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produced by:

Centre for Epidemiology and Research
Population Health Division
NSW Department of Health
Locked Mail Bag 961
North Sydney NSW 2059 Australia
Tel: 61 2 9391 9223
Fax: 61 2 9391 9232

further copies of this publication can be obtained from the NSW Department of Health website at:

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## Report preparation

Lee Taylor, Barbara Bajuk, Trina Vincent.

## Editors

Lee Taylor, Barbara Bajuk, Trina Vincent and Michael Giffin

# 2. EXECUTIVE SUMMARY

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

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

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

Information on causes of maternal deaths in NSW was obtained through the work of the NSW Maternal and Perinatal Committee. From 1 January 2000, confidential reviews of perinatal deaths among babies of at least 22 weeks gestation or 500 grams birth weight are also carried out by the Committee. Chapter 12 describes the results of the review for deaths occurring in 2004.

## Trends in NSW

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

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

The reported number of Aboriginal and Torres Strait Islander mothers giving birth increased slightly from 2,105 in 2000 (2.4 per cent of all mothers) to 2,308 in 2004 (2.7 per cent of all mothers). Part of this increase is likely to be due to an increased willingness of mothers to be identified as Aboriginal or Torres Strait Islander.

The proportion of mothers planning to give birth in a birth centre remained stable at about 3.7 per cent, while the reported number of mothers planning a home birth decreased from 146 to 114 over the 5 year period.

The rate of normal vaginal birth fell from 67.1 per cent in 2000 to 62.1 per cent in 2004. Over the 5 years, the caesarean section rate increased from 21.3 to 27.2 per cent and the rate of instrumental delivery remained steady at 10 to 11 per cent. Caesarean section delivery continues to be more common among privately than publicly insured mothers. The changing pattern in type of delivery is evident in both groups between 1999 and 2003. Among privately insured mothers the rate of normal vaginal birth decreased from 57.6 to 50.8 per cent and the caesarean section rate increased from 26.3 to 34.7 per cent. Among publicly insured mothers the rate of normal vaginal birth decreased from 72.8 to 68.7 per cent and the rate of caesarean section increased from 17.1 to 22.5 per cent.

Since 1999, the rate of low birth weight (less than 2,500 grams) has been steady at about 6 per cent. The rate was 6.4 per cent in 2004. The percentage of babies born prematurely (less than 37 weeks gestation) has remained stable at about 7 per cent.

The perinatal mortality rate varied from 8.6 to 9.6 per 1,000 births over the 5 year period. About two-thirds of all perinatal deaths were stillbirths and one-third were neonatal deaths.

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

## Aboriginal and Torres Strait Islander Mothers and Babies

In 2004, 70.1 per cent of Aboriginal and Torres Strait Islander mothers commenced antenatal care before 20 weeks gestation compared with 88.0 per cent of non-Aboriginal and Torres Strait Islander mothers. About one in 5 Aboriginal and Torres Strait Islander mothers were teenagers. Since 2000, the rates of low birth weight (less than 2,500 grams) and prematurity (less than 37 weeks gestation) in Aboriginal and Torres Strait Islander babies have been over 10 per cent. These rates are one and a half times to 2 times higher than the rates for NSW overall. The perinatal mortality rate among babies born to Aboriginal and Torres Strait Islander mothers was 11.6 per 1,000 in 2004, higher than the rate of 9.0 per 1,000 experienced by babies born to non-Aboriginal or Torres Strait Islander mothers.

## Neonatal Intensive Care

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

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

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

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

Seventy-five per cent of infants registered during 2004 were preterm (less than 37 weeks gestation), 40.8 per cent were very preterm (less than 32 weeks gestation) and 11.8 per cent were extremely preterm (less than 28 weeks gestation). Nearly one in 5 (19.3 per cent) infants had a major or minor congenital anomaly.

Infants with major congenital anomalies were excluded from the analysis of mortality and morbidity. The majority of infants registered in 2004 (87.9 per cent) received assisted ventilation (intermittent mandatory ventilation or continuous positive airways pressure ventilation).

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

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

## Extremely Preterm Follow up

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

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

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

## Birth defects

About 2,000 infants are born with birth defects each year in NSW. In 1998–2004, defects of the cardiovascular system were most commonly reported, followed by defects of the musculoskeletal system and defects of the genito-urinary system. This is a similar pattern to previous years.

In 2003, the reported rate of defects in stillborn and liveborn babies was slightly lower than the previous 5 years combined (35.4 versus 38.1 per 1,000) due to a lower overall birth defect rate among infants.

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

## Perinatal deaths

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

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

# 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 livebirths 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, delivery, and perinatal outcomes. Completed forms are sent to the Performance, Analysis and Reporting Branch in the Data Collections and Quality Section of the NSW Department of Health, where they are compiled into the MDC database.

Over 66 per cent of MDC notifications are received electronically from hospital obstetric information systems. These notifications are received on disk or by email and replace the submission of the record on paper. There are several source systems that generate the MDC data. The largest source is the OBSTET database, which supplies 47.7 per cent of all MDC data, followed by: the OIS database (Central Sydney Area Health Service) 6.3 per cent; the Central Coast modified CRS System (2.9 per cent); the Illawarra Shared Care System (2.5 per cent); the Sydney Adventist Hospital database (2.7 per cent); and Medistat (1.3 per cent).

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 statewide audit of infants admitted to neonatal intensive care units and 4 of the level 4 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 2004 the 10 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 Mothers and Babies Hospital, The Canberra Hospital (Canberra), Westmead Hospital, and at the 2 paediatric hospitals: Sydney Children's Hospital and The Children's Hospital at Westmead. The 4 level 4 neonatal nurseries that joined NICUS in 2002 were situated at Blacktown Hospital, Gosford Hospital, St George Hospital and Wollongong Hospital.

The neonatal, maternal and perinatal data that comprise the NICUS Data Collection are collected and collated within each neonatal intensive care unit and level 4 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 statewide 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 Mothers and Babies Hospital, The Canberra Hospital (Canberra) or Westmead Hospital or at one of the 2 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, neonatology, 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 *Information Privacy Code of Practice*, copies of which are available through the NSW Department of Health's website at www.health.nsw.gov.au.

### The NSW Inpatient Statistics Collection

For this report data from the NSW Inpatient Statistics Collection (ISC) was linked to MDC data to produce information on postnatal length of stay in NSW hospitals, and, from 1998, health insurance status.

The ISC 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 ISC is maintained by the Performance, Analysis and Reporting Branch in the Data Collections and Quality Section 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 of at least 22 weeks gestation or at least 500 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 Straight Islander mothers is quite small in NSW. Aboriginal and Torres Straight Islander mothers were therefore combined for this analysis. For ease of reference, 'Aboriginal' is used to refer to both Aboriginal or Torres Straight 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 2000–2003. Records from the 2 files were matched using a probabilistic linkage software (Automatch). Prior to matching, residential address and mothers' name were standardised using a standardisation software (Autostan). The overall linkage rate was 95.2 per cent of MDC records and 98.9 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.1 Analysis was carried out using SAS version 8.02. Analyses concerning geographic location were based on health area of hospital of birth as reported to the MDC. Home births and births for which the hospital of birth was not stated were excluded from the analysis.

#### References

1. McCarty DJ, Tull ES, Moy CS, Kwoh 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**

Delivery 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[1]:**

| | |
|---|---|
| None–minimal: | No developmental delay: Griffiths 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 deviation above the mean; |
| Mild: | Developmental delay: GMDS or BSID-II between 1 and 2 Standard Deviations below the mean;<br>Mild cerebral palsy: able to walk without aids at 2-3 years of age, corrected for prematurity; |
| Moderate: | Developmental delay: GMDS or BSID-II between 2 and 3 Standard Deviations below the mean;<br>Moderate cerebral palsy: able to walk with the assistance of aids at 2–3 years of age, corrected for prematurity;<br>Sensorineural or conductive deafness: requiring amplification with bilateral hearing aids or unilateral–bilateral cochlear implant; |
| Severe: | Developmental delay: GMDS or BSID-II 3 or more standard deviations below the mean;<br>Bilateral blindness: with a visual acuity of <6/60 in the better eye;<br>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. |

**Livebirth**

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 liveborn 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 livebirths.

**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 livebirths 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 (livebirths 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 delivery, 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 livebirths, stillbirths, terminations of pregnancy and spontaneous abortions. Birth defect rates are calculated using births (that is, livebirths 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 within the NPSU's Congenital Malformations Australia Report. This report covers birth defects detected during pregnancy and up to one year of age while the Congenital Malformations Australia Report covers birth defects detected during pregnancy and up to 28 days of life.

Variations in data published by the BDR and interstate birth defects registers 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 obstetric hospitals

*Level 1*: local hospitals (no births), postnatal only.

*Level 2*: small isolated hospitals, low-risk births only. Staffed by general practitioners and midwives.

*Level 3*: country district and smaller metropolitan hospitals, care for mothers and infants at low–moderate risk. Full resuscitation and theatre facilities available. Rostered obstetricians, resident medical staff and midwives. Accredited general practitioners–specialist anaesthetist on call. Has Level 2b neonatal care.

*Level 4*: country base–metropolitan district hospitals. Delivery and care for mothers and/or babies with moderate risk factors. Obstetricians and paediatrician available 24 hours a day, 7 days a week. Rostered resident medical staff, specialist anaesthetist on call. Has Level 2b neonatal care.

*Level 5*: country base–metropolitan district hospitals, 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 hospitals (supra regional). All functions—low, moderate and high-risk births. Has Level 3 neonatal intensive care.

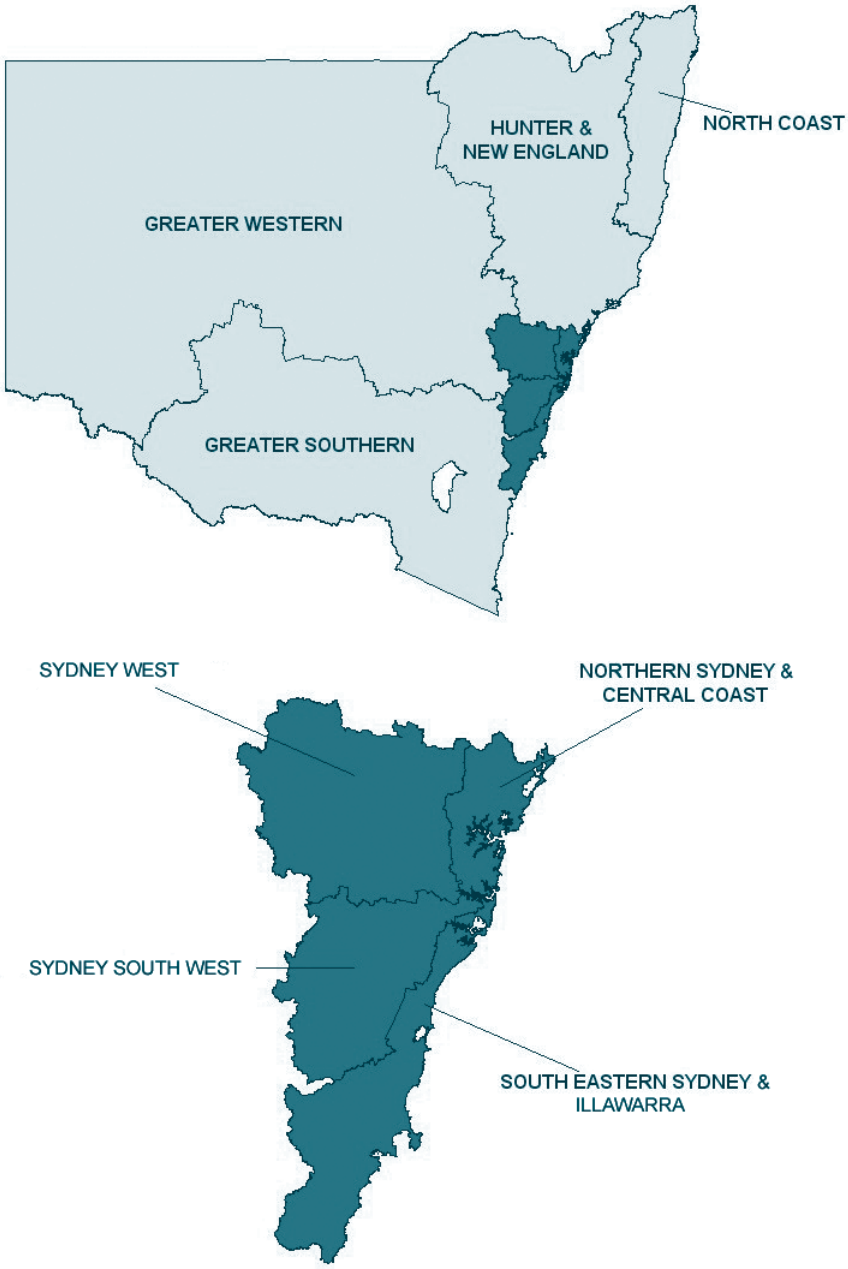
### Type of delivery

The 'vaginal breech' category covers all forms of vaginal breech delivery, 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 85,626 births to 84,288 women reported in 2004 (Table 1). This is the lowest number of births in the last 5 years. The number of twin pregnancies has declined slightly since 2001, while the number of triplet pregnancies varied between 22 and 30 per year.

**TABLE 1**

**PLURALITY, NSW 2000–2004**

| Plurality | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Pregnancies** | | | | | | | | | | |
| Singleton | 85027 | 98.3 | 82926 | 98.3 | 83190 | 98.3 | 83677 | 98.4 | 82983 | 98.5 |
| Twins | 1404 | 1.6 | 1428 | 1.7 | 1375 | 1.6 | 1330 | 1.6 | 1274 | 1.5 |
| Triplets | 29 | 0.0 | 24 | 0.0 | 22 | 0.0 | 23 | 0.0 | 30 | 0.0 |
| Quadruplets | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 2 | 0.0 | 1 | 0.0 |
| Total | 86460 | 100.0 | 84379 | 100.0 | 84587 | 100.0 | 85032 | 100.0 | 84288 | 100.0 |
| **Births** | | | | | | | | | | |
| Singleton | 85027 | 96.7 | 82926 | 96.6 | 83190 | 96.7 | 83677 | 96.8 | 82983 | 96.9 |
| Twins | 2808 | 3.2 | 2856 | 3.3 | 2749 | 3.2 | 2660 | 3.1 | 2549 | 3.0 |
| Triplets | 87 | 0.1 | 72 | 0.1 | 66 | 0.1 | 69 | 0.1 | 90 | 0.1 |
| Quadruplets | 0 | 0.0 | 4 | 0.0 | 0 | 0.0 | 8 | 0.0 | 4 | 0.0 |
| Total | 87922 | 100.0 | 85858 | 100.0 | 86005 | 100.0 | 86414 | 100.0 | 85626 | 100.0 |

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

## Health area of residence

In 2004, the largest number of births occurred in the Sydney South West Area, followed by Sydney West and South Eastern Sydney & Illawarra Areas (Table 2). Declines in numbers of births were most apparent in the Greater Southern and Greater Western Areas.

**TABLE 2**

**MATERNAL HEALTH AREA OF RESIDENCE, NSW 2000–2004**

| Health Area | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Sydney South West | 19316 | 22.3 | 18775 | 22.3 | 19105 | 22.6 | 19485 | 22.9 | 18720 | 22.2 |
| South Eastern Sydney & Illawarra | 14104 | 16.3 | 13589 | 16.1 | 13699 | 16.2 | 13898 | 16.3 | 14121 | 16.8 |
| Sydney West | 15967 | 18.5 | 15763 | 18.7 | 15883 | 18.8 | 15942 | 18.7 | 15834 | 18.8 |
| Northern Sydney & Central Coast | 13204 | 15.3 | 12856 | 15.2 | 12818 | 15.2 | 13142 | 15.5 | 13032 | 15.5 |
| Hunter & New England | 10105 | 11.7 | 9753 | 11.6 | 10004 | 11.8 | 9694 | 11.4 | 9672 | 11.5 |
| North Coast | 4709 | 5.4 | 4762 | 5.6 | 4656 | 5.5 | 4587 | 5.4 | 4690 | 5.6 |
| Greater Southern | 4283 | 5.0 | 4209 | 5.0 | 3969 | 4.7 | 3834 | 4.5 | 3838 | 4.6 |
| Greater Western | 4135 | 4.8 | 4110 | 4.9 | 3855 | 4.6 | 3898 | 4.6 | 3784 | 4.5 |
| Other–not stated | 637 | 0.7 | 562 | 0.7 | 598 | 0.7 | 552 | 0.6 | 597 | 0.7 |
| TOTAL | 86460 | 100.0 | 84379 | 100.0 | 84587 | 100.0 | 85032 | 100.0 | 84288 | 100.0 |

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

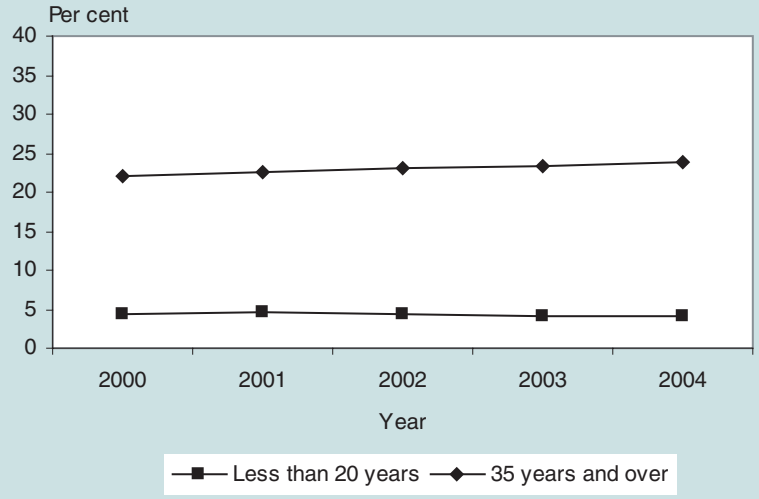
## Maternal age

The number of teenage mothers decreased from 3,853 in 2000 to 3,387 in 2004, a fall from 4.4 to 4.0 per cent of all mothers; while the number of mothers 35 years of age or over increased from 15,334 in 2000 to 16,769 in 2004, an increase from 17.7 to 19.9 per cent of all confinements (Figure 1, Table 3). The mean maternal age rose from 29.8 to 30.3 years over the 5 year period.

