7	38.4
Tweed Heads	42.4	32.0	31.7	36.7	39.2
Port Macquarie Base	26.4	42.7	37.7	35.5	41.4
Other hospitals	19.1	22.2	20.3	13.2	12.1
TOTAL	38.1	38.6	34.2	38.2	37.3
<b>Greater Southern</b>					
Goulburn Base	43.6	32.1	25.7	28.1	32.8
Moruya	66.7	45.7	43.9	31.5	39.8
Queanbeyan	33.3	31.5	24.6	43.3	35.4
Griffith Base	43.1	41.1	34.9	30.6	39.8
Wagga Wagga Base	34.4	33.9	34.0	31.8	31.9
Other hospitals	37.2	36.1	45.1	37.9	41.9
TOTAL	38.8	36.2	38.2	34.8	37.8
<b>Greater Western</b>					
Dubbo Base	24.8	28.3	30.0	30.0	30.5
Mudgee	29.4	40.0	17.1	29.3	29.0
Bathurst Base	45.5	41.6	28.2	37.4	44.0
Orange Base	34.0	34.7	35.9	42.0	41.1
Parkes	43.9	52.4	50.0	52.0	36.1
Broken Hill Base	61.2	43.9	42.9	47.1	47.3
Other hospitals	34.2	45.2	38.2	38.8	31.9
TOTAL	34.9	36.5	33.4	37.3	36.4
<b>Private Hospitals</b>					
Mater, North Sydney	35.8	40.6	38.6	40.0	43.3
North Shore Private	40.5	39.7	40.6	42.8	40.0
Sydney Adventist	30.4	30.8	32.9	34.0	36.3
North Gosford Private	43.1	35.5	33.9	36.1	50.6
Hurstville Community	37.5	32.6	36.4	31.5	37.9
Kareena Private	47.3	44.1	48.3	44.9	49.2
St. George Private	37.4	37.3	35.7	40.1	39.5
Prince of Wales Private	33.9	31.1	31.2	36.9	43.6
The Hills Private	30.3	29.8	26.6	30.8	34.2
Sydney Southwest Private	25.3	29.2	28.6	31.5	37.3
Nepean Private	37.0	40.0	32.7	38.1	44.9
Westmead Private	28.6	30.9	35.3	35.9	36.7
Figtree Private	29.2	30.9	29.8	31.5	28.4
Newcastle Private	100.0	100.0	39.0	40.5	38.7
Calvary, Wagga Wagga	31.4	34.2	36.1	36.8	41.4
Other hospitals	36.1	37.8	39.3	30.3	34.9
TOTAL	34.5	34.8	35.1	37.1	39.5
<b>TOTAL NSW*</b>	29.7	30.0	30.1	31.4	32.1

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. TOTAL for NSW includes homebirths assisted by independent midwives.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives.

## Major perineal tears and surgical repair of the perineum. Indicator 3.2

Definition: Total number of selected primipara undergoing episiotomy and no perineal tear while giving birth vaginally as a percentage of the total number of selected primipara delivering vaginally.

A selected primipara is defined as a woman who is 20–34 years of age at the time of giving birth; giving birth for the

first time at greater than 20 weeks gestation; singleton pregnancy; cephalic presentation; and at 37<sup>0</sup> to 41<sup>0</sup> weeks gestation.

Table 58 shows aggregate information for hospitals where at least 200 mothers gave birth in 2006, totals for hospitals within each health area, and the NSW total.

**TABLE 58**

### 3.2 SELECTED PRIMIPARA UNDERGOING EPISIOTOMY AND NO PERINEAL TEAR BY HOSPITAL, NSW 2002–2006<sup>#</sup>

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>Sydney South West</b>					
Canterbury	20.1	11.5	13.5	9.1	12.7
Royal Prince Alfred	10.6	9.5	9.6	9.1	10.2
Fairfield	30.8	29.7	27.1	22.6	20.4
Liverpool	26.0	30.7	29.0	25.9	27.0
Campbelltown	23.5	25.3	19.3	9.9	12.8
Bankstown-Lidcombe	19.5	21.1	24.4	18.9	24.0
Bowral	6.9	9.0	6.0	8.8	13.6
Other hospitals	–	10.3	9.6	4.5	–
TOTAL	19.9	19.2	18.1	14.4	16.2
<b>South Eastern Sydney and Illawarra</b>					
St. George	11.4	8.1	10.6	8.9	11.5
Sutherland	13.6	13.3	11.6	8.1	9.9
Royal Hospital for Women	19.0	17.6	14.6	18.0	17.8
Shoalhaven	16.3	10.9	16.5	14.0	13.0
Wollongong	19.3	22.8	14.2	16.2	13.0
Other hospitals	14.7	19.8	25.0	14.3	22.6
TOTAL	16.6	15.5	13.4	14.1	14.2
<b>Sydney West</b>					
Auburn	20.1	18.5	17.3	16.0	18.7
Blacktown	28.5	28.7	22.0	25.3	22.7
Blue Mountains	9.1	8.5	8.1	11.8	10.8
Nepean	10.8	17.0	13.7	18.1	16.6
Westmead	24.5	24.5	29.4	22.6	23.4
Hawkesbury	12.3	13.2	9.7	12.5	12.3
Lithgow	25.0	42.1	26.2	7.3	14.3
TOTAL	20.1	21.9	21.4	20.5	20.3
<b>Northern Sydney and Central Coast</b>					
Gosford	1.0	0.2	0.9	1.2	3.8
Wyong	0.0	1.2	0.0	0.0	1.7
Hornsby	18.6	18.5	13.0	16.5	18.3
Manly	14.1	9.5	9.0	11.8	12.1
Mona Vale	10.0	10.9	7.9	6.5	7.5
Royal North Shore	19.3	14.6	14.5	13.9	15.7
Other hospitals	17.9	22.5	14.3	0.0	3.3
TOTAL	11.7	9.7	9.3	9.0	11.2
<b>Hunter and New England</b>					
Armidale	23.1	23.7	25.7	27.2	26.6
Inverell	20.0	26.2	47.9	35.2	26.4
Moree	4.8	8.6	7.8	7.7	5.9
Tamworth Base	7.3	14.4	14.8	10.6	24.4
Manning Base	9.6	6.8	7.9	9.1	11.3
Maitland	10.4	8.9	8.0	9.3	5.2
Muswellbrook	5.7	11.3	8.3	5.5	7.0

**TABLE 58 (continued)****3.2 SELECTED PRIMIPARA UNDERGOING EPISIOTOMY AND NO PERINEAL TEAR BY HOSPITAL, NSW 2002–2006<sup>#</sup>**

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
Singleton	13.7	8.7	13.6	9.7	9.3
John Hunter	10.4	8.4	8.6	10.1	11.7
Other hospitals	14.0	14.9	13.5	15.0	20.0
TOTAL	11.5	11.2	11.7	11.5	13.3
<b>North Coast</b>					
Coffs Harbour	16.1	13.9	14.2	13.2	9.9
Grafton Base	24.2	21.3	21.3	19.8	15.3
Kempsey	4.9	3.8	10.3	3.1	10.2
Lismore Base	16.3	12.0	14.2	12.5	6.9
Murwillumbah	24.0	29.0	23.1	13.6	14.0
Tweed Heads	13.1	10.8	7.2	7.5	9.0
Port Macquarie Base	26.4	20.7	22.5	13.0	6.5
Other hospitals	14.7	15.9	20.3	14.7	12.1
TOTAL	17.8	15.1	15.3	11.9	9.3
<b>Greater Southern</b>					
Goulburn Base	33.3	47.4	51.4	50.0	44.8
Moruya	6.7	15.2	9.1	12.3	13.6
Queanbeyan	12.1	11.1	13.1	4.5	6.3
Griffith Base	14.6	12.9	14.7	13.3	13.3
Wagga Wagga Base	20.4	21.5	14.2	18.4	5.9
Other hospitals	17.4	20.9	13.1	16.6	12.8
TOTAL	18.4	21.4	16.5	17.9	13.4
<b>Greater Western</b>					
Dubbo Base	25.2	24.3	21.7	31.2	28.0
Mudgee	9.8	14.5	22.0	15.5	9.7
Bathurst Base	11.7	14.6	14.8	12.2	7.5
Orange Base	18.2	11.9	12.6	8.3	12.2
Parkes	19.5	7.1	18.5	8.0	11.1
Broken Hill Base	4.1	3.0	9.5	5.9	10.9
Other hospitals	7.9	8.2	7.9	12.5	19.8
TOTAL	17.1	15.3	16.0	16.7	17.2
<b>Private Hospitals</b>					
Mater, North Sydney	28.0	23.2	24.9	23.3	22.3
North Shore Private	22.1	23.3	21.5	23.4	22.9
Sydney Adventist	29.1	32.4	29.3	33.5	28.8
North Gosford Private	19.4	24.0	22.2	24.3	15.0
Hurstville Community	37.5	37.0	29.5	37.5	25.8
Kareena Private	18.6	19.8	20.0	25.8	25.4
St. George Private	17.6	12.8	15.2	14.7	18.2
Prince of Wales Private	28.3	28.0	29.7	25.3	26.0
The Hills Private	28.3	28.4	27.6	31.0	28.1
Sydney Southwest Private	40.5	38.8	39.1	34.4	34.2
Nepean Private	37.0	28.2	34.3	29.5	29.6
Westmead Private	34.1	34.7	31.9	30.3	37.3
Figtree Private	31.7	33.9	34.6	32.1	37.0
Newcastle Private	0.0	0.0	20.9	20.4	20.8
Calvary, Wagga Wagga	18.9	20.9	17.4	18.1	9.2
Other hospitals	21.3	19.5	24.3	39.4	17.5
TOTAL	27.7	27.1	26.7	26.7	25.9
<b>TOTAL NSW*</b>	20.0	19.5	18.6	17.8	17.9

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. TOTAL for NSW includes homebirths assisted by independent midwives.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives.

## Major perineal tears and surgical repair of the perineum. Indicator 3.3

Definition: Total number of selected primipara sustaining a perineal tear and no episiotomy as a percentage of the total number of selected primipara delivering vaginally.

A selected primipara is defined as a woman who is 20–34 years of age at the time of giving birth; giving birth for the first

time at greater than 20 weeks gestation; singleton pregnancy; cephalic presentation; and at 37<sup>0</sup> to 41<sup>0</sup> weeks gestation.

Table 59 shows aggregate information for hospitals where at least 200 mothers gave birth in 2006, totals for hospitals within each health area, and the NSW total.

**TABLE 59**

### 3.3 SELECTED PRIMIPARA SUSTAINING A PERINEAL TEAR AND NO EPISIOTOMY BY HOSPITAL, NSW 2002–2006<sup>#</sup>

Health area – hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>Sydney South West</b>					
Canterbury	62.4	64.1	64.4	63.0	50.6
Royal Prince Alfred	65.0	67.7	63.7	46.6	49.2
Fairfield	47.5	40.0	46.9	44.6	49.1
Liverpool	43.6	40.7	40.4	40.8	46.3
Campbelltown	38.4	38.7	39.4	50.3	44.3
Bankstown-Lidcombe	50.9	53.7	44.1	49.9	39.4
Bowral	55.3	56.9	61.7	56.5	47.4
Other hospitals	–	46.1	53.3	50.0	–
TOTAL	52.4	53.0	52.6	48.4	47.2
<b>South Eastern Sydney and Illawarra</b>					
St. George	54.9	55.7	53.7	56.9	56.2
Sutherland	43.2	47.2	47.0	53.8	54.4
Royal Hospital for Women	51.5	49.6	51.3	47.9	45.3
Shoalhaven	50.0	45.4	45.4	47.3	45.5
Wollongong	54.9	52.4	61.9	59.4	64.8
Other hospitals	58.1	52.1	12.5	57.1	41.9
TOTAL	52.4	51.2	52.9	52.9	52.6
<b>Sydney West</b>					
Auburn	44.5	46.2	45.5	48.6	43.9
Blacktown	35.0	35.0	38.3	42.1	41.5
Blue Mountains	45.5	57.7	48.4	35.5	40.5
Nepean	45.6	39.5	42.0	35.5	36.7
Westmead	43.2	40.4	37.9	40.7	35.7
Hawkesbury	43.1	38.0	43.8	32.1	36.9
Lithgow	15.9	26.3	38.1	45.5	40.5
TOTAL	42.0	39.6	40.2	39.8	38.2
<b>Northern Sydney and Central Coast</b>					
Gosford	59.9	60.3	54.1	57.0	47.3
Wyong	69.5	66.3	67.3	66.7	71.7
Hornsby	44.9	44.7	48.4	49.5	43.4
Manly	51.9	50.0	55.2	52.9	50.9
Mona Vale	52.9	51.6	56.0	52.0	61.3
Royal North Shore	51.2	45.8	49.8	50.8	44.6
Other hospitals	51.0	51.9	61.9	73.7	53.3
TOTAL	53.6	52.3	52.7	53.5	48.1
<b>Hunter and New England</b>					
Armidale	40.0	43.2	33.9	38.3	31.2
Inverell	47.5	21.4	27.1	16.7	13.2
Moree	41.9	48.6	47.1	51.9	58.8
Tamworth Base	60.9	52.3	54.4	55.6	32.0
Manning Base	46.1	44.9	47.9	44.5	45.0
Maitland	44.6	49.7	46.0	42.1	43.5
Muswellbrook	37.7	56.6	43.8	47.3	52.6

**TABLE 59 (continued)****3.3 SELECTED PRIMIPARA SUSTAINING A PERINEAL TEAR AND NO EPISIOTOMY BY HOSPITAL, NSW 2002–2006<sup>#</sup>**

Health area – hospital	2002 %	2003 %	2004 %	2005 %	2006 %
Singleton	56.9	60.9	63.6	58.1	53.5
John Hunter	57.9	59.2	64.6	57.4	54.6
Other hospitals	47.1	46.3	50.7	43.3	39.3
TOTAL	51.0	51.8	53.4	49.8	46.2
<b>North Coast</b>					
Coffs Harbour	36.6	41.6	45.2	38.6	41.4
Grafton Base	27.5	22.5	25.5	36.2	40.0
Kempsey	43.9	45.3	52.9	50.8	54.2
Lismore Base	32.3	38.2	49.7	47.0	49.3
Murwillumbah	30.0	24.7	24.2	24.6	46.5
Tweed Heads	39.8	51.1	55.1	52.5	48.7
Port Macquarie Base	34.7	28.7	33.0	44.0	43.2
Other hospitals	60.3	52.4	47.3	64.7	66.7
TOTAL	36.1	38.9	44.0	44.6	47.4
<b>Greater Southern</b>					
Goulburn Base	15.4	12.8	12.9	12.5	19.4
Moruya	20.0	32.6	45.5	54.8	37.5
Queanbeyan	43.9	50.0	54.1	50.7	53.2
Griffith Base	39.0	42.7	45.0	52.0	44.6
Wagga Wagga Base	41.4	40.7	46.9	43.6	49.2
Other hospitals	42.3	38.6	38.1	40.1	40.6
TOTAL	38.4	37.6	40.4	42.4	42.1
<b>Greater Western</b>					
Dubbo Base	42.1	43.1	42.3	31.2	35.5
Mudgee	56.9	43.6	56.1	55.2	56.5
Bathurst Base	40.0	39.4	48.3	47.5	38.1
Orange Base	39.4	40.6	45.5	40.9	32.5
Parkes	31.7	40.5	24.1	36.0	50.0
Broken Hill Base	32.7	53.0	46.0	41.2	40.0
Other hospitals	52.6	43.8	50.0	45.0	39.6
TOTAL	41.9	42.7	44.6	40.2	38.0
<b>Private Hospitals</b>					
Mater, North Sydney	30.2	29.6	28.9	31.1	25.9
North Shore Private	34.3	34.4	34.5	30.2	32.3
Sydney Adventist	37.8	34.6	34.5	30.5	29.4
North Gosford Private	33.9	36.6	35.1	34.5	25.8
Hurstville Community	21.6	27.6	29.5	27.4	26.6
Kareena Private	28.7	30.2	25.9	25.3	18.4
St. George Private	38.0	43.9	40.1	38.9	34.3
Prince of Wales Private	30.7	31.9	34.7	32.4	26.6
The Hills Private	35.9	32.8	40.1	33.8	33.0
Sydney Southwest Private	30.8	28.2	29.1	29.5	25.1
Nepean Private	19.2	24.3	26.4	25.6	19.0
Westmead Private	31.2	31.4	30.3	30.9	21.9
Figtree Private	32.1	29.4	31.0	33.0	28.1
Newcastle Private	0.0	0.0	38.2	37.6	38.5
Calvary, Wagga Wagga	41.1	39.9	36.8	41.3	38.2
Other hospitals	41.0	41.8	30.7	25.3	41.3
TOTAL	32.9	33.3	33.1	32.1	28.8
<b>TOTAL NSW*</b>	43.9	43.9	44.7	43.4	41.4

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. TOTAL for NSW includes homebirths assisted by independent midwives.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives

## Major perineal tears and surgical repair of the perineum. Indicator 3.4

Definition: Total number of selected primipara undergoing episiotomy and sustaining a perineal tear while giving birth vaginally as a percentage of the total number of selected primipara delivering vaginally.

A selected primipara is defined as a woman who is 20–34 years of age at the time of giving birth; giving birth for the

first time at greater than 20 weeks gestation; singleton pregnancy; cephalic presentation; and at 37<sup>0</sup> to 41<sup>0</sup> weeks gestation.

Table 60 shows aggregate information for hospitals where at least 200 mothers gave birth in 2006, totals for hospitals within each health area, and the NSW total.

**TABLE 60**

### 3.4 SELECTED PRIMIPARA UNDERGOING EPISIOTOMY AND SUSTAINING A PERINEAL TEAR BY HOSPITAL, NSW 2002–2006<sup>#</sup>

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>Sydney South West</b>					
Canterbury	0.5	0.2	0.2	0.9	0.2
Royal Prince Alfred	0.4	0.2	0.5	0.0	0.0
Fairfield	0.2	0.2	0.0	0.0	0.2
Liverpool	0.4	0.6	0.2	0.3	0.1
Campbelltown	0.5	0.0	0.3	0.2	0.0
Bankstown-Lidcombe	0.6	1.1	0.2	0.8	0.4
Bowral	0.6	0.0	0.0	0.0	0.6
Other hospitals	–	0.6	0.0	0.0	–
TOTAL	0.4	0.4	0.3	0.2	0.1
<b>South Eastern Sydney and Illawarra</b>					
St. George	0.4	0.1	0.3	0.1	0.6
Sutherland	0.5	0.0	0.3	0.0	0.0
Royal Hospital for Women	0.9	0.5	0.4	0.1	0.6
Shoalhaven	1.2	0.0	0.5	0.5	0.0
Wollongong	0.6	0.2	0.7	0.0	0.2
Other hospitals	0.8	0.0	0.0	0.0	0.0
TOTAL	0.7	0.3	0.4	0.1	0.4
<b>Sydney West</b>					
Auburn	0.4	0.7	0.0	0.0	3.0
Blacktown	1.3	0.8	0.6	1.4	2.5
Blue Mountains	0.0	0.0	0.0	2.6	1.4
Nepean	0.5	0.2	0.8	3.1	3.3
Westmead	0.3	1.0	0.8	0.5	3.2
Hawkesbury	2.0	0.0	0.0	5.4	3.3
Lithgow	6.8	0.0	0.0	3.6	4.8
TOTAL	0.7	0.6	0.6	1.7	3.0
<b>Northern Sydney and Central Coast</b>					
Gosford	0.6	1.6	1.2	1.9	3.5
Wyong	0.0	1.2	4.1	0.0	6.7
Hornsby	0.4	0.4	0.4	0.4	2.5
Manly	0.0	0.0	0.5	0.5	1.4
Mona Vale	0.0	1.0	0.0	0.0	1.0
Royal North Shore	0.2	0.0	0.2	0.1	2.1
Other hospitals	0.7	0.0	0.0	0.0	0.0
TOTAL	0.3	0.7	0.6	0.7	2.5
<b>Hunter and New England</b>					
Armidale	1.5	4.2	4.6	8.6	6.4
Inverell	2.5	2.4	2.1	5.6	9.4
Moree	4.8	2.9	5.9	1.9	7.8
Tamworth Base	0.7	3.9	1.3	3.9	5.6
Manning Base	2.6	2.0	2.9	1.2	4.0
Maitland	0.5	0.0	0.0	1.1	3.5
Muswellbrook	0.0	0.0	8.3	14.5	3.5
Singleton	0.0	0.0	0.0	0.0	2.3
John Hunter	0.4	0.1	0.3	2.9	6.5
Other hospitals	3.5	1.3	1.4	3.2	5.5
TOTAL	1.3	1.0	1.3	3.1	5.6

**TABLE 60 (continued)****3.4 SELECTED PRIMIPARA UNDERGOING EPISIOTOMY AND SUSTAINING A PERINEAL TEAR BY HOSPITAL, NSW 2002–2006<sup>#</sup>**

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>North Coast</b>					
Coffs Harbour	1.5	2.0	1.5	1.3	3.9
Grafton Base	5.5	5.0	4.3	2.6	1.2
Kempsey	0.0	0.0	0.0	0.0	1.7
Lismore Base	1.3	2.5	4.5	3.2	5.9
Murwillumbah	5.0	1.1	2.2	5.1	0.0
Tweed Heads	0.5	1.7	0.4	1.6	1.9
Port Macquarie Base	6.3	4.3	4.2	2.7	6.5
Other hospitals	4.4	4.8	4.1	4.4	3.0
TOTAL	2.6	2.6	2.7	2.5	3.6
<b>Greater Southern</b>					
Goulburn Base	5.1	3.8	8.6	4.7	3.0
Moruya	3.3	6.5	1.5	0.0	5.7
Queanbeyan	4.5	3.7	1.6	0.0	2.5
Griffith Base	3.3	2.4	2.8	4.1	2.4
Wagga Wagga Base	0.5	2.3	1.2	1.7	5.9
Other hospitals	2.1	2.8	2.9	3.1	3.0
TOTAL	2.5	3.0	2.8	2.5	3.9
<b>Greater Western</b>					
Dubbo Base	7.1	2.5	4.1	2.8	2.1
Mudgee	3.9	1.8	4.9	0.0	4.8
Bathurst Base	2.1	3.6	4.0	1.4	6.0
Orange Base	3.9	4.5	1.5	5.2	7.1
Parkes	4.9	0.0	3.7	2.0	2.8
Broken Hill Base	2.0	0.0	1.6	3.9	1.8
Other hospitals	5.3	0.0	2.6	0.0	5.5
TOTAL	4.7	2.6	3.2	2.7	4.4
<b>Private Hospitals</b>					
Mater, North Sydney	2.9	4.3	3.8	2.1	6.8
North Shore Private	0.8	0.5	0.0	0.1	0.1
Sydney Adventist	1.9	2.0	2.9	1.9	4.8
North Gosford Private	2.1	2.3	4.8	3.1	6.0
Hurstville Community	2.5	2.2	3.2	2.0	8.1
Kareena Private	3.9	1.8	4.9	2.5	2.7
St. George Private	4.3	2.3	3.9	3.6	6.7
Prince of Wales Private	2.8	2.4	1.7	2.3	1.4
The Hills Private	2.5	4.7	4.1	2.8	1.7
Sydney Southwest Private	1.6	1.7	1.8	2.0	1.3
Nepean Private	4.6	3.9	5.1	5.0	4.5
Westmead Private	4.1	2.1	2.1	1.9	1.2
Figtree Private	4.8	3.3	3.3	1.9	3.0
Newcastle Private	0.0	0.0	0.4	0.9	0.8
Calvary, Wagga Wagga	5.7	3.8	7.7	3.9	10.5
Other hospitals	0.5	0.2	4.6	4.0	6.3
TOTAL	2.7	2.4	2.9	2.2	3.5
<b>TOTAL NSW*</b>	1.5	1.3	1.5	1.5	2.5

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. TOTAL for NSW includes homebirths assisted by independent midwives.<sup>\*</sup> TOTAL NSW includes 130 homebirths assisted by independent midwives

## Major perineal tears and surgical repair of the perineum. Indicator 3.5

Definition: Total number of selected primipara undergoing surgical repair of the perineum for third degree tear as a percentage of the total number of selected primipara delivering vaginally.

A selected primipara is defined as a woman who is 20–34 years of age at the time of giving birth; giving birth for the

first time at greater than 20 weeks gestation; singleton pregnancy; cephalic presentation; and at 37<sup>0</sup> to 41<sup>0</sup> weeks gestation.

Table 61 shows aggregate information for hospitals where at least 200 mothers gave birth in 2006, totals for hospitals within each health area, and the NSW total.

**TABLE 61**

### 3.5 SELECTED PRIMIPARA UNDERGOING SURGICAL REPAIR OF THE PERINEUM FOR THIRD DEGREE TEAR BY HOSPITAL, NSW 2002–2006<sup>#</sup>

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>Sydney South West</b>					
Canterbury	4.8	6.7	4.9	5.4	4.9
Royal Prince Alfred	3.2	3.7	3.0	5.2	4.5
Fairfield	2.7	1.1	3.9	2.2	3.3
Liverpool	4.1	4.7	2.5	3.5	3.2
Campbelltown	1.2	1.1	3.3	2.6	1.1
Bankstown-Lidcombe	2.9	3.5	4.5	2.6	1.6
Bowral	1.3	1.2	3.6	2.6	0.6
Other hospitals	–	1.2	0.0	0.0	–
TOTAL	3.1	3.4	3.3	3.9	3.4
<b>South Eastern Sydney and Illawarra</b>					
St. George	4.0	3.6	2.8	4.1	2.0
Sutherland	2.3	1.6	0.6	5.7	2.9
Royal Hospital for Women	2.0	1.8	1.4	2.1	2.7
Shoalhaven	3.0	1.7	5.5	1.9	5.5
Wollongong	1.8	0.7	2.9	3.1	3.2
Other hospitals	0.8	1.0	0.0	0.0	0.0
TOTAL	2.5	2.0	2.2	3.1	2.8
<b>Sydney West</b>					
Auburn	2.6	0.7	1.5	3.4	2.0
Blacktown	1.7	2.4	4.1	4.3	3.2
Blue Mountains	3.0	2.8	3.2	1.3	2.7
Nepean	2.6	3.1	1.7	2.1	2.2
Westmead	2.1	2.5	3.2	3.4	1.6
Hawkesbury	1.6	1.3	2.3	1.3	0.8
Lithgow	0.0	5.3	0.0	0.0	2.4
TOTAL	2.2	2.4	2.8	3.1	2.1
<b>Northern Sydney and Central Coast</b>					
Gosford	2.6	2.2	2.1	3.4	4.1
Wyong	0.0	0.0	2.0	5.6	1.7
Hornsby	4.9	5.5	4.2	8.4	4.5
Manly	3.0	5.7	6.3	4.1	3.9
Mona Vale	2.4	2.6	1.6	0.5	4.5
Royal North Shore	5.5	5.5	3.5	3.2	4.0
Other hospitals	5.5	4.7	3.6	0.0	0.0
TOTAL	3.7	4.0	3.3	3.8	4.0
<b>Hunter and New England</b>					
Armidale	3.1	0.8	0.0	0.0	2.8
Inverell	0.0	2.4	0.0	5.6	3.8
Moree	3.2	2.9	0.0	5.8	2.0
Tamworth Base	2.6	1.3	0.7	1.9	4.1
Manning Base	3.5	1.4	1.4	0.6	4.6
Maitland	3.4	4.8	1.9	1.6	2.9
Muswellbrook	0.0	3.8	2.1	1.8	5.3
Singleton	2.0	4.3	2.3	0.0	0.0
John Hunter	4.0	3.9	6.0	5.4	5.2
Other hospitals	1.6	2.6	1.7	2.1	2.1
TOTAL	3.1	3.3	3.0	3.3	4.1

**TABLE 61 (continued)****3.5 SELECTED PRIMIPARA UNDERGOING SURGICAL REPAIR OF THE PERINEUM FOR THIRD DEGREE TEAR BY HOSPITAL, NSW 2002–2006<sup>#</sup>**

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>North Coast</b>					
Coffs Harbour	0.5	0.0	0.5	0.4	2.2
Grafton Base	2.2	0.0	1.1	1.7	1.2
Kempsey	2.4	0.0	2.9	0.0	0.0
Lismore Base	1.3	4.9	3.1	1.1	3.3
Murwillumbah	1.0	0.0	0.0	1.7	1.2
Tweed Heads	1.6	1.3	2.3	0.7	2.1
Port Macquarie Base	2.1	1.8	0.5	1.1	6.5
Other hospitals	0.0	0.0	2.7	1.5	1.5
TOTAL	1.3	1.7	1.7	1.0	2.7
<b>Greater Southern</b>					
Goulburn Base	1.3	1.3	0.0	4.7	1.5
Moruya	3.3	2.2	1.5	1.4	3.4
Queanbeyan	0.0	0.0	0.0	1.5	1.3
Griffith Base	0.8	1.6	0.0	0.0	3.6
Wagga Wagga Base	3.2	1.1	0.6	1.1	3.2
Other hospitals	0.6	1.4	0.6	1.9	2.7
TOTAL	1.3	1.3	0.5	1.6	2.8
<b>Greater Western</b>					
Dubbo Base	1.1	1.4	1.9	0.4	2.1
Mudgee	2.0	1.8	0.0	5.2	1.6
Bathurst Base	0.0	2.2	1.3	2.2	3.7
Orange Base	1.0	4.5	3.0	3.6	5.6
Parkes	2.4	4.8	7.4	6.0	2.8
Broken Hill Base	0.0	1.5	0.0	0.0	0.0
Other hospitals	2.6	0.0	3.9	2.5	4.4
TOTAL	1.1	2.4	2.4	2.3	3.3
<b>Private Hospitals</b>					
Mater, North Sydney	0.8	0.6	1.1	1.3	3.0
North Shore Private	4.1	3.7	2.1	1.4	0.8
Sydney Adventist	0.8	0.0	1.4	0.8	1.8
North Gosford Private	1.1	2.3	1.2	2.7	2.6
Hurstville Community	0.3	1.4	1.0	0.0	1.6
Kareena Private	0.0	0.5	0.5	1.0	0.5
St. George Private	0.6	1.6	1.8	2.3	2.8
Prince of Wales Private	0.6	0.8	0.7	0.5	0.4
The Hills Private	0.7	0.9	1.3	0.7	1.4
Sydney Southwest Private	2.3	1.2	1.0	0.3	1.6
Nepean Private	0.7	0.0	0.0	1.4	2.4
Westmead Private	0.7	0.5	1.0	0.8	0.6
Figtree Private	0.6	0.9	0.6	0.9	1.7
Newcastle Private	0.0	0.0	2.0	2.7	2.9
Calvary, Wagga Wagga	2.9	2.5	3.2	1.3	3.3
Other hospitals	3.0	2.1	1.1	1.0	6.3
TOTAL	1.3	1.2	1.3	1.2	1.8
<b>TOTAL NSW*</b>	2.2	2.4	2.3	2.6	2.8

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health

<sup>#</sup>Hospitals with more than 200 deliveries are identified individually. TOTAL for NSW includes homebirths assisted by independent midwives.

\*TOTAL NSW includes 130 homebirths assisted by independent midwives

## Major perineal tears and surgical repair of the perineum. Indicator 3.6

Definition: Total number of selected primipara undergoing surgical repair of the perineum for fourth degree tear as a percentage of the total number of selected primipara delivering vaginally.

A selected primipara is defined as a woman who is 20–34 years of age at the time of giving birth; giving birth for the

first time at greater than 20 weeks gestation; singleton pregnancy; cephalic presentation; and at 37<sup>0</sup> to 41<sup>0</sup> weeks gestation.

Table 62 shows aggregate information for hospitals where at least 200 mothers gave birth in 2006, totals for hospitals within each health area, and the NSW total.

**TABLE 62**

### 3.6 SELECTED PRIMIPARA UNDERGOING SURGICAL REPAIR OF THE PERINEUM FOR FOURTH DEGREE TEAR, NSW 2002–2006<sup>#</sup>

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>Sydney South West</b>					
Canterbury	0.5	0.2	0.2	0.4	0.4
Royal Prince Alfred	0.2	0.5	0.2	0.1	0.1
Fairfield	0.4	0.4	0.4	0.2	0.4
Liverpool	0.2	0.3	0.1	0.4	0.0
Campbelltown	0.3	0.6	0.0	0.2	0.4
Bankstown-Lidcombe	0.0	0.2	0.0	0.0	0.0
Bowral	0.0	0.6	0.0	0.0	0.0
Other hospitals	–	0.0	0.0	0.0	–
TOTAL	0.2	0.4	0.2	0.2	0.2
<b>South Eastern Sydney and Illawarra</b>					
St. George	0.3	0.1	0.1	0.1	0.2
Sutherland	0.0	0.0	0.0	0.8	0.0
Royal Hospital for Women	0.2	0.2	0.1	0.5	0.1
Shoalhaven	0.0	1.1	0.0	0.5	0.0
Wollongong	0.0	0.0	0.2	0.3	0.2
Other hospitals	0.0	1.0	0.0	0.0	0.0
TOTAL	0.2	0.2	0.1	0.4	0.1
<b>Sydney West</b>					
Auburn	0.0	0.4	0.0	0.0	0.7
Blacktown	0.0	0.0	0.2	0.1	0.1
Blue Mountains	0.0	0.0	1.6	0.0	0.0
Nepean	0.2	0.2	0.1	0.1	0.0
Westmead	0.1	0.0	0.3	0.3	0.3
Hawkesbury	0.0	0.4	0.0	0.9	0.4
Lithgow	0.0	0.0	0.0	0.0	0.0
TOTAL	0.1	0.1	0.2	0.2	0.2
<b>Northern Sydney and Central Coast</b>					
Gosford	0.8	0.3	0.3	0.3	0.3
Wyong	0.0	0.0	0.0	0.0	0.0
Hornsby	0.4	0.0	0.0	0.0	0.6
Manly	0.4	0.4	0.9	0.5	0.0
Mona Vale	0.6	0.0	0.0	0.0	0.0
Royal North Shore	0.7	0.4	0.0	0.6	0.4
Other hospitals	0.0	0.0	0.0	0.0	0.0
TOTAL	0.5	0.2	0.2	0.4	0.3
<b>Hunter and New England</b>					
Armidale	0.0	0.0	0.0	0.0	0.0
Inverell	0.0	2.4	2.1	0.0	1.9
Moree	1.6	0.0	2.0	0.0	0.0
Tamworth Base	0.0	0.0	0.0	0.0	0.0
Manning Base	0.0	0.0	0.0	0.0	0.0
Maitland	0.3	0.3	0.3	0.0	0.0
Muswellbrook	0.0	0.0	0.0	0.0	0.0
Singleton	0.0	0.0	2.3	0.0	0.0
John Hunter	0.7	0.4	0.1	0.2	1.3
Other hospitals	0.6	0.0	0.7	0.0	0.0
TOTAL	0.4	0.2	0.4	0.1	0.6

**TABLE 62 (continued)****3.6 SELECTED PRIMIPARA UNDERGOING SURGICAL REPAIR OF THE PERINEUM FOR FOURTH DEGREE TEAR, NSW 2002–2006<sup>#</sup>**

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>North Coast</b>					
Coffs Harbour	0.0	1.0	0.0	0.0	0.0
Grafton Base	0.0	1.3	0.0	0.0	0.0
Kempsey	0.0	0.0	0.0	0.0	0.0
Lismore Base	0.0	0.4	0.0	0.4	0.7
Murwillumbah	0.0	0.0	0.0	0.0	0.0
Tweed Heads	0.5	0.0	0.8	0.3	0.3
Port Macquarie Base	0.0	0.0	0.0	0.0	0.6
Other hospitals	1.5	0.0	0.0	0.0	3.0
TOTAL	0.2	0.3	0.2	0.1	0.4
<b>Greater Southern</b>					
Goulburn Base	0.0	0.0	0.0	1.6	1.5
Moruya	0.0	0.0	0.0	0.0	1.1
Queanbeyan	0.0	0.0	0.0	0.0	0.0
Griffith Base	0.0	0.0	0.9	0.0	0.0
Wagga Wagga Base	0.0	0.0	0.0	0.6	0.5
Other hospitals	0.0	0.0	0.0	0.3	0.0
TOTAL	0.0	0.0	0.1	0.4	0.4
<b>Greater Western</b>					
Dubbo Base	0.0	0.4	0.0	0.4	0.0
Mudgee	0.0	0.0	0.0	0.0	1.6
Bathurst Base	0.0	0.0	0.0	0.0	0.0
Orange Base	0.0	0.0	0.0	0.5	1.0
Parkes	0.0	0.0	0.0	0.0	0.0
Broken Hill Base	0.0	0.0	0.0	0.0	0.0
Other hospitals	0.0	0.0	1.3	1.3	1.1
TOTAL	0.0	0.1	0.1	0.4	0.5
<b>Private Hospitals</b>					
Mater, North Sydney	0.2	0.1	0.0	0.1	0.1
North Shore Private	0.5	0.5	0.3	0.3	0.0
Sydney Adventist	0.1	0.3	0.0	0.0	0.0
North Gosford Private	0.0	0.0	0.0	0.0	0.0
Hurstville Community	0.0	0.0	0.0	0.0	0.0
Kareena Private	0.0	0.0	0.0	0.0	0.0
St. George Private	0.0	0.2	0.0	0.2	0.0
Prince of Wales Private	0.0	0.0	0.7	0.0	0.0
The Hills Private	0.2	0.2	0.0	0.0	0.0
Sydney Southwest Private	0.3	0.0	0.0	0.9	0.3
Nepean Private	0.0	0.4	0.0	0.0	1.2
Westmead Private	0.4	0.2	0.1	0.5	0.1
Figtree Private	0.0	0.0	0.6	0.0	0.0
Newcastle Private	0.0	0.0	0.4	0.2	0.4
Calvary, Wagga Wagga	0.0	0.0	0.0	0.0	1.3
Other hospitals	0.0	0.0	0.0	0.0	0.0
TOTAL	0.1	0.2	0.1	0.2	0.2
<b>TOTAL NSW*</b>	0.2	0.2	0.2	0.2	0.2

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. TOTAL for NSW includes homebirths assisted by independent midwives.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives

## Intrauterine growth restriction. Indicator 8.1

Definition: Total number of deliveries with birth weight less than 2750 grams at 40 weeks gestation or beyond as a percentage of the total number of deliveries at 40 weeks gestation or beyond.

Table 63 shows aggregate information for hospitals where at least 200 babies were born in 2006, totals for hospitals within each health area, and the NSW total.

**TABLE 63**

### 8.1 INTRAUTERINE GROWTH RESTRICTION AT 40 WEEKS GESTATION OR MORE BY HOSPITAL, NSW 2002–2006<sup>#</sup>

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>Sydney South West</b>					
Canterbury	2.5	3.0	2.8	3.2	2.2
Royal Prince Alfred	1.9	2.2	1.7	1.8	1.9
Fairfield	3.5	3.2	4.4	3.0	1.8
Liverpool	3.3	2.8	3.0	2.9	2.6
Campbelltown	3.2	3.5	2.8	2.0	2.9
Bankstown-Lidcombe	2.9	2.8	2.8	2.7	1.3
Bowral	2.5	0.3	1.2	1.1	1.2
Other hospitals	–	1.5	0.9	2.3	–
TOTAL	2.9	2.6	2.6	2.4	2.1
<b>South Eastern Sydney and Illawarra</b>					
St. George	2.3	3.0	2.7	2.1	1.9
Sutherland	2.8	1.7	2.7	0.9	1.7
Royal Hospital for Women	1.8	1.8	2.2	1.9	1.3
Shoalhaven	1.7	0.8	1.5	2.9	0.7
Wollongong	1.7	1.2	1.2	0.9	1.2
Other hospitals	1.7	1.5	4.2	5.6	0.0
TOTAL	2.0	1.9	2.1	1.7	1.4
<b>Sydney West</b>					
Auburn	2.8	3.1	3.8	3.6	2.2
Blacktown	3.8	2.4	2.8	2.2	2.3
Blue Mountains	2.3	1.7	3.4	1.4	0.0
Nepean	3.1	2.8	1.7	2.0	1.7
Westmead	3.4	2.6	2.5	2.9	2.7
Hawkesbury	1.9	1.8	2.0	2.7	0.5
Lithgow	1.2	1.4	5.3	8.5	4.2
TOTAL	3.1	2.6	2.5	2.6	2.1
<b>Northern Sydney and Central Coast</b>					
Gosford	1.3	1.5	1.3	0.6	1.3
Wyong	1.2	2.8	1.4	0.0	0.9
Hornsby	1.1	2.4	1.3	1.8	0.7
Manly	0.7	0.6	1.3	1.6	1.1
Mona Vale	3.0	0.6	2.4	1.4	2.1
Royal North Shore	2.6	2.2	2.0	2.9	2.3
Other hospitals	2.0	1.8	1.4	2.6	0.0
TOTAL	1.7	1.7	1.7	1.7	1.5
<b>Hunter and New England</b>					
Armidale	1.9	5.2	5.2	4.4	2.8
Inverell	1.0	0.0	2.8	4.5	2.2
Moree	2.3	6.5	1.7	2.9	3.9
Tamworth Base	2.4	2.9	1.3	3.5	2.7
Manning Base	2.3	3.1	3.2	1.2	2.7
Maitland	1.4	2.2	1.9	1.8	2.0
Muswellbrook	0.0	0.8	1.6	1.7	0.8
Singleton	1.5	1.1	1.7	1.1	0.0
John Hunter	2.6	1.6	2.6	1.8	1.6
Other hospitals	3.3	2.5	3.1	2.9	2.3
TOTAL	2.3	2.3	2.6	2.2	2.0

**TABLE 63 (continued)****8.1 INTRAUTERINE GROWTH RESTRICTION AT 40 WEEKS GESTATION OR MORE BY HOSPITAL, NSW 2002–2006<sup>#</sup>**

Health area – Hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>North Coast</b>					
Coffs Harbour	1.9	1.0	2.5	3.0	2.6
Grafton Base	3.0	3.0	2.8	3.4	3.5
Kempsey	3.0	5.0	7.8	4.9	2.6
Lismore Base	2.8	2.2	1.9	2.4	2.6
Murwillumbah	3.0	2.7	1.9	1.2	3.8
Tweed Heads	2.8	3.2	2.1	2.3	2.1
Port Macquarie Base	2.2	1.1	1.4	1.3	0.5
Other hospitals	2.1	1.2	1.3	1.2	3.0
TOTAL	2.6	2.2	2.4	2.3	2.4
<b>Greater Southern</b>					
Goulburn Base	3.9	4.4	1.6	3.6	2.0
Moruya	2.4	0.9	1.3	3.4	3.5
Queanbeyan	3.0	3.2	3.1	2.5	3.2
Griffith Base	2.6	1.1	2.0	2.6	3.7
Wagga Wagga Base	3.1	1.7	1.1	3.0	2.5
Other hospitals	3.0	2.4	3.2	2.5	3.0
TOTAL	3.1	2.3	2.4	2.8	3.0
<b>Greater Western</b>					
Dubbo Base	3.8	2.0	3.6	2.3	4.3
Mudgee	4.9	2.4	3.3	2.8	2.7
Bathurst Base	1.4	1.6	2.9	1.7	2.6
Orange Base	2.7	2.2	3.3	2.7	2.1
Parkes	1.5	3.0	1.6	0.8	2.2
Broken Hill Base	2.0	6.1	2.9	2.7	2.9
Other hospitals	4.1	3.2	3.2	2.3	2.1
TOTAL	3.1	2.5	3.2	2.3	3.0
<b>Private Hospitals</b>					
Mater, North Sydney	1.1	1.1	0.8	1.5	2.1
North Shore Private	1.9	2.3	1.9	2.0	1.2
Sydney Adventist	0.8	1.2	1.1	1.4	1.4
North Gosford Private	1.8	1.4	1.1	0.6	0.7
Hurstville Community	1.2	1.9	2.6	1.5	0.6
Kareena Private	0.5	1.6	1.3	0.0	0.8
St. George Private	1.8	1.6	1.7	1.6	0.9
Prince of Wales Private	1.9	0.8	1.4	1.5	2.6
The Hills Private	1.3	1.6	2.3	1.3	1.2
Sydney Southwest Private	1.3	2.4	1.1	1.7	1.2
Nepean Private	1.5	1.0	1.5	1.8	0.6
Westmead Private	1.6	1.7	3.0	2.5	2.6
Figtree Private	2.0	1.1	2.5	0.6	1.5
Newcastle Private	12.5	0.0	0.6	0.8	0.7
Calvary, Wagga Wagga	1.0	1.1	1.1	1.9	0.7
Other hospitals	1.4	0.5	1.6	0.6	0.0
TOTAL	1.4	1.4	1.6	1.5	1.4
<b>TOTAL NSW*</b>	2.3	2.1	2.2	2.1	1.9

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health

<sup>#</sup>Hospitals with more than 200 deliveries are identified individually. TOTAL for NSW includes homebirths assisted by independent midwives.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives

## Apgar score. Indicator 9.1

Definition: Total number of term babies born with an Apgar score of less than 7 at 5 minutes post delivery as a percentage of the total number of term babies born.

Table 64 shows aggregate information for hospitals where at least 200 babies were born in 2006, totals for hospitals within each health area, and the NSW total.

**TABLE 64**

**9.1 APGAR SCORE OF 7 OR LESS IN TERM BABIES BY HOSPITAL, NSW 2002–2006<sup>#</sup>**

Health area – hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>Sydney South West</b>					
Canterbury	1.3	1.3	1.2	1.1	1.1
Royal Prince Alfred	1.0	0.9	0.8	1.6	1.5
Fairfield	3.0	2.9	2.1	1.6	1.6
Liverpool	0.8	1.2	1.0	0.8	1.5
Campbelltown	1.6	2.0	1.1	1.2	1.2
Bankstown-Lidcombe	0.7	1.0	0.9	0.6	1.0
Bowral	1.4	1.1	0.3	0.9	1.0
Other hospitals	–	0.6	0.4	1.5	–
TOTAL	1.3	1.4	1.1	1.2	1.4
<b>South Eastern Sydney and Illawarra</b>					
St. George	1.4	1.7	1.0	0.8	0.8
Sutherland	0.3	0.1	0.2	0.8	1.1
Royal Hospital for Women	1.1	1.1	1.0	1.5	0.9
Shoalhaven	1.3	0.3	1.2	0.7	1.2
Wollongong	1.2	0.7	0.7	0.8	0.8
Other hospitals	0.8	1.2	2.1	3.7	0.8
TOTAL	1.1	1.0	0.9	1.1	0.9
<b>Sydney West</b>					
Auburn	1.1	1.1	1.4	0.6	0.8
Blacktown	0.9	0.6	1.0	0.7	0.7
Blue Mountains	2.0	1.3	0.4	1.5	1.1
Nepean	1.3	0.7	1.0	0.7	0.7
Westmead	0.7	0.7	1.2	0.9	0.5
Hawkesbury	1.4	1.1	0.7	1.0	0.6
Lithgow	1.8	3.1	2.6	2.7	3.0
TOTAL	1.0	0.8	1.1	0.8	0.7
<b>Northern Sydney and Central Coast</b>					
Gosford	1.8	1.3	1.2	1.0	1.1
Wyong	1.5	0.3	1.5	0.5	2.0
Hornsby	0.9	0.8	1.9	1.0	1.1
Manly	1.5	1.2	1.1	1.1	1.0
Mona Vale	2.4	1.4	1.0	0.8	1.1
Royal North Shore	0.8	1.5	0.8	1.0	1.0
Other hospitals	1.3	1.4	0.8	0.8	0.8
TOTAL	1.4	1.2	1.2	1.0	1.1
<b>Hunter and New England</b>					
Armidale	1.4	1.2	1.3	1.3	0.7
Inverell	0.0	1.0	0.0	0.0	0.4
Moree	0.9	1.2	1.0	1.8	2.5
Tamworth Base	1.7	2.4	2.4	2.1	1.2
Manning Base	1.4	1.0	0.9	1.7	0.9
Maitland	1.0	1.4	1.1	1.4	1.5
Muswellbrook	1.4	0.9	0.9	0.0	1.7
Singleton	0.5	2.0	1.8	0.6	1.0
John Hunter	1.2	1.3	1.2	1.3	1.0
Other hospitals	0.9	1.1	0.5	0.8	1.0
TOTAL	1.1	1.3	1.1	1.3	1.1

**TABLE 64 (continued)****9.1 APGAR SCORE OF 7 OR LESS IN TERM BABIES BY HOSPITAL, NSW 2002–2006<sup>#</sup>**

Health area – hospital	2002 %	2003 %	2004 %	2005 %	2006 %
<b>North Coast</b>					
Coffs Harbour	0.7	0.4	0.9	0.9	1.1
Grafton Base	1.3	1.8	0.3	1.0	1.7
Kempsey	1.4	3.4	2.6	2.1	2.6
Lismore Base	1.9	1.0	1.5	1.0	1.7
Murwillumbah	0.5	0.8	1.9	0.5	2.3
Tweed Heads	1.1	1.2	1.4	0.6	1.1
Port Macquarie Base	1.3	2.4	1.3	1.7	1.2
Other hospitals	1.1	0.6	1.3	0.3	1.3
TOTAL	1.2	1.3	1.4	1.0	1.5
<b>Greater Southern</b>					
Goulburn Base	1.0	1.0	0.4	0.8	1.6
Moruya	0.7	1.8	0.4	1.0	2.5
Queanbeyan	0.4	0.8	1.2	0.7	0.8
Griffith Base	0.9	0.9	0.5	1.4	1.3
Wagga Wagga Base	1.5	1.2	1.4	1.8	2.2
Other hospitals	1.8	1.0	1.2	0.9	0.6
TOTAL	1.4	1.1	1.0	1.1	1.4
<b>Greater Western</b>					
Dubbo Base	1.0	1.3	0.8	1.2	1.0
Mudgee	1.9	0.0	0.0	0.9	0.4
Bathurst Base	0.8	0.8	0.9	1.1	1.1
Orange Base	2.5	1.2	1.9	1.4	0.8
Parkes	1.6	0.5	0.0	1.1	2.0
Broken Hill Base	2.9	1.6	2.9	2.4	0.9
Other hospitals	0.9	1.0	0.8	0.5	1.6
TOTAL	1.5	1.1	1.1	1.2	1.0
<b>Private Hospitals</b>					
Mater, North Sydney	0.8	0.6	0.6	0.7	0.6
North Shore Private	0.6	0.2	0.5	0.4	0.5
Sydney Adventist	0.9	1.1	1.0	0.6	0.6
North Gosford Private	1.3	0.8	0.4	1.2	0.6
Hurstville Community	0.3	0.6	1.0	0.7	0.5
Kareena Private	0.6	1.2	0.7	0.7	0.9
St. George Private	1.1	0.7	1.1	0.6	0.5
Prince of Wales Private	0.9	1.0	1.4	0.9	0.9
The Hills Private	0.6	0.3	0.5	0.3	0.5
Sydney Southwest Private	0.5	1.2	1.1	0.4	1.2
Nepean Private	0.5	0.5	0.5	0.3	0.0
Westmead Private	1.6	1.2	1.4	0.6	0.7
Figtree Private	0.9	0.4	0.1	0.3	0.9
Newcastle Private	1.1	0.0	0.9	1.1	0.6
Calvary, Wagga Wagga	0.5	0.9	1.5	1.0	1.2
Other hospitals	1.5	1.3	1.0	0.9	0.8
TOTAL	0.9	0.8	0.9	0.6	0.7
<b>TOTAL NSW*</b>	1.1	1.1	1.0	1.0	1.0

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health

<sup>#</sup> Hospitals with more than 200 deliveries are identified individually. TOTAL for NSW includes homebirths assisted by independent midwives.

\* TOTAL NSW includes 130 homebirths assisted by independent midwives

## 7. ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS AND BABIES

### Reporting of Aboriginality

Maternal Aboriginality is under-reported on the MDC. One method of assessing the extent of under-reporting and monitoring changes over time is to compare the reporting of maternal Aboriginality to the MDC with reporting of maternal Aboriginality on birth registrations held by the NSW Registry of Births, Deaths and Marriages. Using capture-recapture methods, an estimate of the total number of babies born to Aboriginal mothers was obtained and compared with the number of babies born to Aboriginal mothers as reported to the MDC (Table 65). An estimate of the total number of babies born to Aboriginal mothers or fathers was also obtained and compared with the number of babies born to Aboriginal mothers as reported to the MDC

(Table 67). The method used here is described in Chapter 3 (page 14).

For NSW overall, the percentage of births to Aboriginal and Torres Strait Islander mothers reported to the MDC rose from 65.5 per cent to 69.3 per cent between 2002 and 2005. In 2005, reporting varied markedly between area health services, ranging from 39.3 per cent in the Sydney South West Area to 86.8 per cent in the Greater Southern Area (Table 65, Figure 2). Under-reporting of Aboriginality on the MDC means that numbers of births presented in this chapter should be interpreted with caution. The total number of babies born to Aboriginal mothers in 2005 is estimated to be 3,614, about one-and-a half times higher than the number reported to the MDC.

**TABLE 65**

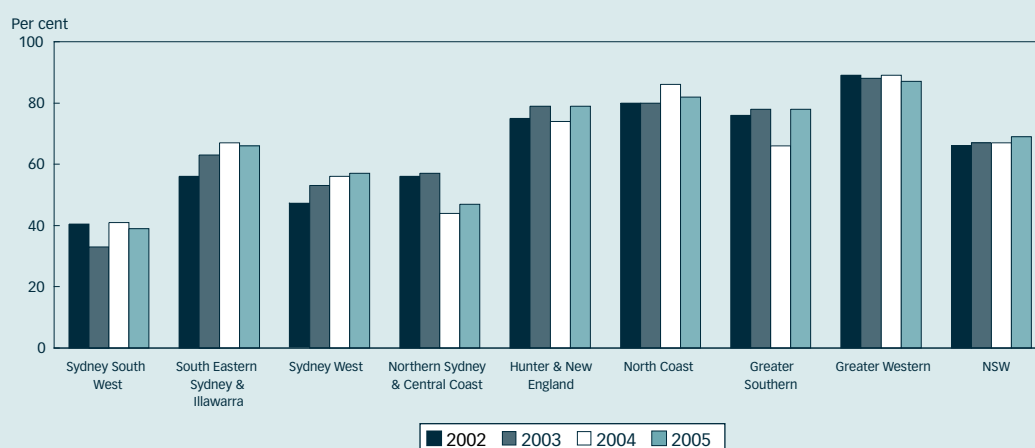
**BIRTHS TO ABORIGINAL MOTHERS BY SOURCE OF BIRTH REPORT, YEAR OF BIRTH AND HEALTH AREA OF RESIDENCE, NSW 2002–2005**

Year of birth – Health area of residence	MDC births  No.	RBDM births  No.	Births reported to both MDC/RBDM  No.	Total estimated Aboriginal births  No.	Estimated Aboriginal births reported to MDC  %	95% confidence interval of estimated births reported
<b>2002</b>						
Sydney South West	166	295	119	411	40.4	35.7 – 45.1
South Eastern Sydney & Illa warra	175	187	105	311	56.2	50.7 – 61.8
Sydney West	208	301	141	443	46.9	42.3 – 51.5
Northern Sydney & Central Coast	87	95	53	155	56.0	48.2 – 63.8
Hunter & New England	520	421	317	690	75.3	72.1 – 78.5
North Coast	330	197	158	411	80.3	76.4 – 84.1
Greater Southern	160	114	87	209	76.4	70.7 – 82.2
Greater Western	524	335	297	591	88.7	86.1 – 91.2
Other-not stated	13	10	4	30	43.6	25.8 – 61.4
NSW	2183	1955	1281	3331	65.5	63.9 – 67.1
<b>2003</b>						
Sydney South West	161	285	95	482	33.4	29.2 – 37.6
South Eastern Sydney & Illawarra	180	177	112	284	63.4	57.8 – 69.0
Sydney West	240	282	148	457	52.5	48.0 – 57.1
Northern Sydney & Central Coast	83	108	61	147	56.6	48.6 – 64.6
Hunter & New England	522	425	334	664	78.6	75.5 – 81.7
North Coast	311	175	139	391	79.5	75.5 – 83.5
Greater Southern	174	121	94	224	77.8	72.3 – 83.2
Greater Western	495	319	281	562	88.1	85.4 – 90.8
Other-not stated	23	16	13	28	81.7	67.4 – 96.0
NSW	2189	1908	1277	3270	66.9	65.3 – 68.5
<b>2004</b>						
Sydney South West	164	260	105	405	40.5	35.7 – 45.2
South Eastern Sydney & Illawarra	224	203	136	334	67.1	62.0 – 72.1
Sydney West	242	271	151	434	55.8	51.1 – 60.5
Northern Sydney & Central Coast	94	111	49	212	44.4	37.7 – 51.1
Hunter & New England	514	416	306	699	73.6	70.3 – 76.9
North Coast	398	233	201	461	86.3	83.2 – 89.4
Greater Southern	175	142	94	264	66.3	60.6 – 72.0
Greater Western	506	274	245	566	89.4	86.9 – 92.0
Other-not stated	16	16	11	23	69.3	50.5 – 88.1
NSW	2333	1926	1298	3461	67.4	65.8 – 69.0

**TABLE 65 (continued)****BIRTHS TO ABORIGINAL MOTHERS BY SOURCE OF BIRTH REPORT, YEAR OF BIRTH AND HEALTH AREA OF RESIDENCE, NSW 2002–2005**

Year of birth – Health area of residence	MDC births	RBDM births	Births reported to both MDC/RBDM	Total estimated Aboriginal births	Estimated Aboriginal births reported to MDC	95% confidence interval of estimated births reported
	No.	No.	No.	No.	%	
<b>2005</b>						
Sydney South West	163	189	74	414	39.3	34.6 – 44.0
South Eastern Sydney & Illawarra	201	143	94	305	65.9	60.5 – 71.2
Sydney West	270	224	128	472	57.2	52.8 – 61.7
Northern Sydney & Central Coast	88	93	43	189	46.5	39.4 – 53.6
Hunter & New England	611	354	278	778	78.6	75.7 – 81.4
North Coast	357	152	124	437	81.7	78.0 – 85.3
Greater Southern	212	116	90	273	77.7	72.8 – 82.6
Greater Western	565	265	230	651	86.8	84.2 – 89.4
Other-not stated	39	26	22	46	84.9	74.5 – 95.2
NSW	2506	1562	1083	3614	69.3	67.8 – 70.8

Source: Linked NSW Midwives Data Collection and Registry of Births, Deaths and Marriages birth registration data.

**FIGURE 2****LEVEL OF REPORTING OF ABORIGINALITY TO THE NSW MIDWIVES DATA COLLECTION BY YEAR OF BIRTH AND HEALTH AREA OF HOSPITAL, NSW 2002–2005**

Source: Linked NSW Midwives Data Collection and Registry of Births, Deaths and Marriages birth registration data.

Information on paternal Aboriginality is not collected by the MDC, but is reported to the NSW Registry of Births, Deaths and Marriages. Of the 86,277 births registered for residents of NSW in 2005, 3,130 (3.6 per cent) were reported to have

an Aboriginal or Torres Strait Islander mother or father (Table 66). For 1,182 babies, the mother was reported to be non-Aboriginal or Torres Strait Islander and the father was reported to be Aboriginal or Torres Strait Islander.

**TABLE 66****BIRTH REGISTRATIONS BY MATERNAL AND PATERNAL INDIGENOUS STATUS, NSW 2005**

Mother	Father	No.	%
Aboriginal or Torres Strait Islander	Aboriginal or Torres Strait Islander	581	0.7
Aboriginal or Torres Strait Islander	Non-Aboriginal	1367	1.6
Non-Aboriginal	Aboriginal or Torres Strait Islander	1182	1.4
Non-Aboriginal	Non-Aboriginal	83147	96.4
TOTAL		86277	100.0

Source: Australian Bureau of Statistics birth registration data (HOIST), Centre for Epidemiology and Research, NSW Department of Health. Births registered among NSW residents. Births where indigenous status was not stated were classified as non-Aboriginal.

Table 67 shows the number of babies born to Aboriginal mothers as reported to the MDC and the number of babies born to Aboriginal mothers or fathers as reported to the NSW Registry of Births, Deaths and Marriages between 2002 and 2005. Using capture–recapture methods, an estimate of the total number of babies born to Aboriginal mothers or fathers was obtained from both data sources. For NSW overall, the percentage of births to Aboriginal and

Torres Strait Islander mothers or fathers that are reported to the MDC rose slightly from 42.2 per cent to 43.7 per cent between 2002 and 2005. In 2005, this percentage ranged from 25.0 per cent in the Sydney South West Area to 57.3 per cent in the Greater Southern Area (Table 67).

There are therefore a substantial number of babies with non-indigenous mothers and indigenous fathers who are not represented in the numbers reported in this chapter.

**TABLE 67**

**BIRTHS TO ABORIGINAL MOTHERS AND FATHERS BY SOURCE OF BIRTH REPORT, YEAR OF BIRTH AND HEALTH AREA OF RESIDENCE, NSW 2002–2005**

Year of birth – Health area of residence	MDC births  No.	RBDM births  No.	Births reported to both MDC/RBDM  No.	Total estimated Aboriginal births	Estimated Aboriginal births reported to MDC  %	95% confidence interval of estimated births reported
<b>2002</b>						
Sydney South West	166	442	120	610	27.2	23.7 – 30.7
South Eastern Sydney & Illawarra	175	327	110	519	33.7	29.6 – 37.8
Sydney West	208	469	143	681	30.5	27.1 – 34.0
Northern Sydney & Central Coast	87	175	57	266	32.7	27.1 – 38.3
Hunter & New England	520	663	326	1057	49.2	46.2 – 52.2
North Coast	330	342	163	691	47.7	44.0 – 51.5
Greater Southern	160	213	92	369	43.3	38.3 – 48.4
Greater Western	524	485	307	827	63.3	60.0 – 66.6
Other–not stated	13	17	4	49	26.3	14.0 – 38.6
NSW	2183	3133	1322	5173	42.2	40.9 – 43.5
<b>2003</b>						
Sydney South West	161	428	97	708	22.7	19.6 – 25.8
South Eastern Sydney & Illawarra	180	312	115	487	36.9	32.6 – 41.2
Sydney West	240	466	152	735	32.7	29.3 – 36.1
Northern Sydney & Central Coast	83	183	64	237	35.1	29.0 – 41.1
Hunter & New England	522	664	339	1022	51.1	48.0 – 54.1
North Coast	311	291	145	623	49.9	46.0 – 53.8
Greater Southern	174	211	97	378	46.1	41.1 – 51.1
Greater Western	495	491	288	843	58.7	55.4 – 62.0
Other–not stated	23	28	14	45	50.7	36.1 – 65.2
NSW	2189	3074	1311	5132	42.7	41.3 – 44.0
<b>2004</b>						
Sydney South West	164	395	109	593	27.7	24.1 – 31.3
South Eastern Sydney & Illawarra	224	344	139	553	40.5	36.4 – 44.6
Sydney West	242	454	151	726	33.3	29.9 – 36.7
Northern Sydney & Central Coast	94	214	51	392	24.0	19.8 – 28.2
Hunter & New England	514	653	310	1082	47.5	44.5 – 50.5
North Coast	398	353	212	662	60.1	56.4 – 63.8
Greater Southern	175	231	97	416	42.1	37.4 – 46.8
Greater Western	506	418	255	829	61.1	57.7 – 64.4
Other–not stated	16	25	11	36	44.7	28.4 – 60.9
NSW	2333	3087	1335	5394	43.3	41.9 – 44.6
<b>2005</b>						
Sydney South West	163	310	77	653	25.0	21.6 – 28.3
South Eastern Sydney & Illawarra	201	268	97	553	36.3	32.3 – 40.3
Sydney West	270	372	133	753	35.8	32.4 – 39.3
Northern Sydney & Central Coast	88	162	44	321	27.4	22.5 – 32.3
Hunter & New England	611	584	289	1234	49.5	46.7 – 52.3
North Coast	357	257	132	693	51.5	47.8 – 55.2
Greater Southern	212	180	96	396	53.5	48.6 – 58.4
Greater Western	565	412	236	985	57.3	54.3 – 60.4
Other–not stated	39	33	22	58	67.1	55.0 – 79.2
NSW	2506	2578	1126	5736	43.7	42.4 – 45.0
Source: Linked NSW Midwives Data Collection and Registry of Births, Deaths and Marriages birth registration data.						

## Trends in births

In 2006, 2,463 babies were born to Aboriginal mothers, 51 babies were born to Torres Strait Islander mothers and

135 babies were born to mothers of both Aboriginal and Torres Strait Islander background (Table 68).

**TABLE 68**

### ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS AND BABIES BY INDIGENOUS STATUS, NSW 2002–2006#

Indigenous status	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Confinements</b>										
Aboriginal but not Torres Strait Islander	2041	94.7	2014	93.2	2161	93.6	2347	94.9	2429	93.0
Torres Strait Islander but not Aboriginal	25	1.2	35	1.6	48	2.1	30	1.2	50	1.9
Both Aboriginal and Torres Strait Islander	89	4.1	112	5.2	99	4.3	97	3.9	132	5.1
TOTAL	2155	100.0	2161	100.0	2308	100.0	2474	100.0	2611	100.0
<b>Births</b>										
Aboriginal but not Torres Strait Islander	2069	94.8	2039	93.1	2184	93.6	2376	94.8	2463	93.0
Torres Strait Islander but not Aboriginal	25	1.1	37	1.7	48	2.1	31	1.2	51	1.9
Both Aboriginal and Torres Strait Islander	89	4.1	114	5.2	101	4.3	100	4.0	135	5.1
TOTAL	2183	100.0	2190	100.0	2333	100.0	2507	100.0	2649	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers of confinements are about one-and-a-half times higher than shown, and the numbers of births are about two times higher than shown.

## Plurality

Between 2002 and 2006, the reported number of babies born to Aboriginal and Torres Strait Islander mothers increased from 2,183 to 2,649 (Table 69), representing 2.5

and 2.9 per cent respectively of all babies born in NSW. Multiple pregnancies (twins, triplets etc.) were reported for about one per cent of mothers.

**TABLE 69**

### ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS AND BABIES BY PLURALITY, NSW 2002–2006#

Plurality	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Confinements</b>										
Singleton	2127	98.7	2134	98.8	2283	98.9	2443	98.7	2574	98.6
Twins	28	1.3	26	1.2	25	1.1	29	1.2	36	1.4
Triplets	0	0.0	1	0.0	0	0.0	2	0.1	1	0.0
TOTAL	2155	100.0	2161	100.0	2308	100.0	2474	100.0	2611	100.0
<b>Births</b>										
Singleton	2127	97.4	2134	97.4	2283	97.9	2443	97.4	2574	97.2
Twins	56	2.6	53	2.4	50	2.1	58	2.3	72	2.7
TOTAL	2183	100.0	2190	100.0	2333	100.0	2507	100.0	2649	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers of confinements are about one-and-a-half times higher than shown, and the numbers of births are about two times higher than shown.

## Previous pregnancies

In 2006, about one-third of Aboriginal and Torres Strait Islander mothers gave birth for the first time (Table 70), about 60 per cent of mothers reported between one and 4

previous births and 7.6 per cent of mothers had given birth to 5 or more babies. This pattern has not changed substantially since 2002.

**TABLE 70**

### PREVIOUS PREGNANCIES AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 2002–2006#

No. previous pregnancies (>20 weeks)	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
0	664	30.8	668	30.9	759	32.9	787	31.8	844	32.3
1–4	1302	60.4	1316	60.9	1327	57.5	1472	59.5	1551	59.4
5+	183	8.5	177	8.2	221	9.6	214	8.6	199	7.6
Not stated	6	0.3	0	0.0	1	0.0	1	0.0	17	0.7
TOTAL	2155	100.0	2161	100.0	2308	100.0	2474	100.0	2611	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers are about one-and-a-half times higher than shown.

## Maternal age

The reported number of babies born to Aboriginal and Torres Strait Islander mothers has increased at all ages. About one in 5 Aboriginal and Torres Strait Islander mothers were teenagers in 2006. Following state-wide trends, the

number of mothers giving birth at 35 years of age or more has increased over the last 5 years — from 6.8 per cent in 2002 to 8.5 per cent in 2006 (Table 71).

**TABLE 71**

### AGE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 2002–2006#

Maternal age (years)	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
12–19	481	22.3	455	21.1	493	21.4	504	20.4	534	20.5
20–34	1524	70.7	1553	71.9	1594	69.1	1739	70.3	1851	70.9
35+	146	6.8	153	7.1	221	9.6	231	9.3	222	8.5
Not stated	4	0.2	0	0.0	0	0.0	0	0.0	4	0.2
TOTAL	2155	100.0	2161	100.0	2308	100.0	2474	100.0	2611	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers are about one-and-a-half times higher than shown.

## Health area of residence

The reported number of Aboriginal and Torres Strait Islander mothers who gave birth in 2006 ranged from 105 in the Northern Sydney and Central Coast Area to 594 in the Hunter and New England Area (Table 72).

The proportion of mothers who were teenagers varied from 14.6 cent in the Sydney South West Area to 24.4 per cent in the Greater Western Area (Table 73).

**TABLE 72**

### HEALTH AREA OF RESIDENCE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 2002–2006#

Health Area	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	165	7.7	160	7.4	164	7.1	181	7.3	213	8.2
South Eastern Sydney & Illawarra	173	8.0	178	8.2	221	9.6	198	8.0	228	8.7
Sydney West	204	9.5	237	11.0	238	10.3	269	10.9	284	10.9
Northern Sydney & Central Coast	85	3.9	82	3.8	93	4.0	88	3.6	105	4.0
Hunter & New England	513	23.8	514	23.8	508	22.0	600	24.3	594	22.7
North Coast	327	15.2	304	14.1	390	16.9	350	14.1	406	15.5
Greater Southern	158	7.3	170	7.9	173	7.5	209	8.4	193	7.4
Greater Western	517	24.0	493	22.8	505	21.9	560	22.6	561	21.5
Other/Not stated	13	0.6	23	1.1	16	0.7	19	0.8	27	1.0
TOTAL	2155	100.0	2161	100.0	2308	100.0	2474	100.0	2611	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers for the total are about one-and-a-half times higher than shown. The level of under-reporting varies between health areas (Table 65).