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 11.1 to 13.1 per cent over the 5 year period, and the proportion of multiparous mothers who were aged 35 years or more increased from 22.5 to 24.9 per cent. The mean maternal age rose from 28.1 to 28.7 years for primiparous mothers and from 31.0 to 31.5 years for multiparous mothers.

**FIGURE 1**

**MOTHERS AGED LESS THAN 20 YEARS AND 35 YEARS AND OVER, NSW 2000–2004**




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

**TABLE 3**

**MATERNAL AGE, NSW 2000–2004**

| Maternal age (years) | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Under 15 | 31 | 0.0 | 19 | 0.0 | 28 | 0.0 | 23 | 0.0 | 22 | 0.0 |
| 15–19 | 3822 | 4.4 | 3778 | 4.5 | 3624 | 4.3 | 3363 | 4.0 | 3365 | 4.0 |
| 20–24 | 13316 | 15.4 | 13036 | 15.4 | 12674 | 15.0 | 12529 | 14.7 | 12095 | 14.3 |
| 25–29 | 27293 | 31.6 | 25528 | 30.3 | 24523 | 29.0 | 24138 | 28.4 | 23113 | 27.4 |
| 30–34 | 26640 | 30.8 | 26707 | 31.7 | 27810 | 32.9 | 28522 | 33.5 | 28906 | 34.3 |
| 35–39 | 12894 | 14.9 | 12640 | 15.0 | 13107 | 15.5 | 13582 | 16.0 | 13808 | 16.4 |
| 40–44 | 2342 | 2.7 | 2488 | 2.9 | 2645 | 3.1 | 2752 | 3.2 | 2819 | 3.3 |
| 45+ | 98 | 0.1 | 122 | 0.1 | 120 | 0.1 | 113 | 0.1 | 142 | 0.2 |
| Not stated | 24 | 0.0 | 61 | 0.1 | 56 | 0.1 | 10 | 0.0 | 18 | 0.0 |
| TOTAL | 86460 | 100.0 | 84379 | 100.0 | 84587 | 100.0 | 85032 | 100.0 | 84288 | 100.0 |

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

## Maternal country of birth

In the period 2000–2004, about 72 per cent of mothers were born in Australia. In 2004, mothers born in the United Kingdom, New Zealand, Vietnam, China and Lebanon together accounted for 10.9 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 2000–2004#**

| Country of birth | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Australia | 62368 | 72.1 | 61655 | 73.1 | 61631 | 72.9 | 61430 | 72.2 | 60961 | 72.3 |
| United Kingdom | 2557 | 3.0 | 2331 | 2.8 | 2344 | 2.8 | 2368 | 2.8 | 2229 | 2.6 |
| New Zealand | 1962 | 2.3 | 2009 | 2.4 | 1998 | 2.4 | 2121 | 2.5 | 1989 | 2.4 |
| Vietnam | 2053 | 2.4 | 1691 | 2.0 | 1773 | 2.1 | 1863 | 2.2 | 1684 | 2.0 |
| China | 2163 | 2.5 | 1791 | 2.1 | 1830 | 2.2 | 1586 | 1.9 | 1672 | 2.0 |
| Lebanon | 1766 | 2.0 | 1667 | 2.0 | 1663 | 2.0 | 1696 | 2.0 | 1594 | 1.9 |
| Philippines | 1315 | 1.5 | 1243 | 1.5 | 1156 | 1.4 | 1192 | 1.4 | 1083 | 1.3 |
| India | 643 | 0.7 | 612 | 0.7 | 747 | 0.9 | 810 | 1.0 | 888 | 1.1 |
| Fiji | 688 | 0.8 | 652 | 0.8 | 655 | 0.8 | 691 | 0.8 | 686 | 0.8 |
| Iraq | 455 | 0.5 | 577 | 0.7 | 545 | 0.6 | 648 | 0.8 | 621 | 0.7 |
| South Africa | 387 | 0.4 | 450 | 0.5 | 486 | 0.6 | 486 | 0.6 | 547 | 0.6 |
| Indonesia | 566 | 0.7 | 494 | 0.6 | 494 | 0.6 | 489 | 0.6 | 519 | 0.6 |
| Former Yugoslavia | 627 | 0.7 | 607 | 0.7 | 531 | 0.6 | 571 | 0.7 | 464 | 0.6 |
| South Korea | 426 | 0.5 | 358 | 0.4 | 301 | 0.4 | 328 | 0.4 | 389 | 0.5 |
| United States of America | 377 | 0.4 | 332 | 0.4 | 346 | 0.4 | 355 | 0.4 | 372 | 0.4 |
| Hong Kong | 357 | 0.4 | 332 | 0.4 | 307 | 0.4 | 301 | 0.4 | 314 | 0.4 |
| Sri Lanka | 304 | 0.4 | 291 | 0.3 | 324 | 0.4 | 299 | 0.4 | 310 | 0.4 |
| Pakistan | 224 | 0.3 | 276 | 0.3 | 266 | 0.3 | 260 | 0.3 | 291 | 0.3 |
| Western Samoa | 320 | 0.4 | 319 | 0.4 | 310 | 0.4 | 303 | 0.4 | 289 | 0.3 |
| Malaysia | 319 | 0.4 | 251 | 0.3 | 262 | 0.3 | 271 | 0.3 | 283 | 0.3 |
| Ireland | 273 | 0.3 | 291 | 0.3 | 267 | 0.3 | 333 | 0.4 | 281 | 0.3 |
| Thailand | 199 | 0.2 | 221 | 0.3 | 268 | 0.3 | 253 | 0.3 | 277 | 0.3 |
| Cambodia | 326 | 0.4 | 285 | 0.3 | 279 | 0.3 | 295 | 0.3 | 274 | 0.3 |
| Turkey | 335 | 0.4 | 317 | 0.4 | 266 | 0.3 | 265 | 0.3 | 268 | 0.3 |
| Japan | 252 | 0.3 | 293 | 0.3 | 283 | 0.3 | 293 | 0.3 | 260 | 0.3 |
| Tonga | 296 | 0.3 | 278 | 0.3 | 271 | 0.3 | 219 | 0.3 | 246 | 0.3 |
| Canada | 177 | 0.2 | 203 | 0.2 | 192 | 0.2 | 225 | 0.3 | 237 | 0.3 |
| Bangladesh | 179 | 0.2 | 183 | 0.2 | 212 | 0.3 | 198 | 0.2 | 233 | 0.3 |
| Germany | 204 | 0.2 | 192 | 0.2 | 188 | 0.2 | 237 | 0.3 | 205 | 0.2 |
| Chile | 202 | 0.2 | 206 | 0.2 | 250 | 0.3 | 187 | 0.2 | 172 | 0.2 |
| Iran | 153 | 0.2 | 169 | 0.2 | 137 | 0.2 | 192 | 0.2 | 159 | 0.2 |
| Syria | 138 | 0.2 | 150 | 0.2 | 151 | 0.2 | 154 | 0.2 | 159 | 0.2 |
| Egypt | 196 | 0.2 | 176 | 0.2 | 160 | 0.2 | 173 | 0.2 | 159 | 0.2 |
| Afghanistan | 96 | 0.1 | 147 | 0.2 | 133 | 0.2 | 143 | 0.2 | 159 | 0.2 |
| Papua New Guinea | 132 | 0.2 | 133 | 0.2 | 135 | 0.2 | 148 | 0.2 | 156 | 0.2 |
| Sudan | 57 | 0.1 | 65 | 0.1 | 69 | 0.1 | 117 | 0.1 | 154 | 0.2 |
| North Korea | 140 | 0.2 | 102 | 0.1 | 151 | 0.2 | 206 | 0.2 | 153 | 0.2 |
| Poland | 104 | 0.1 | 92 | 0.1 | 106 | 0.1 | 116 | 0.1 | 130 | 0.2 |
| Laos | 136 | 0.2 | 118 | 0.1 | 128 | 0.2 | 114 | 0.1 | 124 | 0.1 |
| France | 113 | 0.1 | 99 | 0.1 | 109 | 0.1 | 96 | 0.1 | 119 | 0.1 |
| Singapore | 104 | 0.1 | 119 | 0.1 | 117 | 0.1 | 129 | 0.2 | 119 | 0.1 |
| Russian Federation | 56 | 0.1 | 63 | 0.1 | 105 | 0.1 | 106 | 0.1 | 115 | 0.1 |
| Italy | 191 | 0.2 | 139 | 0.2 | 70 | 0.1 | 106 | 0.1 | 107 | 0.1 |
| Other/Not stated | 2524 | 2.9 | 2400 | 2.8 | 2571 | 3.0 | 2659 | 3.1 | 2837 | 3.4 |
| TOTAL | 86460 | 100.0 | 84379 | 100.0 | 84587 | 100.0 | 85032 | 100.0 | 84288 | 100.0 |

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

# Countries of birth for which 100 or more mothers gave birth in 2004.

## Maternal Aboriginality

The reported number of Aboriginal or Torres Strait Islander mothers giving birth increased from 2,105 in 2000 to 2,308 in 2004, an increase from 2.4 to 2.7 per cent of all mothers (Table 5). Further information on maternal Aboriginality and reporting of Aborginality is shown in Chapter 6.

**TABLE 5**

**MATERNAL ABORIGINALITY, NSW 2000–2004**

| Aboriginality | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Aboriginal or Torres Strait Islander | 2105 | 2.4 | 2110 | 2.5 | 2155 | 2.5 | 2161 | 2.5 | 2308 | 2.7 |
| Non-Aboriginal or Torres Strait Islander | 84306 | 97.5 | 82223 | 97.4 | 82383 | 97.4 | 82831 | 97.4 | 81948 | 97.2 |
| Not stated | 49 | 0.1 | 46 | 0.1 | 49 | 0.1 | 40 | 0.0 | 32 | 0.0 |
| TOTAL | 86460 | 100.0 | 84379 | 100.0 | 84587 | 100.0 | 85032 | 100.0 | 84288 | 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 57 per cent. Less than 2 per cent of mothers have previously given birth 5 times or more.

**TABLE 6**

**PREVIOUS PREGNANCIES, NSW 2000–2004**

| Number of previous pregnancies (>20 weeks gestation) | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| 0 | 35953 | 41.6 | 35153 | 41.7 | 35035 | 41.4 | 35879 | 42.2 | 35796 | 42.5 |
| 1–4 | 49146 | 56.8 | 47850 | 56.7 | 48169 | 56.9 | 47847 | 56.3 | 47136 | 55.9 |
| 5+ | 1331 | 1.5 | 1329 | 1.6 | 1290 | 1.5 | 1258 | 1.5 | 1312 | 1.6 |
| Not stated | 30 | 0.0 | 47 | 0.1 | 93 | 0.1 | 48 | 0.1 | 44 | 0.1 |
| TOTAL | 86460 | 100.0 | 84379 | 100.0 | 84587 | 100.0 | 85032 | 100.0 | 84288 | 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 2000, the proportion of mothers starting antenatal care at 20-plus weeks gestation has been stable at 12–13 per cent (Table 7).

**TABLE 7**

**DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT, NSW 2000–2004**

| Duration of pregnancy (weeks) | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| 0–19 | 74803 | 86.5 | 72704 | 86.2 | 73116 | 86.4 | 73615 | 86.6 | 73775 | 87.5 |
| 20–plus | 10748 | 12.4 | 10878 | 12.9 | 10614 | 12.5 | 10929 | 12.9 | 9934 | 11.8 |
| Not stated | 909 | 1.1 | 797 | 0.9 | 857 | 1.0 | 488 | 0.6 | 579 | 0.7 |
| TOTAL | 86460 | 100.0 | 84379 | 100.0 | 84587 | 100.0 | 85032 | 100.0 | 84288 | 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 2000 and 2004: in 2000, 15,001 (17.4 per cent) mothers reported smoking in pregnancy, compared to 14,424 (17.1 per cent) in 2001, 13,829 (16.3 per cent) in 2002, 12,875 (15.1 per cent) in 2003, and 12,472 (14.8 per cent) in 2004.

Of mothers who smoked during pregnancy in 2004, 3.9 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 2000–2004**

| Cigarettes smoked in the second half of pregnancy | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| None | 622 | 4.1 | 576 | 4.0 | 556 | 4.0 | 427 | 3.3 | 485 | 3.9 |
| More than 10 per day | 7005 | 46.7 | 6725 | 46.6 | 6347 | 45.9 | 5680 | 44.1 | 5378 | 43.1 |
| 1–10 per day | 7092 | 47.3 | 6834 | 47.4 | 6639 | 48.0 | 6451 | 50.1 | 6303 | 50.5 |
| Smoked, amount not stated | 282 | 1.9 | 289 | 2.0 | 279 | 2.0 | 317 | 2.5 | 297 | 2.4 |
| Not stated | 0 | 0.0 | 0 | 0.0 | 8 | 0.1 | 0 | 0.0 | 9 | 0.1 |
| TOTAL | 15001 | 100.0 | 14424 | 100.0 | 13829 | 100.0 | 12875 | 100.0 | 12472 | 100.0 |

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

## Place of birth

In 2004, the majority of mothers planned to give birth in a hospital labour ward, and 3.7 per cent of mothers planned to give birth in a birth centre (Table 9). About two-thirds of mothers who planned to give birth in a birth centre actually did so. The total number of reported planned homebirths declined from 146 in 2000 to 114 in 2004, while the reported number of planned homebirths that occurred at home fell from 108 in 2000 to 93 in 2004.

**TABLE 9**

**MATERNAL PLACE OF BIRTH, NSW 2000–2004**

| Place of birth | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Hospital | 82782 | 95.7 | 80984 | 96.0 | 81230 | 96.0 | 81441 | 95.8 | 80701 | 95.7 |
| Birth centre | 2205 | 2.6 | 2038 | 2.4 | 2030 | 2.4 | 2075 | 2.4 | 2003 | 2.4 |
| Planned birth centre–hospital admission | 959 | 1.1 | 822 | 1.0 | 881 | 1.0 | 1029 | 1.2 | 1126 | 1.3 |
| Planned homebirth | 108 | 0.1 | 144 | 0.2 | 99 | 0.1 | 109 | 0.1 | 93 | 0.1 |
| Planned homebirth–hospital admission | 38 | 0.0 | 38 | 0.0 | 31 | 0.0 | 23 | 0.0 | 21 | 0.0 |
| Born before arrival | 366 | 0.4 | 353 | 0.4 | 316 | 0.4 | 355 | 0.4 | 344 | 0.4 |
| Not stated | 2 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| TOTAL | 86460 | 100.0 | 84379 | 100.0 | 84587 | 100.0 | 85032 | 100.0 | 84288 | 100.0 |

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

## Hypertension and diabetes

In 2004, pre-eclampsia was reported in 5.5 per cent of mothers, a slight fall from 7.0 per cent in 2000. Essential hypertension was reported in about one per cent of mothers, a rate that has not changed substantially over the last 5 years (Table 10).

In 2004, gestational diabetes was reported in 4.3 per cent of mothers, rising from 3.9 per cent reported in 2000, while rates of diabetes mellitus have remained stable at about 0.5 per cent over the 5-year period.

**TABLE 10**

**MATERNAL HYPERTENSION OR DIABETES, NSW 2000–2004**

| Condition | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Diabetes mellitus | 392 | 0.5 | 404 | 0.5 | 462 | 0.5 | 505 | 0.6 | 464 | 0.6 |
| Gestational diabetes | 3386 | 3.9 | 3213 | 3.8 | 3693 | 4.4 | 3792 | 4.5 | 3592 | 4.3 |
| Essential hypertension | 858 | 1.0 | 823 | 1.0 | 940 | 1.1 | 879 | 1.0 | 940 | 1.1 |
| Pre-eclampsia | 6082 | 7.0 | 5360 | 6.4 | 4839 | 5.7 | 4645 | 5.5 | 4606 | 5.5 |
| TOTAL | 86460 | 100.0 | 84379 | 100.0 | 84587 | 100.0 | 85032 | 100.0 | 84288 | 100.0 |

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

## Labour

The rate of spontaneous onset of labour fell from 64.9 per cent in 2000 to 60.3 per cent in 2004 (Table 11). Nine per cent of labours were augmented with oxytocics or prostaglandins in 2004. The rate of induction of labour was 24.4 per cent in 2004, similar to previous years. The most common reported reason for induction of labour in 2004 was prolonged pregnancy (41 or more weeks) (32.4 per cent), followed by hypertensive disease (11.9 per cent), prelabour rupture of membranes (10.6 per cent), suspected intrauterine growth retardation (3.9 per cent), diabetes (3.8 per cent) and fetal death (1.1 per cent).