**TABLE 73**

### HEALTH AREA OF RESIDENCE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY AGE, NSW 2006#

Health Area	Maternal age (years)							
	Under 20		20-plus		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Sydney South West	31	14.6	182	85.4	0	0.0	213	100.0
South Eastern Sydney & Illawarra	38	16.7	189	82.9	1	0.4	228	100.0
Sydney West	51	18.0	233	82.0	0	0.0	284	100.0
Northern Sydney & Central Coast	23	21.9	82	78.1	0	0.0	105	100.0
Hunter & New England	127	21.4	467	78.6	0	0.0	594	100.0
North Coast	79	19.5	327	80.5	0	0.0	406	100.0
Greater Southern	42	21.8	151	78.2	0	0.0	193	100.0
Greater Western	137	24.4	421	75.0	3	0.5	561	100.0
Other/Not stated	6	22.2	21	77.8	0	0.0	27	100.0
TOTAL	534	20.5	2073	79.4	4	0.2	2611	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers for the total are about one-and-a-half times higher than shown. The level of under-reporting varies between health areas (Table 65).

## Booking status

In 2006, 89.1 per cent of Aboriginal and Torres Strait Islander mothers were booked into the hospital of birth, a rise from 87.3 per cent in 2002. In 2006, 94.8 per cent of non-Aboriginal or Torres Strait Islander mothers were booked into the hospital of birth.

## Duration of pregnancy at first antenatal visit

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, the proportion of Aboriginal and Torres Strait Islander mothers who commenced antenatal care at less than 20 weeks gestation varied from 63.4 per cent in the Sydney South West Area to 84.8 per cent in the Northern Sydney and Central Coast Area (Table 75).

**TABLE 74**

### DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 2002–2006#

Duration of pregnancy (weeks)	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
0–19	1448	67.2	1526	70.6	1618	70.1	1854	74.9	1952	74.8
20+	560	26.0	547	25.3	573	24.8	561	22.7	550	21.1
Not stated	147	6.8	88	4.1	117	5.1	59	2.4	109	4.2
TOTAL	2155	100.0	2161	100.0	2308	100.0	2474	100.0	2611	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers are about one-and-a-half times higher than shown.

**TABLE 75**

### DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY HEALTH AREA OF RESIDENCE, NSW 2006#

Health Area	Duration of pregnancy (weeks)							
	0–19		20-plus		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Sydney South West	135	63.4	64	30.0	14	6.6	213	100.0
South Eastern Sydney & Illawarra	179	78.5	45	19.7	4	1.8	228	100.0
Sydney West	217	76.4	65	22.9	2	0.7	284	100.0
Northern Sydney & Central Coast	89	84.8	16	15.2	0	0.0	105	100.0
Hunter & New England	437	73.6	140	23.6	17	2.9	594	100.0
North Coast	311	76.6	76	18.7	19	4.7	406	100.0
Greater Southern	148	76.7	37	19.2	8	4.1	193	100.0
Greater Western	412	73.4	105	18.7	44	7.8	561	100.0
Other/Not stated	24	88.9	2	7.4	1	3.7	27	100.0
TOTAL	1952	74.8	550	21.1	109	4.2	2611	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Information not shown for Health Areas where the number of mothers is less than 5 in a group.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers are about one-and-a-half times higher than shown. The level of under-reporting varies between health areas (Table 65).

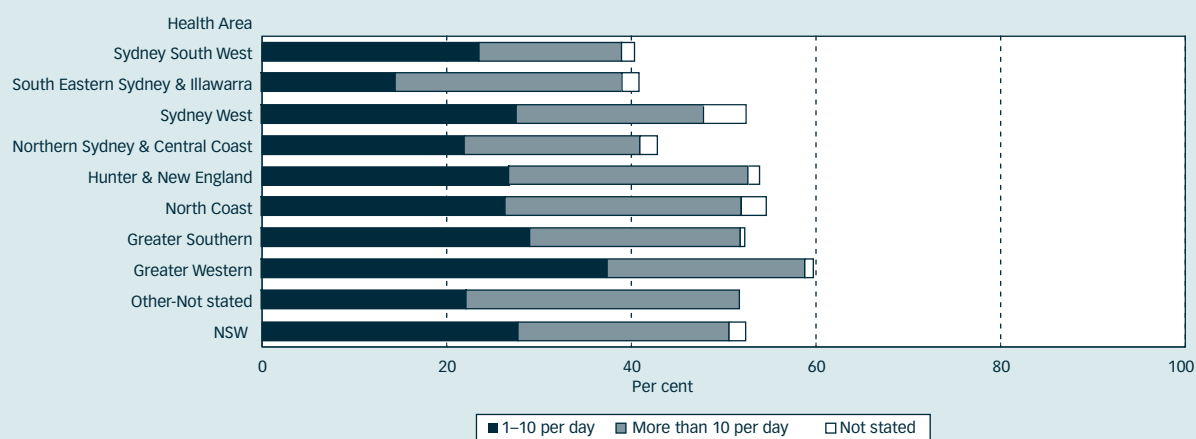
## Smoking in pregnancy

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.

Smoking in the second half of pregnancy poses the greatest risk to the health of both mother and baby. In 2006, 52.3 per cent of Aboriginal and Torres Strait Islander mothers reported smoking in the second half of pregnancy. This percentage varied from 40.4 per cent in the Sydney South West Area to 59.7 per cent in the Greater Western Area (Figure 3).

**FIGURE 3**

### SMOKING IN THE SECOND HALF OF PREGNANCY AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY AMOUNT SMOKED AND HEALTH AREA OF RESIDENCE, NSW 2006#



Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research. NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers for NSW are about one and a half times higher than shown. The level of reporting varies between areas (Table 65).

## Medical conditions and obstetric complications

In 2006, there was a slightly lower rate of gestational diabetes reported among Aboriginal and Torres Strait Islander mothers compared with non-Aboriginal or Torres Strait Islander mothers (Table 76). The number of Aboriginal and Torres Strait Islander mothers with medical

conditions and obstetric complications reported to the MDC is low, even after taking into account under-reporting of maternal Aboriginality. This is particularly the case for diabetes. The low numbers may be due to under-detection and/or under-reporting.

**TABLE 76**

### MATERNAL MEDICAL CONDITIONS AND OBSTETRIC COMPLICATIONS BY ABORIGINALITY, NSW 2006#

Condition	Aboriginality							
	Aboriginal/ Torres Strait islander		Non-Aboriginal/ Torres Strait islander		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Diabetes mellitus	29	1.1	508	0.6	4	0.8	541	0.6
Gestational diabetes	102	3.9	4255	4.8	18	3.4	4375	4.8
Essential hypertension	17	0.7	785	0.9	2	0.4	804	0.9
Pre-eclampsia	137	5.2	4287	4.9	12	2.3	4436	4.9
TOTAL CONFINEMENTS	2611	100.0	88176	100.0	528	100.0	91315	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers are about one and a half times higher than shown.

## Labour and birth

The rate of spontaneous onset of labour fell from 69.9 per cent in 2002 to 66.2 per cent in 2006 (Table 77), while the rate of induction of labour among Aboriginal and Torres Strait Islander mothers increased marginally from about 19 to 21 per cent. The rate of induction of labour among Aboriginal and Torres Strait Islander mothers was slightly lower than the rate of 24.8 per cent reported among non-Aboriginal and Torres Strait Islander mothers in 2006.

Between 2002 and 2006, the rate of normal vaginal birth fell from 74.2 to 71.5 per cent. The caesarean section rate rose from 20.6 to 22.5 per cent (Table 78). The rate of forceps delivery remained stable at about 2 per cent, and vaginal breech birth was about 1 per cent.

**TABLE 77**

### LABOUR ONSET FOR ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 2002–2006#

Labour onset	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
Spontaneous	1507	69.9	1469	68.0	1581	68.5	1613	65.2	1728	66.2
No labour##	223	10.3	250	11.6	260	11.3	277	11.2	329	12.6
Induced	423	19.6	442	20.5	467	20.2	584	23.6	552	21.1
Not stated	2	0.1	0	0.0	0	0.0	0	0.0	2	0.1
TOTAL	2155	100.0	2161	100.0	2308	100.0	2474	100.0	2611	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers are about one-and-a-half times higher than shown.

## No labour indicates elective caesarean section.

**TABLE 78**

### TYPE OF BIRTH AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 2002–2006#

Type of birth	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal vaginal	1598	74.2	1585	73.3	1647	71.4	1741	70.4	1868	71.5
Forceps	30	1.4	35	1.6	60	2.6	42	1.7	46	1.8
Vacuum extraction	68	3.2	67	3.1	74	3.2	91	3.7	84	3.2
Vaginal breech	14	0.6	9	0.4	16	0.7	24	1.0	17	0.7
Elective caesarean section	223	10.3	250	11.6	260	11.3	277	11.2	329	12.6
Emergency caesarean section##	222	10.3	215	9.9	251	10.9	299	12.1	259	9.9
Not stated	0	0.0	0	0.0	0	0.0	0	0.0	8	0.3
TOTAL	2155	100.0	2161	100.0	2308	100.0	2474	100.0	2611	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers for the total are about one-and-a-half times higher than shown.

## Emergency caesarean section includes caesarean section where the onset of labour was not stated.

## Birth weight

Since 2002, the rate of low birth weight (less than 2,500 grams) in Aboriginal and Torres Strait Islander babies has been over 10 per cent and was 12.4 per cent in 2006 (Table 79). This is about one and a half times the rate for babies

born to non-Aboriginal or Torres Strait Islander mothers, which was 6.2 per cent in 2006. In 2006, the largest number of low birth weight babies was born in the Hunter and New England Area (Table 80).

**TABLE 79**

### WEIGHT OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 2002–2006#

Birth weight (grams)	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 1000	21	1.0	31	1.4	23	1.0	36	1.4	26	1.0
1000 – 1499	230	10.5	221	10.1	244	10.5	257	10.3	273	10.3
1500 – 2499	1900	87.0	1917	87.5	2032	87.1	2193	87.5	2318	87.5
2500+	4	0.2	2	0.1	0	0.0	1	0.0	3	0.1
Not stated	2183	100.0	2190	100.0	2333	100.0	2507	100.0	2649	100.0
TOTAL	2183	100.0	2190	100.0	2308	100.0	2474	100.0	2611	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers are about two times higher than shown.

**TABLE 80**

### WEIGHT OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES BY HEALTH AREA OF RESIDENCE, NSW 2006#

Health Area	Birth weight (grams)							
	Less than 2500		2500-plus		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Sydney South West	34	15.7	182	84.3	0	0.0	216	100.0
South Eastern Sydney & Illawarra	35	15.0	198	85.0	0	0.0	233	100.0
Sydney West	25	8.8	260	91.2	0	0.0	285	100.0
Northern Sydney & Central Coast	14	13.1	93	86.9	0	0.0	107	100.0
Hunter & New England	82	13.6	519	86.1	2	0.3	603	100.0
North Coast	41	10.0	371	90.0	0	0.0	412	100.0
Greater Southern	20	10.2	177	89.8	0	0.0	197	100.0
Greater Western	74	13.0	494	86.8	1	0.2	569	100.0
Other/Not stated	3	11.1	24	88.9	0	0.0	27	100.0
TOTAL	328	12.4	2318	87.5	3	0.1	2649	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers for the total are about two times higher than shown. The level of under-reporting varies between health areas (Table 67).

## Gestational age

Since 2002, over 10 per cent of Aboriginal and Torres Strait Islander babies have been premature (less than 37 weeks gestation) (Table 81). The rate of prematurity was 10.8 per cent in 2006 – compared with a rate of 7.3 per

cent for babies born to non-Aboriginal or Torres Strait Islander mothers. In 2006, the largest number of premature babies was born in the Hunter and New England Area (Table 82).

**TABLE 81**

### GESTATIONAL AGE OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 2002–2006#

Gestational age (weeks)	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
20–27	21	1.0	29	1.3	31	1.3	30	1.2	24	0.9
28–31	34	1.6	30	1.4	29	1.2	27	1.1	26	1.0
32–36	212	9.7	206	9.4	212	9.1	244	9.7	235	8.9
37–41	1868	85.6	1878	85.8	2038	87.4	2180	87.0	2330	88.0
42 +	45	2.1	47	2.1	23	1.0	26	1.0	31	1.2
Not stated	3	0.1	0	0.0	0	0.0	0	0.0	2	0.1
<20	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
TOTAL	2183	100.0	2190	100.0	2333	100.0	2507	100.0	2649	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers are about two times higher than shown.

**TABLE 82**

### GESTATIONAL AGE OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES BY HEALTH AREA OF RESIDENCE, NSW 2006#

Health Area	Gestational age (weeks)							
	Less than 37		37-plus		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Sydney South West	36	16.7	180	83.3	0	0.0	216	100.0
South Eastern Sydney & Illawarra	32	13.7	201	86.3	0	0.0	233	100.0
Sydney West	28	9.8	257	90.2	0	0.0	285	100.0
Northern Sydney & Central Coast	11	10.3	96	89.7	0	0.0	107	100.0
Hunter & New England	79	13.1	524	86.9	0	0.0	603	100.0
North Coast	28	6.8	383	93.0	1	0.2	412	100.0
Greater Southern	10	5.1	187	94.9	0	0.0	197	100.0
Greater Western	59	10.4	509	89.5	1	0.2	569	100.0
Other/Not stated	3	11.1	24	88.9	0	0.0	27	100.0
TOTAL	286	10.8	2361	89.1	2	0.1	2649	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers for the total are about two times higher than shown. The level of under-reporting varies between health areas (Table 67).

## Apgar score

In 2006, 2.3 per cent of Aboriginal and Torres Strait Islander babies had an Apgar score less than seven (Table 50), slightly higher than the rate of 2.0 per cent for babies born to non-Aboriginal or Torres Strait Islander mothers.

**TABLE 83**

### APGAR SCORE OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 2002–2006#

Apgar score at 5 minutes	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
0–4	38	1.7	42	1.9	34	1.5	42	1.7	36	1.4
5–6	31	1.4	30	1.4	34	1.5	33	1.3	24	0.9
7+	2104	96.4	2109	96.3	2256	96.7	2416	96.4	2571	97.1
Not stated	10	0.5	9	0.4	9	0.4	16	0.6	18	0.7
TOTAL	2183	100.0	2190	100.0	2333	100.0	2507	100.0	2649	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers are about two times higher than shown.

## Perinatal mortality

Since 2006, the perinatal mortality rate among Aboriginal and Torres Strait Islander babies has varied from 11.0 to 15.2 per 1,000 births (Table 84). The rate of 12.1 per 1,000

in 2006 is substantially higher than the rate of 8.7 per 1,000 experienced by babies born to non-Aboriginal or Torres Strait Islander mothers.

**TABLE 84**

### PERINATAL DEATHS AMONG ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 2002–2006#

Perinatal deaths	Year									
	2002		2003		2004		2005		2006	
	No.	Rate/ 1000	No.	Rate/ 1000	No.	Rate/ 1000	No.	Rate/ 1000	No.	Rate/ 1000
Stillbirth	18	8.2	24	11.0	20	8.6	22	8.8	16	6.0
Neonatal death	6	2.7	9	4.1	7	3.0	16	6.4	16	6.0
TOTAL PERINATAL DEATHS	24	11.0	33	15.1	27	11.6	38	15.2	32	12.1

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Perinatal deaths include deaths reported to the MDC only. As the MDC form is completed at discharge or transfer of the baby, deaths occurring after this time may not be reported to the MDC. Due to under-reporting of Aboriginality to the MDC, it is likely that the true numbers are about two times higher than shown. The level of under-reporting varies between health areas.

## 8. MATERNAL COUNTRY OF BIRTH

In this section maternal countries of birth are combined into English-speaking and other regional groups. The country groups and individual countries are listed in Appendix 3. Recent trends in confinements for individual maternal countries of birth are shown in Table 4 (page 21).

### Trends in confinements

Between 2002 and 2006, about 20 per cent of mothers were born in non-English speaking countries (Table 85). Over the 5 year period, there was a slight decline in the percentage of mothers born in South East Asia, and a slight increase in the percentage of mothers born in South Asian countries.

**TABLE 85**

#### BIRTHS AND CONFINEMENTS BY COUNTRY OF BIRTH GROUP, NSW 2002–2006

Country of birth group	Year									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Confinements</b>										
English-speaking	67277	79.5	67322	79.2	66621	79.0	70354	78.9	71515	78.3
Central & South America	739	0.9	692	0.8	675	0.8	726	0.8	765	0.8
Melanesia, Micronesia & Polynesia	1534	1.8	1545	1.8	1584	1.9	1485	1.7	1538	1.7
Southern Europe	1001	1.2	1040	1.2	926	1.1	927	1.0	901	1.0
Western & Northern Europe	614	0.7	660	0.8	649	0.8	688	0.8	725	0.8
Eastern Europe, Russia, Central Asian & Baltic States	458	0.5	486	0.6	518	0.6	578	0.6	564	0.6
Middle East & Africa	3653	4.3	3879	4.6	3876	4.6	4080	4.6	4216	4.6
South East Asia	4557	5.4	4673	5.5	4445	5.3	4571	5.1	4698	5.1
North East Asia	2962	3.5	2819	3.3	2884	3.4	3117	3.5	3143	3.4
Southern Asia	1716	2.0	1746	2.1	1930	2.3	2396	2.7	2759	3.0
Other-not stated	76	0.1	170	0.2	180	0.2	218	0.2	491	0.5
TOTAL	84587	100.0	85032	100.0	84288	100.0	89140	100.0	91315	100.0
<b>Births</b>										
English-speaking	68458	79.6	68459	79.2	67735	79.1	71558	79.0	72699	78.4
Central & South America	755	0.9	699	0.8	683	0.8	743	0.8	779	0.8
Melanesia, Micronesia & Polynesia	1555	1.8	1564	1.8	1600	1.9	1508	1.7	1564	1.7
Southern Europe	1022	1.2	1064	1.2	939	1.1	945	1.0	920	1.0
Western & Northern Europe	627	0.7	668	0.8	663	0.8	700	0.8	737	0.8
Eastern Europe, Russia, Central Asian & Baltic States	468	0.5	494	0.6	525	0.6	593	0.7	573	0.6
Middle East & Africa	3711	4.3	3947	4.6	3941	4.6	4142	4.6	4287	4.6
South East Asia	4595	5.3	4733	5.5	4488	5.2	4626	5.1	4746	5.1
North East Asia	3000	3.5	2846	3.3	2910	3.4	3144	3.5	3172	3.4
Southern Asia	1738	2.0	1766	2.0	1953	2.3	2428	2.7	2801	3.0
Other-not stated	76	0.1	174	0.2	189	0.2	223	0.2	503	0.5
TOTAL	86005	100.0	86414	100.0	85626	100.0	90610	100.0	92781	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

## Maternal age

Births to teenage mothers were more common among mothers born in English-speaking countries than non-English speaking countries (Table 86, Figure 4), while the largest

proportions of mothers aged 35 years and over were among mothers born in Western and Northern Europe (38.9 per cent) and North East Asia (31.7 per cent).

**TABLE 86**

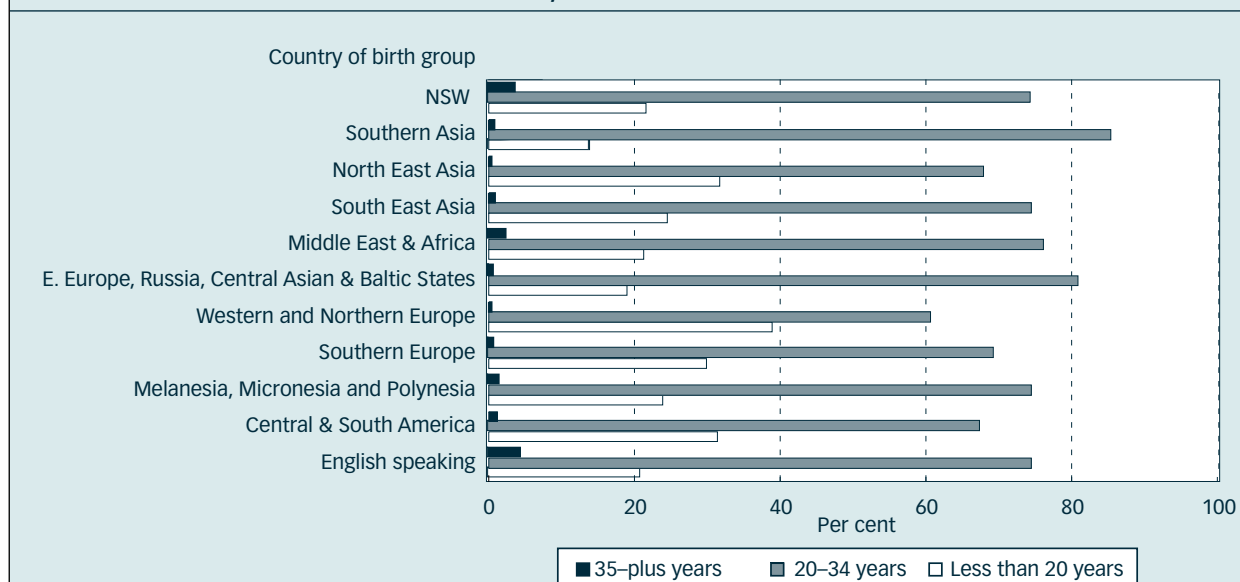
### MATERNAL AGE BY COUNTRY OF BIRTH GROUP, NSW 2006

Country of birth group	Maternal age (years)									
	12-19		20-34		35+		Not stated		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
English-speaking	3231	4.5	53312	74.5	14924	20.9	48	0.1	71515	100.0
Central & South America	9	1.2	516	67.5	240	31.4	0	0.0	765	100.0
Melanesia, Micronesia & Polynesia	24	1.6	1146	74.5	368	23.9	0	0.0	1538	100.0
Southern Europe	7	0.8	625	69.4	269	29.9	0	0.0	901	100.0
Western & Northern Europe	3	0.4	439	60.6	282	38.9	1	0.1	725	100.0
Eastern Europe, Russia, Central Asian & Baltic States	1	0.2	456	80.9	107	19.0	0	0.0	564	100.0
Middle East & Africa	107	2.5	3210	76.1	898	21.3	1	0.0	4216	100.0
South East Asia	42	0.9	3502	74.5	1153	24.5	1	0.0	4698	100.0
North East Asia	13	0.4	2134	67.9	995	31.7	1	0.0	3143	100.0
Southern Asia	23	0.8	2355	85.4	381	13.8	0	0.0	2759	100.0
Other-not stated	11	2.2	329	67.0	145	29.5	6	1.2	491	100.0
TOTAL	3471	3.8	68024	74.5	19762	21.6	58	0.1	91315	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

**FIGURE 4**

### MATERNAL AGE BY COUNTRY OF BIRTH GROUP, NSW 2002-2006



Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research. NSW Department of Health.

## Health area of residence

In 2006, the proportion of mothers born in non-English speaking countries was highest in the Sydney South West Area (37.7 per cent), followed by the Sydney West Area (31.0 per cent). Five per cent of mothers were born in South East Asian countries, 50.3 per cent of whom were resident in the Sydney South West Area. Almost 5 per cent

of mothers were born in Middle Eastern or African countries and 80.9 per cent of these mothers were resident in the Sydney South West or Sydney West Areas. A further 3.4 per cent of mothers were born in North East Asian countries and 3.0 per cent in Southern Asian countries, with the majority living in metropolitan areas (Table 87).

**TABLE 87**

### HEALTH AREA OF RESIDENCE BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2006#

Health Area	Country of birth group																						TOTAL	
	English speaking		Central & South America		Melanesia, Micronesia, Polynesia		Southern Europe		Western & Northern Europe		Eastern Europe, Russia, Central Asian & Baltic States		Middle East & Africa		South East Asia		North East Asia		Southern Asia		Other-not stated			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sydney South West	12614	61.8	292	1.4	673	3.3	418	2.0	141	0.7	140	0.7	2030	9.9	2363	11.6	897	4.4	748	3.7	110	0.5	20426	100.0
South Eastern Sydney & Illawarra	11964	79.7	175	1.2	126	0.8	219	1.5	180	1.2	149	1.0	456	3.0	645	4.3	650	4.3	266	1.8	190	1.3	15020	100.0
Sydney West	11833	68.8	115	0.7	533	3.1	138	0.8	74	0.4	114	0.7	1379	8.0	969	5.6	682	4.0	1323	7.7	50	0.3	17210	100.0
Northern Sydney & Central Coast	11639	82.3	137	1.0	94	0.7	92	0.7	210	1.5	126	0.9	226	1.6	470	3.3	774	5.5	321	2.3	50	0.4	14139	100.0
Hunter & New England	10150	95.9	17	0.2	48	0.5	20	0.2	44	0.4	16	0.2	49	0.5	115	1.1	61	0.6	40	0.4	19	0.2	10579	100.0
North Coast	4891	95.9	11	0.2	15	0.3	–	0.1	37	0.7	5	0.1	28	0.5	54	1.1	27	0.5	14	0.3	–	0.3	5100	100.0
Greater Southern	3884	95.7	6	0.1	31	0.8	–	0.1	19	0.5	–	0.1	23	0.6	31	0.8	17	0.4	27	0.7	14	0.3	4059	100.0
Greater Western	3911	96.5	5	0.1	9	0.2	–	0.1	11	0.3	7	0.2	16	0.4	29	0.7	11	0.3	12	0.3	–	0.9	4052	100.0
Other-not stated	629	86.2	7	1.0	9	1.2	3	0.4	9	1.2	4	0.5	9	1.2	22	3.0	24	3.3	8	1.1	6	0.8	730	100.0
TOTAL	71515	78.3	765	0.8	1538	1.7	901	1.0	725	0.8	564	0.6	4216	4.6	4698	5.1	3143	3.4	2759	3.0	491	0.5	91315	100.0

Source: NSW Midwives Data Collection, Epidemiology and Surveillance Branch, NSW Health Department.

# Data not shown for a country of birth groups with less than 5 in a group.

## Duration of pregnancy at first antenatal visit

In 2006, 87.5 per cent of all mothers commenced antenatal care before 20 weeks gestation. There was some variation between country of birth groups, with 89.6 per cent of mothers born in English speaking countries commencing

antenatal care before 20 weeks gestation, compared with 64.9 per cent of mothers born in Melanesia, Micronesia, and Polynesia, and 72.8 per cent of mothers born in the Middle East and Africa (Table 88).

**TABLE 88**

### DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT BY COUNTRY OF BIRTH GROUP, NSW 2006

Country of birth group	Duration of pregnancy at first antenatal visit (weeks)							
	0–19		20–plus		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
English-speaking	64042	89.6	6523	9.1	950	1.3	71515	100.0
Central & South America	673	88.0	86	11.2	6	0.8	765	100.0
Melanesia, Micronesia & Polynesia	998	64.9	517	33.6	23	1.5	1538	100.0
Southern Europe	801	88.9	89	9.9	11	1.2	901	100.0
Western & Northern Europe	649	89.5	62	8.6	14	1.9	725	100.0
Eastern Europe, Russia, Central Asian & Baltic States	502	89.0	57	10.1	5	0.9	564	100.0
Middle East & Africa	3068	72.8	1099	26.1	49	1.2	4216	100.0
South East Asia	3843	81.8	788	16.8	67	1.4	4698	100.0
North East Asia	2611	83.1	501	15.9	31	1.0	3143	100.0
Southern Asia	2288	82.9	453	16.4	18	0.7	2759	100.0
Other-not stated	399	81.3	43	8.8	49	10.0	491	100.0
TOTAL	79874	87.5	10218	11.2	1223	1.3	91315	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

## Smoking in pregnancy

In 2006, smoking at any time during pregnancy was more common among mothers born in English-speaking countries than mothers born in non-English-speaking countries (Table 89). About one in 6 mothers born in English-speaking countries smoked at some time during pregnancy, compared to fewer than one in 9 mothers born in other country of birth groups.

Smoking in the second half of pregnancy poses the greatest risk to the health of both mother and baby. Four per cent of mothers who smoked during pregnancy quit before the second half of pregnancy. Of mothers who did smoke in the second half of pregnancy, mothers born in English-speaking countries were more likely to smoke more than 10 cigarettes per day compared to mothers born in other country of birth groups (Table 90).

**TABLE 89**

### SMOKING IN PREGNANCY BY COUNTRY OF BIRTH GROUP, NSW 2006

Country of birth group	Smoking in pregnancy							
	No		Yes		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
English-speaking	58825	82.3	11618	16.2	1072	1.5	71515	100.0
Central & South America	714	93.3	29	3.8	22	2.9	765	100.0
Melanesia, Micronesia & Polynesia	1365	88.8	135	8.8	38	2.5	1538	100.0
Southern Europe	799	88.7	72	8.0	30	3.3	901	100.0
Western & Northern Europe	671	92.6	36	5.0	18	2.5	725	100.0
Eastern Europe, Russia, Central Asian & Baltic States	532	94.3	15	2.7	17	3.0	564	100.0
Middle East & Africa	3933	93.3	207	4.9	76	1.8	4216	100.0
South East Asia	4470	95.1	101	2.1	127	2.7	4698	100.0
North East Asia	2993	95.2	40	1.3	110	3.5	3143	100.0
Southern Asia	2675	97.0	11	0.4	73	2.6	2759	100.0
Other-not stated	438	89.2	43	8.8	10	2.0	491	100.0
TOTAL	77415	84.8	12307	13.5	1593	1.7	91315	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

**TABLE 90****MOTHERS WHO SMOKED AT ALL DURING PREGNANCY BY NUMBER OF CIGARETTES SMOKED IN THE SECOND HALF OF PREGNANCY AND COUNTRY OF BIRTH GROUP, NSW 2006**

Country of birth group	Cigarettes per day in the second half of pregnancy											
	None		1–10 per day		More than 10 per day		Smoked amount not stated		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
English-speaking	480	4.1	5819	50.1	4826	41.5	419	3.6	74	0.6	11618	100.0
Central & South America	3	10.3	19	65.5	5	17.2	2	6.9	0	0.0	29	100.0
Melanesia, Micronesia & Polynesia	1	0.7	95	70.4	36	26.7	3	2.2	0	0.0	135	100.0
Southern Europe	3	4.2	45	62.5	20	27.8	4	5.6	0	0.0	72	100.0
Western & Northern Europe	1	2.8	22	61.1	10	27.8	3	8.3	0	0.0	36	100.0
Eastern Europe, Russia, Central Asian & Baltic States	0	0.0	10	66.7	5	33.3	0	0.0	0	0.0	15	100.0
Middle East & Africa	7	3.4	114	55.1	77	37.2	9	4.3	0	0.0	207	100.0
South East Asia	10	9.9	64	63.4	20	19.8	5	5.0	2	2.0	101	100.0
North East Asia	5	12.5	28	70.0	1	2.5	5	12.5	1	2.5	40	100.0
Southern Asia	2	18.2	6	54.5	2	18.2	1	9.1	0	0.0	11	100.0
Other-not stated	2	4.7	21	48.8	14	32.6	4	9.3	2	4.7	43	100.0
TOTAL	514	4.2	6243	50.7	5016	40.8	455	3.7	79	0.6	12307	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

## Medical conditions and obstetric complications

In 2006, 1.2 per cent of mothers born in Melanesia, Micronesia, and Polynesia were reported to have diabetes mellitus—twice the rate for all mothers in NSW, though the number of mothers is small (Table 91). The rates of gestational diabetes in mothers born in Asian countries were over twice the rate for all mothers in NSW.

Overall, 0.9 per cent of mothers were reported to have essential hypertension, and 3.5 per cent were reported to have pre-eclampsia.

**TABLE 91****MATERNAL MEDICAL CONDITIONS AND OBSTETRIC COMPLICATIONS BY COUNTRY OF BIRTH GROUP, NSW 2006**

Country of birth group	Condition									
	Diabetes mellitus		Gestational diabetes		Essential hypertension		Pregnancy-induced hypertension		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
English-speaking	428	0.6	2527	3.5	692	1.0	3716	5.2	71515	100.0
Central & South America	4	0.5	46	6.0	7	0.9	39	5.1	765	100.0
Melanesia, Micronesia & Polynesia	18	1.2	175	11.4	6	0.4	82	5.3	1538	100.0
Southern Europe	4	0.4	53	5.9	5	0.6	29	3.2	901	100.0
Western & Northern Europe	3	0.4	29	4.0	5	0.7	29	4.0	725	100.0
Eastern Europe, Russia, Central Asian & Baltic States	1	0.2	19	3.4	1	0.2	25	4.4	564	100.0
Middle East & Africa	25	0.6	320	7.6	29	0.7	133	3.2	4216	100.0
South East Asia	24	0.5	518	11.0	26	0.6	158	3.4	4698	100.0
North East Asia	11	0.3	312	9.9	19	0.6	93	3.0	3143	100.0
Southern Asia	21	0.8	355	12.9	11	0.4	111	4.0	2759	100.0
Other-not stated	2	0.4	21	4.3	3	0.6	21	4.3	491	100.0
TOTAL#	541	0.6	4375	4.8	804	0.9	4436	4.9	91315	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Total refers to total mothers giving birth in NSW.

## Labour and birth

Mothers born in non-English-speaking countries were more likely to have a spontaneous onset of labour than mothers born in English speaking countries, and were less likely to be induced (Table 92).

Mothers born in the Middle East and Africa and Melanesia, Micronesia and Polynesia were more likely to have a normal vaginal birth than mothers in other country of birth groups (Table 93). The highest caesarean section rates were among mothers born in Southern Asia (33.4 per cent) and Central and South America (33.3 per cent).

**TABLE 92**

### LABOUR ONSET BY COUNTRY OF BIRTH GROUP, NSW 2006

Country of birth group	Onset of labour									
	Spontaneous		No labour		Induced		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
English-speaking	40467	56.6	12359	17.3	18634	26.1	55	0.1	71515	100.0
Central & South America	460	60.1	133	17.4	172	22.5	0	0.0	765	100.0
Melanesia, Micronesia & Polynesia	1017	66.1	207	13.5	314	20.4	0	0.0	1538	100.0
Southern Europe	547	60.7	144	16.0	210	23.3	0	0.0	901	100.0
Western & Northern Europe	464	64.0	116	16.0	145	20.0	0	0.0	725	100.0
Eastern Europe, Russia, Central Asian & Baltic States	355	62.9	89	15.8	120	21.3	0	0.0	564	100.0
Middle East & Africa	2715	64.4	590	14.0	910	21.6	1	0.0	4216	100.0
South East Asia	3252	69.2	741	15.8	701	14.9	4	0.1	4698	100.0
North East Asia	2033	64.7	517	16.4	591	18.8	2	0.1	3143	100.0
Southern Asia	1608	58.3	479	17.4	670	24.3	2	0.1	2759	100.0
Other-not stated	252	51.3	141	28.7	92	18.7	6	1.2	491	100.0
TOTAL#	53170	58.2	15516	17.0	22559	24.7	70	0.1	91315	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# No labour indicates elective caesarean section.

**TABLE 93**

### TYPE OF BIRTH BY COUNTRY OF BIRTH GROUP, NSW 2006

Health Area	Type of birth															
	Normal vaginal		Forceps		Vacuum extraction		Vaginal breech		Elective caesarean section		Emergency caesarean section#		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
English-speaking	43195	60.4	2235	3.1	4889	6.8	285	0.4	12352	17.3	8383	11.7	176	0.2	71515	100.0
Central & South America	423	55.3	31	4.1	50	6.5	4	0.5	133	17.4	122	15.9	2	0.3	765	100.0
Melanesia, Micronesia & Polynesia	1070	69.6	28	1.8	62	4.0	9	0.6	207	13.5	162	10.5	0	0.0	1538	100.0
Southern Europe	565	62.7	30	3.3	64	7.1	5	0.6	144	16.0	91	10.1	2	0.2	901	100.0
Western & Northern Europe	434	59.9	26	3.6	64	8.8	3	0.4	116	16.0	77	10.6	5	0.7	725	100.0
Eastern Europe, Russia, Central Asian & Baltic States	332	58.9	23	4.1	44	7.8	2	0.4	89	15.8	72	12.8	2	0.4	564	100.0
Middle East & Africa	2909	69.0	84	2.0	197	4.7	13	0.3	590	14.0	420	10.0	3	0.1	4216	100.0
South East Asia	2748	58.5	157	3.3	409	8.7	27	0.6	741	15.8	607	12.9	9	0.2	4698	100.0
North East Asia	1785	56.8	123	3.9	322	10.2	6	0.2	517	16.4	387	12.3	3	0.1	3143	100.0
Southern Asia	1487	53.9	132	4.8	210	7.6	7	0.3	477	17.3	445	16.1	1	0.0	2759	100.0
Other-not stated	239	48.7	16	3.3	21	4.3	5	1.0	141	28.7	61	12.4	8	1.6	491	100.0
TOTAL	55187	60.4	2885	3.2	6332	6.9	366	0.4	15507	17.0	10827	11.9	211	0.2	91315	100.0

Source: NSW Midwives Data Collection (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

# Data for emergency caesarean section include four cases where caesarean section was reported but onset of labour was not reported.

## Birth weight

The rate of low birth weight (less than 2,500 grams) in 2006 was 6.4 per cent in NSW. The highest rates of low birth weight were in babies of mothers born in Southern Asia

(9.8 per cent) and Melanesia, Micronesia and Polynesia (8.1 per cent) (Table 94). Babies of mothers born in North East Asia were least likely to be low birth weight.

**TABLE 94**

### BIRTH WEIGHT BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2006

Country of birth group	Birth weight (grams)							
	Less than 2500		2500+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
English-speaking	4598	6.3	68006	93.5	95	0.1	72699	100.0
Central & South America	40	5.1	738	94.7	1	0.1	779	100.0
Melanesia, Micronesia & Polynesia	126	8.1	1435	91.8	3	0.2	1564	100.0
Southern Europe	51	5.5	865	94.0	4	0.4	920	100.0
Western & Northern Europe	37	5.0	700	95.0	0	0.0	737	100.0
Eastern Europe, Russia, Central Asian & Baltic States	34	5.9	539	94.1	0	0.0	573	100.0
Middle East & Africa	263	6.1	4016	93.7	8	0.2	4287	100.0
South East Asia	314	6.6	4425	93.2	7	0.1	4746	100.0
North East Asia	142	4.5	3027	95.4	3	0.1	3172	100.0
Southern Asia	274	9.8	2525	90.1	2	0.1	2801	100.0
Other-not stated	54	10.7	447	88.9	2	0.4	503	100.0
TOTAL	5933	6.4	86723	93.5	125	0.1	92781	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

## Gestational age

The rate of prematurity (less than 37 weeks gestation) in 2006 was 7.4 per cent in NSW. The highest rates of prematurity were in babies of mothers born in Melanesia, Micronesia and

Polynesia (8.7 per cent) and Central and South America (8.0 per cent). Babies of mothers born in North East Asia were least likely to be premature (Table 95).

**TABLE 95**

### GESTATIONAL AGE BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2006

Country of birth group	Gestational age (weeks)							
	Less than 37		37+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
English-speaking	5445	7.5	67240	92.5	14	0.0	72699	100.0
Central & South America	62	8.0	717	92.0	0	0.0	779	100.0
Melanesia, Micronesia & Polynesia	136	8.7	1427	91.2	1	0.1	1564	100.0
Southern Europe	58	6.3	862	93.7	0	0.0	920	100.0
Western & Northern Europe	45	6.1	692	93.9	0	0.0	737	100.0
Eastern Europe, Russia, Central Asian & Baltic States	35	6.1	538	93.9	0	0.0	573	100.0
Middle East & Africa	290	6.8	3996	93.2	1	0.0	4287	100.0
South East Asia	356	7.5	4390	92.5	0	0.0	4746	100.0
North East Asia	159	5.0	3013	95.0	0	0.0	3172	100.0
Southern Asia	204	7.3	2597	92.7	0	0.0	2801	100.0
Other-not stated	49	9.7	451	89.7	3	0.6	503	100.0
TOTAL	6839	7.4	85923	92.6	19	0.0	92781	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

## Apgar score

In 2006, 2.0 per cent of all babies (including stillborn babies) had an Apgar score of 7 or less at 5 minutes and 1.1 per cent had a score of less than 4 (Table 96). The rate of

Apgar scores of less than 7 was highest among babies of mothers born in the Middle East and Africa (2.5 per cent) and Melanesia, Micronesia and Polynesia (2.4 per cent).

**TABLE 96**

### BIRTHS BY COUNTRY OF BIRTH GROUP AND APGAR SCORE AT FIVE MINUTES, NSW 2006

Country of birth group	Apgar Score									
	0–4		5–6		7+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
English-speaking	770	1.1	714	1.0	71017	97.7	198	0.3	72699	100.0
Central & South America	8	1.0	5	0.6	765	98.2	1	0.1	779	100.0
Melanesia, Micronesia & Polynesia	19	1.2	19	1.2	1520	97.2	6	0.4	1564	100.0
Southern Europe	9	1.0	5	0.5	903	98.2	3	0.3	920	100.0
Western & Northern Europe	7	0.9	4	0.5	724	98.2	2	0.3	737	100.0
Eastern Europe, Russia, Central Asian & Baltic States	7	1.2	4	0.7	562	98.1	0	0.0	573	100.0
Middle East & Africa	70	1.6	36	0.8	4167	97.2	14	0.3	4287	100.0
South East Asia	62	1.3	47	1.0	4629	97.5	8	0.2	4746	100.0
North East Asia	23	0.7	14	0.4	3132	98.7	3	0.1	3172	100.0
Southern Asia	24	0.9	35	1.2	2740	97.8	2	0.1	2801	100.0
Other-not stated	8	1.6	7	1.4	486	96.6	2	0.4	503	100.0
TOTAL#	1007	1.1	890	1.0	90645	97.7	239	0.3	92781	100.0

Source: NSW Midwives Data Collection, Centre for Epidemiology and Research, NSW Department of Health.

# Births include stillbirths.

## Perinatal outcomes

In 2006, 99 per cent of babies born in NSW and reported to the MDC were born alive and survived until discharge from the hospital of birth (Table 97). The majority of perinatal deaths occurred among babies of mothers born in English-speaking countries ( $n=622$ , 75.8 per cent). There were a further 58

deaths among babies of mothers born in the Middle East and Africa and 50 deaths among babies of mothers born in South East Asian countries—comprising 7.1 and 6.1 per cent respectively of all perinatal deaths reported to the MDC.

**TABLE 97**

### PERINATAL OUTCOMES BY HEALTH AREA OF RESIDENCE, NSW 2006

Country of birth	Perinatal outcome												Perinatal mortality / 1000 births
	Liveborn surviving		Stillbirth		Neonatal death		Death – age not stated		Not stated		Total births		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
English-speaking	71987	99.0	445	0.6	177	0.2	6	0.0	84	0.1	72699	100.0	8.6
Central & South America	772	99.1	5	0.6	2	0.3	0	0.0	0	0.0	779	100.0	9.0
Melanesia, Micronesia & Polynesia	1544	98.7	13	0.8	4	0.3	0	0.0	3	0.2	1564	100.0	10.9
Southern Europe	911	99.0	4	0.4	4	0.4	0	0.0	1	0.1	920	100.0	8.7
Western & Northern Europe	731	99.2	5	0.7	0	0.0	0	0.0	1	0.1	737	100.0	6.8
Eastern Europe, Russia, Central Asian & Baltic States	566	98.8	6	1.0	1	0.2	0	0.0	0	0.0	573	100.0	12.2
Middle East & Africa	4224	98.5	40	0.9	18	0.4	0	0.0	5	0.1	4287	100.0	13.5
South East Asia	4686	98.7	39	0.8	11	0.2	0	0.0	10	0.2	4746	100.0	10.5
North East Asia	3152	99.4	12	0.4	6	0.2	0	0.0	2	0.1	3172	100.0	5.7
Southern Asia	2774	99.0	18	0.6	4	0.1	0	0.0	5	0.2	2801	100.0	7.9
Other – not stated	731	98.4	5	1.0	2	0.4	0	0.0	3	0.6	503	100.0	–
TOTAL	91840	99.0	592	0.6	229	0.2	6	0.0	114	0.1	92781	100.0	8.8

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

# Perinatal deaths include deaths reported to the MDC only. As the MDC form is completed at discharge or transfer of the baby; deaths occurring after this time may not be reported to the MDC.

## 9. NEONATAL INTENSIVE CARE

The information presented in this chapter was obtained from the Neonatal Intensive Care Units' (NICUS) Data Collection (see Chapter 3, Data Sources).

### Registration rate

There were 2,296 infants registered in NICUS in 2006. The most common reasons for registration of an infant were assisted ventilation for four hours or more (46.5 per cent) and gestational age less than 29 weeks (16.2 per cent). Infants generally met more than one of the registration criteria.

The NICUS registration rate in 2006 was 23.5 per 1,000 livebirths, which decreased slightly since 2004 (24.8 per 1,000 live births). Table 98 shows the registration rate according to the mothers' health area of residence. The relatively low registration rates from the health areas adjoining the New South Wales border reflect the fact that some infants are preferentially referred interstate. The registration rate in health areas with low numbers of births should be interpreted with caution.

Ninety-five of the 2,296 infants (4.1 per cent) registered in NICUS were born to Aboriginal or Torres Strait Islander mothers. There were 2,736 livebirths to Aboriginal or Torres Strait Islander women recorded by the NSW and ACT Midwives Data Collections for 2006. The registration rate for these infants was 34.7 per 1,000 livebirths and has decreased since 2004. Ninety of the 2,083 mothers (4.3 per cent) were Aboriginal or Torres Strait Islander, of whom 22 (24.3 per cent) were residents of the Greater Western and North Coast Health Areas (Table 99). Twenty-one of the 353 mothers (5.9 per cent) of infants less than 29 weeks and/or less than 1,000 grams were Aboriginal or Torres Strait Islander.

### Maternal characteristics

There were 2,083 mothers of the 2,296 infants registered in NICUS during 2006. The majority of mothers were residents of the Sydney South West, Sydney West, Hunter & New England, Northern Sydney & Central Coast, and South Eastern Sydney & Illawarra Health Areas. The distribution of the mothers' health area of residence for infants less than 29 weeks and/or less than 1,000 grams was similar to those for the whole group (81 per cent compared with 81.8 per cent).

The age of mothers of NICUS infants ranged from 14 to 50 years, with a mean age of 30 years. The mean maternal age was similar across all gestational age groups and has remained constant since 1992. In 2006, 23.6 per cent of mothers were aged 35 years or more (range 13.7 per cent in 1992 to 23.6 per cent in 2006). In 2006, 4.3 per cent of mothers were aged less than 20 years (range 4.3 per cent in 2006 to 6.8 per cent in 2000) (Table 100). The health area of residence with the highest proportion of teenage mothers was Greater Western.

There were 1,848 mothers (88.7 per cent) who had an antenatal complication. The most common antenatal complications were preterm labour (42.9 per cent), fetal compromise (20.2 per cent), antepartum haemorrhage (16.6 per cent), pregnancy induced hypertension (16.4 per cent), and intrauterine growth restriction (10.5 per cent). Antenatal complications were more frequent in mothers delivering at less than 37 weeks compared with at term. Even so, 62.6 per cent of mothers giving birth at term had an antenatal complication (Table 101).

**TABLE 98**

#### NICUS REGISTRATIONS BY HEALTH AREA OF RESIDENCE, NSW & ACT 2006

Health area	Total NICUS registrants		Total NSW and ACT livebirths	Registrations per 1000 livebirths
	No.	%	No.	
Sydney South West	494	21.5	20572	24.0
South Eastern Sydney & Illawarra	311	13.6	15144	20.5
Sydney West	415	18.1	17388	23.9
Northern Sydney & Central Coast	300	13.1	14281	21.0
Hunter & New England	360	15.7	10665	33.8
North Coast	52	2.3	4975	10.5
Greater Southern	111	4.8	4962	22.4
Greater Western	104	4.5	4091	25.4
ACT	132	5.8	4596	28.7
Overseas	10	0.4	0	0.0
Interstate	7	0.3	739	9.5
Unknown Health Area	0	0.0	89	0.0
TOTAL	2296	100.0	97504#	23.5

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research. NSW Midwives Data Collection 2006. Centre for Epidemiology and Research, NSW Department of Health.

Administration of corticosteroids to the mother prior to preterm birth improves the outcome for the infant. In 2006, 83.2 per cent of mothers of infants born at less than 28 weeks' received corticosteroids (Figure 5, Table 102). Nearly

ninety per cent of mothers of 28–31 week gestation infants received antenatal corticosteroids. The overall proportion of mothers receiving antenatal corticosteroids increased from 45 per cent in 1992 to 74.1 per cent in 2001.

**TABLE 99**

**MOTHERS OF NICUS REGISTRANTS BY HEALTH AREA OF RESIDENCE AND ABORIGINALITY, NSW & ACT 2006**

Health Area	Non-Aboriginal		Aboriginal		TOTAL	
	No.	%	No.	%	No.	%
Sydney South West	439	97.8	10	2.2	449	21.6
South Eastern Sydney & Illawarra	263	96.7	9	3.3	272	13.1
Sydney West	363	96.0	15	4.0	378	18.1
Northern Sydney & Central Coast	267	98.9	3	1.1	270	13.0
Hunter & New England	315	94.0	20	6.0	335	16.1
North Coast	47	95.9	2	4.1	49	2.4
Greater Southern	95	93.1	7	6.9	102	4.9
Greater Western	79	79.8	20	20.2	99	4.8
ACT	112	99.1	1	0.9	113	5.4
Overseas	10	100.0	0	0.0	10	0.5
Interstate	3	33.3	3	66.7	6	0.3
TOTAL	1993	95.7	90	4.3	2083	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 100**

**MOTHERS OF NICUS REGISTRANTS BY HEALTH AREA OF RESIDENCE AND MATERNAL AGE, NSW & ACT 2006**

Health Area	Maternal age (years)							
	Less than 20		20–34		35+		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Sydney South West	15	3.3	332	73.9	102	22.7	449	21.6
South Eastern Sydney & Illawarra	12	4.4	181	66.8	78	28.8	271	13.0
Sydney West	15	4.0	276	73.0	87	23.0	378	18.1
Northern Sydney & Central Coast	5	1.9	187	69.3	78	28.9	270	13.0
Hunter & New England	20	6.0	247	73.7	68	20.3	335	16.1
North Coast	1	2.0	37	75.5	11	22.4	49	2.4
Greater Southern	5	4.9	78	76.5	19	18.6	102	4.9
Greater Western	7	7.1	83	83.8	9	9.1	99	4.8
ACT	6	5.3	69	61.1	38	33.6	113	5.4
Overseas	1	11.1	7	77.8	1	11.1	9	0.4
Interstate	1	16.7	4	66.7	1	16.7	6	0.3
Not stated	0	0.0	0	0.0	0	0.0	2	0.1
TOTAL	88	4.2	1501	72.1	492	23.6	2083	100.0

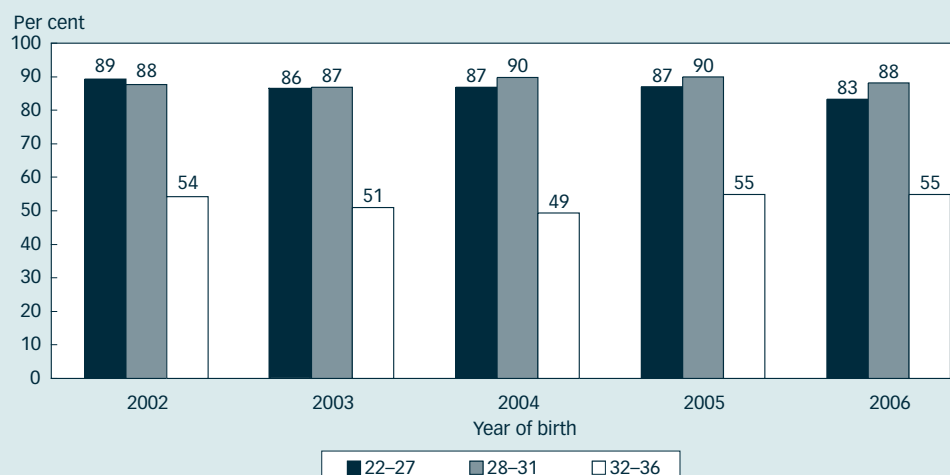
Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 101**

**MOTHERS OF NICUS REGISTRANTS BY ANTENATAL COMPLICATIONS AND GESTATIONAL AGE, NSW & ACT 2006**

Antenatal complication	Gestational age (weeks)											
	23–27		28–31		32–36		37–41		42+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Preterm labour	171	77.7	347	62.4	369	52.3	7	1.2	0	0.0	894	42.9
Pregnancy induced hypertension	30	13.6	124	22.3	137	19.4	49	8.2	2	28.6	342	16.4
Antepartum haemorrhage	68	30.9	124	22.3	119	16.9	34	5.7	1	14.3	346	16.6
Intrauterine growth restriction	14	6.4	63	11.3	113	16.0	28	4.7	0	0.0	218	10.5
Fetal compromise	35	15.9	118	21.2	140	19.8	125	21.0	3	42.9	421	20.2
Fetal diagnosis of anomaly	3	1.4	9	1.6	49	6.9	88	14.8	0	0.0	149	7.2
Gestational diabetes	5	2.3	23	4.1	46	6.5	38	6.4	1	14.3	113	5.4
Chorioamnionitis	68	30.9	79	14.2	28	4.0	14	2.4	1	14.3	190	9.1
Any complication	220	100.0	554	99.6	698	98.9	371	62.5	5	71.4	1848	88.7
TOTAL MOTHERS	220	100.0	556	100.0	706	100.0	594	100.0	7	100.0	2083	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research

**FIGURE 5****MOTHERS OF NICUS REGISTRANTS BY ANTENATAL CORTICOSTEROID ADMINISTRATION AND GESTATIONAL AGE, NSW & ACT 2002–2006**

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research

**TABLE 102****MOTHERS OF NICUS REGISTRANTS BY ANTENATAL CORTICOSTEROID ADMINISTRATION AND GESTATIONAL AGE, NSW & ACT 2002–2006**

Year	Corticosteroid administration	Gestational age (weeks)							
		22-27		28-31		32-36		TOTAL	
		No.	%	No.	%	No.	%	No.	%
2002	No	27	10.7	63	12.3	279	45.8	369	26.9
	Yes	225	89.3	449	87.7	330	54.2	1004	73.1
	TOTAL	252	100.0	512	100.0	609	100.0	1373	100.0
2003	No	31	13.8	68	13.1	310	49.0	409	29.7
	Yes	193	86.2	450	86.9	323	51.0	966	70.3
	TOTAL	224	100.0	518	100.0	633	100.0	1375	100.0
2004	No	30	13.2	56	10.3	361	50.7	447	30.1
	Yes	197	86.8	490	89.7	351	49.3	1038	69.9
	TOTAL	227	100.0	546	100.0	712	100.0	1485	100.0
2005	No	28	13.0	54	10.0	328	45.1	410	27.6
	Yes	188	87.0	488	90.0	400	54.9	1076	72.4
	TOTAL	216	100.0	542	100.0	728	100.0	1486	100.0
2006	No	37	16.8	66	11.9	319	45.2	422	28.5
	Yes	183	83.2	490	88.1	387	54.8	1060	71.5
	TOTAL	220	100.0	556	100.0	706	100.0	1482	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research

## Transfer status, labour and birth

Infants are admitted to a neonatal intensive care unit after:

- birth that has been booked to occur in a tertiary centre;
- birth in a tertiary centre following maternal transfer;
- birth in a non-tertiary centre followed by infant transfer to a tertiary centre.

Thirty-six per cent of all births were booked at a tertiary centre, ranging from 30.1 per cent for the 23–27 week gestational age group to 41.9 per cent for the 32–36 weeks gestational age group (Table 103). Maternal transfer was most common at gestations less than 32 weeks. The rate of maternal transfer was similar for infants born before 28 weeks gestation (57.9 per cent) and for those born at 28–31 weeks gestation (55.9 per cent). The overall rate of maternal transfer was 34.1 per cent.

**TABLE 103**

### NICUS REGISTRANTS BY BOOKING STATUS, TRANSFER STATUS AND GESTATIONAL AGE, NSW & ACT 2006

Booking status and transfer status	Gestational age (weeks)											
	23–27		28–31		32–36		37–41		42+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Booked at tertiary hospital	78	30.1	230	35.3	328	41.9	197	33.1	3	42.9	836	36.4
Maternal transfer	150	57.9	364	55.9	239	30.5	29	4.9	0	0.0	782	34.1
Transfer after birth	30	11.6	51	7.8	194	24.8	357	59.9	3	42.9	635	27.7
Booked at non tertiary hospital	1	0.4	6	0.9	22	2.8	13	2.2	1	14.3	43	1.9
TOTAL	259	100.0	651	100.0	783	100.0	596	100.0	7	100.0	2296	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

Nearly thirty per cent of infants were transferred to a tertiary centre following birth. There were 4.4 per cent (100/2,296) of infants transferred from one tertiary centre to another during the first day of life for assisted ventilation and/or major surgery. Transfer following birth was most common in the 37-plus weeks gestational age group (59.7 per cent). Fifty-seven infants (57/1,386; 4.1 per cent) greater than 31 weeks gestation were discharged home prior to the admission that qualified them for registration in NICUS.

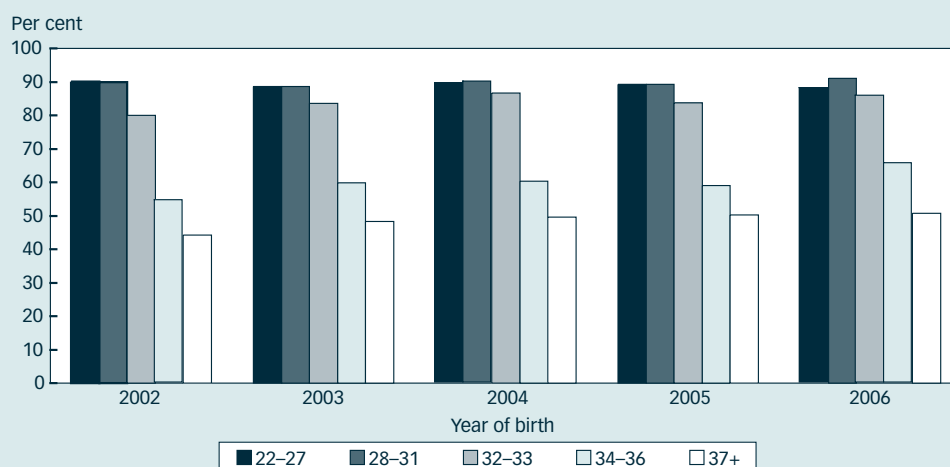
The inverse relationship between gestational age groups and the proportion of births in a tertiary centre is shown in

Figure 6 and Table 104. The proportion of infants born in a tertiary centre increased from 60 per cent in 1992 to 74.8 per cent 2000. In 2006, 90.2 per cent of infants less than 32 weeks gestation were born in a tertiary centre compared with 75.5 per cent of 32–36 week gestation infants and 49.8 per cent of term infants.

The pattern of transfer status (Table 105) and place of birth by birth weight (Table 106) is similar to that of gestational age, with the majority (90.5 per cent) of the very low birth weight infants (less than 1,500 grams) born in a tertiary centre.

**FIGURE 6**

### NICUS REGISTRANTS BY TERTIARY HOSPITAL OF BIRTH AND GESTATIONAL AGE, NSW & ACT 2002–2006



Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 104****NICUS REGISTRANTS BY PLACE OF BIRTH (LEVEL OF MATERNITY HOSPITAL) AND GESTATIONAL AGE, NSW & ACT 2006**

Place of birth	Gestational age (weeks)											
	23–27		28–31		32–36		37–41		42+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Level 1	2	0.8	3	0.5	0	0.0	1	0.3	1	0.2	7	0.3
Level 2	1	0.4	3	0.5	1	0.3	1	0.3	7	1.2	13	0.6
Level 3	7	2.7	8	1.2	8	2.0	20	5.2	52	8.6	95	4.1
Level 4	5	1.9	9	1.4	6	1.5	18	4.7	81	13.4	119	5.2
Level 5	12	4.7	24	3.7	27	6.8	39	10.1	67	11.1	169	7.4
Level 6	228	88.4	593#	91.1	340	85.4	251	65.2	300	49.8	1712	74.6
Private hospital	1	0.4	1	0.2	11	2.8	46	11.9	79	13.1	138	6.0
Born before arrival	3	1.2	7	1.1	2	0.5	2	0.5	2	0.3	16	0.7
Interstate-Overseas	0	0.0	3	0.5	3	0.8	7	1.8	14	2.3	27	1.2
TOTAL	259	100.0	651	100.0	398	100.0	385	100.0	603	100.0	2296	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

# 358/593 (60.4%) babies born in a level six hospital were 30–31 weeks gestation.

**TABLE 105****NICUS REGISTRANTS BY BOOKING STATUS, TRANSFER STATUS AND BIRTH WEIGHT, NSW & ACT 2006**

Booking status and transfer status	Birth weight (grams)									
	Less than 1,000		1,000–1,499		1,500–2,499		2,500+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Booked at tertiary hospital	91	35.3	177	33.9	297	39.8	271	35.2	836	36.4
Maternal transfer	146	56.6	293	56.1	285	38.2	58	7.5	782	34.1
Transfer after birth	21	8.1	44	8.4	151	20.2	419	54.4	635	27.7
Booked at non tertiary hospital	0	0.0	8	1.5	13	1.7	22	2.9	43	1.9
TOTAL	258	100.0	522	100.0	746	100.0	770	100.0	2296	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 106****NICUS REGISTRANTS BY PLACE OF BIRTH (LEVEL OF MATERNITY HOSPITAL) AND BIRTH WEIGHT, NSW & ACT 2006**

Place of birth	Birth weight (grams)									
	Less than 1,000		1,000–1,499		1,500–2,499		2500+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Level 1	3	1.2	1	0.2	2	0.3	1	0.1	7	0.3
Level 2	1	0.4	0	0	5	0.7	7	0.9	13	0.6
Level 3	4	1.6	8	1.5	20	2.7	63	8.2	95	4.1
Level 4	1	0.4	10	1.9	22	2.9	86	11.2	119	5.2
Level 5	9	3.5	23	4.4	52	7.0	85	11.0	169	7.4
Level 6	237	92.2	469	89.8	602	80.7	404	52.5	1712	74.6
Private hospital	1	0.4	1	0.2	31	4.2	105	13.6	138	6.0
Born before arrival	2	0.8	8	1.5	4	0.5	2	0.3	16	0.7
Interstate-Overseas	0	0	2	0.4	8	1.1	17	2.2	27	1.2
TOTAL	258	100.0	522	100.0	746	100.0	770	100.0	2296	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

# 358/593 (60.4%) babies born in a level six hospital were 30–31 weeks gestation.

Spontaneous onset of labour was more common among mothers of infants less than 28 weeks gestation (Table 107). Augmentation and induction of labour were most common in term and post-term births. Similarly spontaneous onset of labour occurred in nearly half of all mothers of infants less than 2,500 grams birth weight (Table 108). As expected, augmentation, or induction of labour was most common in mothers of infants with a birth weight of 2,500 grams or more (26.4 per cent).

Prolonged rupture of membranes (greater than 24 hours) was more common at lower gestations, affecting 20.1 per cent of infants less than 28 weeks gestation (Table 109).

The proportion of mothers who gave birth by elective caesarean section (caesarean section without labour) was 39.9 per cent in 2006, previously ranging from 27 per cent in 1992 to 40.4 per cent in 2005 (Tables 110 and 111). The most common type of birth was caesarean section (58.9 per cent, range 45.8 per cent in 1993 to 59.7 per cent in 2004), followed by normal vaginal birth (31.4 percent, range 33.8 per cent in 1992 to 41.9 per cent in 1993) and vaginal breech birth (4.4 per cent, range 3.1 per cent in 2005 to 7 per cent in 1998). The high rate of caesarean section and breech birth in the NICUS cohort is related to the high proportion of preterm births. The rate of caesarean section in term and post-term births was 45.9 per cent, compared with 28.2 per cent for all term and post-term births in NSW and the ACT in 2006.

**TABLE 107**

**MOTHERS OF NICUS REGISTRANTS BY ONSET OF LABOUR AND GESTATIONAL AGE, NSW & ACT 2006**

Onset of labour	Gestational age (weeks)											
	23–27		28–31		32–36		37–41		42+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Spontaneous	149	67.7	274	49.3	309	43.8	250	42.1	5	71.4	987	47.4
Augmented	9	4.1	18	3.2	21	3.0	54	9.1	0	0.0	102	4.9
Induced	0	0.0	8	1.4	49	6.9	123	20.7	1	14.3	181	8.7
No labour	62	28.2	256	46.0	327	46.3	167	28.1	1	14.3	813	39.0
TOTAL	220	100.0	556	100.0	706	100.0	594	100.0	7	100.0	2083	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 108**

**MOTHERS OF NICUS REGISTRANTS BY ONSET OF LABOUR AND BIRTH WEIGHT, NSW & ACT 2006**

Onset of labour	Birth weight (grams)									
	Less than 1,000		1,000–1,499		1,500–2,499		2500+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Spontaneous	101	47.2	208	47.3	340	51.1	338	44.2	987	47.4
Augmented	5	2.3	9	2.0	25	3.8	63	8.2	102	4.9
Induced	0	0.0	10	2.3	32	4.8	139	18.2	181	8.7
No labour	108	50.5	213	48.4	268	40.3	224	29.3	813	39.0
TOTAL	214	100.0	440	100.0	665	100.0	764	100.0	2083	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 109**

**NICUS REGISTRANTS BY DURATION OF RUPTURE OF MEMBRANES AND GESTATIONAL AGE, NSW & ACT 2006**

Duration of rupture of membranes	Gestational age (weeks)											
	23–27		28–31		32–36		37–41		42+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 24 hours	207	79.9	498	76.5	699	89.3	559	93.8	7	100.0	1970	85.8
24 hours-7 days	24	9.3	87	13.4	56	7.2	35	5.9	0	0.0	202	8.8
8+ days	28	10.8	66	10.1	28	3.6	2	0.3	0	0.0	124	5.4
TOTAL	259	100.0	651	100.0	783	100.0	596	100.0	7	100.0	2296	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 110****NICUS REGISTRANTS BY TYPE OF BIRTH AND GESTATIONAL AGE, NSW & ACT 2006**

Duration of rupture of membranes	Gestational age (weeks)											
	23-27		28-31		32-36		37-41		42+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Normal vaginal	70	27.0	175	26.9	224	28.6	248	41.6	3	42.9	720	31.4
Forceps	6	2.3	20	3.1	16	2.0	20	3.4	0	0.0	62	2.7
Forceps rotation	0	0.0	0	0.0	1	0.1	5	0.8	0	0.0	6	0.3
Vacuum extraction	0	0.0	4	0.6	12	1.5	38	6.4	1	14.3	55	2.4
Vaginal breech	39	15.1	33	5.1	18	2.3	11	1.8	0	0.0	101	4.4
Elective Caesarean	72	27.8	298	45.8	371	47.4	173	29.0	2	28.6	916	39.9
Emergency Caesarean	72	27.8	121	18.6	141	18.0	101	16.9	1	14.3	436	19.0
TOTAL	259	100.0	651	100.0	783	100.0	596	100.0	7	100.0	2296	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 111****NICUS REGISTRANTS BY BIRTH AND BIRTH WEIGHT, NSW AND ACT 2006**

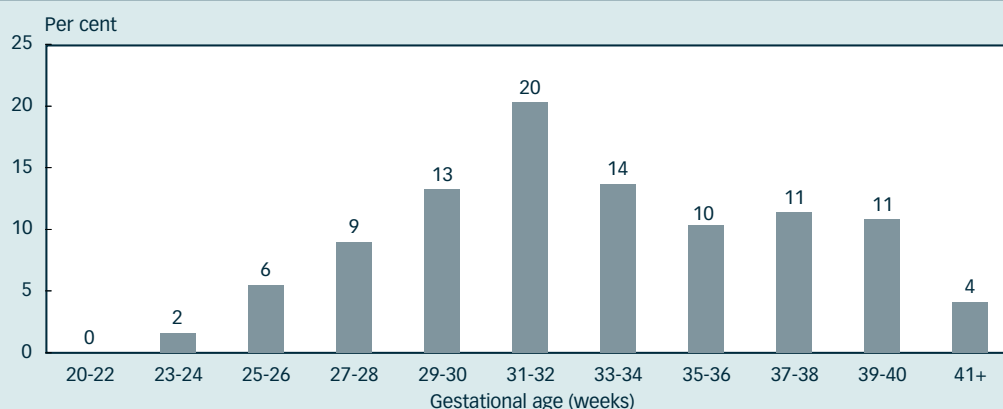
Onset of labour	Birth weight (grams)									
	Less than 1,000		1,000–1,499		1,500–2,499		2500+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal vaginal	46	17.8	124	23.8	237	31.8	313	40.6	720	31.4
Forceps	3	1.2	12	2.3	22	2.9	25	3.2	62	2.7
Forceps rotation	0	0.0	0	0.0	0	0.0	6	0.8	6	0.3
Vacuum extraction	0	0.0	3	0.6	10	1.3	42	5.5	55	2.4
Vaginal breech	36	14.0	31	5.9	23	3.1	11	1.4	101	4.4
Elective Caesarean	123	47.7	258	49.4	301	40.3	234	30.4	916	39.9
Emergency Caesarean	50	19.4	94	18.0	153	20.5	139	18.1	436	19.0
TOTAL	258	100.0	522	100.0	746	100.0	770	100.0	2296	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**Infant characteristics**

Three-quarters of the infants (73.7 per cent) 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) (Figure 7). The proportion of infants in each gestational age group has

remained relatively constant (Table 112). Almost all liveborn infants at 25–31 weeks gestation were admitted to a NICU, nearly two-thirds at 32 weeks gestation, and one-fifth at 33–34 weeks gestation (Table 113).