**TABLE 11**

**ONSET AND AUGMENTATION OF LABOUR, NSW 2000–2004**

| Onset of labour | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Spontaneous | 40042 | 46.3 | 37492 | 44.4 | 37615 | 44.5 | 38110 | 44.8 | 37137 | 44.1 |
| Spontaneous augmented with ARM | 7014 | 8.1 | 6684 | 7.9 | 6422 | 7.6 | 5992 | 7.0 | 6090 | 7.2 |
| Spontaneous augmented with oxytocics–prostaglandins | 9050 | 10.5 | 8297 | 9.8 | 7644 | 9.0 | 7258 | 8.5 | 7580 | 9.0 |
| No labour | 9926 | 11.5 | 10986 | 13.0 | 11720 | 13.9 | 12820 | 15.1 | 12930 | 15.3 |
| Induced–oxytocics–prostaglandins | 7493 | 8.7 | 7422 | 8.8 | 7414 | 8.8 | 7265 | 8.5 | 7049 | 8.4 |
| Induced–ARM only | 1196 | 1.4 | 1181 | 1.4 | 1193 | 1.4 | 1331 | 1.6 | 1267 | 1.5 |
| Induced–ARM+oxytocics–prostaglandins | 11516 | 13.3 | 12033 | 14.3 | 12262 | 14.5 | 11965 | 14.1 | 11912 | 14.1 |
| Induced–other# | 215 | 0.2 | 277 | 0.3 | 305 | 0.4 | 289 | 0.3 | 322 | 0.4 |
| Not stated | 8 | 0.0 | 7 | 0.0 | 12 | 0.0 | 2 | 0.0 | 1 | 0.0 |
| TOTAL | 86460 | 100.0 | 84379 | 100.0 | 84587 | 100.0 | 85032 | 100.0 | 84288 | 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 at Foley's catheter.

## Delivery

Among NSW mothers, the rate of normal vaginal birth decreased from 67.1 per cent in 2000 to 62.1 per cent in 2004 (Table 12). The caesarean section rate increased from 21.3 to 27.2 per cent. The rate of instrumental delivery remained steady at 10 to 11 per cent, accompanied by a change in the pattern of instrumental delivery: the rate of vacuum extraction rose from 6.2 to 7.0 per cent and the rate of forceps delivery declined from 4.5 to 3.3 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 57.6 in 1999 to 50.8 per cent in 2003 and the caesarean section rate increased from 26.3 to 34.7 per cent. Among publicly insured mothers the rate of normal vaginal birth fell from 72.8 to 68.7 per cent and the caesarean section rate rose from 17.1 to 22.5 per cent.

**TABLE 12**

**TYPE OF DELIVERY, NSW 2000–2004**

| Type of delivery | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Normal vaginal | 58049 | 67.1 | 55206 | 65.4 | 54271 | 64.2 | 53424 | 62.8 | 52366 | 62.1 |
| Forceps | 3904 | 4.5 | 3398 | 4.0 | 3034 | 3.6 | 2875 | 3.4 | 2762 | 3.3 |
| Vacuum extraction | 5367 | 6.2 | 5499 | 6.5 | 5855 | 6.9 | 5788 | 6.8 | 5902 | 7.0 |
| Vaginal breech | 669 | 0.8 | 383 | 0.5 | 353 | 0.4 | 371 | 0.4 | 347 | 0.4 |
| Elective caesarean section | 9926 | 11.5 | 10986 | 13.0 | 11720 | 13.9 | 12820 | 15.1 | 12930 | 15.3 |
| Emergency caesarean section# | 8530 | 9.9 | 8894 | 10.5 | 9335 | 11.0 | 9744 | 11.5 | 9974 | 11.8 |
| Not stated | 15 | 0.0 | 13 | 0.0 | 19 | 0.0 | 10 | 0.0 | 7 | 0.0 |
| TOTAL | 86460 | 100.0 | 84379 | 100.0 | 84587 | 100.0 | 85032 | 100.0 | 84288 | 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 DELIVERY, NSW 1999–2003**

| Insurance status–type of delivery | Year 1999 | | 2000 | | 2001 | | 2002 | | 2003 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Public** | | | | | | | | | | |
| Normal vaginal | 44683 | 72.8 | 43462 | 71.8 | 39541 | 71.3 | 38228 | 70.4 | 38976 | 68.7 |
| Forceps | 2437 | 4.0 | 2191 | 3.6 | 1673 | 3.0 | 1430 | 2.6 | 1464 | 2.6 |
| Vacuum extraction | 3173 | 5.2 | 3100 | 5.1 | 2868 | 5.2 | 2995 | 5.5 | 3205 | 5.7 |
| Vaginal breech | 601 | 1.0 | 505 | 0.8 | 286 | 0.5 | 253 | 0.5 | 283 | 0.5 |
| Elective caesarean section | 5242 | 8.5 | 5594 | 9.2 | 5658 | 10.2 | 5854 | 10.8 | 6630 | 11.7 |
| Emergency caesarean section# | 5263 | 8.6 | 5627 | 9.3 | 5438 | 9.8 | 5512 | 10.2 | 6143 | 10.8 |
| Not stated | 0 | 0.0 | 12 | 0.0 | 3 | 0.0 | 7 | 0.0 | 0 | 0.0 |
| TOTAL | 61399 | 100.0 | 60491 | 100.0 | 55467 | 100.0 | 54279 | 100.0 | 56701 | 100.0 |
| **Private** | | | | | | | | | | |
| Normal vaginal | 13674 | 57.6 | 13652 | 55.5 | 14715 | 53.6 | 15261 | 52.4 | 14172 | 50.8 |
| Forceps | 1728 | 7.3 | 1669 | 6.8 | 1684 | 6.1 | 1578 | 5.4 | 1405 | 5.0 |
| Vacuum extraction | 1953 | 8.2 | 2199 | 8.9 | 2558 | 9.3 | 2801 | 9.6 | 2570 | 9.2 |
| Vaginal breech | 134 | 0.6 | 135 | 0.5 | 76 | 0.3 | 82 | 0.3 | 70 | 0.3 |
| Elective caesarean section | 3810 | 16.0 | 4159 | 16.9 | 5114 | 18.6 | 5689 | 19.5 | 6128 | 21.9 |
| Emergency caesarean section# | 2443 | 10.3 | 2762 | 11.2 | 3300 | 12.0 | 3683 | 12.7 | 3565 | 12.8 |
| Not stated | 0 | 0.0 | 3 | 0.0 | 10 | 0.0 | 12 | 0.0 | 10 | 0.0 |
| TOTAL | 23742 | 100.0 | 24579 | 100.0 | 27457 | 100.0 | 29106 | 100.0 | 27920 | 100.0 |
| **TOTAL##** | | | | | | | | | | |
| Normal vaginal | 58951 | 68.6 | 58049 | 67.1 | 55206 | 65.4 | 54271 | 64.2 | 53424 | 62.8 |
| Forceps | 4190 | 4.9 | 3904 | 4.5 | 3398 | 4.0 | 3034 | 3.6 | 2875 | 3.4 |
| Vacuum extraction | 5152 | 6.0 | 5367 | 6.2 | 5499 | 6.5 | 5855 | 6.9 | 5788 | 6.8 |
| Vaginal breech | 762 | 0.9 | 669 | 0.8 | 383 | 0.5 | 353 | 0.4 | 371 | 0.4 |
| Elective caesarean section | 9147 | 10.6 | 9926 | 11.5 | 10986 | 13.0 | 11720 | 13.9 | 12820 | 15.1 |
| Emergency caesarean section# | 9.0 | 8530 | 9.9 | 8894 | 10.5 | 9335 | 11.0 | 9744 | 11.5 | |
| Not stated | 0 | 0.0 | 15 | 0.0 | 13 | 0.0 | 19 | 0.0 | 10 | 0.0 |
| TOTAL | 85967 | 100.0 | 86460 | 100.0 | 84379 | 100.0 | 84587 | 100.0 | 85032 | 100.0 |

Source: Linked data of the NSW Midwives Data Collection and NSW Inpatient Statistics 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 confinements where type of health insurance was not stated.

## Pain relief

There has been a trend towards increased use of spinal anaesthetics, from 6.1 per cent in 2000 to 14.6 per cent in 2004. The proportion of mothers having no pain relief during labour or delivery decreased from 12.2 per cent in 2000 to 10.2 per cent in 2004 (Table 14). In 2004, 45.7 per cent of mothers used nitrous oxide for pain relief, 27.9 per cent had an epidural anaesthetic, and 22.1 per cent received intramuscular narcotics.

**TABLE 14**

**MATERNAL PAIN RELIEF, NSW 2000–2004**

| Type of pain relief# | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Epidural | 25728 | 29.8 | 24572 | 29.1 | 23543 | 27.8 | 23569 | 27.7 | 23487 | 27.9 |
| General anaesthetic | 4753 | 5.5 | 4866 | 5.8 | 4811 | 5.7 | 4636 | 5.5 | 4213 | 5.0 |
| IM Narcotics | 22654 | 26.2 | 21451 | 25.4 | 21038 | 24.9 | 21083 | 24.8 | 18587 | 22.1 |
| Nitrous Oxide | 42303 | 48.9 | 40964 | 48.5 | 40729 | 48.2 | 39504 | 46.5 | 38518 | 45.7 |
| Spinal | 5248 | 6.1 | 6677 | 7.9 | 8672 | 10.3 | 10698 | 12.6 | 12336 | 14.6 |
| Nil | 10518 | 12.2 | 9674 | 11.5 | 9163 | 10.8 | 8896 | 10.5 | 8584 | 10.2 |
| TOTAL CONFINEMENTS | 86460 | 100.0 | 84379 | 100.0 | 84587 | 100.0 | 85032 | 100.0 | 84288 | 100.0 |

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.
# More than one type of pain relief may be used.

## Baby sex

There were no significant changes in the pattern of baby sex since 2000, with slightly more male babies born than females in each year. In 2004, 44,202 (51.6 per cent) of babies were male, 41,390 (48.3 per cent) were female, 19 were of indeterminate sex, and sex was not reported for 15 babies. This compares with babies born in 2000, when 45,346 (51.6 per cent) of 87,922 babies were male, 42,539 (48.4 per cent) were female, 15 were of indeterminate sex, and sex was not reported for 22 babies.

## Gestational age

In 2004, 7.3 per cent of babies were born prematurely (less than 37 weeks gestation), the same rate as for 2000 (Table 15). 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 15**

**BIRTHS BY GESTATIONAL AGE, NSW 2000–2004**

| Gestational age (weeks) | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| <20 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 1 | 0.0 | 0 | 0.0 |
| 20–27 | 623 | 0.7 | 628 | 0.7 | 594 | 0.7 | 585 | 0.7 | 605 | 0.7 |
| 28–31 | 663 | 0.8 | 667 | 0.8 | 612 | 0.7 | 639 | 0.7 | 667 | 0.8 |
| 32–36 | 5114 | 5.8 | 4890 | 5.7 | 4865 | 5.7 | 4810 | 5.6 | 4975 | 5.8 |
| 37–41 | 79368 | 90.3 | 77566 | 90.3 | 77865 | 90.5 | 78241 | 90.5 | 77614 | 90.6 |
| 42+ | 2148 | 2.4 | 2093 | 2.4 | 2047 | 2.4 | 2128 | 2.5 | 1761 | 2.1 |
| Not stated | 6 | 0.0 | 14 | 0.0 | 21 | 0.0 | 10 | 0.0 | 4 | 0.0 |
| TOTAL | 87922 | 100.0 | 85858 | 100.0 | 86005 | 100.0 | 86414 | 100.0 | 85626 | 100.0 |

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

## Birth weight

Since 2000, the rate of low birth weight (less than 2,500 grams) has been about just over 6 per cent (Table 16). The rate was 6.4 per cent in 2004.

**TABLE 16**

**BIRTHS BY BIRTH WEIGHT, NSW 2000–2004**

| Birth weight (grams) | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Less than 500 | 228 | 0.3 | 243 | 0.3 | 212 | 0.2 | 223 | 0.3 | 214 | 0.2 |
| 500–999 | 425 | 0.5 | 416 | 0.5 | 399 | 0.5 | 393 | 0.5 | 395 | 0.5 |
| 1000–1499 | 546 | 0.6 | 526 | 0.6 | 469 | 0.5 | 497 | 0.6 | 558 | 0.7 |
| 1500–1999 | 1079 | 1.2 | 1043 | 1.2 | 1083 | 1.3 | 1049 | 1.2 | 1059 | 1.2 |
| 2000–2499 | 3383 | 3.8 | 3283 | 3.8 | 3344 | 3.9 | 3221 | 3.7 | 3231 | 3.8 |
| 2500–2999 | 12819 | 14.6 | 12783 | 14.9 | 12838 | 14.9 | 12877 | 14.9 | 12797 | 14.9 |
| 3000–3499 | 30647 | 34.9 | 30312 | 35.3 | 30504 | 35.5 | 30803 | 35.6 | 30238 | 35.3 |
| 3500–3999 | 27483 | 31.3 | 26542 | 30.9 | 26676 | 31.0 | 26982 | 31.2 | 26570 | 31.0 |
| 4000–4499 | 9454 | 10.8 | 9060 | 10.6 | 8921 | 10.4 | 8810 | 10.2 | 8931 | 10.4 |
| 4500+ | 1811 | 2.1 | 1607 | 1.9 | 1509 | 1.8 | 1507 | 1.7 | 1584 | 1.8 |
| Not stated | 47 | 0.1 | 43 | 0.1 | 50 | 0.1 | 52 | 0.1 | 49 | 0.1 |
| TOTAL | 87922 | 100.0 | 85858 | 100.0 | 86005 | 100.0 | 86414 | 100.0 | 85626 | 100.0 |

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

## Apgar score

In 2004, 2.1 per cent of babies were born with an Apgar score of less than 7 at 5 minutes and 1.0 per cent were born with a score less than 4 (Table 17). These rates are similar to those of previous years.

**TABLE 17**

**BIRTHS BY APGAR SCORE AT 5 MINUTES, NSW 2000–2004#**

| Apgar score | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| 0–4 | 1043 | 1.2 | 922 | 1.1 | 902 | 1.0 | 899 | 1.0 | 921 | 1.1 |
| 5–6 | 956 | 1.1 | 938 | 1.1 | 893 | 1.0 | 865 | 1.0 | 844 | 1.0 |
| 7+ | 85756 | 97.5 | 83797 | 97.6 | 84033 | 97.7 | 84473 | 97.8 | 83653 | 97.7 |
| Not stated | 167 | 0.2 | 201 | 0.2 | 177 | 0.2 | 177 | 0.2 | 208 | 0.2 |
| TOTAL | 87922 | 100.0 | 85858 | 100.0 | 86005 | 100.0 | 86414 | 100.0 | 85626 | 100.0 |

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.
# Includes stillbirths and live births.

## Special care and neonatal intensive care

In 2004, 14.6 per cent of babies were admitted to special care units and 2.8 per cent were admitted to neonatal intensive care units (Table 18). Between 2000 and 2004, the percentage of babies reported as being admitted to neonatal intensive care increased slightly while the percentage of babies reported as being admitted to special care decreased. The overall percentage of babies admitted to either type of care was 17.4 per cent in 2004 compared to 18.1 per cent in 2000.

**TABLE 18**

**BIRTHS BY ADMISSION TO SPECIAL CARE OR NEONATAL INTENSIVE CARE UNITS, NSW 2000–2004**

| Unit of admission | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Special care unit | 13842 | 15.7 | 12900 | 15.0 | 12740 | 14.8 | 12926 | 15.0 | 12469 | 14.6 |
| Neonatal intensive care unit | 2147 | 2.4 | 2190 | 2.6 | 2196 | 2.6 | 2277 | 2.6 | 2416 | 2.8 |
| TOTAL | 87922 | 100.0 | 85858 | 100.0 | 86005 | 100.0 | 86414 | 100.0 | 85626 | 100.0 |

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

## Perinatal outcome

In the period 2000–2004 the perinatal mortality rate varied from 8.6 to 9.6 per 1,000 (Table 19). In 2004, 72.6 per cent of all reported perinatal deaths were stillbirths and 27.4 per cent were neonatal deaths.

In 2004, of the 773 perinatal deaths in NSW, 751 (97.2 per cent) were reported among planned hospital births, 10 (1.3 per cent) among planned birth centre births, none occurred among planned home births, and 12 were among babies born before arrival at hospital.