**FIGURE 7****NICUS REGISTRANTS BY GESTATIONAL AGE, NSW AND ACT 2006**

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

Sixty-six per cent of infants had a low birth weight (less than 2,500 grams), 34 per cent had a very low birth weight (less than 1,500 grams) and 11.2 per cent had an extremely low birth weight (less than 1,000 grams). The proportion of infants in each birth weight group has remained relatively constant

(Table 114). Almost all live born infants 600–1500 grams birth weight were admitted to a NICU (Table 115).

Overall, 59.1 per cent of infants were male. The ratio of males to females remains at 3:2 in most gestational age groups (Table 116).

**TABLE 112**

**NICUS REGISTRANTS BY GESTATIONAL AGE, NSW & ACT 2002–2006**

Gestational age (weeks)	Year of birth									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
22–27	282	14.0	254	12.0	264	11.8	243	10.8	259	11.3
28–31	604	30.0	607	28.7	649	29.0	652	28.9	651	28.4
32–36	640	31.8	678	32.1	764	34.2	778	34.5	783	34.1
37–41	480	23.8	561	26.5	555	24.8	576	25.5	596	26.0
42+	8	0.4	14	0.7	4	0.2	8	0.4	7	0.3
TOTAL	2014	100.0	2114	100.0	2236	100.0	2257	100.0	2296	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 113**

**BIRTHS BY NICUS REGISTRATION AND GESTATIONAL AGE, NSW & ACT 2006**

Gestational age (weeks)	NSW & ACT Stillbirths	Live births	Registrations	NICUS Rate per 1,000 live births	% of cohort
	No.	No.	No.		
Less than 21	74	22	0	0.0	0.0
21	65	24	0	0.0	0.0
22	64	31	0	0.0	0.0
23	37	41	5	122.0	0.2
24	35	47	32	680.9	1.4
25	22	43	42	976.7	1.8
26	28	85	85	1000.0	3.7
27	14	95	95	1000.0	4.1
28	19	110	111	1009.1	4.8
29	16	138	150	1087.0	6.5
30	21	156	154	987.2	6.7
31	12	245	236	963.3	10.3
32	22	398	231	580.4	10.1
33	12	477	167	350.1	7.3
34	32	871	148	169.9	6.5
35	16	1315	142	108.0	6.2
36	23	2673	95	35.5	4.1
37	36	5609	120	21.4	5.2
38	26	16361	141	8.6	6.1
39	21	23867	132	5.5	5.8
40	29	27551	116	4.2	5.1
41	16	15748	87	5.5	3.8
42	1	1448	7	4.8	0.3
43	0	125	0	0.0	0.0
44	0	7	0	0.0	0.0
45	0	1	0	0.0	0.0
46	0	0	0	0.0	0.0
47	0	0	0	0.0	0.0
48	0	1	0	0.0	0.0
TOTAL	641	97489#	2296	23.6	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research, 2006. NSW Midwives Data Collection 2006. Centre for Epidemiology and Research, NSW Department of Health. ACT Maternal Perinatal Data Collection 2006 ACT Health.

# Excludes 118 babies for whom outcome was unknown and 18 babies for whom gestational age was unknown.

**TABLE 114**  
**NICUS REGISTRANTS BY BIRTH WEIGHT, NSW & ACT 2002–2006**

Birth weight (grams)	Year of birth									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 400	1	0.0	1	0.0	1	0.0	0	0.0	1	0.0
400–499	7	0.3	9	0.4	5	0.2	5	0.2	4	0.2
500–599	21	1.0	24	1.1	25	1.1	19	0.8	14	0.6
600–699	53	2.6	38	1.8	35	1.6	51	2.3	41	1.8
700–799	63	3.1	53	2.5	54	2.4	53	2.3	53	2.3
800–899	58	2.9	60	2.8	66	3.0	54	2.4	62	2.7
900–999	81	4.0	80	3.8	77	3.4	70	3.1	83	3.6
1,000–1,249	181	9.0	197	9.3	232	10.4	233	10.3	248	10.8
1,250–1,499	264	13.1	258	12.2	279	12.5	244	10.8	274	11.9
1,500–1,749	228	11.3	216	10.2	257	11.5	245	10.9	249	10.8
1,750–1,999	163	8.1	185	8.8	174	7.8	211	9.3	208	9.1
2,000–2,499	273	13.6	258	12.2	280	12.5	307	13.6	289	12.6
2,500–2,999	205	10.2	244	11.5	280	12.5	249	11.0	250	10.9
3,000–3,499	196	9.7	228	10.8	227	10.2	277	12.3	243	10.6
3,500–3,999	158	7.8	176	8.3	153	6.8	147	6.5	186	8.1
4,000+	62	3.1	87	4.1	91	4.1	92	4.1	91	4.0
TOTAL	2014	100.0	2114	100.0	2236	100.0	2257	100.0	2296	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 115**  
**BIRTHS BY NICUS REGISTRATION AND BIRTHWEIGHT, NSW & ACT 2006**

Birth weight (grams)	Stillbirths	Livebirths	Registrations	NICUS Rate per 1,000 live births	% of cohort
	No.	No.	No.		
Less than 400	20	6	1	166.7	0.0
400–499	71	44	4	90.9	0.2
500–599	50	39	14	359.0	0.6
600–699	21	61	41	672.1	1.8
700–799	22	61	53	868.9	2.3
800–899	13	61	62	1016.4	2.7
900–999	15	83	83	1000.0	3.6
1,000–1,249	27	254	248	976.4	10.8
1,250–1,499	28	284	274	964.8	11.9
1,500–1,749	17	458	249	543.7	10.8
1,750–1,999	34	733	208	283.8	9.1
2,000–2,499	44	3744	289	77.2	12.6
2,500–2,999	44	14645	250	17.1	10.9
3,000–3,499	37	34907	243	7.0	10.6
3,500–3,999	27	30400	186	6.1	8.1
4,000+	15	11636	91	7.8	4.0
TOTAL	485	97416#	2296	23.6	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research, 2006. NSW Midwives Data Collection 2006. Centre for Epidemiology and Research, NSW Department of Health. ACT Maternal Perinatal Data Collection 2006 ACT Health.

# Excludes 110 babies for whom outcome was unknown and 255 babies for whom birth weight was unknown.

**TABLE 116**  
**NICUS REGISTRANTS BY GENDER AND GESTATIONAL AGE, NSW & ACT 2006**

Sex	Gestational age (weeks)									
	23–27		28–31		32–36		37–41		42+	
	No.	%	No.	%	No.	%	No.	%	No.	%
Male	133	51.4	388	59.6	466	59.5	365	61.2	4	57.1
Female	126	48.6	263	40.4	317	40.5	231	38.8	3	42.9
TOTAL	259	100.0	651	100.0	783	100.0	596	100.0	7	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

The overall proportion of infants who had a major congenital anomaly decreased from 22 per cent in 1992 to 15.6 per cent in 2006. Congenital anomalies were more common among term infants (37-plus weeks gestational age), of whom 35.2 per cent had a major congenital anomaly and 4 cent had a minor congenital anomaly (Table 117).

The overall proportion of infants born following a multiple pregnancy was 22.6 per cent in 2006 (range 14.5 per cent in 1993 to 22.4 per cent in 2001). In 2006, most of the 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. The higher than expected rate of multiple births among the 2006 NICUS cohort reflects the high proportion of multiple pregnancies resulting in preterm birth with 30.6 per cent of infants less than 37 weeks gestation (Table 118). Multiple births represented 3.2 per cent of a 1 NSW/ACT live births in 2006.

Table 119 shows the median, 25th and 75th percentiles for one- and five-minute Apgar scores according to gestational age groups. For infants 32–42 weeks gestational age, the median one-minute Apgar score was eight. The median five-minute score was nine for infants 28–42 weeks gestational age. The proportion of infants with a one-minute Apgar score of 0–4 has decreased from 38.7 per cent in 1992 to 23.1 per cent in 2006. Similarly the proportion of infants with a five-minute Apgar score of 0–4 has decreased from 10.8 per cent in 1992 to 5.6 per cent in 2006 (Table 120).

Infants with major congenital anomalies ( $n=359$ ) were excluded from the analysis of morbidity and mortality.

The majority of infants without a major congenital anomaly (1,689/1,936; 87.2 per cent) in the 2006 NICUS cohort received assisted ventilation (intermittent mandatory ventilation and/or continuous positive airways pressure) (Table 121).

**TABLE 117**

**NICUS REGISTRANTS BY CONGENITAL ANOMALIES AND GESTATIONAL AGE, NSW & ACT 2006**

Congenital anomaly	Gestational age (weeks)											TOTAL	
	23-27		28-31		32-36		37-41		42+				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
None	237	91.5	601	92.3	682	87.1	361	60.6	6	85.7	1887	82.2	
Minor	7	2.7	8	1.2	11	1.4	24	4.0	0	0.0	50	2.2	
Major	15	5.8	42	6.5	90	11.5	211	35.4	1	14.3	359	15.6	
TOTAL	259	100.0	651	100.0	783	100.0	596	100.0	7	100.0	2296	100.0	

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 118**

**NICUS REGISTRANTS BY PLURALITY AND GESTATIONAL AGE, NSW & ACT 2006**

Plurality	Gestational age (weeks)											
	23-27		28-31		32-36		37-41		42+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Singleton	181	69.9	455	69.9	554	70.8	581	97.5	7	100.0	1778	77.4
Twins	59	22.8	173	26.6	202	25.8	15	2.5	0	0.0	449	19.6
Triplets	15	5.8	23	3.5	24	3.1	0	0.0	0	0.0	62	2.7
Quadruplets	4	1.5	0	0.0	3	0.4	0	0.0	0	0.0	7	0.3
TOTAL	259	100.0	651	100.0	783	100.0	596	100.0	7	100.0	2296	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 119**

**NICUS REGISTRANTS BY APGAR SCORE AND GESTATIONAL AGE, NSW & ACT 2006**

Apgar score	Gestational Age (weeks)							
	23–27		28–31		32–36		37+	
	Median (25%,75%)		Median (25%,75%)		Median (25%,75%)		Median (25%,75%)	
One-minute Apgar	5	(3,6)	7	(5,8)	8	(6,9)	8	(4,9)
Five-minute Apgar	8	(6,8)	9	(8,9)	9	(8,9)	9	(7,9)

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 120****NICUS REGISTRANTS BY APGAR SCORE AT ONE AND FIVE MINUTES, NSW & ACT 2002–2006**

Apgar score	Year of birth									
	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
One minute:										
0–4	475	23.6	475	22.5	533	23.8	531	23.5	531	23.1
5–7	692	34.4	751	35.5	735	32.9	759	33.6	745	32.4
8+	830	41.2	886	41.9	959	42.9	961	42.6	996	43.4
Not stated	17	0.8	2	0.1	9	0.4	6	0.3	24	1.0
TOTAL	2014	100.0	2114	100.0	2236	100.0	2257	100.0	2296	100.0
Five minutes:										
0–4	139	6.9	110	5.2	135	6.0	141	6.2	129	5.6
5–7	394	19.6	382	18.1	437	19.5	437	19.4	480	20.9
8+	1469	72.9	1619	76.6	1656	74.1	1674	74.2	1664	72.5
Not stated	12	0.6	3	0.1	8	0.4	5	0.2	23	1.0
TOTAL	2014	100.0	2114	100.0	2236	100.0	2257	100.0	2296	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research

**TABLE 121****NICUS REGISTRANTS BY ASSISTED VENTILATION AND GESTATIONAL AGE, NSW & ACT 2002–2006#**

Year	Assisted ventilation	Gestational age (weeks)									
		22–27		28–31		32–36		37+		TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	%
2002	No	2	0.7	90	16.3	50	9.0	6	2.1	148	8.9
	Yes	267	99.3	463	83.7	505	91.0	286	97.9	1521	91.1
	TOTAL	269	100.0	553	100.0	555	100.0	292	100.0	1669	100.0
2003	No	1	0.4	104	18.0	98	16.0	75	20.1	278	15.4
	Yes	235	99.6	475	82.0	515	84.0	298	79.9	1523	84.6
	TOTAL	236	100.0	579	100.0	613	100.0	373	100.0	1801	100.0
2004	No	0	0.0	78	12.9	83	12.8	62	17.2	223	12.1
	Yes	239	100.0	525	87.1	563	87.2	298	82.8	1625	87.9
	TOTAL	239	100.0	603	100.0	646	100.0	360	100.0	1848	100.0
2005	No	1	0.4	114	18.4	91	13.4	48	12.6	254	13.3
	Yes	225	99.6	506	81.6	587	86.6	333	87.4	1651	86.7
	TOTAL	226	100.0	620	100.0	678	100.0	381	100.0	1905	100.0
2006	No	2	0.8	98	16.1	101	14.6	46	11.8	247	12.8
	Yes	242	99.2	511	83.9	591	85.4	345	88.2	1689	87.2
	TOTAL	244	100.0	609	100.0	692	100.0	391	100.0	1936	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

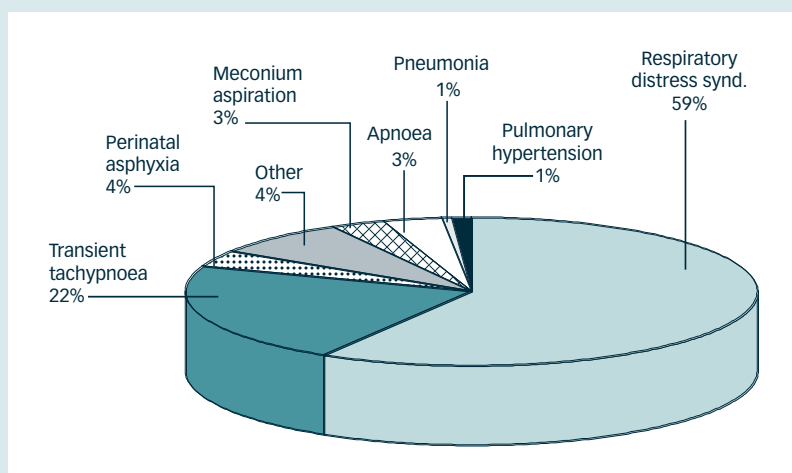
# Babies with major congenital anomalies excluded.

The main indication for assisted ventilation for most infants was respiratory distress syndrome (Figure 8). The main indication for assisted ventilation varied with gestational age. Respiratory distress syndrome, immature lung, apnoea and transient tachypnoea were more common in the preterm groups, whereas perinatal asphyxia, meconium aspiration and pulmonary hypertension were more common in term infants (Figure 8, Table 122).

The overall proportion of ventilated infants who received surfactant was 37.1 in 2006 (range 33.8 per cent in 1992 to 51.9 per cent in 1998) (Table 123). In 2006, 56.6 per cent of the infants who received surfactant were less than 32 weeks gestational age. Nearly half (57.6 per cent) of ventilated infants with a diagnosis of respiratory distress syndrome received surfactant.

**FIGURE 8**

**NICUS REGISTRANTS BY MAIN INDICATION FOR ASSISTED VENTILATION, NSW & ACT 2006**



Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.  
#Babies with major congenital anomalies excluded. Babies not ventilated excluded.

**TABLE 122**

**NICUS REGISTRANTS BY MAIN INDICATION FOR ASSISTED VENTILATION & GESTATIONAL AGE, NSW & ACT 2006#**

Indication	Gestational age (weeks)									
	23–27		28–31		32–36		37+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Transient tachypnoea of newborn	0	0.0	86	16.8	198	33.5	88	25.5	372	22.0
Hyaline membrane disease	222	91.7	371	72.6	322	54.5	75	21.7	990	58.6
Meconium aspiration	0	0.0	0	0.0	2	0.3	52	15.1	54	3.2
Pneumonia	0	0.0	1	0.2	5	0.8	5	1.4	11	0.7
Pulmonary hypertension	0	0.0	1	0.2	2	0.3	14	4.1	17	1.0
Immature lung	11	4.5	11	2.2	1	0.2	0	0.0	23	1.4
Apnoea	5	2.1	20	3.9	22	3.7	7	2.0	54	3.2
Other	3	1.2	19	3.7	24	4.1	41	11.9	87	5.2
Peri surgery	0	0.0	2	0.4	2	0.3	16	4.6	20	1.2
Newborn encephalopathy	1	0.4	0	0.0	13	2.2	47	13.6	61	3.6
TOTAL	242	100.0	511	100.0	591	100.0	345	100.0	1689	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.  
#Babies with major congenital anomalies excluded. Babies not ventilated excluded.

**TABLE 123****NICUS REGISTRANTS BY SURFACTANT ADMINISTRATION AND GESTATIONAL AGE, NSW & ACT 2002–2006#**

Year	Surfactant administration	Gestational age (weeks)									
		22–27		28–31		32–36		37+		TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	%
2002	No	66	24.7	275	59.4	367	72.7	243	85.0	951	62.5
	Yes	201	75.3	188	40.6	138	27.3	43	15.0	570	37.5
	TOTAL	267	100.0	463	100.0	505	100.0	286	100.0	1521	100.0
2003	No	45	19.1	257	54.1	354	68.7	239	80.2	895	58.8
	Yes	190	80.9	218	45.9	161	31.3	59	19.8	628	41.2
	TOTAL	235	100.0	475	100.0	515	100.0	298	100.0	1523	100.0
2004	No	41	17.2	303	57.7	406	72.1	248	83.2	998	61.4
	Yes	198	82.8	222	42.3	157	27.9	50	16.8	627	38.6
	TOTAL	239	100.0	525	100.0	563	100.0	298	100.0	1625	100.0
2005	No	42	18.7	309	61.1	429	73.1	268	80.5	1048	63.5
	Yes	183	81.3	197	38.9	158	26.9	65	19.5	603	36.5
	TOTAL	225	100.0	506	100.0	587	100.0	333	100.0	1651	100.0
2006	No	37	15.3	290	56.8	441	74.6	294	85.2	1062	62.9
	Yes	205	84.7	221	43.2	150	25.4	51	14.8	627	37.1
	TOTAL	242	100.0	511	100.0	591	100.0	345	100.0	1689	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

# Babies with major congenital anomalies and babies not ventilated excluded.

Proven systemic infection (blood and cerebrospinal fluid) has decreased from 10.7 per cent in 2003 to 9.4 per cent in 2006. Infection was most common among infants less than 28 weeks gestation (38.5 per cent) (Table 124).

Overall, the incidence of treated patent ductus arteriosus (PDA) was 15.7 per cent in 2006 (range 10.7 in 1994 to 16 per cent in 2004). In 2006, 95.1 per cent of the infants treated

for PDA were less than 32 weeks gestational age (Table 125). The majority of infants with a PDA requiring treatment received indomethacin only (14 per cent). Surgical treatment of PDA was predominantly performed on infants less than 28 weeks gestation (9 per cent). Some infants (7.8 per cent) were treated with both indomethacin and surgery.

**TABLE 124****NICUS REGISTRANTS BY PROVEN SYSTEMIC INFECTION AND GESTATIONAL AGE, NSW & ACT 2006#**

NICUS REGISTRANTS BY PROVEN SYSTEMIC INFECTION AND GESTATIONAL AGE, NSW & ACT 2008#										
Infection	Gestational age (weeks)									
	23-27		28-31		32-36		37+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
No	150	61.5	552	90.6	677	97.7	376	96.2	1755	90.6
Yes	94	38.5	57	9.4	16	2.3	15	3.8	182	9.4
TOTAL	244	100.0	609	100.0	693	100.0	391	100.0	1937	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research. # Babies with major congenital anomalies excluded.

**TABLE 125****NICUS REGISTRANTS BY TREATED PATENT DUCTUS ARTERIOSUS AND GESTATIONAL AGE, NSW & ACT 2006#**

PDA-Treatment for PDA	Gestational age (weeks)							
	23–27		28–31		32–36		TOTAL	
	No.	%	No.	%	No.	%	No.	%
No treated PDA	113	46.3	509	83.6	681	98.3	1303	84.3
Indomethacin only	109	44.7	95	15.6	12	1.7	216	14.0
Surgery only	3	1.2	1	0.2	0	0.0	4	0.3
Indomethacin AND surgery	19	7.8	4	0.7	0	0.0	23	1.5
TOTAL	244	100.0	609	100.0	693	100.0	1546	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research. # Babies with major congenital anomalies excluded.

Overall, the incidence of necrotising enterocolitis (NEC) was 2.8 per cent in 2006 (range 9.8 per cent in 1992 to 2.3 per cent in 2000). The diagnosis of NEC was made radiologically or at surgery in 50 per cent of infants and clinically in the remainder. NEC was more common at the lower gestational groups and 77.8 per cent of the infants with NEC were born at less than 32 weeks gestation (Table 126).

The overall incidence of major surgery was 3.9 per cent in 2006 (range 7.7 per cent in 1992 to 3.3 per cent in 2000). In 2006, 64 per cent of the infants who required major surgery were less than 32 weeks gestation (Table 127). The most common surgical procedures amongst these infants were

for patent ductus arteriosus and necrotising enterocolitis.

In 2006, the incidence of intraventricular haemorrhage (IVH) among preterm infants (less than 37 weeks gestational age) was 12.3 per cent (range 20.5 per cent in 1993 to 12.3 per cent in 2006). In 2006, confirmed IVH was most common among infants less than 28 weeks gestation (36.9 per cent); 34.4 per cent of these infants had severe IVH (grade 3 or 4). Four infants less than 32 weeks gestation with severe IVH required surgical drainage for post haemorrhagic hydrocephalus (4/40, 10 per cent). Of the surviving infants born before 32 weeks gestation, 94.8 per cent had a head ultrasound examination to detect IVH (Table 128).

**TABLE 126**

**NICUS REGISTRANTS BY NECROTISING ENTEROCOLITIS AND GESTATIONAL AGE, NSW & ACT 2006#**

NEC-Treatment for NEC	Gestational age (weeks)									
	23-27		28-31		32-36		37+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
No NEC	218	89.3	593	97.4	686	99.0	386	98.7	1883	97.2
Clinical diagnosis	10	4.1	8	1.3	5	0.7	4	1.0	27	1.4
X-ray diagnosis	6	2.5	4	0.7	0	0.0	1	0.3	11	0.6
Surgery for NEC	10	4.1	4	0.7	2	0.3	0	0.0	16	0.8
TOTAL	244	100.0	609	100.0	693	100.0	391	100.0	1937	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

# Babies with major congenital anomalies excluded.

**TABLE 127**

**NICUS REGISTRANTS BY MAJOR SURGERY AND GESTATIONAL AGE, NSW & ACT 2006#**

PROSC RESIDENTS AND STAFF SURVEILLANCE REPORT: 2019-2020										
Major surgery	Gestational age (weeks)									
	23-27		28-31		32-36		37+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
No	209	85.7	596	97.9	687	99.1	370	94.6	1862	96.1
Yes	35	14.3	13	2.1	6	0.9	21	5.4	75	3.9
TOTAL	244	100.0	609	100.0	693	100.0	391	100.0	1937	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

# Babies with major congenital anomalies excluded.

**TABLE 128**

**NICUS REGISTRANTS BY INTRAVENTRICULAR HAEMORRHAGE AND GESTATIONAL AGE, NSW & ACT 2006#**

Head ultrasound	Gestational age (weeks)							
	23-27		28-31		32-36		TOTAL	
	No.	%	No.	%	No.	%	No.	%
No IVH	146	59.8	484	79.5	291	42.0	921	59.6
Grade 1	44	18.0	61	10.0	15	2.2	120	7.8
Grade 2	15	6.1	9	1.5	3	0.4	27	1.7
Grade 3	7	2.9	5	0.8	1	0.1	13	0.8
Grade 4	24	9.8	4	0.7	2	0.3	30	1.9
Hydrocephalus requiring drainage	3	1.2	1	0.2	1	0.1	5	0.3
Not examined and lived	0	0	44	7.2	379	54.7	423	27.4
Not examined and died	8	3.3	2	0.3	2	0.3	12	0.8
TOTAL	244	100.0	609	100.0	693	100.0	1546	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

# Babies with major congenital anomalies excluded.

The proportion of infants with severe grades (Grades 3 or 4) of retinopathy of prematurity (ROP) was 3 per cent in 2006 (range 7.5 per cent in 1992 to 2.8 per cent in 2004). In 2006, seven infants with Grade 3 ROP were 28–31 weeks gestation and 84.2 per cent of the infants less than

28 weeks gestation with severe ROP received laser therapy. Importantly, 17.6 per cent of surviving infants of 28–31 weeks gestational age did not have an eye examination recorded (Table 129).

**TABLE 129**

**NICUS REGISTRANTS BY RETINOPATHY OF PREMATURITY AND GESTATIONAL AGE, NSW & ACT 2006#**

Retinopathy of prematurity	Gestational age (weeks)					
	23–27		28–31		TOTAL	
	No.	%	No.	%	No.	%
No ROP	102	41.8	435	71.4	537	63.0
Grade 1	38	15.6	21	3.4	59	6.9
Grade 2	44	18.0	27	4.4	71	8.3
Grade 3	17	7.0	7	1.1	24	2.8
Grade 4	2	0.8	0	0.0	2	0.2
Treatment with laser therapy	16	6.6	2	0.3	18	2.1
Not examined and lived	1	0.4	107	17.6	108	12.7
Not examined and died	40	16.4	12	2.0	52	6.1
TOTAL	244	100.0	609	100.0	853	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

# Babies with major congenital anomalies excluded.

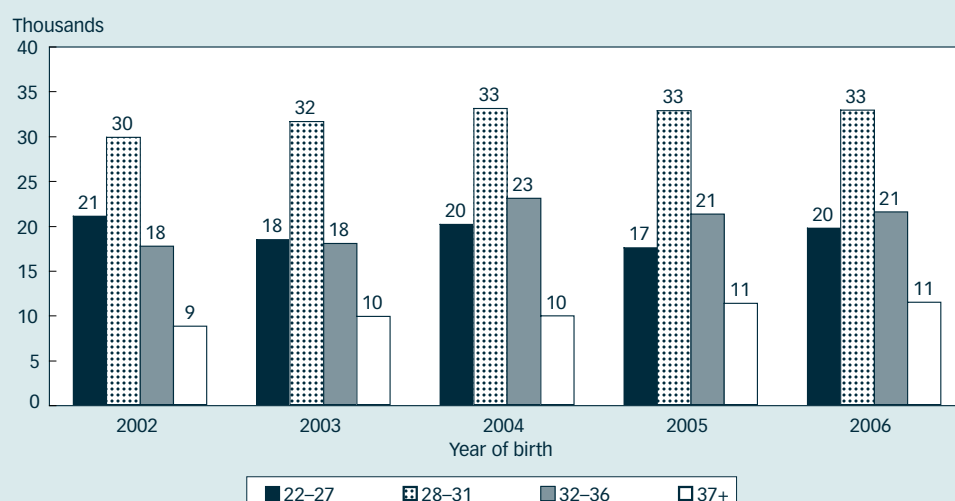
## Service utilisation

Indicators of service utilisation collected as part of NICUS include length of stay in tertiary and non-tertiary centres, days on assisted ventilation, and days in oxygen (Figures 9, 10 and 11 and Table 130). On an individual basis, infants born at less than 28 weeks gestation consumed most resources. However, as a group those born at 28–31 weeks

gestation consumed more bed days than any other group. In 2006, the total cohort used 63,951 bed days in a tertiary centre in NSW and the ACT; as well as 21,575 in a non-tertiary centre (level 2 neonatal unit) in NSW and the ACT. Even when these infants leave the neonatal intensive care unit, they still require substantial resources.

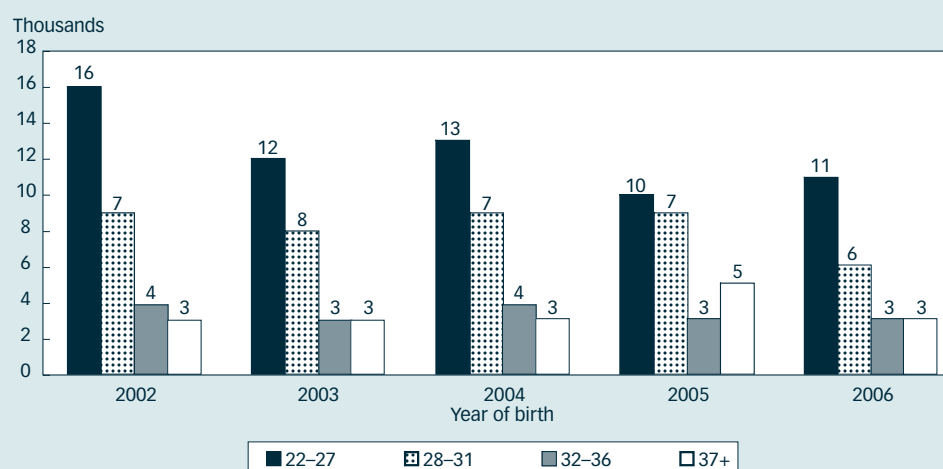
**FIGURE 9**

**NICUS REGISTRANTS BY TOTAL NUMBER OF DAYS IN HOSPITAL AND GESTATIONAL AGE, NSW & ACT 2002–2006**

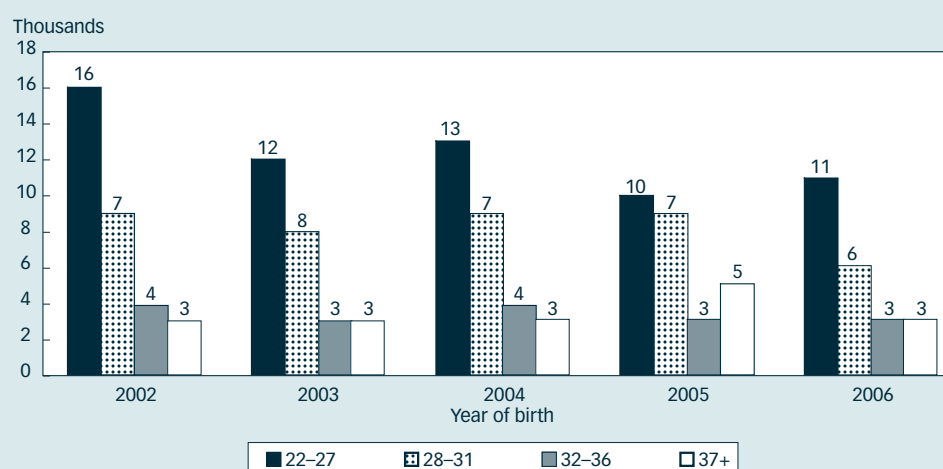


Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

#Babies with major congenital anomalies excluded. Babies not ventilated excluded.

**FIGURE 10****NICUS REGISTRANTS BY TOTAL NUMBER OF DAYS ASSISTED VENTILATION AND GESTATIONAL AGE, NSW & ACT 2002–2006**

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**FIGURE 11****NICUS REGISTRANTS BY TOTAL NUMBER OF DAYS OF OXYGEN THERAPY AND GESTATIONAL AGE, NSW & ACT 2002–2006**

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 130****NICUS REGISTRANTS BY SERVICE UTILISATION INDICATORS AND GESTATIONAL AGE, NSW & ACT 2006**

Indicators	Gestational Age (weeks)				TOTAL
	23–27	28–31	32–36	37+	
Non-tertiary hospital stay (days):					
Minimum	0	0	0	0	0
Maximum	153	82	81	180	180
Sum	2508	10441	6884	1742	21575
Median	0	15	2	0	1
25th percentile	0	0	0	0	0
75th percentile	18	29	17	3	17
Tertiary hospital stay (days):					
Minimum	0	0	0	0	0
Maximum	160	364	451	364	451
Sum	17186	22478	14610	9677	63951
Median	73	31	12	9	16
25th percentile	44	15	7	5	7
75th percentile	92	49	22	17	38
Total hospital stay (days):					
Minimum	1	1	1	1	1
Maximum	211	364	451	364	451
Sum	19694	32863	21484	11419	85460
Median	81	47	23	11	30
25th percentile	62	38	15	6	14
75th percentile	100	60	34	20	51
Mechanical ventilation (days):					
Minimum	0	0	0	0	0
Maximum	61	31	68	304	304
Sum	2610	818	1020	1672	6120
Median	4	0	0	1	1
25th percentile	1	0	0	0	0
75th percentile	14	1	1	3	2
Continuous Positive Airways Pressure (days):					
Minimum	0	0	0	0	0
Maximum	126	63	79	87	126
Sum	6071	3936	1373	651	12031
Median	22	4	1	0	1
25th percentile	6	1	0	0	0
75th percentile	36	9	3	1	5
Assisted ventilation (days):					
Minimum	0	0	0	0	0
Maximum	129	63	96	304	304
Sum	8681	4754	2394	2323	18151
Median	31	4	2	2	3
25th percentile	12	1	1	1	1
75th percentile	52	11	4	4	7
Oxygen (days):					
Minimum	0	0	0	0	0
Maximum	157	364	124	162	364
Sum	10828	6203	2880	3156	23067
Median	26	1	1	2	2
25th percentile	4	0	0	1	1
75th percentile	73	6	4	6	6
Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research					

In 2006, NICUS registrants used 18,151 days of assisted ventilation (range 15,282 in 1993 to 18,994 in 2000) and 23,067 days of oxygen therapy (range 22,526 in 1993 to 30,750 in 2001). In 2006, 50 (2.7 per cent) surviving infants were discharged home on oxygen therapy (range 2.4 per

cent in 1992 to 5.4 per cent in 1998). The proportion of surviving infants less than 28 weeks gestation discharged home on oxygen therapy was 20.1 per cent (range 11.4 per cent in 1992 to 30.4 per cent in 2002) (Table 131).

**TABLE 131**

**NICUS REGISTRANTS BY HOME OXYGEN ADMINISTRATION AND GESTATIONAL AGE, NSW & ACT 2002–2006#**

Year	Home oxygen	Gestational age (weeks)									
		22–27		28–31		32–36		37+		TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	%
2002	No	133	69.6	515	97.5	538	99.4	265	98.1	1451	94.8
	Yes	58	30.4	13	2.5	3	0.6	5	1.9	79	5.2
	TOTAL	191	100.0	528	100.0	541	100.0	270	100.0	1530	100.0
2003	No	138	79.8	543	95.8	603	99.7	353	99.4	1637	96.3
	Yes	35	20.2	24	4.2	2	0.3	2	0.6	63	3.7
	TOTAL	173	100.0	567	100.0	605	100.0	355	100.0	1700	100.0
2004	No	137	75.3	576	98.0	634	99.7	338	99.4	1685	96.5
	Yes	45	24.7	12	2.0	2	0.3	2	0.6	61	3.5
	TOTAL	182	100.0	588	100.0	636	100.0	340	100.0	1746	100.0
2005	No	138	84.7	580	97.2	668	99.9	359	99.4	1745	97.5
	Yes	25	15.3	17	2.8	1	0.1	2	0.6	45	2.5
	TOTAL	163	100.0	597	100.0	669	100.0	361	100.0	1790	100.0
2006	No	159	79.9	585	98.3	681	100.0	366	100.0	1791	97.3
	Yes	40	20.1	10	1.7	0	0.0	0	0.0	50	2.7
	TOTAL	199	100.0	595	100.0	681	100.0	366	100.0	1841	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

# Babies surviving to hospital discharge. Babies with major congenital anomalies excluded.

## Survival

Infants with a major congenital anomaly have been excluded from the analysis of survival, with the exception of data reported in Table 135.