**TABLE 19**

**BIRTHS BY PERINATAL OUTCOME, NSW 2000–2004#**

| Year | Perinatal Outcome | | | | | | | | Total births | | Perinatal mortality rate/1,000 births |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Liveborn surviving | | Stillborn | | Neonatal death | | Not stated | | | | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | |
| 2000 | 87076 | 99.0 | 595 | 0.7 | 247 | 0.3 | 4 | 0.0 | 87922 | 100.0 | 9.6 |
| 2001 | 85069 | 99.1 | 538 | 0.6 | 245 | 0.3 | 6 | 0.0 | 85858 | 100.0 | 9.1 |
| 2002 | 85222 | 99.1 | 515 | 0.6 | 233 | 0.3 | 35 | 0.0 | 86005 | 100.0 | 8.7 |
| 2003 | 85669 | 99.1 | 523 | 0.6 | 221 | 0.3 | 1 | 0.0 | 86414 | 100.0 | 8.6 |
| 2004 | 84849 | 99.1 | 561 | 0.7 | 212 | 0.2 | 4 | 0.0 | 85626 | 100.0 | 9.0 |

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 1990–2003, 149 deaths were reported among pregnant women or women who gave birth less than 6 weeks previously. Of these, 48 (32.2 per cent) died of incidental causes not related to the pregnancy or its management; 66 (44.3 per cent) deaths were found to be directly due to pregnancy or its management; 34 (22.8 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; and there was one death for which the cause was not determined (Table 20). Table 21 shows maternal deaths by cause in NSW for 2002 and 2003.

**TABLE 20**

**MATERNAL DEATHS BY YEAR, NSW 1990–2003[#]**

| Year | Classification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Direct | | Indirect | | Total Direct & 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 |

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 preexisting 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.[1]
## Total for 1999 includes one death of undetermined cause.

**TABLE 21**

**MATERNAL DEATHS BY CAUSE, NSW 2002–2003[#]**

| Year–Classification | Cause | No. |
|---|---|---|
| **2002** | | |
| Direct | *E. coli* septicaemia | 1 |
| Direct | Amniotic fluid embolism | 1 |
| Indirect | Pancytopenia | 1 |
| Indirect | Status asthmaticus | 1 |
| Incidental | Malaria | 1 |
| TOTAL | | 5 |
| **2003** | | |
| Direct | Amniotic fluid embolism | 1 |
| Indirect | Intrathoracic haemorrhage due to aortic dissection | 1 |
| Indirect | Haemorrhage from placenta praevia | 1 |
| Indirect | Idiopathic pulmonary haemosiderosis | 1 |
| Incidental | Blood loss–hypovolaemia | 1 |
| Incidental | Subdural empyema and left temporal lobe abscess | 1 |
| Incidental | Motor vehicle trauma | 1 |
| TOTAL | | 7 |

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 preexisting 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.

### References

1. Slaytor EK, Sullivan EA, King JF. *Maternal deaths in Australia 1997–1999*. AIHW Catalogue no. PER 24. Sydney: AIHW National Perinatal Statistics Unit, 2004.

# 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 6 and 7 respectively.

## Confinements

The largest numbers of confinements in 2004 were among mothers resident in the Sydney South West (18,720, 22.2 per cent), followed by Sydney West (15,834, 18.8 per cent) and South Eastern Sydney & Illawarra (14,121, 16.8 per cent) Areas (Table 22).

## Maternal age

The proportion of women giving birth at less than 20 years of age varied from 1.7 per cent in the Northern Sydney & Central Coast Area to 8.5 per cent in the Greater Western Area, while the proportion of mothers giving birth at 35 years of age or more ranged from 14.0 per cent in the Greater Western Area to 28.4 per cent in the Northern Sydney & Central Coast Area (Table 22).

## Maternal country of birth

Seventy-nine per cent of women who gave birth in NSW in 2004 were born in English speaking countries, 11.0 per cent were born in Asian countries, and 4.6 per cent were born in the Middle East or Africa (Table 23).

The highest proportions of mothers born in non-English speaking countries were in the Sydney South West and Sydney West Areas. In Sydney South West, the majority of mothers born in non-English speaking countries were born in South East Asia, and the Middle East and Africa. In Sydney West, the most common maternal countries of birth were in the Middle East and Africa, and in South East and Southern Asia.

## Maternal Aboriginality

In 2004, 2.7 per cent of mothers were reported to be Aboriginal or Torres Strait Islander (Table 24). The proportion of Aboriginal or Torres Strait Islander mothers varied from 0.7 per cent in the Northern Sydney & Central Coast Area to 13.3 per cent in the Greater Western Area.

**TABLE 22**

**MATERNAL AGE BY HEALTH AREA OF RESIDENCE, NSW 2004**

| 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 | 593 | 3.2 | 2748 | 14.7 | 5377 | 28.7 | 6317 | 33.7 | 3006 | 16.1 | 644 | 3.4 | 32 | 0.2 | 3 | 0.0 | 18720 | 100.0 |
| South Eastern Sydney & Illawarra | 351 | 2.5 | 1370 | 9.7 | 3647 | 25.8 | 5424 | 38.4 | 2750 | 19.5 | 554 | 3.9 | 24 | 0.2 | 1 | 0.0 | 14121 | 100.0 |
| Sydney West | 667 | 4.2 | 2520 | 15.9 | 4862 | 30.7 | 5173 | 32.7 | 2167 | 13.7 | 426 | 2.7 | 17 | 0.1 | 2 | 0.0 | 15834 | 100.0 |
| Northern Sydney & Central Coast | 220 | 1.7 | 974 | 7.5 | 2705 | 20.8 | 5431 | 41.7 | 3043 | 23.4 | 624 | 4.8 | 34 | 0.3 | 1 | 0.0 | 13032 | 100.0 |
| Hunter & New England | 607 | 6.3 | 1823 | 18.8 | 2868 | 29.7 | 2879 | 29.8 | 1247 | 12.9 | 236 | 2.4 | 12 | 0.1 | 0 | 0.0 | 9672 | 100.0 |
| North Coast | 343 | 7.3 | 952 | 20.3 | 1257 | 26.8 | 1385 | 29.5 | 604 | 12.9 | 139 | 3.0 | 9 | 0.2 | 1 | 0.0 | 4690 | 100.0 |
| Greater Southern | 255 | 6.6 | 791 | 20.6 | 1148 | 29.9 | 1061 | 27.6 | 469 | 12.2 | 99 | 2.6 | 6 | 0.2 | 9 | 0.2 | 3838 | 100.0 |
| Greater Western | 322 | 8.5 | 811 | 21.4 | 1060 | 28.0 | 1062 | 28.1 | 441 | 11.7 | 80 | 2.1 | 7 | 0.2 | 1 | 0.0 | 3784 | 100.0 |
| Other–Not stated | 29 | 4.9 | 106 | 17.8 | 189 | 31.7 | 174 | 29.1 | 81 | 13.6 | 17 | 2.8 | 1 | 0.2 | 0 | 0.0 | 597 | 100.0 |
| TOTAL | 3387 | 4.0 | 12095 | 14.3 | 23113 | 27.4 | 28906 | 34.3 | 13808 | 16.4 | 2819 | 3.3 | 142 | 0.2 | 18 | 0.0 | 84288 | 100.0 |

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

**TABLE 23**

**MATERNAL COUNTRY OF BIRTH BY HEALTH AREA OF RESIDENCE, NSW 2004#**

| Health Area | Country of birth group: 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 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Sydney South West | 11445 | 61.3 | 265 | 1.4 | 683 | 3.7 | 393 | 2.1 | 115 | 0.6 | 122 | 0.7 | 1873 | 10.0 | 2398 | 12.8 | 839 | 4.5 | 535 | 2.9 | 18668 | 100.0 |
| South Eastern Sydney & Illawarra | 11328 | 80.6 | 146 | 1.0 | 140 | 1.0 | 258 | 1.8 | 157 | 1.1 | 171 | 1.2 | 441 | 3.1 | 573 | 4.1 | 638 | 4.5 | 205 | 1.5 | 14057 | 100.0 |
| Sydney West | 11211 | 70.9 | 122 | 0.8 | 513 | 3.2 | 146 | 0.9 | 88 | 0.6 | 90 | 0.6 | 1239 | 7.8 | 875 | 5.5 | 665 | 4.2 | 863 | 5.5 | 15812 | 100.0 |
| Northern Sydney & Central Coast | 10882 | 83.6 | 90 | 0.7 | 113 | 0.9 | 89 | 0.7 | 191 | 1.5 | 102 | 0.8 | 221 | 1.7 | 420 | 3.2 | 658 | 5.1 | 254 | 2.0 | 13020 | 100.0 |
| Hunter & New England | 9355 | 96.8 | 17 | 0.2 | 55 | 0.6 | 17 | 0.2 | 32 | 0.3 | 16 | 0.2 | 60 | 0.6 | 67 | 0.7 | 34 | 0.4 | 14 | 0.1 | 9667 | 100.0 |
| North Coast | 4479 | 95.6 | 16 | 0.3 | 29 | 0.6 | 6 | 0.1 | 42 | 0.9 | 5 | 0.1 | 13 | 0.3 | 58 | 1.2 | 19 | 0.4 | 16 | 0.3 | 4683 | 100.0 |
| Greater Southern | 3681 | 96.1 | 5 | 0.1 | 34 | 0.9 | 11 | 0.3 | 13 | 0.3 | 4 | 0.1 | 17 | 0.4 | 22 | 0.6 | 12 | 0.3 | 32 | 0.8 | 3831 | 100.0 |
| Greater Western | 3701 | 97.9 | 4 | 0.1 | 13 | 0.3 | 4 | 0.1 | 7 | 0.2 | 5 | 0.1 | 9 | 0.2 | 22 | 0.6 | 9 | 0.2 | 7 | 0.2 | 3781 | 100.0 |
| Other–Not stated | 539 | 91.5 | 10 | 1.7 | 4 | 0.7 | 2 | 0.3 | 4 | 0.7 | 3 | 0.5 | 3 | 0.5 | 10 | 1.7 | 10 | 1.7 | 4 | 0.7 | 589 | 100.0 |
| TOTAL | 66621 | 79.2 | 675 | 0.8 | 1584 | 1.9 | 926 | 1.1 | 649 | 0.8 | 518 | 0.6 | 3876 | 4.6 | 4445 | 5.3 | 2884 | 3.4 | 1930 | 2.3 | 84108 | 100.0 |

Source: NSW Midwives Data Collection (HOIST), Centre for Epidemiology and Research, NSW Department of Health.
# Excludes 180 mothers for which country of birth was not stated. Maternal countries of birth and country of birth groups are shown in Appendix 3.

**TABLE 24**

**MATERNAL ABORIGINALITY BY HEALTH AREA OF RESIDENCE, NSW 2004**

| Health Area | Aboriginality: Aboriginal Torres Strait Islander | | Non-Aboriginal Torres Strait Islander | | Not stated | | TOTAL | |
|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % |
| Sydney South West | 164 | 0.9 | 18553 | 99.1 | 3 | 0.0 | 18720 | 100.0 |
| South Eastern Sydney & Illawarra | 221 | 1.6 | 13889 | 98.4 | 11 | 0.1 | 14121 | 100.0 |
| Sydney West | 238 | 1.5 | 15595 | 98.5 | 1 | 0.0 | 15834 | 100.0 |
| Northern Sydney & Central Coast | 93 | 0.7 | 12936 | 99.3 | 3 | 0.0 | 13032 | 100.0 |
| Hunter & New England | 508 | 5.3 | 9163 | 94.7 | 1 | 0.0 | 9672 | 100.0 |
| North Coast | 390 | 8.3 | 4295 | 91.6 | 5 | 0.1 | 4690 | 100.0 |
| Greater Southern | 173 | 4.5 | 3658 | 95.3 | 7 | 0.2 | 3838 | 100.0 |
| Greater Western | 505 | 13.3 | 3279 | 86.7 | 0 | 0.0 | 3784 | 100.0 |
| Other–Not stated | 16 | 2.7 | 580 | 97.2 | 1 | 0.2 | 597 | 100.0 |
| TOTAL | 2308 | 2.7 | 81948 | 97.2 | 32 | 0.0 | 84288 | 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 2004, 87.5 per cent of mothers commenced antenatal care prior to 20 weeks gestation. This percentage varied from 82.6 per cent in the Sydney West Area to 95.1 per cent in the Northern Sydney and Central Coast Area (Table 25).

**TABLE 25**

**DURATION OF PREGNANCY AT FIRST ANTENATAL CHECK BY HEALTH AREA OF RESIDENCE, NSW 2004**

| Health Area | Duration of pregnancy at first antenatal visit | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0–19 | | 20–plus | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % |
| Sydney South West | 15528 | 82.9 | 3094 | 16.5 | 98 | 0.5 | 18720 | 100.0 |
| South Eastern Sydney & Illawarra | 12871 | 91.1 | 1183 | 8.4 | 67 | 0.5 | 14121 | 100.0 |
| Sydney West | 13077 | 82.6 | 2677 | 16.9 | 80 | 0.5 | 15834 | 100.0 |
| Northern Sydney & Central Coast | 12391 | 95.1 | 618 | 4.7 | 23 | 0.2 | 13032 | 100.0 |
| Hunter & New England | 8334 | 86.2 | 1196 | 12.4 | 142 | 1.5 | 9672 | 100.0 |
| North Coast | 4232 | 90.2 | 394 | 8.4 | 64 | 1.4 | 4690 | 100.0 |
| Greater Southern | 3439 | 89.6 | 359 | 9.4 | 40 | 1.0 | 3838 | 100.0 |
| Greater Western | 3377 | 89.2 | 354 | 9.4 | 53 | 1.4 | 3784 | 100.0 |
| Other–Not stated | 526 | 88.1 | 59 | 9.9 | 12 | 2.0 | 597 | 100.0 |
| TOTAL | 73775 | 87.5 | 9934 | 11.8 | 579 | 0.7 | 84288 | 100.0 |

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

## Smoking in pregnancy

In 2004, 14.2 per cent of mothers reported smoking in the second half of pregnancy (Table 26). The lowest reported rate was among mothers resident in the Northern Sydney & Central Coast Area (7.7 per cent) and the highest rate among residents of the Greater Western Area (29.0 per cent).

**TABLE 26**

**NUMBER OF CIGARETTES SMOKED IN THE SECOND HALF OF PREGNANCY BY HEALTH AREA OF RESIDENCE, NSW 2004**

| Health Area | Cigarettes smoked in the second half of pregnancy | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | None | | 1–10 per day | | More than ten per day | | Smoked–amount not stated | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Sydney South West | 16849 | 90.0 | 1015 | 5.4 | 810 | 4.3 | 46 | 0.2 | 0 | 0.0 | 18720 | 100.0 |
| South Eastern Sydney & Illawarra | 12734 | 90.2 | 891 | 6.3 | 445 | 3.2 | 49 | 0.3 | 2 | 0.0 | 14121 | 100.0 |
| Sydney West | 13598 | 85.9 | 1173 | 7.4 | 1016 | 6.4 | 47 | 0.3 | 0 | 0.0 | 15834 | 100.0 |
| Northern Sydney & Central Coast | 12022 | 92.2 | 579 | 4.4 | 408 | 3.1 | 22 | 0.2 | 1 | 0.0 | 13032 | 100.0 |
| Hunter & New England | 7522 | 77.8 | 1051 | 10.9 | 1051 | 10.9 | 47 | 0.5 | 1 | 0.0 | 9672 | 100.0 |
| North Coast | 3536 | 75.4 | 584 | 12.5 | 515 | 11.0 | 51 | 1.1 | 4 | 0.1 | 4690 | 100.0 |
| Greater Southern | 2894 | 75.4 | 467 | 12.2 | 466 | 12.1 | 9 | 0.2 | 2 | 0.1 | 3838 | 100.0 |
| Greater Western | 2681 | 70.9 | 475 | 12.6 | 598 | 15.8 | 25 | 0.7 | 5 | 0.1 | 3784 | 100.0 |
| Other–Not stated | 457 | 76.5 | 68 | 11.4 | 69 | 11.6 | 1 | 0.2 | 2 | 0.3 | 597 | 100.0 |
| TOTAL | 72293 | 85.8 | 6303 | 7.5 | 5378 | 6.4 | 297 | 0.4 | 17 | 0.0 | 84288 | 100.0 |

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 delivery suite in 2004, compared to 3.7 per cent who planned a birth centre birth and 0.1 per cent who planned a home birth (Table 27). Planned birth centre births were most commonly reported in the Sydney West, Sydney South West, and South Eastern Sydney & Illawarra Areas.

## Labour

In 2004, the onset of labour was spontaneous in 60.3 per cent of confinements (Table 28). Labour was induced in 24.4 per cent of confinements and no labour (elective caesarean section) was reported in 15.3 per cent. The rate of spontaneous onset of labour was highest among residents of the North Coast Area (63.4 per cent). The highest rate of induction of labour was among residents of the Hunter & New England Area (26.2 per cent).

**TABLE 27**

**PLACE OF BIRTH BY HEALTH AREA OF RESIDENCE, NSW 2004**

| Health Area | Place of birth | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hospital | | Birth centre | | Planned birth centre–hospital admission | | Planned home birth | | Planned home birth–hospital admission | | Born before arrival | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Sydney South West | 17839 | 95.3 | 573 | 3.1 | 211 | 1.1 | 12 | 0.1 | 1 | 0.0 | 84 | 0.4 | 18720 | 100.0 |
| South Eastern Sydney & Illawarra | 13271 | 94.0 | 440 | 3.1 | 343 | 2.4 | 17 | 0.1 | 2 | 0.0 | 48 | 0.3 | 14121 | 100.0 |
| Sydney West | 14972 | 94.6 | 359 | 2.3 | 430 | 2.7 | 5 | 0.0 | 0 | 0.0 | 68 | 0.4 | 15834 | 100.0 |
| Northern Sydney & Central Coast | 12692 | 97.4 | 193 | 1.5 | 81 | 0.6 | 18 | 0.1 | 4 | 0.0 | 44 | 0.3 | 13032 | 100.0 |
| Hunter & New England | 9134 | 94.4 | 433 | 4.5 | 56 | 0.6 | 2 | 0.0 | 2 | 0.0 | 45 | 0.5 | 9672 | 100.0 |
| North Coast | 4640 | 98.9 | 2 | 0.0 | 2 | 0.0 | 19 | 0.4 | 10 | 0.2 | 17 | 0.4 | 4690 | 100.0 |
| Greater Southern | 3815 | 99.4 | 1 | 0.0 | 1 | 0.0 | 9 | 0.2 | 0 | 0.0 | 12 | 0.3 | 3838 | 100.0 |
| Greater Western | 3756 | 99.3 | 2 | 0.1 | 1 | 0.0 | 2 | 0.1 | 1 | 0.0 | 22 | 0.6 | 3784 | 100.0 |
| Other–Not stated | 582 | 97.5 | 0 | 0.0 | 1 | 0.2 | 9 | 1.5 | 1 | 0.2 | 4 | 0.7 | 597 | 100.0 |
| TOTAL | 80701 | 95.7 | 2003 | 2.4 | 1126 | 1.3 | 93 | 0.1 | 21 | 0.0 | 344 | 0.4 | 84288 | 100.0 |

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

**TABLE 28**

**ONSET AND AUGMENTATION OF LABOUR BY HEALTH AREA OF RESIDENCE, NSW 2004**

| Health Area | Onset of labour | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Spontaneous | | Spontaneous augmented with ARM | | Spontaneous augmented with oxytocics prosta-glandins | | No labour | | Induced-oxytocics prosta-glandins | | Induced ARM only | | Induced-ARM+ oxytocics prosta-glandins | | Induced-other# | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Sydney South West | 8689 | 46.4 | 1020 | 5.4 | 1999 | 10.7 | 2560 | 13.7 | 1947 | 10.4 | 252 | 1.3 | 2161 | 11.5 | 92 | 0.5 | 0 | 0.0 | 18720 | 100.0 |
| South Eastern Sydney & Illawarra | 5989 | 42.4 | 1003 | 7.1 | 1316 | 9.3 | 2395 | 17.0 | 1112 | 7.9 | 185 | 1.3 | 2040 | 14.4 | 80 | 0.6 | 1 | 0.0 | 14121 | 100.0 |
| Sydney West | 7144 | 45.1 | 1103 | 7.0 | 1392 | 8.8 | 2225 | 14.1 | 1038 | 6.6 | 179 | 1.1 | 2695 | 17.0 | 58 | 0.4 | 0 | 0.0 | 15834 | 100.0 |
| Northern Sydney & Central Coast | 5225 | 40.1 | 828 | 6.4 | 1314 | 10.1 | 2533 | 19.4 | 871 | 6.7 | 144 | 1.1 | 2094 | 16.1 | 23 | 0.2 | 0 | 0.0 | 13032 | 100.0 |
| Hunter & New England | 4416 | 45.7 | 723 | 7.5 | 579 | 6.0 | 1418 | 14.7 | 788 | 8.1 | 232 | 2.4 | 1481 | 15.3 | 35 | 0.4 | 0 | 0.0 | 9672 | 100.0 |
| North Coast | 2041 | 43.5 | 541 | 11.5 | 391 | 8.3 | 678 | 14.5 | 373 | 8.0 | 77 | 1.6 | 580 | 12.4 | 9 | 0.2 | 0 | 0.0 | 4690 | 100.0 |
| Greater Southern | 1737 | 45.3 | 365 | 9.5 | 262 | 6.8 | 524 | 13.7 | 531 | 13.8 | 89 | 2.3 | 316 | 8.2 | 14 | 0.4 | 0 | 0.0 | 3838 | 100.0 |
| Greater Western | 1627 | 43.0 | 448 | 11.8 | 272 | 7.2 | 530 | 14.0 | 336 | 8.9 | 97 | 2.6 | 466 | 12.3 | 8 | 0.2 | 0 | 0.0 | 3784 | 100.0 |
| Other–Not stated | 269 | 45.1 | 59 | 9.9 | 55 | 9.2 | 67 | 11.2 | 53 | 8.9 | 12 | 2.0 | 79 | 13.2 | 3 | 0.5 | 0 | 0.0 | 597 | 100.0 |
| TOTAL | 37137 | 44.1 | 6090 | 7.2 | 7580 | 9.0 | 12930 | 15.3 | 7049 | 8.4 | 1267 | 1.5 | 11912 | 14.1 | 322 | 0.4 | 1 | 0.0 | 84288 | 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.

## Delivery

Sixty-two per cent of confinements were by normal vaginal birth, 10.3 per cent were instrumental and 27.2 per cent were by caesarean section (Table 29). The highest rate of normal vaginal birth was among residents of the Greater Western Area (67.8 per cent), while the highest rates of instrumental delivery were among residents of South Eastern Sydney and Illawarra (12.9 per cent). The caesarean section rate varied from 24.1 per cent among mothers resident in the Sydney South West Area to 32.7 per cent in the Northern Sydney & Central Coast Area.

**TABLE 29**

**TYPE OF DELIVERY BY HEALTH AREA OF RESIDENCE, NSW 2004**

| Health Area | Type of delivery | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Normal vaginal birth | | 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 | 12190 | 65.1 | 422 | 2.3 | 1514 | 8.1 | 77 | 0.4 | 2560 | 13.7 | 1957 | 10.5 | 0 | 0.0 | 18720 | 100.0 |
| South Eastern Sydney & Illawarra | 8017 | 56.8 | 544 | 3.9 | 1280 | 9.1 | 46 | 0.3 | 2395 | 17.0 | 1836 | 13.0 | 3 | 0.0 | 14121 | 100.0 |
| Sydney West | 10058 | 63.5 | 744 | 4.7 | 757 | 4.8 | 66 | 0.4 | 2225 | 14.1 | 1984 | 12.5 | 0 | 0.0 | 15834 | 100.0 |
| Northern Sydney & Central Coast | 7215 | 55.4 | 399 | 3.1 | 1120 | 8.6 | 41 | 0.3 | 2533 | 19.4 | 1722 | 13.2 | 2 | 0.0 | 13032 | 100.0 |
| Hunter & New England | 6322 | 65.4 | 250 | 2.6 | 600 | 6.2 | 55 | 0.6 | 1418 | 14.7 | 1027 | 10.6 | 0 | 0.0 | 9672 | 100.0 |
| North Coast | 3128 | 66.7 | 133 | 2.8 | 196 | 4.2 | 24 | 0.5 | 678 | 14A.5 | 531 | 11.3 | 0 | 0.0 | 4690 | 100.0 |
| Greater Southern | 2441 | 63.6 | 169 | 4.4 | 253 | 6.6 | 14 | 0.4 | 524 | 13.7 | 435 | 11.3 | 2 | 0.1 | 3838 | 100.0 |
| Greater Western | 2565 | 67.8 | 88 | 2.3 | 154 | 4.1 | 22 | 0.6 | 530 | 14A.0 | 425 | 11.2 | 0 | 0.0 | 3784 | 100.0 |
| Other–Not stated | 430 | 72.0 | 13 | 2.2 | 28 | 4.7 | 2 | 0.3 | 67 | 11.2 | 57 | 9.5 | 0 | 0.0 | 597 | 100.0 |
| TOTAL | 52366 | 62.1 | 2762 | 3.3 | 5902 | 7.0 | 347 | 0.4 | 12930 | 15.3 | 9974 | 11.8 | 7 | 0.0 | 84288 | 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.

## Birth weight

In 2004, 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, 0.7 per cent in the 1,000 to 1,499 gram range, and 5.0 per cent in the 1,500 to 2,499 gram range (Table 30). Rates of low birth weight ranged from 5.3 per cent in Greater Southern Area to 7.6 per cent in the Hunter and New England Area.

**TABLE 30**

**BIRTHS BY BIRTH WEIGHT AND HEALTH AREA OF RESIDENCE, NSW 2004**

| Health Area | Birth weight (grams) | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Less than 500 | | 500–999 | | 1000–1499 | | 1500–1999 | | 2000–2499 | | 2500–2999 | | 3000–3499 | | 3500–3999 | | 4000–4499 | | 4500+ | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Sydney South West | 62 | 0.3 | 95 | 0.5 | 139 | 0.7 | 219 | 1.2 | 752 | 4.0 | 3022 | 15.9 | 7075 | 37.3 | 5540 | 29.2 | 1768 | 9.3 | 294 | 1.5 | 12 | 0.1 | 18978 | 100.0 |
| South Eastern Sydney & Illawarra | 33 | 0.2 | 68 | 0.5 | 84 | 0.6 | 152 | 1.1 | 495 | 3.4 | 2180 | 15.2 | 5100 | 35.5 | 4522 | 31.5 | 1451 | 10.1 | 275 | 1.9 | 13 | 0.1 | 14373 | 100.0 |
| Sydney West | 43 | 0.3 | 78 | 0.5 | 94 | 0.6 | 208 | 1.3 | 605 | 3.8 | 2500 | 15.5 | 5789 | 36.0 | 4886 | 30.4 | 1593 | 9.9 | 283 | 1.8 | 5 | 0.0 | 16084 | 100.0 |
| Northern Sydney & Central Coast | 19 | 0.1 | 58 | 0.4 | 86 | 0.6 | 168 | 1.3 | 428 | 3.2 | 1679 | 12.6 | 4695 | 35.4 | 4336 | 32.7 | 1557 | 11.7 | 250 | 1.9 | 2 | 0.0 | 13278 | 100.0 |
| Hunter & New England | 28 | 0.3 | 55 | 0.6 | 86 | 0.9 | 138 | 1.4 | 435 | 4.4 | 1474 | 15.0 | 3226 | 32.9 | 3077 | 31.3 | 1090 | 11.1 | 198 | 2.0 | 9 | 0.1 | 9816 | 100.0 |
| North Coast | 11 | 0.2 | 14 | 0.3 | 25 | 0.5 | 67 | 1.4 | 196 | 4.1 | 740 | 15.6 | 1560 | 32.8 | 1506 | 31.7 | 542 | 11.4 | 94 | 2.0 | 2 | 0.0 | 4757 | 100.0 |
| Greater Southern | 7 | 0.2 | 5 | 0.1 | 17 | 0.4 | 35 | 0.9 | 143 | 3.7 | 533 | 13.7 | 1300 | 33.5 | 1294 | 33.3 | 449 | 11.6 | 95 | 2.4 | 5 | 0.1 | 3883 | 100.0 |
| Greater Western | 11 | 0.3 | 20 | 0.5 | 23 | 0.6 | 66 | 1.7 | 156 | 4.1 | 572 | 14.9 | 1279 | 33.2 | 1227 | 31.9 | 403 | 10.5 | 89 | 2.3 | 1 | 0.0 | 3847 | 100.0 |
| Other–Not stated | 0 | 0.0 | 2 | 0.3 | 4 | 0.7 | 6 | 1.0 | 21 | 3.4 | 97 | 15.9 | 214 | 35.1 | 182 | 29.8 | 78 | 12.8 | 6 | 1.0 | 0 | 0.0 | 610 | 100.0 |
| TOTAL | 214 | 0.2 | 395 | 0.5 | 558 | 0.7 | 1059 | 1.2 | 3231 | 3.8 | 12797 | 14.9 | 30238 | 35.3 | 26570 | 31.0 | 8931 | 10.4 | 1584 | 1.8 | 49 | 0.1 | 85626 | 100.0 |

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

## Gestational age

The majority of births (90.6 per cent) were at term, and 2.1 per cent were post-term (42-plus weeks). The 7.3 per cent of preterm births comprised 0.7 per cent born at less than 28 weeks, 0.8 per cent at 28–31 weeks, and 5.8 per cent at 32–36 weeks. The highest rate of preterm birth was in the Hunter and New England Area (8.8 per cent), while the lowest was 6.0 per cent in the Greater Southern Area (Table 31).

**TABLE 31**

**BIRTHS BY GESTATIONAL AGE AND HEALTH AREA OF RESIDENCE, NSW 2004**

| Health Area | Gestational age (weeks) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Less than 28 | | 28–31 | | 32–36 | | 37–41 | | 42+ | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Sydney South West | 156 | 0.8 | 157 | 0.8 | 1080 | 5.7 | 17135 | 90.3 | 449 | 2.4 | 1 | 0.0 | 18978 | 100.0 |
| South Eastern Sydney & Illawarra | 96 | 0.7 | 100 | 0.7 | 794 | 5.5 | 13079 | 91.0 | 303 | 2.1 | 1 | 0.0 | 14373 | 100.0 |
| Sydney West | 118 | 0.7 | 124 | 0.8 | 894 | 5.6 | 14661 | 91.2 | 287 | 1.8 | 0 | 0.0 | 16084 | 100.0 |
| Northern Sydney & Central Coast | 77 | 0.6 | 103 | 0.8 | 792 | 6.0 | 12024 | 90.6 | 282 | 2.1 | 0 | 0.0 | 13278 | 100.0 |
| Hunter & New England | 81 | 0.8 | 95 | 1.0 | 685 | 7.0 | 8689 | 88.5 | 266 | 2.7 | 0 | 0.0 | 9816 | 100.0 |
| North Coast | 27 | 0.6 | 29 | 0.6 | 290 | 6.1 | 4354 | 91.5 | 57 | 1.2 | 0 | 0.0 | 4757 | 100.0 |
| Greater Southern | 21 | 0.5 | 19 | 0.5 | 193 | 5.0 | 3583 | 92.3 | 65 | 1.7 | 2 | 0.1 | 3883 | 100.0 |
| Greater Western | 27 | 0.7 | 35 | 0.9 | 214 | 5.6 | 3526 | 91.7 | 45 | 1.2 | 0 | 0.0 | 3847 | 100.0 |
| Other–Not stated | 2 | 0.3 | 5 | 0.8 | 33 | 5.4 | 563 | 92.3 | 7 | 1.1 | 0 | 0.0 | 610 | 100.0 |
| TOTAL | 605 | 0.7 | 667 | 0.8 | 4975 | 5.8 | 77614 | 90.6 | 1761 | 2.1 | 4 | 0.0 | 85626 | 100.0 |

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

## Perinatal outcomes

The perinatal mortality rate in 2004 was 9.0 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 32). The rate varied from 6.7 per 1,000 in the Greater Southern and Northern Sydney and Central Coast Areas to 13.0 per 1,000 in the Greater Western Area.

**TABLE 32**

**PERINATAL MORTALITY BY HEALTH AREA OF RESIDENCE, NSW 2004[#]**

| Health Area | Perinatal outcome | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Liveborn surviving | | Stillborn | | Neonatal death | | Not stated | | Total births | | Perinatal mortality rate/1,000 births |
| | No. | % | No. | % | No. | % | No. | % | No. | % | |
| Sydney South West | 18764 | 98.9 | 146 | 0.8 | 68 | 0.4 | 0 | 0.0 | 18978 | 100.0 | 11.3 |
| South Eastern Sydney & Illawarra | 14266 | 99.3 | 77 | 0.5 | 30 | 0.2 | 0 | 0.0 | 14373 | 100.0 | 7.4 |
| Sydney West | 15941 | 99.1 | 101 | 0.6 | 41 | 0.3 | 1 | 0.0 | 16084 | 100.0 | 8.8 |
| Northern Sydney & Central Coast | 13188 | 99.3 | 67 | 0.5 | 22 | 0.2 | 1 | 0.0 | 13278 | 100.0 | 6.7 |
| Hunter & New England | 9711 | 98.9 | 74 | 0.8 | 31 | 0.3 | 0 | 0.0 | 9816 | 100.0 | 10.7 |
| North Coast | 4718 | 99.2 | 29 | 0.6 | 9 | 0.2 | 1 | 0.0 | 4757 | 100.0 | 8.0 |
| Greater Southern | 3857 | 99.3 | 22 | 0.6 | 4 | 0.1 | 0 | 0.0 | 3883 | 100.0 | 6.7 |
| Greater Western | 3796 | 98.7 | 44 | 1.1 | 6 | 0.2 | 1 | 0.0 | 3847 | 100.0 | 13.0 |
| Other–Not stated | 608 | 99.7 | 1 | 0.2 | 1 | 0.2 | 0 | 0.0 | 610 | 100.0 | 3.3 |
| TOTAL | 84849 | 99.1 | 561 | 0.7 | 212 | 0.2 | 4 | 0.0 | 85626 | 100.0 | 9.0 |

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.