The six-month survival rate for all infants without a major congenital anomaly in the 2006 cohort was 94.9 per cent (range 87.8 per cent in 1992 to 94.9 per cent in 2006). Survival of infants born at less than 25 weeks gestation was 57.1 per cent (range 33.9 per cent in 1998 to 54.8 per cent in 1993). There was a trend for survival to improve with gestational age (Figure 12 and Table 132). There was no difference in the survival rate between term (93.4 per cent) and preterm infants (95.3 per cent). Among infants who died, 60.6 per cent of deaths occurred during the first week of life (range 60.6 per cent in 1998 to 76.8 per cent in 2002) with a further 26.3 per cent occurring during the first month of life (Table 132).

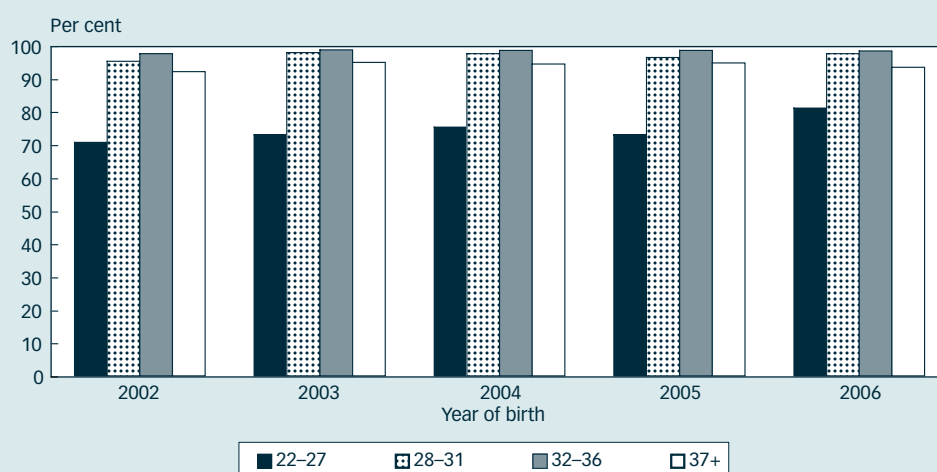
The six-month survival rate improved with increasing birth weight, ranging from 69.2 per cent for infants in the 500–599 gram group to 85.5 per cent for the 900–999 gram group. Six-month survival continued to improve with increasing birth weight to a maximum of 99.6 per cent for infants of 1,500–1,749 grams birth weight and then decreased slightly (Table 133).

The majority of infants registered in NICUS were born at a tertiary centre. Although the gestational age is the most important risk factor for mortality, disease severity is also important. At each gestational age group those with severe disease are more likely to be transferred to a neonatal intensive care unit.

In 2006, the six-month survival rate for 23–27 week infants born in a tertiary centre (82.3 per cent) was significantly higher than for those born in a non-tertiary centre (74.1 per cent). Place of birth did not significantly affect survival for infants in any of the other gestational age groups (Table 134).

The six-month survival rate was similar for males (95 per cent) and females (94.7 per cent) overall, and for all gestational age groups: less than 28 weeks (75 per cent versus 87.1 per cent); 28–31 weeks (97.8 per cent versus 97.2 per cent); 32–36 weeks (98.3 per cent versus 98.2 per cent); and 37–41 weeks gestation groups (95.1 per cent versus 90.1 per cent).

The six-month survival rate was 94.7 per cent ( $n=1,368$ ) for singleton infants and 95.3 per cent ( $n=470$ ) for multiple gestation infants. In 2006 plurality did not significantly influence survival in any of the gestational age groups.

**FIGURE 12****NICUS REGISTRANTS BY 6-MONTHS SURVIVAL AND GESTATIONAL AGE, NSW & ACT 2002–2006**

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research

**TABLE 132****NICUS REGISTRANTS BY DURATION OF SURVIVAL AND GESTATIONAL AGE, NSW & ACT 2006#**

Gestational age (weeks)	Alive at 6 months		Age at death (days)						TOTAL	
			0-7		8-28		28+			
	No.	%	No.	%	No.	%	No.	%	No.	%
23	2	40.0	3	60.0	0	0.0	0	0.0	5	0.3
24	18	60.0	3	10.0	6	20.0	3	10.0	30	1.5
25	29	76.3	6	15.8	3	7.9	0	0.0	38	2.0
26	69	84.1	6	7.3	4	4.9	3	3.7	82	4.2
27	80	89.9	6	6.7	1	1.1	2	2.2	89	4.6
28	88	88.9	5	5.1	2	2.0	4	4.0	99	5.1
29	138	98.6	1	0.7	1	0.7	0	0.0	140	7.2
30	144	99.3	1	0.7	0	0.0	0	0.0	145	7.5
31	224	99.6	1	0.4	0	0.0	0	0.0	225	11.6
32	214	98.6	1	0.5	2	0.9	0	0.0	217	11.2
33	155	98.1	3	1.9	0	0.0	0	0.0	158	8.2
34	128	98.5	1	0.8	1	0.8	0	0.0	130	6.7
35	116	100.0	0	0.0	0	0.0	0	0.0	116	6.0
36	68	94.4	2	2.8	2	2.8	0	0.0	72	3.7
37	83	96.5	1	1.2	1	1.2	1	1.2	86	4.4
38	73	92.4	4	5.1	2	2.5	0	0.0	79	4.1
39	70	92.1	5	6.6	1	1.3	0	0.0	76	3.9
40	72	88.9	9	11.1	0	0.0	0	0.0	81	4.2
41	61	96.8	2	3.2	0	0.0	0	0.0	63	3.3
42	6	100.0	0	0.0	0	0.0	0	0.0	6	0.3
TOTAL	1838	94.9	60	3.1	26	1.3	13	0.7	1937	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

# Babies with major congenital anomalies excluded.

**TABLE 133****NICUS REGISTRANTS BY DURATION OF SURVIVAL AND BIRTH WEIGHT, NSW & ACT 2006#**

Birth weight (grams)	Alive at 6 months		Age at death (days)							
			0-7		8-28		28+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 400	0	0.0	1	100.0	0	0.0	0	0.0	1	0.1
400-499	1	50.0	0	0.0	1	50.0	0	0.0	2	0.1
500-599	9	69.2	3	23.1	0	0.0	1	7.7	13	0.7
600-699	23	63.9	4	11.1	7	19.4	2	5.6	36	1.9
700-799	42	84.0	5	10.0	1	2.0	2	4.0	50	2.6
800-899	50	86.2	6	10.3	2	3.4	0	0.0	58	3.0
900-999	65	85.5	6	7.9	2	2.6	3	3.9	76	3.9
1,000-1,249	217	96.0	3	1.3	3	1.3	3	1.3	226	11.7
1,250-1,499	255	97.0	6	2.3	1	0.4	1	0.4	263	13.6
1,500-1,749	236	99.6	1	0.4	0	0.0	0	0.0	237	12.2
1,750-1,999	186	98.4	2	1.1	1	0.5	0	0.0	189	9.8
2,000-2,499	229	96.6	5	2.1	3	1.3	0	0.0	237	12.2
2,500-2,999	179	99.4	1	0.6	0	0.0	0	0.0	180	9.3
3,000-3,499	157	93.5	6	3.6	5	3.0	0	0.0	168	8.7
3,500-3,999	126	92.6	9	6.6	0	0.0	1	0.7	136	7.0
4,000+	63	96.9	2	3.1	0	0.0	0	0.0	65	3.4
TOTAL	1838	94.9	60	3.1	26	1.3	13	0.7	1937	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

# Babies with major congenital anomalies excluded.

**TABLE 134****NICUS REGISTRANTS BY DURATION OF SURVIVAL, PLACE OF BIRTH AND GESTATIONAL AGE, NSW & ACT 2006#**

Gestational age (weeks)	Place of birth	Alive at 6 months		Age at death (days)							
				0-7		8-28		28+		TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	%
23-27	Non tertiary	20	74.1	5	18.5	0	0.0	2	7.4	27	11.2
	Tertiary	177	82.3	19	8.8	13	6.0	6	2.8	215	88.8
	Sub-total	197	81.4	24	9.9	13	5.4	8	3.3	242	100.0
28-31	Non tertiary	48	98.0	1	2.0	0	0.0	0	0.0	49	8.1
	Tertiary	539	97.5	7	1.3	3	0.5	4	0.7	553	91.9
	Sub-total	587	97.5	8	1.3	3	0.5	4	0.7	602	100.0
32-36	Non tertiary	159	97.0	2	1.2	3	1.8	0	0.0	164	23.8
	Tertiary	520	98.9	4	0.8	2	0.4	0	0.0	526	76.2
	Sub-total	679	98.4	6	0.9	5	0.7	0	0.0	690	100.0
37-41	Non tertiary	185	93.0	10	5.0	3	1.5	1	0.5	199	52.1
	Tertiary	171	93.4	11	6.0	1	0.5	0	0.0	183	47.9
	Sub-total	356	93.2	21	5.5	4	1.0	1	0.3	382	100.0
42+	Non tertiary	3	100.0	0	0.0	0	0.0	0	0.0	3	50.0
	Tertiary	3	100.0	0	0.0	0	0.0	0	0.0	3	50.0
	Sub-total	6	100.0	0	0.0	0	0.0	0	0.0	6	100.0
TOTAL		1825	95.0	59	3.1	25	1.3	13	0.7	1922	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

# Babies with major congenital anomalies excluded. Babies born before arrival excluded.

As expected, the overall survival rate was generally lower (88 per cent) in the presence of a major congenital anomaly (Table 135).

**TABLE 135**

**NICUS REGISTRANTS BY DURATION OF SURVIVAL, MAJOR CONGENITAL ANOMALY AND GESTATIONAL AGE, NSW & ACT 2006**

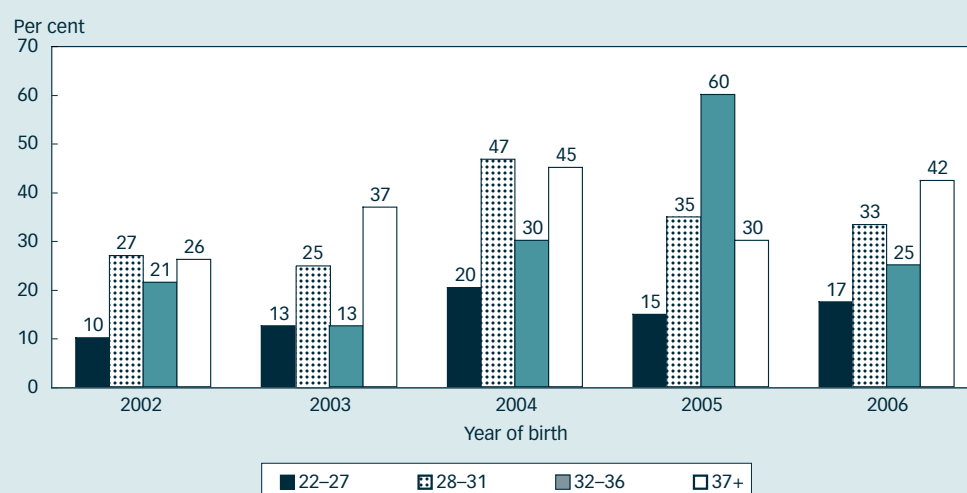
Gestational age (weeks)	Major congenital anomaly	Alive at 6 months		Age at death (days)						TOTAL	
				0-7		8-28		28+			
		No.	%	No.	%	No.	%	No.	%	No.	%
23-27	No	198	81.1	24	9.8	14	5.7	8	3.3	244	94.2
	Yes	10	66.7	3	20.0	1	6.7	1	6.7	15	5.8
	Sub-total	208	80.3	27	10.4	15	5.8	9	3.5	259	100.0
28-31	No	594	97.5	8	1.3	3	0.5	4	0.7	609	93.5
	Yes	39	92.9	2	4.8	1	2.4	0	0.0	42	6.5
	Sub-total	633	97.2	10	1.5	4	0.6	4	0.6	651	100.0
32-36	No	681	98.3	7	1.0	5	0.7	0	0.0	693	88.5
	Yes	70	77.8	10	11.1	5	5.6	5	5.6	90	11.5
	Sub-total	751	95.9	17	2.2	10	1.3	5	0.6	783	100.0
37-41	No	359	93.2	21	5.5	4	1.0	1	0.3	385	64.6
	Yes	196	92.9	11	5.2	3	1.4	1	0.5	211	35.4
	Sub-total	555	93.1	32	5.4	7	1.2	2	0.3	596	100.0
42+	No	6	100.0	0	0.0	0	0.0	0	0.0	6	85.7
	Yes	1	100.0	0	0.0	0	0.0	0	0.0	1	14.3
	Sub-total	7	100.0	0	0.0	0	0.0	0	0.0	7	100.0
TOTAL		2154	93.8	86	3.7	36	1.6	20	0.9	2296	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

Post-mortem examinations were performed on 27/99 infants (27.3 per cent) who died in the 2006 cohort (Figure 13 and Table 136). Post-mortem examinations were most commonly not requested for infants 32–36 weeks gestation (58.3 per cent). The highest rate of refusal was in the 23–27 week group (30.4 per cent) and the highest rate of post-mortem examination was in the 37-plus week group (42.3 per cent).

**FIGURE 13**

**NICUS REGISTRANT DEATHS BY POST-MORTEM EXAMINATION AND GESTATIONAL AGE, NSW & ACT 2002–2006**



Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.  
#Babies with major congenital anomalies excluded.

**TABLE 136**

**NICUS REGISTRANTS BY POST-MORTEM EXAMINATION AND GESTATIONAL AGE, NSW & ACT 2006#**

Post-mortem	Gestational age (weeks)									
	23–27		28–31		32–36		37+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Not requested	24	52.2	8	53.3	7	58.3	10	38.5	49	49.5
Refused	14	30.4	2	13.3	2	16.7	5	19.2	23	23.2
Done	8	17.4	5	33.3	3	25.0	11	42.3	27	27.3
TOTAL	46	100.0	15	100.0	12	100.0	26	100.0	99	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.  
# Babies with major congenital anomalies excluded.

## 10. EXTREMELY PRE-TERM FOLLOW-UP

### Introduction

The information presented in this chapter was obtained from the Neonatal Intensive Care Units' (NICUS) Follow-up Data Collection (see Chapter 3, Data Sources).

### Registration rate

All infants of 22–28 weeks gestation admitted to a neonatal intensive care unit in New South Wales (NSW) or the Australian Capital Territory (ACT) who survived to hospital discharge were enrolled in the follow-up clinic at their registration hospital. Table 137 shows the Health Area of mother's residence at birth of the 2,327 infants who were born between 1/1/1998 and 31/12/2003. The majority of live born infants were admitted to a neonatal intensive care unit in all Health Areas.

Overall 2,659/3,839 (69.3 per cent) infants were live born, 2,327/2,659 (87.5 per cent) were admitted to a neonatal intensive care unit, 1,803/2,327 (77.5 per cent) survived to hospital discharge, 32/1,803 (1.8 per cent) died post-

discharge. Live births increased with increasing gestational age from 38.9 per cent at 22 weeks gestation to 87.1 per cent at 28 weeks gestation. Similarly admission to a neonatal intensive care unit increased from 2.6 per cent at 22 weeks gestation to nearly 100.0 per cent at 28 weeks gestation. As expected hospital survival also increased with increasing gestational age from 0 per cent at 22 weeks gestation to 92.3 per cent at 28 weeks gestation (Table 138).

The major causes of death for the children who died after hospital discharge were sudden infant death syndrome, chronic lung disease, pneumonia, suffocation by overlying and degenerative disease of the nervous system.

There were 1,771 children available for follow-up at 2–3 years of age, corrected for prematurity, of these 379 children were not followed up (19 families moved overseas, 32 families moved interstate, and 328 were either lost to follow-up or refused the appointment). The follow-up rate at 2–3 years of age, corrected for prematurity was 1,392/1,771 (78.6 per cent) children (Table 138).

**TABLE 137**

#### NICUS REGISTRATIONS BY HEALTH AREA OF RESIDENCE, NSW & ACT 1998–2003

Health Area	Total NICUS registrants		Total NSW & ACT Live births#		Registrants per 1,000 live births
	No.	%.	No.		
Sydney South West	529	22.7	597		886.1
South Eastern Sydney & Illawarra	321	13.8	363		884.3
Sydney West	393	16.9	445		883.1
Northern Sydney & Central Coast	320	13.8	356		898.9
Hunter & New England	336	14.4	356		943.8
North Coast	56	2.4	56		636.4
Greater Southern	133	5.7	157		847.1
Greater Western	115	4.9	135		851.9
ACT	110	4.7	141		780.1
Overseas	2	0.1	2		–
Interstate	12	0.5	12		–
TOTAL	2327	100.0	2659		875.1

Source: NICUS Data Collection. NICUS Follow-up Data Collection. NSW Centre for Perinatal Health Services Research. NSW Midwives Data Collection 1998–2003. Centre for Epidemiology and Research, NSW Department of Health. ACT Maternal Perinatal Data Collection 1998–2003, ACT Health.  
# Excludes 159 babies for whom postcode ( $n=144$ ) and/or birth outcome ( $n=15$ ) was not known.

**TABLE 138**

#### BIRTHS BY NICUS REGISTRATION HOSPITAL, HOSPITAL SURVIVAL AND GESTATIONAL AGE, NSW & ACT 1998–2003

Gestational age (weeks)	Total births No.	NSW & ACT		NICUS registrations		Hospital survival		Died post-discharge		Available 2–3 years		Refused/lost		Assessed 2–3 years	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
22	491	300	61.1	191	38.9	5	2.6	0	0.0	0	0.0	0	0	0	0.0
23	392	224	57.1	168	42.9	90	53.6	27	30.0	1	3.7	26	4	22	84.6
24	502	185	36.9	317	63.1	260	82.0	124	47.7	1	0.8	123	16	107	87.0
25	472	123	26.1	349	73.9	340	97.4	220	64.7	0	0.0	220	25	195	88.6
26	615	143	23.3	472	76.7	479	–	378	78.9	11	2.9	367	75	292	79.6
27	608	107	17.6	501	82.4	491	98.0	443	90.2	10	2.3	433	96	337	77.8
28	759	98	12.9	661	87.1	662	–	611	92.3	9	1.5	602	163	439	72.9
TOTAL	3839	1180	30.7	2659	69.3	2327	87.5	1803	77.5	32	1.8	1771	379	1392	78.6

Source: NICUS Data Collection. NICUS Follow-up Data Collection. NSW Centre for Perinatal Health Services Research. NSW Midwives Data Collection 1998–2003. Centre for Epidemiology and Research, NSW Department of Health. ACT Maternal Perinatal Data Collection 1998–2003, ACT Health.  
# Excludes 159 babies for whom postcode ( $n=144$ ) and/or birth outcome ( $n=15$ ) was not known.

## Assessment and tools

Children were assessed by the developmental assessment team (92.5 per cent) at the tertiary hospital in which they received their neonatal care or the closest tertiary hospital to their current place of residence. If the parents were unable to travel to a tertiary hospital then the local paediatrician (5.5 per cent) or general practitioner (0.2 per cent) examined the child. The median (25th, 75th) age of assessment was 35.5 (29.5, 36.8) months of age, corrected for prematurity.

A formal developmental assessment comprised hearing by an audiologist, vision by an ophthalmologist or optometrist, neurological examination by a developmental paediatrician or physiotherapist, and a developmental assessment using the Griffiths Mental Developmental Scales or Bayley Scales of Infant Development performed by a psychologist or a developmental paediatrician.

## Developmental outcome

Of the 1,392 children with information at 2-3 years of age, corrected for prematurity, 1,372 (98.6 per cent) had a neurological examination performed. Of these 145 (10.6 per cent) had cerebral palsy. A further 112 (8.2 per cent) children had motor incoordination. The proportion of children with cerebral palsy (minimal/mild  $n=46$ , moderate  $n=44$  or severe  $n=43$ ) and motor incoordination decreased with increasing gestational age (Table 139).

Of the 1,392 children with information at 2-3 years of age, corrected for prematurity, 1,134 (81.5 per cent) had their eyes examined by an ophthalmologist or optometrist post discharge from hospital. Of these 9 (0.8 per cent) children were bilaterally blind with a visual acuity of less than 6/60 in the better eye. Another 130 (11.5 per cent) children had visual problems including unilateral blindness, or required eye surgery, eye patching, eye drops or corrective lenses. The proportion of children who were blind or who were diagnosed with visual problems decreased with increasing gestational age (Table 140).

**TABLE 139**

### NEUROLOGICAL STATUS AT 2-3 YEAR FOLLOW-UP BY GESTATIONAL AGE, NSW & ACT 1998-2003

Gestational age (weeks)	Neurological examination				Motor incoordination		Cerebral palsy		Total infants	
	Performed		Normal		No.	%	No.	%	No.	%
	No.	%	No.	%						
23	22	100.0	12	54.5	6	27.3	4	18.2	22	100.0
24	107	100.0	83	77.6	13	12.1	11	10.3	107	100.0
25	195	100.0	143	73.3	27	13.8	25	12.8	195	100.0
26	285	97.6	230	80.7	20	7.0	42	14.7	292	100.0
27	332	98.5	294	88.6	16	4.8	27	8.1	337	100.0
28	431	98.2	364	84.5	30	7.0	36	8.4	439	100.0
TOTAL	1372	98.6	1126	82.1	112	8.2	145	10.6	1392	100.0

Source: NICUS Follow-up Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 140**

### VISUAL STATUS AT 2-3 YEAR FOLLOW-UP BY GESTATIONAL AGE, NSW & ACT 1998-2003

Gestational age (weeks)	Visual examination performed		Visual problems		Bilateral blindness		Total infants	
	No.	%	No.	%	No.	%	No.	%
23	20	90.9	8	40.0	2	10.0	22	100.0
24	97	90.7	21	21.6	1	1.0	107	100.0
25	170	87.2	30	17.6	2	1.2	195	100.0
26	245	83.9	31	12.7	1	0.4	292	100.0
27	264	78.3	18	6.8	0	0.0	337	100.0
28	338	77.0	21	6.2	3	0.9	439	100.0
TOTAL	1134	81.5	130	11.5	9	0.8	1392	100.0

Source: NICUS Follow-up Data Collection. NSW Centre for Perinatal Health Services Research.

# Visual problems include unilateral blindness, eye surgery, eye patching, eye drops, corrective lenses.

Of the 1,392 children with information at 2–3 years of age, corrected for prematurity, 1,164 (83.6 per cent) had their hearing tested by an audiologist post discharge from hospital. Of these 57 (4.9 per cent) required bilateral hearing aids or unilateral/bilateral cochlear implants. Another 215 (18.5 per cent) children had hearing problems including unilateral deafness, high frequency deafness or insertion of grommets. The proportion of children who were deaf or had a hearing problem decreased with increasing gestational age (Table 141).

Of the 1,392 children with information at 2–3 years of age, corrected for prematurity, 1,242 (89.2 per cent) had a standardised psychological test performed. The majority of children, 1,123 (80.6 per cent) were assessed using the Griffiths Mental Development Scales, 39 (2.8 per cent) using the Bayley Scales of Development-II and 80 using the Reynell-Zinkin Scales for Visually Impaired Children, Vineland Adaptive Behaviour Scales, Denver Developmental Scales, or Peabody Picture Vocabulary Test. The proportion

of children with a mild ( $n=160$ , 12.9 per cent), moderate ( $n=71$ , 5.7 per cent) or severe ( $n=65$ , 5.2 per cent) developmental delay decreased with increasing gestational age (Table 142).

Table 143 shows the proportion of children with any degree of functional disability amongst children assessed at 2–3 years of age, corrected for prematurity. With increasing gestational age the proportion of children diagnosed with mild ( $n=187$ , 13.4 per cent), moderate ( $n=139$ , 10.0 per cent) or severe ( $n=102$ , 7.3 per cent) functional disability decreased and concomitantly the proportion of children with no apparent disability increased. Of the 1392 children with information at 2–3 years of age, corrected for prematurity, 241 (17.3 per cent) had a moderate or severe functional disability due to cerebral palsy, bilateral blindness, deafness requiring bilateral hearing aids or unilateral/bilateral cochlear implants or developmental delay more than 2 standard deviations below the mean.

**TABLE 141**

**HEARING STATUS AT 2–3 YEAR FOLLOW-UP BY GESTATIONAL AGE, NSW & ACT 1998–2003**

Gestational age (weeks)	Hearing examination performed		Hearing problems		Bilateral deafness		Total infants	
	No.	%	No.	%	No.	%	No.	%
23	19	86.4	5	26.3	2	10.5	22	100.0
24	98	91.6	19	19.4	12	12.2	107	100.0
25	171	87.7	34	19.9	7	4.1	195	100.0
26	246	84.2	51	20.7	17	6.9	292	100.0
27	274	81.3	50	18.2	9	3.3	337	100.0
28	356	81.0	56	15.7	10	2.8	439	100.0
TOTAL	1164	83.6	215	18.5	57	4.9	1392	100.0

Source: NICUS Follow-up Data Collection. NSW Centre for Perinatal Health Services Research.

# Hearing problems include unilateral deafness, insertion of grommets, high frequency hearing loss, abnormal hearing test

**TABLE 142**

**DEVELOPMENTAL STATUS AT 2–3 YEAR FOLLOW-UP BY GESTATIONAL AGE, NSW & ACT 1998–2003**

Gestational age (weeks)	Psychological assessment				Developmental delay								Total infants	
	Performed		No scores		None		Mild		Moderate		Severe		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
23	19	86.4	2	10.5	9	47.4	1	5.3	5	26.3	2	10.5	22	100.0
24	96	89.8	3	3.1	50	52.1	22	22.9	8	8.3	13	13.5	107	100.0
25	182	93.3	17	9.3	100	54.9	34	18.7	14	7.7	17	9.3	195	100.0
26	261	89.4	14	5.4	186	71.3	27	10.3	20	7.7	14	5.4	292	100.0
27	299	88.7	18	6.0	221	73.9	38	12.7	12	4.0	10	3.3	337	100.0
28	385	87.7	24	6.2	303	78.7	37	9.6	12	3.1	9	2.3	439	100.0
TOTAL	1242	89.2	78	6.3	868	69.9	160	12.9	71	5.7	65	5.2	1392	100.0

Source: NICUS Follow-up Data Collection. NSW Centre for Perinatal Health Services Research.

When children 23–28 weeks gestation were compared to a group of 460 randomly selected singleton term infants without a major congenital anomaly born during 1996 in NSW and assessed at 3 years of age using the same assessments methods, the extremely premature children were more likely to have had a mild (13.4 per cent v 2 per cent), moderate (10 per cent v 1 per cent) or severe (7.3 per cent v 0.5 per cent) functional disability than the term control children. This represented an increased risk of mild (6.5 times higher), moderate (10 times higher) or severe (15 times higher) functional disability in 23–28 week prematurely born children.<sup>1</sup>

## Weight for age

Of the children with a weight recorded 129 (10.2 per cent) were less than 3rd centile, 157 (12.5 per cent) were between the 3rd and 9th centile, 855 (67.8 per cent) were appropriately grown and 120 (9.5 per cent) had a weight above the 90th centile for sex and age (Table 144).

## Reference

1. Vincent T, Bajuk B, Sutton L, Berry G, Henderson-Smart DJ. Study of antecedents and outcomes of severe morbidity in term neonates in New South Wales: a comparison of major disability at 1 and 3 years. *Proceedings of the 5th Annual Congress of the Perinatal Society of Australia and New Zealand*. Canberra: PSANZ, 2001.

**TABLE 143**

### SEVERITY OF FUNCTIONAL DISABILITY AT 2–3 YEAR FOLLOW-UP BY GESTATIONAL AGE, NSW & ACT 1998–2003

Gestational age (weeks)	Severity of functional disability									
	None		Mild		Moderate		Severe		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
23	9	40.9	2	9.1	4	18.2	7	31.8	22	100.0
24	54	50.0	18	16.8	15	13.9	20	18.5	107	100.0
25	112	57.4	43	22.1	19	9.7	21	10.8	195	100.0
26	192	65.8	38	13.0	37	12.7	25	8.6	292	100.0
27	253	75.1	43	12.8	27	8.0	14	4.2	337	100.0
28	344	78.4	43	9.8	37	8.4	15	3.4	439	100.0
TOTAL	964	69.3	187	13.4	139	10.0	102	7.3	1392	100.0

Source: NICUS Follow-up Data Collection. NSW Centre for Perinatal Health Services Research.

**TABLE 144**

### WEIGHT FOR AGE AT 2–3 YEAR FOLLOW-UP BY GESTATIONAL AGE, NSW & ACT 1998–2003

Gestational age (weeks)	<3		3–9		Weight for age centile				Total	
					10–90		>90			
	No.	%	No.	%	No.	%	No.	%	No.	% with weight
23	1	5.6	3	16.7	12	66.7	2	11.1	18	81.8
24	12	13.2	19	20.9	55	60.4	5	5.5	91	85.0
25	23	12.8	29	16.2	113	63.1	14	7.8	179	91.8
26	42	15.6	42	15.6	164	60.7	22	8.1	270	92.5
27	19	6.4	32	10.8	217	73.3	28	9.5	296	87.8
28	32	7.9	32	7.9	294	72.2	49	12.0	407	92.7
TOTAL	129	10.2	157	12.5	855	67.8	120	9.5	1261	90.6

Source: NICUS Follow-up Data Collection. NSW Centre for Perinatal Health Services Research.

# 11. BIRTH DEFECTS

## Birth defects among stillborn and live born infants

A birth defect is any structural defect detected during pregnancy or at birth, excluding birth injuries and minor anomalies such as skin tags, positional talipes, birthmarks, or clicky hips. Descriptions of some common birth defects are shown in Appendix 1. A list of common exclusions is shown in Appendix 2.

From 1 January 1998, doctors, hospitals and laboratories are required to notify birth defects detected during pregnancy, at birth, or up to one year of life under the NSW Public Health Act 1991. Information reported is included in the NSW Birth Defects Register (BDR). This chapter reports birth defects detected during pregnancy or in the first year of life for 2000–2005 and birth defects detected during pregnancy or at birth for 2006.

## Trends in reported birth defects

Between 2000 and 2004, the reported proportion of infants with birth defects has remained stable at about 2 per cent, with a slight decline in 2005 to 1.8 per cent (Table 145). In 2006, 792 cases of birth defects detected during pregnancy or at birth were reported.

## Birth defects by diagnostic category

The most common categories of birth defects for births of more than 20 weeks gestation or with a birth weight greater than 400 grams are presented in Table 146. Birth defects are classified using the British Paediatric

Association (BPA) Classification of Diseases, which is primarily organised by body system. For infants with more than one defect, each defect is counted separately. The number of birth defects reported therefore exceeds the number of affected infants.

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 (Table 146). This is a similar pattern to previous years. In 2005, the overall rate of defects was slightly lower than the previous 5 years (31.9 versus 36.3 per 1,000).

**TABLE 145**

### BIRTH DEFECT CASES, NSW 2000–2006#

Year	Birth defect cases	Births	Rate/1000 births
2000	1858	87140	21.3
2001	1775	85286	20.8
2002	1739	85398	20.4
2003	1761	85853	20.5
2004	1750	85016	20.6
2005	1621	89840	18.0
2006	792	92038	8.6

Source: NSW Birth Defects Register. Centre for Epidemiology and Research. NSW Department of Health.

# For 2000–2005, cases reported during pregnancy and up to one year of age are included. For 2006, cases reported during pregnancy or at birth are reported.