## Livebirths by statistical local areas

**TABLE 33**

**LIVEBIRTHS BY HEALTH AREA AND STATISTICAL LOCAL AREA OF RESIDENCE, NSW 2004**

| Health Area and Statistical Local Area | No. | % |
|---|---|---|
| **Sydney South West** | | |
| Ashfield | 493 | 2.6 |
| Bankstown | 2638 | 14.0 |
| Burwood | 316 | 1.7 |
| Camden | 810 | 4.3 |
| Campbelltown | 2109 | 11.2 |
| Canterbury | 2154 | 11.4 |
| Concord | 395 | 2.1 |
| Drummoyne | 495 | 2.6 |
| Fairfield | 2616 | 13.9 |
| Leichhardt | 998 | 5.3 |
| Liverpool | 2830 | 15.0 |
| Marrickville | 1063 | 5.6 |
| South Sydney (SSW) | 437 | 2.3 |
| Strathfield | 295 | 1.6 |
| Sydney (SSW) | 89 | 0.5 |
| Wingecarribee | 457 | 2.4 |
| Wollondilly | 637 | 3.4 |
| TOTAL | 18832 | 100.0 |
| **South Eastern Sydney & Illawarra** | | |
| Botany | 482 | 3.4 |
| Hurstville | 977 | 6.8 |
| Kiama | 181 | 1.3 |
| Kogarah | 682 | 4.8 |
| Randwick | 1515 | 10.6 |
| Rockdale | 1299 | 9.1 |
| Shellharbour | 840 | 5.9 |
| Shoalhaven: Pt A | 399 | 2.8 |
| Shoalhaven: Pt B | 567 | 4.0 |
| South Sydney (SESAHS) | 501 | 3.5 |
| Sutherland Shire: East | 1270 | 8.9 |
| Sutherland Shire: West | 1462 | 10.2 |
| Sydney (Inner) | 96 | 0.7 |
| Sydney (SESI) | 109 | 0.8 |
| Waverley | 890 | 6.2 |
| Wollongong | 2338 | 16.4 |
| Woollahra | 687 | 4.8 |
| Other | 1 | 0.0 |
| TOTAL | 14296 | 100.0 |
| **Sydney West** | | |
| Auburn | 1113 | 7.0 |
| Baulkham Hills | 1984 | 12.4 |
| Blacktown: North | 1548 | 9.7 |
| Blacktown: South-East | 1380 | 8.6 |
| Blacktown: South-West | 1651 | 10.3 |
| Blue Mountains | 872 | 5.5 |
| Greater Lithgow | 221 | 1.4 |
| Hawkesbury | 902 | 5.6 |
| Holroyd | 1438 | 9.0 |
| Parramatta | 2209 | 13.8 |
| Penrith | 2664 | 16.7 |
| TOTAL | 15982 | 100.0 |
| **Northern Sydney & Central Coast** | | |
| Gosford | 1920 | 14.5 |
| Hornsby | 1778 | 13.5 |
| Hunter's Hill | 147 | 1.1 |
| Ku-ring-gai | 857 | 6.5 |
| Lane Cove | 383 | 2.9 |
| Manly | 551 | 4.2 |
| Mosman | 378 | 2.9 |
| North Sydney | 780 | 5.9 |
| Pittwater | 715 | 5.4 |
| Ryde | 1215 | 9.2 |
| Warringah | 1830 | 13.9 |
| Willoughby | 888 | 6.7 |
| Wyong | 1768 | 13.4 |
| TOTAL | 13210 | 100.0 |
| **Hunter and New England** | | |
| Armidale Dumaresq: City | 225 | 2.3 |
| Armidale Dumaresq: Balance | 72 | 0.7 |
| Barraba | 21 | 0.2 |
| Bingara | 19 | 0.2 |
| Cessnock | 620 | 6.4 |
| Dungog | 83 | 0.9 |
| Glen Innes | 79 | 0.8 |
| Gloucester | 38 | 0.4 |
| Greater Taree | 493 | 5.1 |
| Great Lakes | 335 | 3.4 |
| Gunnedah | 124 | 1.3 |
| Guyra | 59 | 0.6 |
| Inverell: Pt A | 62 | 0.6 |
| Inverell: Pt B | 134 | 1.4 |
| Lake Macquarie | 2092 | 21.5 |
| Maitland | 840 | 8.6 |
| Manilla | 37 | 0.4 |
| Merriwa | 28 | 0.3 |
| Moree Plains | 203 | 2.1 |
| Murrurundi | 34 | 0.3 |
| Muswellbrook | 243 | 2.5 |
| Narrabri | 160 | 1.6 |
| Newcastle: Inner | 32 | 0.3 |
| Newcastle: Remainder | 1687 | 17.3 |
| Nundle | 15 | 0.2 |
| Parry: Pt A | 50 | 0.5 |
| Parry: Pt B | 129 | 1.3 |
| Port Stephens | 626 | 6.4 |
| Quirindi | 68 | 0.7 |
| Scone | 142 | 1.5 |
| Severn | 33 | 0.3 |
| Singleton | 316 | 3.2 |
| Tamworth | 491 | 5.0 |
| Tenterfield | 26 | 0.3 |
| Uralla | 61 | 0.6 |
| Walcha | 37 | 0.4 |
| Yallaroi | 28 | 0.3 |
| TOTAL | 9742 | 100.0 |
| **North Coast** | | |
| Ballina | 383 | 8.1 |
| Bellingen | 109 | 2.3 |
| Byron | 283 | 6.0 |
| Coff's Harbour: Pt A | 506 | 10.7 |
| Coff's Harbour: Pt B | 137 | 2.9 |
| Copmanhurst | 39 | 0.8 |
| Grafton | 196 | 4.1 |
| Hastings: Pt A | 412 | 8.7 |
| Hastings: Pt B | 298 | 6.3 |
| Kempsey | 381 | 8.1 |
| Kyogle | 71 | 1.5 |
| Lismore: Pt A | 362 | 7.7 |
| Lismore: Pt B | 155 | 3.3 |
| Maclean | 153 | 3.2 |
| Nambucca | 177 | 3.7 |
| Pristine Waters: Nymboida | 71 | 1.5 |
| Pristine Waters: Ulmarra | 65 | 1.4 |
| Richmond River: Casino | 124 | 2.6 |
| Richmond River: Balance | 113 | 2.4 |
| Tweed: Pt A | 402 | 8.5 |
| Tweed: Pt B | 290 | 6.1 |
| TOTAL | 4727 | 100.0 |

**TABLE 33 *(continued)***

**LIVEBIRTHS BY HEALTH AREA AND STATISTICAL LOCAL AREA OF RESIDENCE, NSW 2004**

| Health Area and Statistical Local Area | No. | % |
|---|---|---|
| **Greater Southern** | | |
| Albury | 13 | 0.3 |
| Bega Valley | 261 | 6.8 |
| Berrigan | 26 | 0.7 |
| Bland | 86 | 2.2 |
| Bombala | 31 | 0.8 |
| Boorowa | 18 | 0.5 |
| Carrathool | 66 | 1.7 |
| Conargo | 5 | 0.1 |
| Coolamon | 33 | 0.9 |
| Cooma-Monaro | 106 | 2.7 |
| Cootamundra | 97 | 2.5 |
| Crookwell | 25 | 0.6 |
| Culcairn | 22 | 0.6 |
| Deniliquin | 87 | 2.3 |
| Eurobodalla | 317 | 8.2 |
| Goulburn | 209 | 5.4 |
| Griffith | 379 | 9.8 |
| Gundagai | 50 | 1.3 |
| Gunning | 10 | 0.3 |
| Harden | 43 | 1.1 |
| Hay | 42 | 1.1 |
| Holbrook | 9 | 0.2 |
| Jerilderie | 13 | 0.3 |
| Junee | 63 | 1.6 |
| Leeton | 186 | 4.8 |
| Lockhart | 30 | 0.8 |
| Mulwaree | 79 | 2.0 |
| Murray | 7 | 0.2 |
| Murrumbidgee | 27 | 0.7 |
| Narrandera | 77 | 2.0 |
| Queanbeyan | 179 | 4.6 |
| Snowy River | 75 | 1.9 |
| Tallaganda | 6 | 0.2 |
| Temora | 65 | 1.7 |
| Tumbarumba | 26 | 0.7 |
| Tumut | 137 | 3.5 |
| Urana | 8 | 0.2 |
| Wagga Wagga: Pt A | 675 | 17.5 |
| Wagga Wagga: Pt B | 87 | 2.3 |
| Windouran | 10 | 0.3 |
| Yarrowlumla: Part A | 36 | 0.9 |
| Yass | 5 | 0.1 |
| Young | 128 | 3.3 |
| Other | 7 | 0.2 |
| TOTAL | 3861 | 100.0 |

| Health Area and Statistical Local Area | No. | % |
|---|---|---|
| **Greater Western** | | |
| Bathurst | 372 | 9.8 |
| Blayney: Pt A | 75 | 2.0 |
| Blayney: Pt B | 16 | 0.4 |
| Bogan | 56 | 1.5 |
| Bourke | 53 | 1.4 |
| Brewarrina | 33 | 0.9 |
| Broken Hill | 223 | 5.9 |
| Cabonne: Pt A | 16 | 0.4 |
| Cabonne: Pt B | 10 | 0.3 |
| Cabonne: Pt C | 100 | 2.6 |
| Central Darling | 23 | 0.6 |
| Cobar | 82 | 2.2 |
| Coolah | 44 | 1.2 |
| Coonabarabran | 78 | 2.1 |
| Coonamble | 65 | 1.7 |
| Cowra | 149 | 3.9 |
| Dubbo: Pt A | 542 | 14.3 |
| Dubbo: Pt B | 77 | 2.0 |
| Evans: Pt A | 13 | 0.3 |
| Evans: Pt B | 32 | 0.8 |
| Forbes | 103 | 2.7 |
| Gilgandra | 49 | 1.3 |
| Lachlan | 97 | 2.6 |
| Mudgee | 197 | 5.2 |
| Narromine | 113 | 3.0 |
| Oberon | 105 | 2.8 |
| Orange | 552 | 14.5 |
| Parkes | 192 | 5.0 |
| Rylstone | 32 | 0.8 |
| Walgett | 113 | 3.0 |
| Warren | 39 | 1.0 |
| Weddin | 33 | 0.9 |
| Wellington | 103 | 2.7 |
| Wentworth | 6 | 0.2 |
| Unincorporated Far West | 8 | 0.2 |
| Other | 1 | 0.0 |
| TOTAL | 3802 | 100.0 |
| **Other–Not stated** | 609 | 100.0 |
| **TOTAL NSW** | 85061 | 100.0 |

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

# 6. 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. The method used here is described in Chapter 3 (page 13).

The percentage of births to Aboriginal and Torres Strait Islander mothers reported to the MDC ranged from 65 to 70 per cent between 2000 and 2003. Reporting varied markedly between area health services, ranging from 37.5 per cent in the Sydney South West Area to 89.4 per cent in the Greater Western Area in 2003 (Table 34, 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 2003 is estimated to be 3,282, about one and a half times higher than the number reported to the MDC.

**TABLE 34**

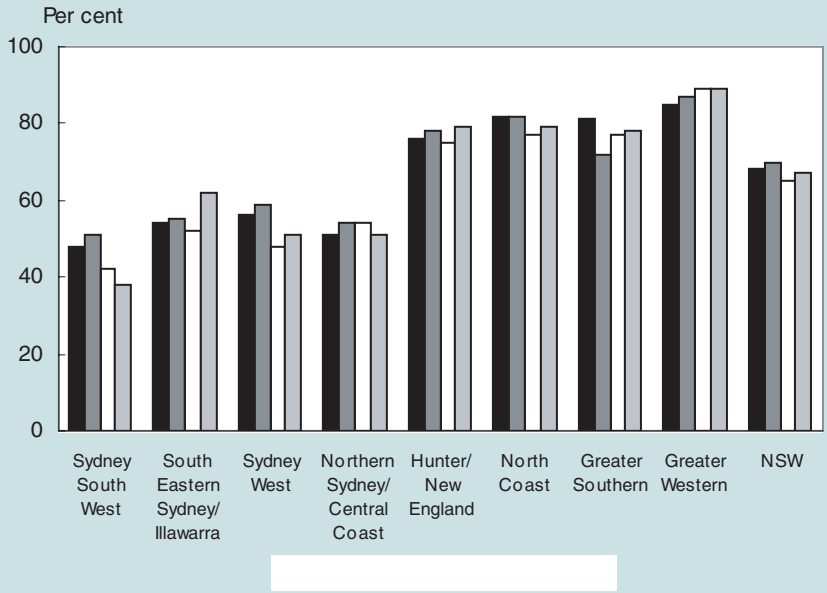
**BIRTHS TO ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY SOURCE OF BIRTH REPORT, YEAR OF BIRTH AND HEALTH AREA OF HOSPITAL, NSW 2000–2003#**

| Year– Area health service of hospital | 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 |
|---|---|---|---|---|---|---|
| **2000** | | | | | | |
| Sydney South West | 185 | 287 | 137 | 387 | 47.8 | 42.8–52.8 |
| South Eastern Sydney & Illawarra | 169 | 206 | 112 | 310 | 54.4 | 48.9–60.0 |
| Sydney West | 224 | 279 | 155 | 403 | 55.6 | 50.8–60.5 |
| Northern Sydney & Central Coast | 84 | 94 | 48 | 164 | 51.3 | 43.6–58.9 |
| Hunter & New England | 481 | 433 | 329 | 633 | 76.0 | 72.7–79.3 |
| North Coast | 335 | 217 | 177 | 411 | 81.6 | 77.9–85.4 |
| Greater Southern | 195 | 145 | 118 | 239 | 81.4 | 76.5–86.4 |
| Greater Western | 449 | 330 | 279 | 531 | 84.6 | 81.5–87.6 |
| NSW | 2122 | 1991 | 1355 | 3118 | 68.1 | 66.4–69.7 |
| **2001** | | | | | | |
| Sydney South West | 192 | 272 | 138 | 378 | 50.8 | 45.7–55.8 |
| South Eastern Sydney & Illawarra | 156 | 182 | 100 | 283 | 55.0 | 49.2–60.8 |
| Sydney West | 223 | 253 | 148 | 381 | 58.6 | 53.6–63.5 |
| Northern Sydney & Central Coast | 75 | 97 | 52 | 140 | 53.8 | 45.5–62.0 |
| Hunter & New England | 486 | 434 | 339 | 622 | 78.1 | 74.9–81.4 |
| North Coast | 336 | 197 | 162 | 408 | 82.3 | 78.6–86.0 |
| Greater Southern | 178 | 140 | 101 | 246 | 72.2 | 66.6–77.8 |
| Greater Western | 490 | 321 | 278 | 566 | 86.6 | 83.8–89.4 |
| NSW | 2136 | 1896 | 1318 | 3072 | 69.5 | 67.9–71.1 |
| **2002** | | | | | | |
| Sydney South West | 166 | 269 | 113 | 395 | 42.1 | 37.2–46.9 |
| South Eastern Sydney & Illawarra | 179 | 203 | 106 | 342 | 52.3 | 47.0–57.6 |
| Sydney West | 224 | 299 | 142 | 471 | 47.6 | 43.0–52.1 |
| Northern Sydney & Central Coast | 89 | 105 | 56 | 166 | 53.5 | 45.9–61.1 |
| Hunter & New England | 534 | 421 | 317 | 709 | 75.3 | 72.1–78.5 |
| North Coast | 336 | 197 | 152 | 435 | 77.2 | 73.3–81.2 |
| Greater Southern | 165 | 117 | 90 | 214 | 77.0 | 71.4–82.6 |
| Greater Western | 489 | 303 | 268 | 553 | 88.5 | 85.8–91.1 |
| NSW | 2182 | 1914 | 1244 | 3357 | 65.0 | 63.4–66.6 |
| **2003** | | | | | | |
| Sydney South West | 174 | 275 | 103 | 463 | 37.5 | 33.1–42.0 |
| South Eastern Sydney & Illawarra | 180 | 180 | 111 | 292 | 61.7 | 56.2–67.3 |
| Sydney West | 242 | 276 | 140 | 476 | 50.8 | 46.3–55.3 |
| Northern Sydney & Central Coast | 82 | 110 | 56 | 161 | 51.0 | 43.3–58.8 |
| Hunter & New England | 535 | 426 | 336 | 678 | 78.9 | 75.8–82.0 |
| North Coast | 319 | 181 | 142 | 406 | 78.5 | 74.5–82.5 |
| Greater Southern | 176 | 115 | 89 | 227 | 77.5 | 72.1–82.9 |
| Greater Western | 482 | 291 | 260 | 539 | 89.4 | 86.8–92.0 |
| NSW | 2190 | 1854 | 1237 | 3282 | 66.7 | 65.1–68.3 |

Source: Linked NSW Midwives Data Collection and Registry of Births, Deaths and Marriages birth registration data.
# Births where the hospital of birth was not reported, or where the birth occurred other than in hospital, were excluded. Information for 2000 to 2002 for RBDM births have been updated since previous reports to take into account late registrations of births.

**FIGURE 2**

**LEVEL OF REPORTING OF ABORIGINALITY TO THE NSW MIDWIVES DATA COLLECTION BY YEAR OF BIRTH AND HEALTH AREA OF HOSPITAL, NSW 2000–2003#**




Source:Linked NSW Midwives Data Collection and Registry of Births, Deaths and Marriages birth registration data.
# Births where the hospital of birth was not reported or where the birth occurred other than in hospital were excluded.

Information on paternal Aboriginality is not collected by the MDC, but is reported to the NSW Registry of Births, Deaths and Marriages. Of the 85,946 births registered for residents of NSW in 2003, 3,253 (3.8 per cent) were reported to have an Aboriginal or Torres Strait Islander mother or father (Table 35). For 1,177 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. 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 35**

**BIRTH REGISTRATIONS BY MATERNAL AND PATERNAL INDIGENOUS STATUS, NSW 2003#**

| Mother# | Father | No. | % |
|---|---|---|---|
| Aboriginal or Torres Strait Islander | Aboriginal or Torres Strait Islander | 678 | 0.8 |
| Aboriginal or Torres Strait Islander | Non-Aboriginal or Torres Strait Islander | 1398 | 1.6 |
| Non-Aboriginal or Torres Strait Islander | Aboriginal or Torres Strait Islander | 1177 | 1.4 |
| Non-Aboriginal or Torres Strait Islander | Non-Aboriginal or Torres Strait Islander | 82693 | 96.2 |
| TOTAL | TOTAL | 85946 | 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 or Torres Strait Islander.

## Trends in births

In 2004, 2,184 babies were born to Aboriginal mothers, 48 babies were born to Torres Strait Islander mothers and 101 babies were born to mothers of both Aboriginal and Torres Strait Islander background (Table 36).

**TABLE 36**

**ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS AND BABIES BY INDIGENOUS STATUS, NSW 2000–2004#**

| Plurality | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Pregnancies** | | | | | | | | | | |
| Aboriginal | 1990 | 94.5 | 1988 | 94.2 | 2041 | 94.7 | 2014 | 93.2 | 2161 | 93.6 |
| Torres Strait Islander | 25 | 1.2 | 40 | 1.9 | 25 | 1.2 | 35 | 1.6 | 48 | 2.1 |
| Both Aboriginal and TSI | 90 | 4.3 | 82 | 3.9 | 89 | 4.1 | 112 | 5.2 | 99 | 4.3 |
| TOTAL | 2105 | 100.0 | 2110 | 100.0 | 2155 | 100.0 | 2161 | 100.0 | 2308 | 100.0 |
| **Births** | | | | | | | | | | |
| Aboriginal | 2006 | 94.5 | 2014 | 94.2 | 2069 | 94.8 | 2039 | 93.1 | 2184 | 93.6 |
| Torres Strait Islander | 25 | 1.2 | 42 | 2.0 | 25 | 1.1 | 37 | 1.7 | 48 | 2.1 |
| Both Aboriginal and TSI | 91 | 4.3 | 82 | 3.8 | 89 | 4.1 | 114 | 5.2 | 101 | 4.3 |
| TOTAL | 2122 | 100.0 | 2138 | 100.0 | 2183 | 100.0 | 2190 | 100.0 | 2333 | 100.0 |

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 are about one and a half times higher than shown.

## Plurality

Between 2000 and 2004, the reported number of babies born to Aboriginal and Torres Strait Islander mothers increased from 2,122 to 2,333 (Table 37), representing 2.4 and 2.7 per cent respectively of all babies born in NSW. Multiple pregnancies (twins, triplets etc.) were reported for about one per cent of mothers.

**TABLE 37**

**ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS AND BABIES BY PLURALITY, NSW 2000–2004#**

| Plurality | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Pregnancies** | | | | | | | | | | |
| Singleton | 2089 | 99.2 | 2082 | 98.7 | 2127 | 98.7 | 2134 | 98.8 | 2283 | 98.9 |
| Twins | 16 | 0.8 | 28 | 1.3 | 28 | 1.3 | 26 | 1.2 | 25 | 1.1 |
| Triplets | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 |
| TOTAL | 2105 | 100.0 | 2110 | 100.0 | 2155 | 100.0 | 2161 | 100.0 | 2308 | 100.0 |
| **Births** | | | | | | | | | | |
| Singleton | 2089 | 98.4 | 2082 | 97.4 | 2127 | 97.4 | 2134 | 97.4 | 2283 | 97.9 |
| Twins | 33 | 1.6 | 56 | 2.6 | 56 | 2.6 | 53 | 2.4 | 50 | 2.1 |
| Triplets | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 | 0 | 0.0 |
| TOTAL | 2122 | 100.0 | 2138 | 100.0 | 2183 | 100.0 | 2190 | 100.0 | 2333 | 100.0 |

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 are about one and a half times higher than shown.

## Previous pregnancies

In 2004, one-third of Aboriginal and Torres Strait Islander mothers gave birth for the first time (Table 38). About 58 per cent of mothers reported between one and 4 previous births and 9.6 per cent of mothers had given birth to 5 or more babies. This pattern has not changed substantially since 2000.

**TABLE 38**

**NUMBER OF PREVIOUS PREGNANCIES AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 2000–2004#**

| No. previous pregnancies (>20 weeks) | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| 0 | 645 | 30.6 | 634 | 30.0 | 664 | 30.8 | 668 | 30.9 | 759 | 32.9 |
| 1–4 | 1285 | 61.0 | 1309 | 62.0 | 1302 | 60.4 | 1316 | 60.9 | 1327 | 57.5 |
| 5+ | 174 | 8.3 | 164 | 7.8 | 183 | 8.5 | 177 | 8.2 | 221 | 9.6 |
| Not stated | 1 | 0.0 | 3 | 0.1 | 6 | 0.3 | 0 | 0.0 | 1 | 0.0 |
| TOTAL | 2105 | 100.0 | 2110 | 100.0 | 2155 | 100.0 | 2161 | 100.0 | 2308 | 100.0 |

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 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 2004.

Following statewide trends, the number of mothers giving birth at 35 years of age or more has increased over the last 5 years. The proportion of mothers aged 35-plus years increased from 7.4 per cent in 2000 to 9.6 per cent in 2004 (Table 39).

**TABLE 39**

**AGE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 2000–2004#**

| Maternal age (years) | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| 12–19 | 459 | 21.8 | 439 | 20.8 | 481 | 22.3 | 455 | 21.1 | 493 | 21.4 |
| 20–34 | 1491 | 70.8 | 1515 | 71.8 | 1524 | 70.7 | 1553 | 71.9 | 1594 | 69.1 |
| 35+ | 155 | 7.4 | 152 | 7.2 | 146 | 6.8 | 153 | 7.1 | 221 | 9.6 |
| Not stated | 0 | 0.0 | 4 | 0.2 | 4 | 0.2 | 0 | 0.0 | 0 | 0.0 |
| TOTAL | 2105 | 100.0 | 2110 | 100.0 | 2155 | 100.0 | 2161 | 100.0 | 2308 | 100.0 |

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 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 2004 ranged from 93 in the Northern Sydney and Central Coast Area to 508 in the Greater Western Area (Table 40). The proportion of mothers who were teenagers varied from 11.8 per cent in the Northern Sydney and Central Coast Area to 26.9 per cent in the Sydney West Area (Table 41).

**TABLE 40**

**HEALTH AREA OF RESIDENCE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 2000–2004#**

| Health Area | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Sydney South West | 168 | 8.0 | 174 | 8.2 | 165 | 7.7 | 160 | 7.4 | 164 | 7.1 |
| South Eastern Sydney & Illawarra | 173 | 8.2 | 153 | 7.3 | 173 | 8.0 | 178 | 8.2 | 221 | 9.6 |
| Sydney West | 203 | 9.6 | 213 | 10.1 | 204 | 9.5 | 237 | 11.0 | 238 | 10.3 |
| Northern Sydney & Central Coast | 81 | 3.8 | 74 | 3.5 | 85 | 3.9 | 82 | 3.8 | 93 | 4.0 |
| Hunter & New England | 474 | 22.5 | 477 | 22.6 | 513 | 23.8 | 514 | 23.8 | 508 | 22.0 |
| North Coast | 330 | 15.7 | 329 | 15.6 | 327 | 15.2 | 304 | 14.1 | 390 | 16.9 |
| Greater Southern | 176 | 8.4 | 162 | 7.7 | 158 | 7.3 | 170 | 7.9 | 173 | 7.5 |
| Greater Western | 484 | 23.0 | 511 | 24.2 | 517 | 24.0 | 493 | 22.8 | 505 | 21.9 |
| Other–Not stated | 16 | 0.8 | 17 | 0.8 | 13 | 0.6 | 23 | 1.1 | 16 | 0.7 |
| TOTAL | 2105 | 100.0 | 2110 | 100.0 | 2155 | 100.0 | 2161 | 100.0 | 2308 | 100.0 |

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 the total are about one and a half times higher than shown. The level of under-reporting varies between area health services (Table 34).

**TABLE 41**

**HEALTH AREA OF RESIDENCE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY AGE, NSW 2004#**

| Health Area | Maternal age (years) | | | | | |
|---|---|---|---|---|---|---|
| | Less than 20 | | 20+ | | TOTAL | |
| | No. | % | No. | % | No. | % |
| Sydney South West | 33 | 20.1 | 131 | 79.9 | 164 | 100.0 |
| South Eastern Sydney & Illawarra | 38 | 17.2 | 183 | 82.8 | 221 | 100.0 |
| Sydney West | 64 | 26.9 | 174 | 73.1 | 238 | 100.0 |
| Northern Sydney & Central Coast | 11 | 11.8 | 82 | 88.2 | 93 | 100.0 |
| Hunter & New England | 115 | 22.6 | 393 | 77.4 | 508 | 100.0 |
| North Coast | 70 | 17.9 | 320 | 82.1 | 390 | 100.0 |
| Greater Southern | 37 | 21.4 | 136 | 78.6 | 173 | 100.0 |
| Greater Western | 120 | 23.8 | 385 | 76.2 | 505 | 100.0 |
| Other–Not stated | 5 | 31.3 | 11 | 68.8 | 16 | 100.0 |
| TOTAL | 493 | 21.4 | 1815 | 78.6 | 2308 | 100.0 |

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 the total are about one and a half times higher than shown. The level of under-reporting varies between area health services (Table 34).

## Booking status

In 2004, 89.9 per cent of Aboriginal and Torres Strait Islander mothers were booked into the hospital of birth, a slight rise from 87.5 per cent in 2000. In 2004, 97.5 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 2000 and 2004, the proportion of mothers who commenced antenatal care at less than 20 weeks gestation rose from 67.6 to 70.1 per cent (Table 42). This compares with 88.0 per cent of non-Aboriginal or Torres Strait Islander mothers who commenced antenatal care at less than 20 weeks gestation in 2004.

In 2004, the proportion of Aboriginal and Torres Strait Islander mothers who commenced antenatal care at less than 20 weeks gestation varied from 58.0 per cent in the Sydney West Area to 81.7 per cent in the Northern Sydney & Central Coast Area (Table 43).

**TABLE 42**

**DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 2000–2004#**

| Duration of pregnancy at first antenatal visit (weeks) | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| 0–19 | 1422 | 67.6 | 1365 | 64.7 | 1448 | 67.2 | 1526 | 70.6 | 1618 | 70.1 |
| 20–plus | 546 | 25.9 | 615 | 29.1 | 560 | 26.0 | 547 | 25.3 | 573 | 24.8 |
| Not stated | 137 | 6.5 | 130 | 6.2 | 147 | 6.8 | 88 | 4.1 | 117 | 5.1 |
| TOTAL | 2105 | 100.0 | 2110 | 100.0 | 2155 | 100.0 | 2161 | 100.0 | 2308 | 100.0 |

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 are about one and a half times higher than shown.

**TABLE 43**

**DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY HEALTH AREA OF RESIDENCE, NSW 2004#**

| Health Area | Duration of pregnancy at first antenatal visit (weeks) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0–19 | | 20+ | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % |
| Sydney South West | 97 | 59.1 | 61 | 37.2 | 6 | 3.7 | 164 | 100.0 |
| South Eastern Sydney & Illawarra | 172 | 77.8 | 46 | 20.8 | 3 | 1.4 | 221 | 100.0 |
| Sydney West | 138 | 58.0 | 90 | 37.8 | 10 | 4.2 | 238 | 100.0 |
| Northern Sydney & Central Coast | 76 | 81.7 | 15 | 16.1 | 2 | 2.2 | 93 | 100.0 |
| Hunter & New England | 345 | 67.9 | 125 | 24.6 | 38 | 7.5 | 508 | 100.0 |
| North Coast | 291 | 74.6 | 73 | 18.7 | 26 | 6.7 | 390 | 100.0 |
| Greater Southern | 129 | 74.6 | 39 | 22.5 | 5 | 2.9 | 173 | 100.0 |
| Greater Western | 356 | 70.5 | 122 | 24.2 | 27 | 5.3 | 505 | 100.0 |
| Other–Not stated | 14 | 87.5 | 2 | 12.5 | 0 | 0.0 | 16 | 100.0 |
| TOTAL | 1618 | 70.1 | 573 | 24.8 | 117 | 5.1 | 2308 | 100.0 |

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 the total are about one and a half times higher than shown. The level of under-reporting varies between area health services (Table 34).

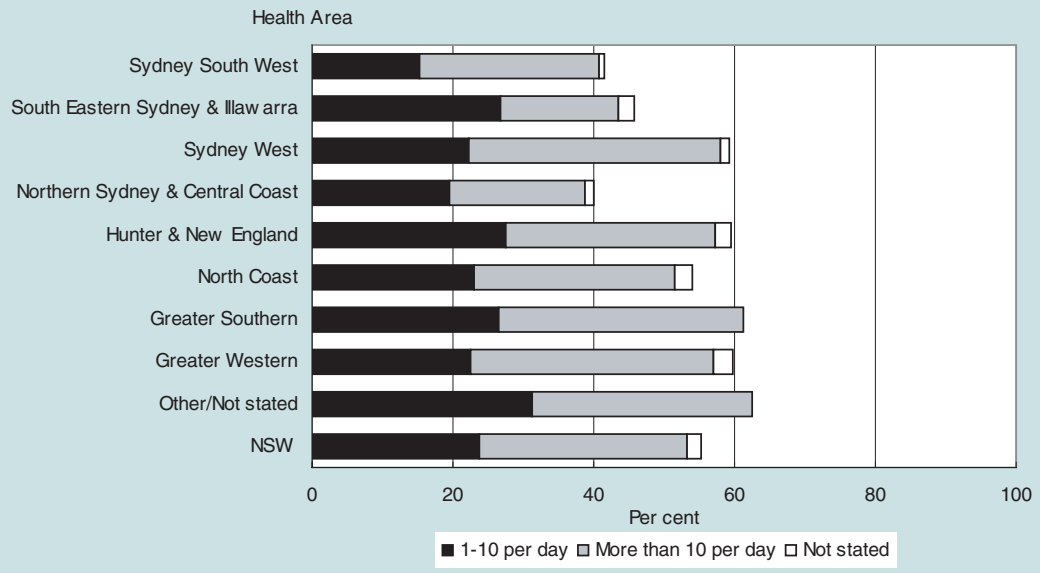
## Smoking in pregnancy

In 2004, 56.6 per cent of Aboriginal and Torres Strait Islander mothers reported smoking at some time during pregnancy, compared to 55.9 per cent in 2000. This compares with 13.6 per cent of non-Aboriginal or Torres Strait Islander mothers who reported smoking at some time during pregnancy in 2004.

Smoking in the second half of pregnancy poses the greatest risk to the health of both mother and baby. In 2004, 55.2 per cent of Aboriginal and Torres Strait Islander mothers reported smoking in the second half of pregnancy. This percentage varied from 39.9 per cent in the Northern Sydney and Central Coast Area to 61.3 per cent in the Greater Southern 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 2004#**




Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.
# Information not shown for health areas where the number of mothers is less than five 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.

## Medical conditions and obstetric complications

In 2004, 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 44). 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 44**

**MATERNAL MEDICAL CONDITIONS AND OBSTETRIC COMPLICATIONS BY ABORIGINALITY, NSW 2004#**

| Condition | Aboriginality | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Aboriginal and Torres Strait Islander | | Non-Aboriginal or Torres Strait Islander | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % |
| Diabetes mellitus | 24 | 1.0 | 440 | 0.5 | 0 | 0.0 | 464 | 0.6 |
| Gestational diabetes | 74 | 3.2 | 3518 | 4.3 | 0 | 0.0 | 3592 | 4.3 |
| Essential hypertension | 22 | 1.0 | 918 | 1.1 | 0 | 0.0 | 940 | 1.1 |
| Pre-eclampsia | 123 | 5.3 | 4483 | 5.5 | 0 | 0.0 | 4606 | 5.5 |
| TOTAL | 2308 | 100.0 | 81948 | 100.0 | 32 | 100.0 | 84288 | 100.0 |

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 are about one and a half times higher than shown.

## Labour and delivery

The rate of spontaneous onset of labour fell from 72.5 per cent in 2000 to 68.5 per cent in 2004 (Table 45). The rate of induction of labour among Aboriginal and Torres Strait Islander mothers varied from about 18 to 21 per cent between 2000 and 2004. The rate of induction of labour among Aboriginal and Torres Strait Islander mothers was lower than the rate of 24.5 per cent reported among non-Aboriginal and Torres Strait Islander mothers in 2004.

Between 2000 and 2004, the rate of normal vaginal birth fell slightly from 74.7 to 71.4 per cent. The caesarean section rate rose from 18.2 to 22.1 per cent (Table 46). The rate of forceps delivery remained stable at about 2.5 per cent, and vaginal breech delivery fell from 1.5 to 0.7 per cent.

**TABLE 45**

**LABOUR ONSET FOR ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 2000–2004#**

| Labour onset | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Spontaneous | 1527 | 72.5 | 1486 | 70.4 | 1507 | 69.9 | 1469 | 68.0 | 1581 | 68.5 |
| No labour## | 206 | 9.8 | 207 | 9.8 | 223 | 10.3 | 250 | 11.6 | 260 | 11.3 |
| Induced | 372 | 17.7 | 417 | 19.8 | 423 | 19.6 | 442 | 20.5 | 467 | 20.2 |
| Not stated | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 |
| TOTAL | 2105 | 100.0 | 2110 | 100.0 | 2155 | 100.0 | 2161 | 100.0 | 2308 | 100.0 |

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 are about one and a half times higher than shown.
## No labour indicates elective caesarean section.