**TABLE 146**

### BIRTH DEFECTS AMONG STILLBIRTHS AND LIVE BORN INFANTS BY DIAGNOSTIC CATEGORY, NSW 2000–2006#

Diagnostic category	No. defects				Rate/1,000 births			
	2000–2004	2005	2006	2000–2006	2000–2004	2005	2006	2000–2006
<b>Defects of nervous system</b>								
Anencephaly	51	10	7	68	0.1	0.1	0.1	0.1
Spina Bifida	128	25	18	171	0.3	0.3	0.2	0.3
Encephalocele	31	5	5	41	0.1	0.1	0.1	0.1
Microcephaly	117	16	6	139	0.3	0.2	0.1	0.2
Congenital hydrocephalus	180	26	20	226	0.4	0.3	0.2	0.4
Other nervous system defects	316	39	26	381	0.7	0.4	0.3	0.6
TOTAL	823	121	82	1026	1.9	1.3	0.9	1.7
<b>Defects of eye</b>								
Anophthalmos–microphthalmos	56	12	3	71	0.1	0.1	0.0	0.1
Buphthalmos–congenital glaucoma	25	9	1	35	0.1	0.1	0.0	0.1
Congenital cataract	67	21	3	91	0.2	0.2	0.0	0.1
Other eye defects	164	36	14	214	0.4	0.4	0.2	0.4
TOTAL	312	78	21	411	0.7	0.9	0.2	0.7
<b>Defects of ear, face and neck</b>								
Absence–stricture auditory canal	51	10	8	69	0.1	0.1	0.1	0.1
Absent auricle	8	2	–	10	0.0	0.0	.	0.0
Defects of face and neck	44	3	5	52	0.1	0.0	0.1	0.1
Other ear defects	79	8	14	101	0.2	0.1	0.2	0.2
TOTAL	182	23	27	232	0.4	0.3	0.3	0.4

TABLE 146

## BIRTH DEFECTS AMONG STILLBIRTHS AND LIVE BORN INFANTS BY DIAGNOSTIC CATEGORY, NSW 2000–2006#

Diagnostic category	No. defects				Rate/1,000 births			
	2000–2004	2005	2006	2000–2006	2000–2004	2005	2006	2000–2006
<b>Defects of cardiovascular system</b>								
Transposition of great vessels	222	56	22	300	0.5	0.6	0.2	0.5
Tetralogy of Fallot	148	27	13	188	0.3	0.3	0.1	0.3
Ventricular septal defect	869	138	73	1080	2.0	1.5	0.8	1.8
Atrial septal defect	827	138	84	1049	1.9	1.5	0.9	1.7
Heart valve defects	552	111	46	709	1.3	1.2	0.5	1.2
Patent ductus arteriosus > 37 weeks	445	87	39	571	1.0	1.0	0.4	0.9
Coarctation of aorta	203	40	23	266	0.5	0.4	0.2	0.4
Other defects of aorta	101	25	17	143	0.2	0.3	0.2	0.2
Defects of pulmonary artery	141	32	19	192	0.3	0.4	0.2	0.3
Other cardiovascular defects	709	146	79	934	1.7	1.6	0.9	1.5
TOTAL	4217	800	415	5432	9.8	8.9	4.5	8.9
<b>Defects of respiratory system</b>								
Defects of nose	59	11	8	78	0.1	0.1	0.1	0.1
Defects of larynx, trachea and bronchus	49	6	1	56	0.1	0.1	0.0	0.1
Defects of lung	70	19	11	100	0.2	0.2	0.1	0.2
TOTAL	178	36	20	234	0.4	0.4	0.2	0.4
<b>Defects of gastrointestinal system</b>								
Cleft palate only	406	95	40	541	0.9	1.1	0.4	0.9
Cleft lip only	151	23	29	203	0.4	0.3	0.3	0.3
Cleft palate and cleft lip	223	34	38	295	0.5	0.4	0.4	0.5
Oesophageal atresia only	11	4	3	18	0.0	0.0	0.0	0.0
Tracheo-oesophageal fistula (TOF) only	19	5	4	28	0.0	0.1	0.0	0.0
Oesophageal atresia with TOF	70	17	15	102	0.2	0.2	0.2	0.2
Atresia/stenosis of small intestine	133	30	14	177	0.3	0.3	0.2	0.3
Atresia/stenosis of anus	115	26	18	159	0.3	0.3	0.2	0.3
Other gastrointestinal defects	464	86	30	580	1.1	1.0	0.3	0.9
TOTAL	1592	320	191	2103	3.7	3.6	2.1	3.4
<b>Defects of genitourinary system</b>								
Defects of female genitals	55	14	9	78	0.1	0.2	0.1	0.1
Undescended testis	305	36	16	357	0.7	0.4	0.2	0.6
Hypospadias	816	146	80	1042	1.9	1.6	0.9	1.7
Epispadias	11	.	3	14	0.0	.	0.0	0.0
Chordee	134	28	20	182	0.3	0.3	0.2	0.3
Indeterminate sex-ambiguous genitalia	54	12	9	75	0.1	0.1	0.1	0.1
Renal agenesis-dysgenesis	197	29	26	252	0.5	0.3	0.3	0.4
Obstructive defects of renal pelvis and ureter	703	118	36	857	1.6	1.3	0.4	1.4
Other genitourinary system defects	615	122	59	796	1.4	1.4	0.6	1.3
TOTAL	2890	505	258	3653	6.7	5.6	2.8	6.0
<b>Defects of musculoskeletal system</b>								
Congenital dislocation of the hips	682	140	28	850	1.6	1.6	0.3	1.4
Talipes equinovarus	344	73	26	443	0.8	0.8	0.3	0.7
Polydactyly	484	93	79	656	1.1	1.0	0.9	1.1
Syndactyly	86	25	18	129	0.2	0.3	0.2	0.2
Reduction deformities of limbs	226	50	49	325	0.5	0.6	0.5	0.5
Craniosynostosis	276	32	3	311	0.6	0.4	0.0	0.5
Diaphragmatic hernia	119	28	20	167	0.3	0.3	0.2	0.3
Exomphalos	74	11	9	94	0.2	0.1	0.1	0.2
Gastroschisis	90	17	20	127	0.2	0.2	0.2	0.2
Other musculoskeletal defects	784	137	106	1027	1.8	1.5	1.2	1.7
TOTAL	3165	606	358	4129	7.4	6.7	3.9	6.8
<b>Defects of integumentary system</b>	320	36	19	375	0.7	0.4	0.2	0.6
<b>Cystic hygroma</b>	50	13	3	66	0.1	0.1	0.0	0.1
<b>Chromosomal defects</b>								
Trisomy 21	511	73	55	639	1.2	0.8	0.6	1.0
Trisomy 13	36	6	7	49	0.1	0.1	0.1	0.1
Trisomy 18	85	16	18	119	0.2	0.2	0.2	0.2
Turner syndrome	70	14	7	91	0.2	0.2	0.1	0.1
Other chromosomal defects	300	70	18	388	0.7	0.8	0.2	0.6
TOTAL	1002	179	105	1286	2.3	2.0	1.1	2.1
<b>Situs inversus</b>	27	5	1	33	0.1	0.1	0.0	0.1
<b>Congenital malformation syndromes</b>	201	34	19	254	0.5	0.4	0.2	0.4
<b>Congenital cytomegalovirus infection</b>	2	0	0	2	0.0	0.0	0.0	0.0
<b>Non-immune hydrops foetalis</b>	110	20	10	140	0.3	0.2	0.1	0.2
<b>Other and unspecified birth defects</b>	491	93	15	599	1.1	1.0	0.2	1.0
TOTAL	15562	2869	1544	19975	36.3	31.9	16.8	32.7

Source: NSW Birth Defects Register. Centre for Epidemiology and Research. NSW Department of Health.

# For 2000–2005, cases reported during pregnancy and up to one year of age are included. For 2006, cases reported during pregnancy or at birth are reported.

## Infant characteristics

In the period 2000–2006, a single defect was reported in 62.4 per cent of infants, 2 defects in 17.8 per cent, 3 defects in 8.3 per cent, and 4 or more defects in 11.6 per cent of cases. The sex was male in 57.9 per cent of infants, female in 41.6 per cent, indeterminate in 0.3 per cent of infants, and was not stated for 0.2 per cent.

Birth defects were more common in preterm and post-term infants than infants born at term (Table 147). Birth defects were also more common in infants born of a

multiple pregnancy than a singleton pregnancy: in 2000–2006, 1.8 per cent of singleton babies, 2.4 per cent of twins, and 3.6 per cent of triplets were born with a birth defect.

About 11 per cent of infants born with birth defects died in the perinatal period, over half of which were stillbirths (Table 148). These figures comprise all birth defect cases, including those where the cause of death may not be directly related to the birth defect(s). By comparison, the perinatal mortality rate among all births reported to the NSW Midwives Data Collection was less than one per cent in 2006 (see Chapter 4).

**TABLE 147**

### BIRTH DEFECT CASES BY GESTATIONAL AGE, NSW 2000–2006#

Gestational age (weeks)	2000–2004		2005		Year 2006		2002–2006		
	No.	%	No.	%	No.	%	No.	%	Rate/1,000 births
20 – 27	590	6.6	108	6.7	78	9.8	776	6.9	181.9
28 – 31	276	3.1	36	2.2	31	3.9	343	3.0	75.5
32 – 36	1062	12.0	230	14.2	114	14.4	1406	12.4	40.0
37 – 41	6355	71.5	1111	68.5	555	70.1	8021	71.0	14.5
42 +	183	2.1	25	1.5	13	1.6	221	2.0	16.6
Not stated	417	4.7	111	6.8	1	0.1	529	4.7	–
TOTAL	8883	100.0	1621	100.0	792	100.0	11296	100.0	18.5

Source: NSW Birth Defects Register. Centre for Epidemiology and Research. NSW Department of Health.

# For 2000–2005, cases reported during pregnancy and up to one year of age are included. For 2006, cases reported during pregnancy or at birth are reported.

**TABLE 148**

### BIRTH DEFECT CASES BY PREGNANCY OUTCOME, NSW 2000–2006#

Pregnancy outcome	2000–2004		2005		Year 2006		2000–2006	
	No.	%	No.	%	No.	%	No.	%
Stillbirth	571	6.4	114	7.0	83	10.5	768	6.8
Liveborn–neonatal death	358	4.0	58	3.6	51	6.4	467	4.1
Liveborn–postneonatal death	68	0.8	9	0.6	1	0.1	78	0.7
Liveborn surviving	7886	88.8	1440	88.8	657	83.0	9983	88.4
TOTAL	8883	100.0	1621	100.0	792	100.0	11296	100.0

Source: NSW Birth Defects Register. Centre for Epidemiology and Research. NSW Department of Health.

# For 2000–2005, cases reported during pregnancy and up to one year of age are included. For 2006, cases reported during pregnancy or at birth are reported.

## Maternal characteristics

After 35 years of age, the incidence of birth defects increased with increasing maternal age (Table 149). While the rate of birth defects is higher in older women, the majority of births occur in younger women. In 2000–2006, 72.1 per cent of babies with birth defects were born to women aged less than 35 years.

In 2000–2006, 330 babies of Aboriginal or Torres Strait Islander mothers were reported to have birth defects. The rate of birth defects among these babies was 20.6 per 1,000 compared with 17.0 per 1,000 for non-Aboriginal mothers.

**TABLE 149**

### BIRTH DEFECT CASES BY MATERNAL AGE, NSW 2000–2006#

Maternal age (years)	Year								
	2000–2004		2005		2006		2000–2006		Rate/1,000
	No.	%	No.	%	No.	%	No.	%	
Under 20	361	4.1	62	3.8	39	4.9	462	4.1	18.5
20 – 24	1239	13.9	223	13.8	126	15.9	1588	14.1	17.8
25 – 29	2308	26.0	359	22.1	192	24.2	2859	25.3	16.4
30 – 34	2530	28.5	439	27.1	267	33.7	3236	28.6	16.0
35 – 39	1320	14.9	269	16.6	129	16.3	1718	15.2	17.3
40 – 44	320	3.6	78	4.8	36	4.5	434	3.8	22.4
45+	25	0.3	6	0.4	3	0.4	34	0.3	36.0
Not stated	780	8.8	185	11.4	0	0.0	965	8.5	–
TOTAL	8883	100.0	1621	100.0	792	100.0	11296	100.0	18.5

Source: NSW Birth Defects Register. Centre for Epidemiology and Research. NSW Department of Health.

# For 2000–2005, cases reported during pregnancy and up to one year of age are included. For 2006, cases reported during pregnancy or at birth are reported.

## Birth defects among terminations of pregnancy, spontaneous abortions and unknown outcomes of pregnancy

In the period 2000–2006, on average about 300 terminations of pregnancy per year were reported to the NSW Birth Defects Register (Table 150). To date, 196 terminations of pregnancy have been reported to the Register for 2006.

This number is expected to increase as outcomes for mothers with defects detected during pregnancy in 2006 continue to be reported. Of the 1,919 terminations of pregnancy reported in 2000–2006, 1,480 (77.1 per cent)

were associated with a chromosomal abnormality, the most common of which was Trisomy 21 (Down syndrome), and 192 (10.0 per cent) were associated with a neural tube defect (Tables 150 and 151).

For spontaneous abortions, cytogenetic analysis is only carried out in cases of habitual abortion; the numbers presented, therefore, underestimate the number of spontaneous abortions that occur due to birth defects. Descriptions of some diagnostic terms used here are included in Appendix 1.

**TABLE 150**

### PREGNANCIES WITH FETUSES AFFECTED BY BIRTH DEFECTS RESULTING IN SPONTANEOUS ABORTION, TERMINATION OF PREGNANCY OR UNKNOWN OUTCOME, NSW 2000–2006

Pregnancy outcome	Year							2000–2006
	2000	2001	2002	2003	2004	2005	2006	
	No.	No.	No.	No.	No.	No.	No.	No.
Spontaneous abortion	124	171	202	232	298	317	348	1692
Termination of pregnancy less than 20 weeks gestation	262	257	285	312	305	302	196	1919
Unknown outcome	22	19	7	18	38	29	0	133
TOTAL	408	447	494	562	641	648	544	3744

Source: NSW Birth Defects Register. Centre for Epidemiology and Research. NSW Department of Health.

TABLE 151

## BIRTH DEFECTS AMONG TERMINATIONS, SPONTANEOUS ABORTIONS AND UNKNOWN OUTCOMES OF PREGNANCY BY DIAGNOSTIC CATEGORY, NSW 2000–2006

Diagnostic category	Year													
	2000–2004			2005			2006			2000–2006				
	Spont. abortion	Termination of pregnancy less than 20 weeks gestation	No.	Unknown	Spont. abortion	Termination of pregnancy less than 20 weeks gestation	No.	Unknown	Spont. abortion	Termination of pregnancy less than 20 weeks gestation	No.	Spont. abortion	Termination of pregnancy less than 20 weeks gestation	No.
Defects of nervous system														
Neural tube defects	6	142	3	3	2	27	0	0	1	23	9	192	3	3
Other nervous system defects	6	111	5	5	2	25	0	0	1	30	9	166	5	5
TOTAL	12	253	8	8	4	52	0	0	2	53	18	358	8	8
Defects of eye	0	2	0	0	0	2	0	0	0	0	0	4	0	0
Defects of ear, face and neck	1	8	1	1	0	3	0	0	0	3	1	14	1	1
Defects of cardiovascular system	12	157	6	6	4	74	1	1	7	58	23	289	7	7
Defects of respiratory system	2	12	4	4	2	10	0	0	3	2	7	24	4	4
Defects of Gastrointestinal system	9	111	4	4	2	34	0	0	3	24	14	169	4	4
Defects of musculoskeletal system	28	255	10	10	3	69	1	1	3	63	34	387	11	11
Defects of Genitourinary system	9	133	4	4	2	19	1	1	1	51	12	203	5	5
Defects of the integumentary system	1	1	0	0	0	0	0	0	0	0	1	1	0	0
Cystic hygroma	12	108	5	5	4	21	2	2	4	14	20	143	7	7
Chromosomal defects														
Trisomy 21	79	565	34	34	29	138	14	14	24	69	132	772	48	48
Trisomy 13	39	80	13	13	17	19	1	1	15	6	71	105	14	14
Trisomy 18	52	188	5	5	11	25	7	7	9	20	72	233	12	12
Turner syndrome	106	99	8	8	40	17	0	0	41	11	187	127	8	8
Other chromosomal defects	735	194	30	30	218	34	4	4	252	15	1205	243	34	34
TOTAL	1011	1126	90	90	315	233	26	26	341	121	1667	1480	116	116
Situs inversus	0	4	0	0	0	1	0	0	0	0	0	5	0	0
Congenital Malformation syndromes	2	8	0	0	0	5	0	0	0	5	2	18	0	0
Non-immune hydrops foetalis	8	45	1	1	4	9	0	0	2	14	14	68	1	1
Other and unspecified birth defects	5	23	3	3	0	9	0	0	1	4	6	36	3	3
TOTAL	1112	2246	136	136	340	541	31	31	367	412	1819	3199	167	167

Source: NSW Birth Defects Register. Centre for Epidemiology and Research. NSW Department of Health.

## Trends in selected birth defects

Trends in a selection of common birth defects are shown in Table 152 and Figures 14 to 17. For 2000–2005, malformations reported up to one year of age are included; for 2006, malformations reported during pregnancy or at birth are included.

The reported number of live born and stillborn infants with neural tube defects was 41 in 2000 and 40 in 2005, and 30 have been reported for 2006 to date. The number of reported terminations of pregnancy was 36 in 2000, 26 in 2005, and 22 in 2006 (Figure 14).

Over the period 2000–2006, the number of cases of isolated cleft palate ranged from 60 to 90 per year, and for total cleft lip (including cases of cleft lip and cleft palate) from 66 to 88 per year. Termination of pregnancy was usually associated with other defects such as neural tube defects, chromosomal abnormalities, or multiple abnormalities in addition to the cleft lip and/or cleft palate.

The reported number of live born and stillborn infants with chromosomal defects was 219 in 2000 and 179 in 2005. The number of reported terminations of pregnancy associated with chromosomal defects rose from 193 in 2000 to 233 in 2005. The number of infants born with Down syndrome was 118 in 2000 and 73 in 2005, while the number of reported terminations of pregnancy associated with Down syndrome rose from 96 in 2000 to 138 in 2005 (Figures 15 and 16).

In 2000, 20 live born infants were reported to have a diaphragmatic hernia, and there were 2 terminations of pregnancy associated with this condition. In 2005, there were 28 live born infants reported with a diaphragmatic hernia, and there were no terminations of pregnancy (Figure 17).

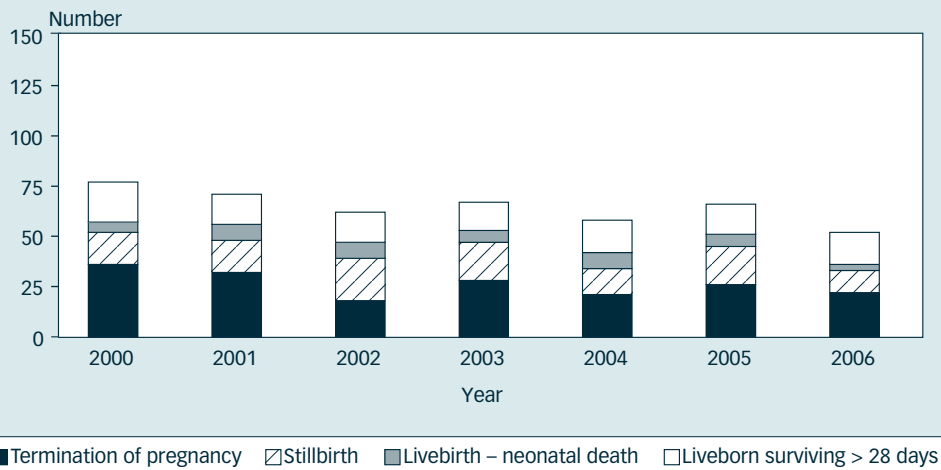
**TABLE 152**

### SELECTED BIRTH DEFECTS BY YEAR, NSW 2000–2006#

Birth defect	2000		2001		2002		2003		2004		2005		2006	
	No.	Rate/ 1000	No.	Rate/ 1000	No.	Rate/ 1000	No.	Rate/ 1000	No.	Rate/ 1000	No.	Rate/ 1000	No.	Rate/ 1000
Neural tube defects	77	0.9	71	0.8	62	0.7	67	0.8	58	0.7	66	0.73464	52	0.6
Anencephalus	29	0.3	25	0.3	20	0.2	18	0.2	16	0.2	19	0.21149	13	0.1
Spina bifida	42	0.5	39	0.5	33	0.4	46	0.5	35	0.4	40	0.44524	32	0.3
Encephalocele	13	0.1	8	0.1	10	0.1	7	0.1	8	0.1	8	0.08905	8	0.1
Cleft palate	79	0.9	67	0.8	60	0.7	88	1.0	74	0.9	90	1.00178	39	0.4
Total cleft lip	71	0.8	88	1.0	76	0.9	85	1.0	79	0.9	66	0.73464	69	0.7
Hypospadias	191	2.2	173	2.0	133	1.6	171	2.0	150	1.8	146	1.62511	80	0.9
Limb reduction defects	61	0.7	42	0.5	21	0.2	31	0.4	36	0.4	38	0.42297	39	0.4
Chromosomal abnormalities	412	4.7	370	4.3	441	5.2	451	5.3	446	5.2	412	4.58593	226	2.5
Down syndrome	214	2.5	180	2.1	221	2.6	227	2.6	232	2.7	211	2.34862	124	1.3
Renal agenesis and dysgenesis	82	0.9	75	0.9	63	0.7	68	0.8	82	1.0	73	0.81256	58	0.6
Exomphalos	28	0.3	22	0.3	22	0.3	20	0.2	28	0.3	15	0.16696	19	0.2
Gastroschisis	20	0.2	23	0.3	18	0.2	19	0.2	16	0.2	19	0.21149	21	0.2
Diaphragmatic hernia	22	0.3	28	0.3	23	0.3	21	0.2	30	0.4	28	0.31167	21	0.2

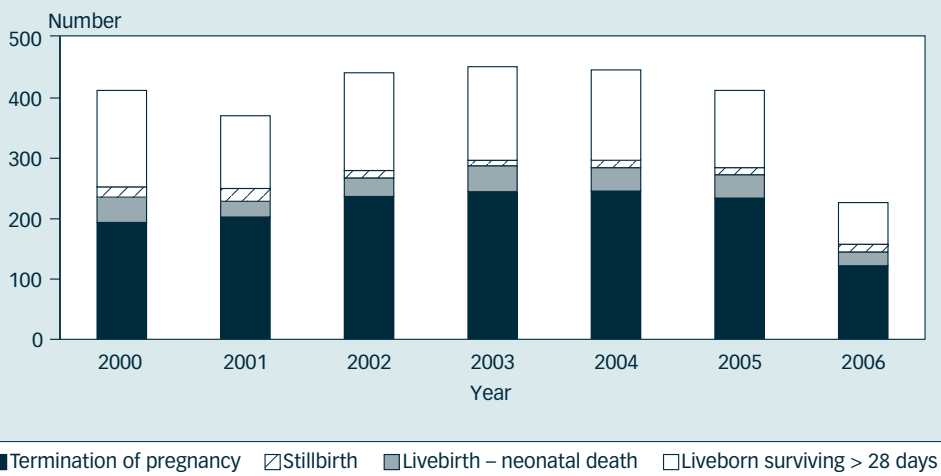
Source: NSW Birth Defects Register. Centre for Epidemiology and Research. NSW Department of Health.

# For 2000–2005, cases reported during pregnancy and up to one year of age are included. For 2006, cases reported during pregnancy or at birth are reported.

**FIGURE 14****NEURAL TUBE DEFECTS: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 2000–2006**

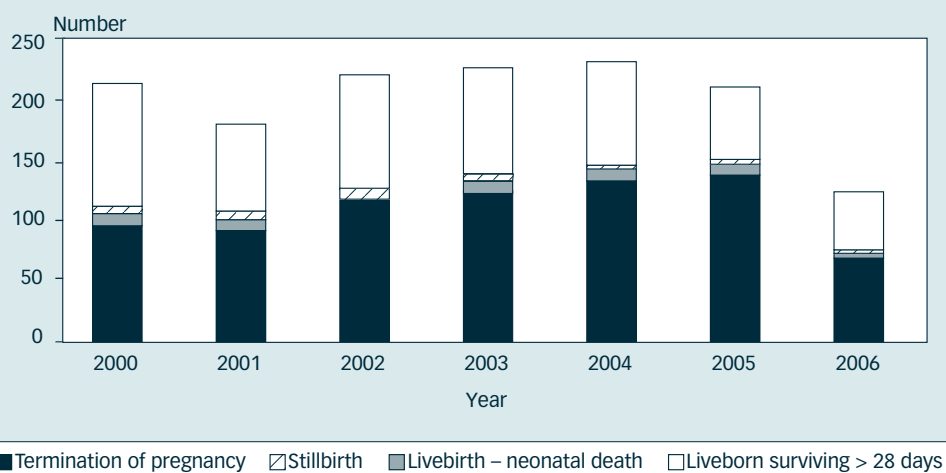
Source: NSW Birth Defects Register. Centre for Epidemiology and Research. NSW Department of Health.

# For 2000–2005, cases reported during pregnancy and up to one year of age are included. For 2006, cases reported during pregnancy or at birth are reported.

**FIGURE 15****CHROMOSOMAL ABNORMALITIES: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 2000–2006**

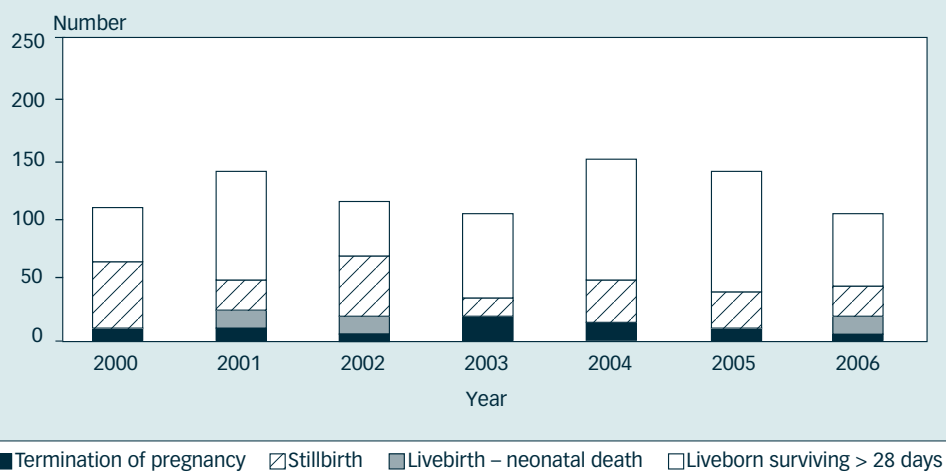
Source: NSW Birth Defects Register. Centre for Epidemiology and Research. NSW Department of Health.

# For 2000–2005, cases reported during pregnancy and up to one year of age are included. For 2006, cases reported during pregnancy or at birth are reported.

**FIGURE 16****DOWN SYNDROME: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 2000–2006**

Source: NSW Birth Defects Register. Centre for Epidemiology and Research. NSW Department of Health.

# For 2000–2005, cases reported during pregnancy and up to one year of age are included. For 2006, cases reported during pregnancy or at birth are reported.

**FIGURE 17****DIAPHRAGMATIC HERNIA CASES BY YEAR AND PREGNANCY OUTCOME, NSW 2000–2006\***

Source: NSW Birth Defects Register. Centre for Epidemiology and Research. NSW Department of Health.

# For 2000–2005, cases reported during pregnancy and up to one year of age are included. For 2006, cases reported during pregnancy or at birth are reported.

## Birth defects by NSW health areas

Crude rates of reported birth defects for NSW health areas and rates standardised for maternal age are shown in Table 153. The denominator population includes live births and stillbirths among NSW residents as reported to the MDC. The rate of birth defects increases with increasing maternal age (Table 149). In order to allow direct comparison of geographic areas, rates have been standardised to the maternal age distribution of births in NSW in 1991.

In interpreting birth defect rates among NSW areas, it should also be noted that infants with birth defects who are born to mothers resident in areas close to interstate borders may be transferred interstate for care and therefore may not be reported to the BDR.

Over the period 2000–2006, standardised rates of reported birth defects were lowest in the Greater Southern Area and highest in the Hunter and New England Area. Review of cases showed slightly increased reported rates of a range of birth defects in the Hunter and New England Area compared to NSW overall including: unstable hips (but not dislocated hips), first degree hypospadias, undescended testis, obstructive defects of the renal pelvis and ureter, spina bifida, ventricular septal defect, atrial septal defect and heart valve defects. There was no clustering by small geographic area. The range and pattern of these defects suggests that reporting of congenital abnormalities is better in the Hunter and New England Health Area compared with NSW as a whole.

**TABLE 153**

### BIRTH DEFECTS IN NSW HEALTH AREAS, 2000–2006#

Health Area	Year												
	2000–2004			2005			2006			2000–2006			99% confidence interval
	No. of cases	Crude rate per 1000 births	Stand-ardised rate per 1000 births	No. of cases	Crude rate per 1000 births	Stand-ardised rate per 1000 births	No. of cases	Crude rate per 1000 births	Stand-ardised rate per 1000 births	No. of cases	Crude rate per 1000 births	Stand-ardised rate per 1000 births	
Sydney South West	2270	23.4	21.0	373	18.6	16.3	202	9.7	8.5	2845	20.7	18.5	
South Eastern Sydney & Illawarra	1703	24.1	20.8	314	21.1	18.9	174	11.4	11.2	2191	21.7	19.1	17.8–20.4
Sydney West	1840	22.8	20.9	297	17.2	15.0	172	9.8	9.6	2309	20.0	18.3	17.2–19.4
Northern Sydney & Central Coast	1537	23.2	19.4	309	22.2	15.6	161	11.2	9.8	2007	21.2	17.4	16.1–18.8
Hunter & New England	1401	28.0	25.4	302	28.6	25.6	137	12.8	11.5	1840	25.8	23.4	21.9–24.9
North Coast	469	19.8	18.8	90	17.9	16.4	49	9.5	8.3	608	17.9	16.9	15.1–18.8
Greater Southern	375	18.4	16.5	83	20.5	15.3	31	7.5	8.0	489	17.1	15.1	13.3–17.1
Greater Western	424	21.1	19.8	82	20.3	18.8	57	13.9	12.9	563	19.9	18.7	16.6–20.9
TOTAL NSW	10019	23.4	20.9	1850	20.6	17.7	983	10.7	9.9	12852	21.0	18.8	18.3–19.3

Source: NSW Birth Defects Register. Centre for Epidemiology and Research. NSW Department of Health.

# For 2000–2005, cases reported during pregnancy and up to one year of age are included. For 2006, cases reported during pregnancy or at birth are reported.

## 12. PERINATAL DEATHS

### Review of perinatal deaths 2006

This chapter presents the results of perinatal death reviews carried out by the NSW Maternal and Perinatal Committee, which is a quality assurance committee established under the *NSW Health Administration Act 1982*. The Committee is privileged under the Act to carry out confidential reviews of maternal and perinatal deaths.

NSW Department of Health Policy Directive No. 2006\_006 describes hospital procedures for review and reporting of perinatal deaths.<sup>1</sup> In 2006, the Maternal and Perinatal Committee carried out reviews of perinatal deaths occurring among fetuses or infants of at least 20 weeks gestation or at least 400 grams birth weight, bringing the Committee's review process in line with the criteria used by the NSW Midwives Data Collection (MDC) for reporting of births.

Perinatal deaths in 2006 were reviewed by the Committee's Perinatal Outcomes Working Party. Both stillbirths and neonatal deaths were classified according to an obstetric cause-specific classification, the Perinatal Society of Australia and New Zealand Perinatal Death Classification (PSANZ-PDC). Neonatal deaths were also classified by

neonatal cause according to the Perinatal Society of Australia and New Zealand Neonatal Death Classification (PSANZ-NDC).<sup>2</sup>

There were 821 perinatal deaths of at least 20 weeks gestation or at least 400 grams birth weight reported to the MDC in 2006. Confidential reports on 838 deaths were reviewed. Of the 592 stillbirths reported to the MDC, reviews were carried out on 584 (98.6 per cent). The MDC was notified of 229 neonatal deaths. Reviews were carried out on 254 neonatal deaths, which include neonatal deaths that occurred after discharge or transfer from the hospital of birth.

### Causes of perinatal death 2006

Perinatal deaths were classified according to the PSANZ-PDC, which identifies the single most important factor which led to the chain of events which resulted in the death.

#### 1. Congenital abnormality

In 2006, congenital abnormalities were the underlying cause for 186 deaths (Table 154). The most common abnormalities were chromosomal ( $n=50$ , 26.9 per cent). Of these, 17 were trisomy 18, 12 were trisomy 21, 7 were trisomy 13, and 3 were Turner syndrome.

**TABLE 154**

#### PERINATAL DEATHS BY PSANZ-PDC CLASSIFICATION AND PERINATAL OUTCOME, NSW 2006

PSANZ perinatal death classification	Stillbirth		Perinatal outcome Neonatal death		TOTAL	
	No.	%	No.	%	No.	%
<b>Fetal abnormality</b>						
Central nervous system	29	5.0	5	2.0	34	4.1
Cardiovascular system	25	4.3	7	2.8	32	3.8
Urinary system	11	1.9	7	2.8	18	2.1
Gastrointestinal system	4	0.7	5	2.0	9	1.1
Chromosomal	33	5.7	17	6.7	50	6.0
Metabolic	1	0.2	1	0.4	2	0.2
Multiple	16	2.7	13	5.1	29	3.5
Musculoskeletal	3	0.5	2	0.8	5	0.6
Diaphragmatic hernia	1	0.2	0	0.0	1	0.1
Tumours	2	0.3	1	0.4	3	0.4
Other specified	0	0.0	1	0.4	1	0.1
Unspecified	2	0.3	0	0.0	2	0.2
Total	127	21.7	59	23.2	186	22.2
<b>Perinatal infection</b>						
Group B Streptococcus	4	0.7	1	0.4	5	0.6
E Coli	5	0.9	4	1.6	9	1.1
Listeria Monocytogenes	1	0.2	0	0.0	1	0.1
Spirochaetal	1	0.2	3	1.2	4	0.5
Other bacterial	1	0.2	3	1.2	4	0.5
Unspecified bacterial	1	0.2	5	2.0	6	0.7
Cytomegalovirus	0	0.0	2	0.8	2	0.2
Other viral	0	0.0	1	0.4	1	0.1
Unspecified viral	1	0.2	0	0.0	1	0.1
Protozoal eg Toxoplasma	1	0.2	0	0.0	1	0.1
Other unspecified organism	11	1.9	3	1.2	14	1.7
Total	26	4.5	22	8.7	48	5.7

TABLE 154 (continued)

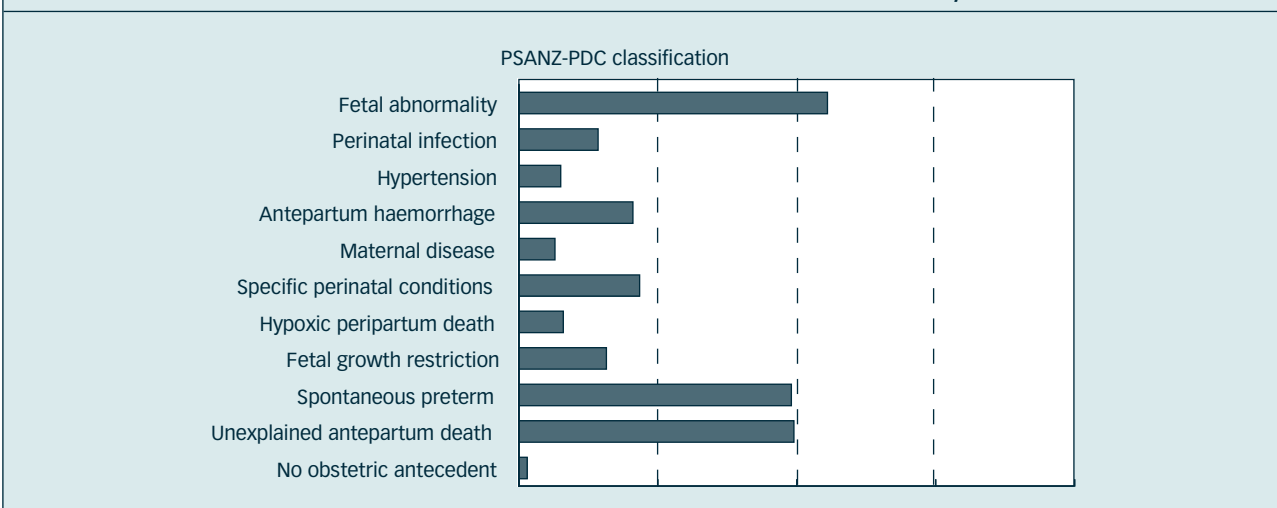
## PERINATAL DEATHS BY PSANZ-PDC CLASSIFICATION AND PERINATAL OUTCOME, NSW 2006

PSANZ perinatal death classification	Stillbirth		Perinatal outcome Neonatal death		TOTAL	
	No.	%	No.	%	No.	%
<b>Hypertension</b>						
Chronic – Essential	4	0.7	0	0.0	4	0.5
Gestational	2	0.3	1	0.4	3	0.4
Pre-eclampsia	13	2.2	3	1.2	16	1.9
Pre-eclampsia superimposed on chronic hypertension	1	0.2	0	0.0	1	0.1
Unspecified hypertension	1	0.2	0	0.0	1	0.1
Total	21	3.6	4	1.6	25	3.0
<b>Antepartum haemorrhage</b>						
Placental abruption	40	6.8	10	3.9	50	6.0
Placenta praevia	1	0.2	3	1.2	4	0.5
Vasa praevia	1	0.2	1	0.4	2	0.2
Other	1	0.2	1	0.4	2	0.2
Undetermined origin	5	0.9	6	2.4	11	1.3
Total	48	8.2	21	8.3	69	8.2
<b>Maternal disease</b>						
Termination of pregnancy for maternal psychosocial indications	2	0.3	0	0.0	2	0.2
Diabetes/gestational diabetes	8	1.4	0	0.0	8	1.0
Maternal injury	1	0.2	0	0.0	1	0.1
Maternal injury: Accidental	2	0.3	1	0.4	3	0.4
Sepsis	1	0.2	0	0.0	1	0.1
Lupus obstetric syndrome	2	0.3	1	0.4	3	0.4
Other specified	2	0.3	2	0.8	4	0.5
Total	18	3.1	4	1.6	22	2.6
<b>Specific perinatal conditions</b>						
Twin-to-twin transfusion	15	2.6	7	2.8	22	2.6
Fetomaternal haemorrhage	4	0.7	0	0.0	4	0.5
Antepartum cord complications	19	3.3	0	0.0	19	2.3
Uterine abnormality	3	0.5	11	4.3	14	1.7
Birth trauma	0	0.0	1	0.4	1	0.1
Alloimmune disease – Rhesus	0	0.0	1	0.4	1	0.1
Alloimmune disease – Thrombocytopenia	1	0.2	0	0.0	1	0.1
Idiopathic hydrops	9	1.5	2	0.8	11	1.3
Total	51	8.7	22	8.7	73	8.7
<b>Hypoxic peripartum death</b>						
Intrapartum complication – Uterine rupture	2	0.3	1	0.4	3	0.4
Intrapartum complication – Cord prolapse	0	0.0	1	0.4	1	0.1
Intrapartum complication – Shoulder dystocia	1	0.2	0	0.0	1	0.1
Intrapartum complication – Other	1	0.2	1	0.4	2	0.2
Evidence of non-re-assuring fetal status in a normally grown infant	1	0.2	4	1.6	5	0.6
No intrapartum complications and no evidence of non-reassuring fetal status	2	0.3	0	0.0	2	0.2
Unspecified	2	0.3	11	4.3	13	1.6
Total	9	1.5	18	7.1	27	3.2
<b>Fetal growth restriction</b>						
With evidence of reduced vascular perfusion on Doppler studies and/or placental histopathology	26	4.5	4	1.6	30	3.6
With chronic villitis	1	0.2	0	0.0	1	0.1
No placental pathology	7	1.2	1	0.4	8	1.0
No examination of placenta	3	0.5	3	1.2	6	0.7
Other specified placental pathology	5	0.9	1	0.4	6	0.7
Unspecified or not known whether placental examined	2	0.3	0	0.0	2	0.2
Total	44	7.5	9	3.5	53	6.3
<b>Spontaneous preterm</b>						
Intact membranes or membrane rupture less than 24 hours: with chorioamnionitis on placental histopathology	14	2.4	38	15.0	52	6.2
Intact membranes or membrane rupture less than 24 hours: without chorioamnionitis on placental histopathology	23	3.9	11	4.3	34	4.1
Intact membranes or membrane rupture less than 24 hours: with clinical evidence of chorioamnionitis, no examination of placenta	0	0.0	1	0.4	1	0.1
Intact membranes or membrane rupture less than 24 hours: no clinical signs of chorioamnionitis, no examination of placenta	3	0.5	8	3.1	11	1.3

**TABLE 154 (continued)****PERINATAL DEATHS BY PSANZ-PDC CLASSIFICATION AND PERINATAL OUTCOME, NSW 2006**

PSANZ perinatal death classification	Stillbirth		Perinatal outcome Neonatal death		TOTAL	
	No.	%	No.	%	No.	%
Intact membranes or membrane rupture less than 24 hours: unspecified/ unknown placental examination	2	0.3	1	0.4	3	0.4
Membrane rupture 24 hours or more: with chorioamnionitis on placental histopathology	16	2.7	11	4.3	27	3.2
Membrane rupture 24 hours or more: without chorioamnionitis on placental histopathology	3	0.5	4	1.6	7	0.8
Membrane rupture 24 hours or more: no clinical signs of chorioamnionitis, no examination of placenta	0	0.0	3	1.2	3	0.4
Membrane rupture 24 hours or more: unspecified/unknown placental examination	0	0.0	1	0.4	1	0.1
Membrane rupture unknown duration: with chorioamnionitis on placental histopathology	10	1.7	7	2.8	17	2.0
Membrane rupture unknown duration: without chorioamnionitis on placental histopathology	0	0.0	2	0.8	2	0.2
Membrane rupture unknown duration: with clinical evidence of chorioamnionitis, no examination of placenta	0	0.0	1	0.4	1	0.1
Membrane rupture unknown duration: no clinical signs of chorioamnionitis, no examination of placenta	3	0.5	0	0.0	3	0.4
Membrane rupture unknown duration: unspecified/unknown placental examination	0	0.0	2	0.8	2	0.2
Total	74	12.7	90	35.4	164	19.6
<b>Unexplained antepartum death</b>						
With evidence of reduced vascular perfusion on Doppler studies and / or placental histopathology	27	4.6	0	0.0	27	3.2
With chronic villitis	1	0.2	0	0.0	1	0.1
No placental pathology	104	17.8	0	0.0	104	12.4
No examination of placenta	11	1.9	0	0.0	11	1.3
Other specified placental pathology	17	2.9	0	0.0	17	2.0
Unspecified or not known whether placenta examined	6	1.0	0	0.0	6	0.7
Total	166	28.4	0	0.0	166	19.8
<b>No obstetric antecedent</b>						
Sudden Infant Death Syndrome (SIDS)	0	0.0	1	0.4	1	0.1
Postnatally acquired infection	0	0.0	1	0.4	1	0.1
Unknown/unexplained	0	0.0	3	1.2	3	0.4
Total	0	0.0	5	2.0	5	0.6
<b>TOTAL</b>	<b>584</b>	<b>100.0</b>	<b>254</b>	<b>100.0</b>	<b>838</b>	<b>100.0</b>

Source: NSW Maternal and Perinatal Committee, NSW Department of Health.

**FIGURE 18****PERINATAL DEATHS BY PSANZ-PDC CLASSIFICATION AND HOSPITAL SERVICE LEVEL, NSW 2006**

Source: NSW Maternal and Perinatal Committee, NSW Department of Health

Thirty-four deaths were associated with abnormalities of the central nervous system (18.3 per cent) and included 13 deaths due to neural tube defects and 8 deaths associated with congenital hydrocephalus. Thirty-two deaths were associated with abnormalities of the cardiovascular system, which included 11 cases of hypoplastic left heart syndrome, 5 cases of transposition of the great vessels, 3 cases of hypoplastic left ventricle and 2 cases of coarctation of the aorta.

Two deaths were associated with arthrogryposis multiplex congenita, and 1 death was associated with congenital diaphragmatic hernia, while 29 deaths were due to multiple abnormalities not associated with a chromosomal abnormality.

## 2. Perinatal infection

Forty-eight deaths (5.7 per cent) were found to be due to infection, of which 26 were stillbirths and 22 were neonatal deaths. For 31 deaths there was an associated chorioamnionitis. The most common infective organism was *Escherichia coli*, which was considered responsible for 9 deaths. Five deaths were caused by group B streptococcus infection. Two perinatal deaths followed congenital cytomegalovirus infection.

## 3. Hypertension

Twenty-five deaths (3.0 per cent) were considered to be due to maternal hypertension. There were 21 stillbirths and 4 neonatal deaths. The majority ( $n=16$ ) occurred in mothers with pre-eclampsia. There were 4 deaths attributed to chronic hypertension, 3 to gestational hypertension, 1 to pre-eclampsia superimposed on pre-existing hypertension, and in 1 case the type of hypertension was not specified.

## 4. Antepartum haemorrhage

Sixty-nine deaths were due to antepartum haemorrhage, of which 50 were due to placental abruption, 4 were due to placenta praevia, and 2 due to vasa praevia. Of the 49 deaths due to placental abruption, 10 were associated with maternal hypertension.

## 5. Maternal disease

Twenty-two deaths were attributed to other maternal conditions including: diabetes ( $n=8$ ), maternal injury ( $n=4$ ), maternal death ( $n=2$ ), and termination of pregnancy ( $n=2$ ).

## 6. Specific perinatal conditions

Twin-to-twin transfusion accounted for 22 of the 73 deaths in this group, followed by antepartum cord complications ( $n=19$ ), uterine abnormality ( $n=14$ ), idiopathic hydrops ( $n=11$ ) and fetomaternal haemorrhage ( $n=4$ ).

## 7. Hypoxic peripartum death

There were 27 deaths associated with peripartum hypoxia. Three deaths followed uterine rupture and one death followed cord prolapse. Five deaths occurred before the onset of labour, 4 during labour and 3 at an unspecified time prior to birth. The remaining 15 deaths occurred in the neonatal period.

## 8. Fetal growth restriction

In 53 cases, the main cause of death was considered to be fetal growth restriction (FGR). Of these, 44 were stillbirths and 9 were neonatal deaths. FGR is defined as less than the tenth percentile of birth weight for gestational age with no major congenital abnormalities. If a maternal or fetal cause of FGR was known then the cause of death was classified to the underlying cause of the FGR. Stillbirths with evidence of maceration were not classified as FGR unless there was evidence of growth restriction on serial ultrasound during pregnancy.

## 9. Spontaneous preterm

There were 164 (19.6 per cent) perinatal deaths associated with spontaneous preterm birth, which comprises normally formed and appropriately grown babies born before 37 weeks gestation. Of these, 74 (45.1 per cent) were stillbirths and 90 (54.9 per cent) were neonatal deaths.

Eighty-one deaths (49.4 per cent) were at less than 23 weeks gestation, 55 (33.5 per cent) were at 23–25 weeks gestation, and 28 (17.1 per cent) occurred between 26 and 36 weeks gestation. Thirty-eight deaths (23.2 per cent) were associated with membrane rupture of 24 hours or more.

## 10. Unexplained antepartum death

Of the 166 unexplained stillbirths, 112 (67.5 per cent) were low birth weight babies and 111 (66.9 per cent) were premature. A variety of associated maternal conditions were reported in this group including: multiple pregnancy (10 deaths), maternal hypertension (6), diabetes (5), and cholestasis (2). Post-mortem examination was carried out in 76 cases (45.8 per cent). Placental histopathology results were provided for 144 unexplained antepartum deaths (86.8 per cent) and evidence of reduced vascular perfusion was found in 27 cases.

## 11. No obstetric antecedent

No obstetric cause of death was identified for 5 neonatal deaths. There was one death due to Sudden Infant Death Syndrome, one death due to postnatally acquired infection and three deaths were unexplained.

## Cause of perinatal death by maternity service level 2005

Maternity service levels are described in the Explanatory Notes of the Methods section (page 17). The majority of perinatal deaths occurred in level 6 hospitals (50.7 per cent, Table 155). The proportion of unexplained intrauterine deaths was substantially lower in level 6 hospitals than other hospitals, possibly due to better access to perinatal post-mortem services. The proportion of deaths associated with congenital abnormalities was highest in level 6 hospitals, reflecting patterns of referral for diagnosis and treatment.

## Time of death 2006

Of the 838 perinatal deaths reviewed for 2006, 372 (44.4 per cent) occurred before the onset of labour, 82 (9.8 per cent) occurred during labour, 138 (16.5 per cent) occurred at an unknown time before birth, and 246 (29.4 per cent) were neonatal deaths.

Of the 82 deaths that occurred during labour, 49 (59.8 per cent) occurred at less than 23 weeks gestation, 18 (22.0 per cent) occurred at 23 to 25 weeks gestation, and 15 (18.3 per cent) occurred at 26 weeks or more.

## Neonatal causes of death

In 2006 extreme prematurity (26 weeks gestation or less) was the most common cause of neonatal death, accounting for over 40 per cent of all neonatal deaths in 2006 (Table 156). Congenital abnormalities were the next most common cause of neonatal death, accounting for about one in five deaths.

## Perinatal deaths associated with maternal drug dependency–abuse 2006

No perinatal deaths were directly attributed to maternal drug dependency or drug abuse. Thirteen deaths occurred among mothers who had a history of drug dependency or abuse, but drug use was not considered to be the main cause of death.

## Post-mortem examination 2006

Post-mortem examination is valuable in ascertaining or confirming the cause of death, identifying additional factors that may have contributed to the death, and counselling parents about the cause of death. Post-mortem examinations were carried out for 284 (33.9 per cent) deaths: 235 stillborn infants (40.2 per cent of all reported stillbirths) and 49 neonatal deaths (19.3 per cent of all reported neonatal deaths). Placental histopathology was carried out in 687 perinatal deaths (82.0 per cent).

## References

1. NSW Department of Health. *Hospital procedures for Review and Reporting of Perinatal Deaths*. Available at [www.health.nsw.gov.au/policies/pd/2006/PD2006\\_006.html](http://www.health.nsw.gov.au/policies/pd/2006/PD2006_006.html).
2. *Perinatal Society of Australia and New Zealand. Clinical Practice Guideline for Perinatal Mortality Audit*. PSANZ, 2005.

**TABLE 155**

### PERINATAL DEATHS BY PSANZ-PDC CLASSIFICATION AND MATERNITY SERVICE LEVEL, NSW 2006#

PSANZ perinatal death classification	Hospital service level															
	Level 1		Level 2		Level 3		Level 4		Level 5		Level 6		Private		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Fetal abnormality	0	0.0	0	0.0	5	10.0	16	13.3	27	17.6	128	30.1	10	12.0	186	22.2
Perinatal infection	0	0.0	0	0.0	1	2.0	11	9.2	6	3.9	24	5.6	6	7.2	48	5.7
Hypertension	0	0.0	1	16.7	0	0.0	4	3.3	3	2.0	15	3.5	2	2.4	25	3.0
Antepartum haemorrhage	0	0.0	0	0.0	6	12.0	15	12.5	13	8.5	29	6.8	6	7.2	69	8.2
Maternal disease	0	0.0	0	0.0	1	2.0	4	3.3	5	3.3	11	2.6	1	1.2	22	2.6
Specific perinatal conditions	0	0.0	0	0.0	5	10.0	7	5.8	10	6.5	42	9.9	9	10.8	73	8.7
Hypoxic peripartum death	0	0.0	0	0.0	3	6.0	5	4.2	5	3.3	13	3.1	1	1.2	27	3.2
Fetal growth restriction	0	0.0	2	33.3	4	8.0	6	5.0	6	3.9	28	6.6	7	8.4	53	6.3
Spontaneous preterm	0	0.0	2	33.3	4	8.0	22	18.3	31	20.3	88	20.7	17	20.5	164	19.6
Unexplained antepartum death	1	1	16.7	20	40.0	29	24.2	47	30.7	45	10.6	23	27.7	166	19.8	100.0
No obstetric antecedent	0	0.0	0	0.0	1	2.0	1	0.8	0	0.0	2	0.5	1	1.2	5	0.6
TOTAL	1	100.0	6	100.0	50	100.0	120	100.0	153	100.0	425	100.0	83	100.0	838	100.0

Source: NSW Maternal and Perinatal Committee, NSW Department of Health.

# The maternity service level is the service level of the hospital of death.

**TABLE 156****NEONATAL DEATHS BY PSANZ-NDC CLASSIFICATION AND GESTATIONAL AGE, NSW 2006**

PSANZ neonatal death classification	Gestational age (weeks)					
	Less than 37		37 +		TOTAL	
	No.	%	No.	%	No.	%
<b>Congenital abnormality</b>						
Central nervous system	4	2.0	0	0.0	4	1.6
Cardiovascular system	2	1.0	4	7.8	6	2.4
Urinary tract	5	2.5	2	3.9	7	2.8
Gastrointestinal tract	2	1.0	3	5.9	5	2.0
Chromosomal	13	6.4	3	5.9	16	6.3
Metabolic	0	0.0	2	3.9	2	0.8
Multiple	7	3.4	5	9.8	12	4.7
Musculoskeletal	3	1.5	0	0.0	3	1.2
Respiratory	1	0.5	0	0.0	1	0.4
Tumours	1	0.5	0	0.0	1	0.4
Other specified congenital abnormality	0	0.0	1	2.0	1	0.4
Unspecified	1	0.5	0	0.0	1	0.4
Total	39	19.2	20	39.2	59	23.2
<b>Extreme prematurity</b>						
Not resuscitated	69	34.0	0	0.0	69	27.2
Unsuccessful resuscitation	10	4.9	0	0.0	10	3.9
Resuscitation unspecified or unknown	24	11.8	0	0.0	24	9.4
Total	103	50.7	0	0.0	103	40.6
<b>Cardio-respiratory disorders</b>						
Hyaline membrane disease / Respiratory distress syndrome	18	8.9	0	0.0	18	7.1
Meconium aspiration syndrome	0	0.0	4	7.8	4	1.6
Primary persistent pulmonary hypertension	1	0.5	0	0.0	1	0.4
Pulmonary hypoplasia	3	1.5	0	0.0	3	1.2
Other	3	1.5	0	0.0	3	1.2
Total	25	12.3	4	7.8	29	11.4
<b>Infection</b>						
Congenital bacterial	3	1.5	2	3.9	5	2.0
Acquired bacterial	5	2.5	0	0.0	5	2.0
Congenital viral	2	1.0	0	0.0	2	0.8
Unspecified organism	4	2.0	1	2.0	5	2.0
Total	14	6.9	3	5.9	17	6.7
Neurological						
Hypoxic ischaemic encephalopathy / perinatal asphyxia	8	3.9	18	35.3	26	10.2
Intracranial haemorrhage	8	3.9	0	0.0	8	3.1
Total	16	7.9	18	35.3	34	13.4
<b>Gastrointestinal</b>						
Necrotising enterocolitis	3	1.5	0	0.0	3	1.2
Total	3	1.5	0	0.0	3	1.2
<b>Other</b>						
Consistent with SIDS	0	0.0	1	2.0	1	0.4
Trauma	0	0.0	1	2.0	1	0.4
Other specified	3	1.5	0	0.0	3	1.2
Other Unknown/Undetermined	0	0.0	4	7.8	4	1.6
Total	3	1.5	6	11.8	9	3.5
<b>TOTAL</b>	<b>203</b>	<b>100.0</b>	<b>51</b>	<b>100.0</b>	<b>254</b>	<b>100.0</b>

Source: NSW Maternal and Perinatal Committee, NSW Department of Health.

# 13. APPENDICES

## APPENDIX 1

### DESCRIPTION OF SELECTED BIRTH DEFECTS

The following include descriptions of some of the birth defects included in this report :

<i>Anencephaly</i>	Absence of the cranial vault, with the brain tissue completely missing or markedly reduced.
<i>Spina bifida</i>	Defective closure of the bony encasement of the spinal cord, through which the spinal cord may protrude.
<i>Encephalocele</i>	Protrusion of brain through a congenital opening in the skull
<i>Hydrocephalus</i>	Dilatation of the cerebral ventricles accompanied by an accumulation of cerebral fluid within the skull.
<i>Buphthalmos</i>	Enlargement and distension of the fibrous coats of the eye.
<i>Hypospadias</i>	The opening of the urethra lies on the underside of the penis or on the perineum.
<i>Epispadias</i>	Absence of the upper wall of the urethra. The opening of the urethra lies on the dorsum of the penis in males, and anterior to or onto the clitoris in females.
<i>Chordee</i>	Downward bowing of the penis.
<i>Talipes equinovarus</i>	A deformity of the foot in which the heel is elevated and turned outward.
<i>Polydactyly</i>	Presence of additional fingers or toes on hands or feet.
<i>Syndactyly</i>	Attachment of adjacent fingers or toes on hands or feet.
<i>Craniosynostosis</i>	Premature closure of the sutures of the skull.
<i>Exomphalos</i>	Herniation of the abdominal contents into the umbilical cord.
<i>Gastroschisis</i>	A defect in the abdominal wall not involving the umbilicus and through which the abdominal contents herniate.
<i>Cystic hygroma</i>	A sac, cyst or bursa distended with fluid.

## APPENDIX 2

### BIRTH DEFECT EXCLUSION LIST

The following is a general list of minor defects and non-structural disorders which are excluded from the NSW Birth Defects Register:

Abnormal palmar creases	Inborn errors of metabolism other than phenylketonuria and congenital hypothyroidism.
Accessory nipples	Intrauterine growth retardation
Balanced chromosomal translocation (unless occurring with structural defects)	Low birthweight
Birthmarks (single, < 4 cms diameter)	Meconium ileus
Bronchopulmonary dysplasia	Minor ear anomalies
Cerebral palsy	Minor finger/hand anomalies
Clicky hips	Minor toe/foot anomalies
Congenital infections (unless occurring with structural defects)	Muscular dystrophies & myopathies
Congenital neoplasms/tumours (exception: cystic hygroma)	Oesophageal reflux
Developmental disability	Patent ductus arteriosus (less than 37 weeks gestation)
Deviated nasal septum	Pilonidal sinus
Fetal alcohol syndrome	Sacral dimples
Glucose-6-phosphate dehydrogenase (G6PD) deficiency	Single umbilical artery (unless occurring with structural defects)
Haemophilia	Skin tag
Heart murmurs (functional)	Strabismus
Hernia (epigastric, hiatus, inguinal, umbilical)	Talipes (exception: those requiring surgery)
Hydrocele (testis)	Tongue tie
Hypoplastic lung (less than 37 weeks gestation)	Undescended testes (exception: those requiring surgery)
Imperforate hymen	Webbing of 2nd and 3rd toes
	Wide sutures

## APPENDIX 3

### MATERNAL COUNTRIES OF BIRTH AND COUNTRY OF BIRTH GROUPS

#### English speaking

Australia  
Christmas Island  
Cocos (Keeling) Islands  
Norfolk Island  
New Zealand  
United Kingdom  
Channel Islands  
Isle of Man  
Ireland  
Bermuda  
Canada  
United States of America  
South Africa

#### Central and South America

Bahrain  
Argentina  
Bolivia  
Brazil  
Chile  
Colombia  
Ecuador  
Falkland Islands  
French Guiana  
Guyana  
Paraguay  
Peru  
Surinam  
Uruguay  
Venezuela  
Belize  
Costa Rica  
El Salvador  
Guatemala  
Honduras  
Mexico  
Nicaragua  
Panama  
Antigua and Barbuda  
Bahamas  
Barbados  
Cayman Islands  
Cuba  
Grenada  
Guadeloupe  
Jamaica  
Netherlands Antilles  
Puerto Rico  
St Kitts-Nevis  
St Lucia  
St Vincent and the  
Grenadines  
Trinidad and Tobago  
Turks and Caicos Islands

#### Eastern Europe, Russia, Central Asian and Baltic States

Bulgaria  
Czechoslovakia  
Hungary  
Poland  
Romania  
Armenia  
Azerbaijan  
Belarus (formerly  
Byelorussia)  
Estonia  
Georgia  
Kazakhstan  
Kyrgyzstan (formerly  
Kirghizia)  
Latvia  
Lithuania  
Moldova (formerly Moldavia)  
Russian Federation  
Ukraine  
Uzbekistan  
Kazakhstan  
Kyrgystan

#### Melanesia, Micronesia and Polynesia

New Caledonia  
Papua New Guinea  
Solomon Islands  
Vanuatu  
Guam  
Kiribati  
Nauru  
Cook Islands  
Fiji  
French Polynesia (including  
Tahiti)  
Niue  
American Samoa  
Western Samoa  
Tokelau  
Tonga  
Tuvalu  
Wallis and Fortuna

#### Middle East and Africa

Bahrain  
Gaza Strip  
Iran  
Iraq  
Israel  
Jordan  
Kuwait  
Lebanon  
Qatar

Saudi Arabia  
Syria  
Turkey  
United Arab Emirates  
West Bank  
Yemen  
Algeria  
Egypt  
Libya  
Mauritania  
Morocco  
Sudan  
Tunisia  
Cameroon  
Central African Republic  
Congo  
Cote d'Ivoire  
Gambia  
Ghana  
Guinea-Bissau  
Liberia  
Mali  
Nigeria  
Senegal  
Sierra Leone  
Zaire  
Angola  
Botswana  
Djibouti  
Ethiopia  
Kenya  
Malawi  
Mauritius  
Mozambique  
Namibia  
Reunion  
Rwanda  
Seychelles  
Somalia  
Swaziland  
Tanzania  
Uganda  
Zambia  
Zimbabwe  
Eritrea  
Ethiopia

#### North East Asia

China (excluding Taiwan)  
Hong Kong  
Japan  
North Korea  
South Korea  
Macau  
Mongolia  
Taiwan

#### South East Asia

Brunei  
Cambodia  
Indonesia  
Laos  
Malaysia  
Burma (Myanmar)  
Philippines  
Singapore  
Thailand  
Vietnam

#### Southern Asia

Afghanistan  
Bangladesh  
Bhutan  
India  
Maldives  
Nepal  
Pakistan  
Sri Lanka

#### Southern Europe

Albania  
Andorra  
Cyprus  
Gibraltar  
Greece  
Italy  
Malta  
Portugal  
Spain  
Bosnia-Herzegovina  
Croatia  
Macedonia  
Slovenia  
Serbia and Montenegro  
Former Yugoslavia (not  
otherwise defined)

#### Western and Northern Europe

Austria  
Belgium  
France  
Germany (United)  
Luxembourg  
Netherlands  
Switzerland  
Denmark  
Faeroe Islands  
Finland  
Iceland  
Norway  
Sweden

## APPENDIX 4

## NSW MIDWIVES DATA COLLECTION FORM

NSW MIDWIVES DATA COLLECTION			
Mother Unit Record No. <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span>		Hospital <span style="border: 1px solid black; display: inline-block; width: 150px; height: 1.2em; vertical-align: middle;"></span> Code <span style="border: 1px solid black; display: inline-block; width: 50px; height: 1.2em; vertical-align: middle;"></span>	
First Name <span style="border: 1px solid black; display: inline-block; width: 200px; height: 1.2em; vertical-align: middle;"></span>		Family Name <span style="border: 1px solid black; display: inline-block; width: 150px; height: 1.2em; vertical-align: middle;"></span>	
Address <span style="border: 1px solid black; display: inline-block; width: 250px; height: 1.2em; vertical-align: middle;"></span>		Postcode <span style="border: 1px solid black; display: inline-block; width: 80px; height: 1.2em; vertical-align: middle;"></span>	
Mother's birth date <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span> <small>day month year</small>		<div style="border: 1px solid black; padding: 2px;"> <b>LABOUR AND DELIVERY (cont.)</b> </div>	
Country of birth <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span> <small>day month year</small> Australia <input type="checkbox"/> 1101 Other <input type="checkbox"/>			
If other, specify <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span>			
Indigenous status Aboriginal <input type="checkbox"/> 1 Torres Strait Islander <input type="checkbox"/> 2 Aboriginal and Torres Strait Islander <input type="checkbox"/> 3 None of the above <input type="checkbox"/> 4			
<b>PREVIOUS PREGNANCIES</b> Previous pregnancy greater than 20 weeks? Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0 If yes No. previous pregnancies > 20 weeks <span style="border: 1px solid black; display: inline-block; width: 50px; height: 1.2em; vertical-align: middle;"></span> Was the last birth by caesarean section? Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0 Total number of previous caesarean sections? <span style="border: 1px solid black; display: inline-block; width: 50px; height: 1.2em; vertical-align: middle;"></span>		<div style="border: 1px solid black; padding: 2px;"> <b>MATERNITY CARE</b> </div>	
<b>THIS PREGNANCY</b> Date of EDC <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span> <small>day month year</small> Was antenatal care received? Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0 If yes, duration of pregnancy at first contact for care (weeks) <span style="border: 1px solid black; display: inline-block; width: 50px; height: 1.2em; vertical-align: middle;"></span> Medical conditions Diabetes mellitus <input type="checkbox"/> Gestational diabetes <input type="checkbox"/> Chronic hypertension <input type="checkbox"/> Pregnancy-induced hypertension: - proteinuric <input type="checkbox"/> - non-proteinuric <input type="checkbox"/> Did the mother smoke at all during pregnancy? Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0 If yes, how many cigarettes each day on average in the second half of pregnancy? None <input type="checkbox"/> 1   > 10 per day <input type="checkbox"/> 2 ≤ 10 per day <input type="checkbox"/> 3   Unknown <input type="checkbox"/> 4			
<b>LABOUR AND DELIVERY</b> Onset of labour Spontaneous <input type="checkbox"/> 1   Induced <input type="checkbox"/> 2 No labour <input type="checkbox"/> 3 If labour augmented/induced (tick 1 or more): Oxytocins <input type="checkbox"/> ARM <input type="checkbox"/> Prostaglandins <input type="checkbox"/> Other <input type="checkbox"/> If labour induced, main indication: Diabetes <input type="checkbox"/> 1 Hypertensive disease <input type="checkbox"/> 2 Fetal distress <input type="checkbox"/> 3 Fetal death <input type="checkbox"/> 4 Chorioamnionitis <input type="checkbox"/> 5 Blood group isoimmunisation <input type="checkbox"/> 6 Prelabour rupture of membranes <input type="checkbox"/> 7 Prolonged pregnancy (41+ weeks) <input type="checkbox"/> 8 Suspected intrauterine growth restriction <input type="checkbox"/> 9 Other <input type="checkbox"/> 10 Presentation at birth Vertex <input type="checkbox"/> 1   Brow <input type="checkbox"/> 4 Breech <input type="checkbox"/> 2   Shoulder/transverse <input type="checkbox"/> 5 Face <input type="checkbox"/> 3   Other <input type="checkbox"/> 6			
<b>BABY</b> Unit Record No. <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span> Birth date <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span> <small>day month year</small> Sex M <input type="checkbox"/> 1 F <input type="checkbox"/> 2 Indet. <input type="checkbox"/> 3 Plurality Single <input type="checkbox"/> 1 Multiple <input type="checkbox"/> 2 If multiple, total number <span style="border: 1px solid black; display: inline-block; width: 50px; height: 1.2em; vertical-align: middle;"></span> If multiple birth, specify baby number <span style="border: 1px solid black; display: inline-block; width: 50px; height: 1.2em; vertical-align: middle;"></span> Birthweight (grams) <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span> Estimated gestational age <span style="border: 1px solid black; display: inline-block; width: 50px; height: 1.2em; vertical-align: middle;"></span> Apgar <span style="border: 1px solid black; display: inline-block; width: 50px; height: 1.2em; vertical-align: middle;"></span> <span style="border: 1px solid black; display: inline-block; width: 50px; height: 1.2em; vertical-align: middle;"></span> <small>1 min 5 min</small> Resuscitation of baby (tick 1 or more) None/minimal <input type="checkbox"/> 1 IPPR: bag + mask <input type="checkbox"/> 4 Suction <input type="checkbox"/> 2 Intubation + IPPR <input type="checkbox"/> 5 O <sub>2</sub> therapy <input type="checkbox"/> 3 External cardiac massage + ventilation <input type="checkbox"/> 6			
<b>POSTNATAL</b> Mother Postpartum haemorrhage Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0 requiring blood transfusion Baby Birth defect? Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0 If yes, specify <span style="border: 1px solid black; display: inline-block; width: 150px; height: 1.2em; vertical-align: middle;"></span> Admitted to SCN/NICU Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0 If admitted to NICU: Was a birth defect the main reason for admission? Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0 Vitamin K Oral <input type="checkbox"/> 1 IM <input type="checkbox"/> 2 None <input type="checkbox"/> 3 Hepatitis B birth dose Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0		<div style="border: 1px solid black; padding: 2px;"> <b>DISCHARGE</b> </div>	
<b>DISCHARGE</b> Mother Discharged <input type="checkbox"/> 1 Transferred <input type="checkbox"/> 2 Died <input type="checkbox"/> 3 Mother's date of discharge <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span> <small>day month year</small> Hospital mother transferred to <span style="border: 1px solid black; display: inline-block; width: 150px; height: 1.2em; vertical-align: middle;"></span> Infant feeding on hospital discharge Breast-feeding <input type="checkbox"/> Expressed breast milk (tick one or more) <input type="checkbox"/> Infant formula <input type="checkbox"/> Baby's date of discharge <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span> <small>day month year</small> Hospital baby transferred to <span style="border: 1px solid black; display: inline-block; width: 150px; height: 1.2em; vertical-align: middle;"></span> Baby transferred by NETS Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0 Signature of midwife at discharge <span style="border: 1px solid black; display: inline-block; width: 150px; height: 1.2em; vertical-align: middle;"></span>			
<b>DISCHARGE</b> Baby Discharged <input type="checkbox"/> 1 Transferred <input type="checkbox"/> 2 Stillbirth <input type="checkbox"/> 3 Died <input type="checkbox"/> 4 Transferred and died <input type="checkbox"/> 5 Mother's date of discharge <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span> <small>day month year</small> Hospital mother transferred to <span style="border: 1px solid black; display: inline-block; width: 150px; height: 1.2em; vertical-align: middle;"></span> Infant feeding on hospital discharge Breast-feeding <input type="checkbox"/> Expressed breast milk (tick one or more) <input type="checkbox"/> Infant formula <input type="checkbox"/> Baby's date of discharge <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span> <small>day month year</small> Hospital baby transferred to <span style="border: 1px solid black; display: inline-block; width: 150px; height: 1.2em; vertical-align: middle;"></span> Baby transferred by NETS Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0 Signature of midwife at discharge <span style="border: 1px solid black; display: inline-block; width: 150px; height: 1.2em; vertical-align: middle;"></span>			
<b>DISCHARGE</b> Baby Discharged <input type="checkbox"/> 1 Transferred <input type="checkbox"/> 2 Stillbirth <input type="checkbox"/> 3 Died <input type="checkbox"/> 4 Transferred and died <input type="checkbox"/> 5 Mother's date of discharge <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span> <small>day month year</small> Hospital mother transferred to <span style="border: 1px solid black; display: inline-block; width: 150px; height: 1.2em; vertical-align: middle;"></span> Infant feeding on hospital discharge Breast-feeding <input type="checkbox"/> Expressed breast milk (tick one or more) <input type="checkbox"/> Infant formula <input type="checkbox"/> Baby's date of discharge <span style="border: 1px solid black; display: inline-block; width: 100px; height: 1.2em; vertical-align: middle;"></span> <small>day month year</small> Hospital baby transferred to <span style="border: 1px solid black; display: inline-block; width: 150px; height: 1.2em; vertical-align: middle;"></span> Baby transferred by NETS Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0 Signature of midwife at discharge <span style="border: 1px solid black; display: inline-block; width: 150px; height: 1.2em; vertical-align: middle;"></span>			

Public Health Act, 1991

606201 - Sept/05 MR44/PR16

Health Department Copy

Please complete and forward to: NSW Midwives Data Collection  
 Performance Analysis and Reporting Branch, Level 5, NSW Department of Health  
 Locked Bag 961, North Sydney, NSW 2059