**TABLE 46**

**TYPE OF DELIVERY AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 2000–2004#**

| Type of delivery | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Normal vaginal | 1573 | 74.7 | 1562 | 74.0 | 1598 | 74.2 | 1585 | 73.3 | 1647 | 71.4 |
| Forceps | 51 | 2.4 | 39 | 1.8 | 30 | 1.4 | 35 | 1.6 | 60 | 2.6 |
| Vacuum extraction | 67 | 3.2 | 66 | 3.1 | 68 | 3.2 | 67 | 3.1 | 74 | 3.2 |
| Vaginal breech | 31 | 1.5 | 16 | 0.8 | 14 | 0.6 | 9 | 0.4 | 16 | 0.7 |
| Elective caesarean section | 206 | 9.8 | 207 | 9.8 | 223 | 10.3 | 250 | 11.6 | 260 | 11.3 |
| Emergency caesarean section## | 177 | 8.4 | 220 | 10.4 | 222 | 10.3 | 215 | 9.9 | 251 | 10.9 |
| TOTAL | 2105 | 100.0 | 2110 | 100.0 | 2155 | 100.0 | 2161 | 100.0 | 2308 | 100.0 |

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 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 2000, 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 12.9 per cent in 2004 (Table 47). This is over twice the rate for babies born to non-Aboriginal or Torres Strait Islander mothers, which was 6.2 per cent in 2004. In 2004, the largest number of low birth weight babies were born in the Hunter and New England Area (Table 48).

**TABLE 47**

**WEIGHT OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 2000–2004#**

| Birth weight (grams) | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Less than 1,000 | 33 | 1.6 | 27 | 1.3 | 21 | 1.0 | 31 | 1.4 | 23 | 1.0 |
| 1,000–1,499 | 20 | 0.9 | 33 | 1.5 | 28 | 1.3 | 19 | 0.9 | 34 | 1.5 |
| 1,500–2,499 | 199 | 9.4 | 228 | 10.7 | 230 | 10.5 | 221 | 10.1 | 244 | 10.5 |
| 2,500+ | 1866 | 87.9 | 1848 | 86.4 | 1900 | 87.0 | 1917 | 87.5 | 2032 | 87.1 |
| Not stated | 4 | 0.2 | 2 | 0.1 | 4 | 0.2 | 2 | 0.1 | 0 | 0.0 |
| TOTAL | 2122 | 100.0 | 2138 | 100.0 | 2183 | 100.0 | 2190 | 100.0 | 2333 | 100.0 |

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 are about one and a half times higher than shown

**TABLE 48**

**WEIGHT OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES BY HEALTH AREA OF RESIDENCE, NSW 2004#**

| Health Area | Birth weight (grams) Less than 2,500 | | 2,500+ | | TOTAL | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Sydney South West | 14 | 8.5 | 150 | 91.5 | 164 | 100.0 |
| South Eastern Sydney & Illawarra | 21 | 9.4 | 203 | 90.6 | 224 | 100.0 |
| Sydney West | 37 | 15.3 | 205 | 84.7 | 242 | 100.0 |
| Northern Sydney & Central Coast | 14 | 14.9 | 80 | 85.1 | 94 | 100.0 |
| Hunter & New England | 69 | 13.4 | 445 | 86.6 | 514 | 100.0 |
| North Coast | 59 | 14.8 | 339 | 85.2 | 398 | 100.0 |
| Greater Southern | 24 | 13.7 | 151 | 86.3 | 175 | 100.0 |
| Greater Western | 62 | 12.3 | 444 | 87.7 | 506 | 100.0 |
| Other–Not stated | 1 | 6.3 | 15 | 93.8 | 16 | 100.0 |
| TOTAL | 301 | 12.9 | 2032 | 87.1 | 2333 | 100.0 |

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 the total are about one and a half times higher than shown. The level of under-reporting varies between area health services (Table 34).

## Gestational age

Since 2000, the over 10 per cent of Aboriginal and Torres Strait Islander babies have been premature (less than 37 weeks gestation) (Table 49). The rate was 11.7 per cent in 2004—compared with a rate of 7.2 per cent for babies born to non-Aboriginal or Torres Strait Islander mothers. In 2004, the largest number of premature babies were born in the Hunter and New England Area (Table 50).

**TABLE 49**

**GESTATIONAL AGE OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 2000–2004#**

| Gestational age (weeks) | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| 20–27 | 33 | 1.6 | 26 | 1.2 | 21 | 1.0 | 29 | 1.3 | 31 | 1.3 |
| 28–31 | 29 | 1.4 | 38 | 1.8 | 34 | 1.6 | 30 | 1.4 | 29 | 1.2 |
| 32–36 | 185 | 8.7 | 201 | 9.4 | 212 | 9.7 | 206 | 9.4 | 212 | 9.1 |
| 37–41 | 1839 | 86.7 | 1824 | 85.3 | 1868 | 85.6 | 1878 | 85.8 | 2038 | 87.4 |
| 42 + | 36 | 1.7 | 48 | 2.2 | 45 | 2.1 | 47 | 2.1 | 23 | 1.0 |
| Not stated | 0 | 0.0 | 1 | 0.0 | 3 | 0.1 | 0 | 0.0 | 0 | 0.0 |
| TOTAL | 2122 | 100.0 | 2138 | 100.0 | 2183 | 100.0 | 2190 | 100.0 | 2333 | 100.0 |

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 are about one and a half times higher than shown.

**TABLE 50**

**GESTATIONAL AGE OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES BY HEALTH AREA OF RESIDENCE, NSW 2004#**

| Health Area | Gestational age (weeks) Less than 37 | | 37+ | | TOTAL | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Sydney South West | 15 | 9.1 | 149 | 90.9 | 164 | 100.0 |
| South Eastern Sydney & Illawarra | 26 | 11.6 | 198 | 88.4 | 224 | 100.0 |
| Sydney West | 26 | 10.7 | 216 | 89.3 | 242 | 100.0 |
| Northern Sydney & Central Coast | 15 | 16.0 | 79 | 84.0 | 94 | 100.0 |
| Hunter & New England | 64 | 12.5 | 450 | 87.5 | 514 | 100.0 |
| North Coast | 56 | 14.1 | 342 | 85.9 | 398 | 100.0 |
| Greater Southern | 23 | 13.1 | 152 | 86.9 | 175 | 100.0 |
| Greater Western | 45 | 8.9 | 461 | 91.1 | 506 | 100.0 |
| Other–Not stated | 2 | 12.5 | 14 | 87.5 | 16 | 100.0 |
| TOTAL | 272 | 11.7 | 2061 | 88.3 | 2333 | 100.0 |

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 the total are about one and a half times higher than shown. The level of under-reporting varies between area health services (Table 34).

## Apgar score

In 2004, 2.9 per cent of Aboriginal and Torres Strait Islander babies had an Apgar score less than seven (Table 51), higher than the rate of 2.0 per cent for babies born to non-Aboriginal or Torres Strait Islander mothers.

**TABLE 51**

**APGAR SCORE OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 2000–2004#**

| Apgar score at 5 minutes | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| 0–4 | 41 | 1.9 | 49 | 2.3 | 38 | 1.7 | 42 | 1.9 | 34 | 1.5 |
| 5–6 | 26 | 1.2 | 29 | 1.4 | 31 | 1.4 | 30 | 1.4 | 34 | 1.5 |
| 7+ | 2045 | 96.4 | 2048 | 95.8 | 2104 | 96.4 | 2109 | 96.3 | 2256 | 96.7 |
| Not stated | 10 | 0.5 | 12 | 0.6 | 10 | 0.5 | 9 | 0.4 | 9 | 0.4 |
| TOTAL | 2122 | 100.0 | 2138 | 100.0 | 2183 | 100.0 | 2190 | 100.0 | 2333 | 100.0 |

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 are about one and a half times higher than shown.

## Special care and neonatal intensive care

In 2004, 19.6 per cent of Aboriginal and Torres Strait Islander babies were admitted to special care units and 4.8 per cent were admitted to neonatal intensive care units (Table 52). This compares with babies born to non-Aborignal or Torres Strait Islander mothers, of whom 14.4 per cent were admitted to special care units and 2.8 per cent were admitted to neonatal intensive care units in 2004.

**TABLE 52**

**ABORIGINAL AND TORRES STRAIT ISLANDER BABIES ADMITTED TO SPECIAL CARE AND NEONATAL INTENSIVE CARE UNITS, NSW 2000–2004#**

| Unit of admission | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Special care unit | 405 | 19.1 | 442 | 20.7 | 431 | 19.7 | 450 | 20.5 | 457 | 19.6 |
| Neonatal intensive care unit | 86 | 4.1 | 82 | 3.8 | 71 | 3.3 | 83 | 3.8 | 113 | 4.8 |
| TOTAL | 2122 | 100.0 | 2138 | 100.0 | 2183 | 100.0 | 2190 | 100.0 | 2333 | 100.0 |

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 are about one and a half times higher than shown.

## Perinatal mortality

Since 2000, the perinatal mortality rate among Aboriginal and Torres Strait Islander babies has varied from 11.0 to 18.2 per 1,000 births (Table 53). The rate of 11.6 per 1,000 in 2004 is higher than the rate of 9.0 per 1,000 experienced by babies born to non-Aboriginal or Torres Strait Islander mothers.

**TABLE 53**

**PERINATAL DEATHS AMONG ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 2000–2004#**

| Perinatal deaths | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Rate/ 1,000 | No. | Rate/ 1,000 | No. | Rate/ 1,000 | No. | Rate/ 1,000 | No. | Rate/ 1,000 |
| Stillbirth | 24 | 11.3 | 29 | 13.6 | 18 | 8.2 | 24 | 11.0 | 20 | 8.6 |
| Neonatal death | 13 | 6.1 | 10 | 4.7 | 6 | 2.7 | 9 | 4.1 | 7 | 3.0 |
| TOTAL | 37 | 17.4 | 39 | 18.2 | 24 | 11.0 | 33 | 15.1 | 27 | 11.6 |

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. 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.

# 7. 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 20).

## Trends in confinements

Between 2000 and 2004, about 20 per cent of mothers were born in non-English speaking countries (Table 54). Over the 5 year period, there were slight declines in the percentage of mothers born in Southern Europe, South East Asia and North East Asia, and slight increases in the percentage of mothers born in Middle East and Africa, and Southern Asia.

**TABLE 54**

**COUNTRY OF BIRTH GROUP, NSW 2000–2004**

| Country of birth | Year 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Confinements** | | | | | | | | | | |
| English speaking | 68105 | 78.8 | 67275 | 79.7 | 67268 | 79.5 | 67320 | 79.2 | 66621 | 79.0 |
| Central & South America | 708 | 0.8 | 697 | 0.8 | 739 | 0.9 | 692 | 0.8 | 675 | 0.8 |
| Melanesia, Micronesia & Polynesia | 1606 | 1.9 | 1544 | 1.8 | 1534 | 1.8 | 1545 | 1.8 | 1584 | 1.9 |
| Southern Europe | 1217 | 1.4 | 1129 | 1.3 | 1001 | 1.2 | 1040 | 1.2 | 926 | 1.1 |
| Western & Northern Europe | 671 | 0.8 | 631 | 0.7 | 614 | 0.7 | 660 | 0.8 | 649 | 0.8 |
| Eastern Europe, Russia, Central Asian & Baltic States | 428 | 0.5 | 412 | 0.5 | 458 | 0.5 | 486 | 0.6 | 518 | 0.6 |
| Middle East & Africa | 3685 | 4.3 | 3688 | 4.4 | 3653 | 4.3 | 3879 | 4.6 | 3876 | 4.6 |
| South East Asia | 5085 | 5.9 | 4478 | 5.3 | 4557 | 5.4 | 4673 | 5.5 | 4445 | 5.3 |
| North East Asia | 3449 | 4.0 | 2965 | 3.5 | 2962 | 3.5 | 2819 | 3.3 | 2884 | 3.4 |
| Southern Asia | 1476 | 1.7 | 1535 | 1.8 | 1716 | 2.0 | 1746 | 2.1 | 1930 | 2.3 |
| Other–Not stated | 30 | 0.0 | 25 | 0.0 | 85 | 0.1 | 172 | 0.2 | 180 | 0.2 |
| TOTAL | 86460 | 100.0 | 84379 | 100.0 | 84587 | 100.0 | 85032 | 100.0 | 84288 | 100.0 |
| **Births** | | | | | | | | | | |
| English speaking | 69300 | 78.8 | 68524 | 79.8 | 68449 | 79.6 | 68457 | 79.2 | 67735 | 79.1 |
| Central & South America | 716 | 0.8 | 707 | 0.8 | 755 | 0.9 | 699 | 0.8 | 683 | 0.8 |
| Melanesia, Micronesia & Polynesia | 1636 | 1.9 | 1567 | 1.8 | 1555 | 1.8 | 1564 | 1.8 | 1600 | 1.9 |
| Southern Europe | 1256 | 1.4 | 1153 | 1.3 | 1022 | 1.2 | 1064 | 1.2 | 939 | 1.1 |
| Western & Northern Europe | 688 | 0.8 | 643 | 0.7 | 627 | 0.7 | 668 | 0.8 | 663 | 0.8 |
| Eastern Europe, Russia, Central Asian & Baltic States | 439 | 0.5 | 418 | 0.5 | 468 | 0.5 | 494 | 0.6 | 525 | 0.6 |
| Middle East & Africa | 3747 | 4.3 | 3758 | 4.4 | 3711 | 4.3 | 3947 | 4.6 | 3941 | 4.6 |
| South East Asia | 5127 | 5.8 | 4527 | 5.3 | 4595 | 5.3 | 4733 | 5.5 | 4488 | 5.2 |
| North East Asia | 3483 | 4.0 | 2982 | 3.5 | 3000 | 3.5 | 2846 | 3.3 | 2910 | 3.4 |
| Southern Asia | 1499 | 1.7 | 1554 | 1.8 | 1738 | 2.0 | 1766 | 2.0 | 1953 | 2.3 |
| Other–Not stated | 31 | 0.0 | 25 | 0.0 | 85 | 0.1 | 176 | 0.2 | 189 | 0.2 |
| TOTAL | 87922 | 100.0 | 85858 | 100.0 | 86005 | 100.0 | 86414 | 100.0 | 85626 | 100.0 |

Source: NSW Midwives Data Collection (HOIST). 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 55, Figure 4), while the largest proportions of mothers aged 35 years and over were among mothers born in Western and Northern Europe (36.7 per cent) and Southern Europe (31.3 per cent).

**TABLE 55**

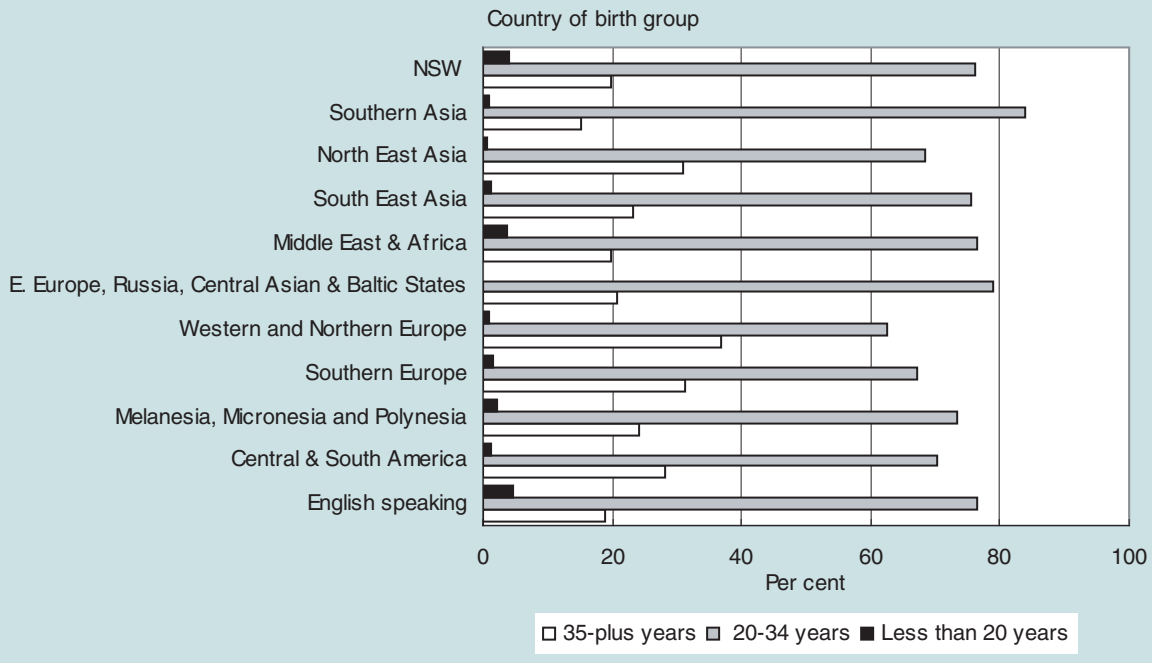
**MATERNAL AGE BY COUNTRY OF BIRTH GROUP, NSW 2004**

| Country of birth group | Maternal age (years) 12–19 | | 20–34 | | 35+ | | Not stated | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| English speaking | 3080 | 4.6 | 51005 | 76.6 | 12522 | 18.8 | 14 | 0.0 | 66621 | 100.0 |
| Central & South America | 9 | 1.3 | 474 | 70.2 | 191 | 28.3 | 1 | 0.1 | 675 | 100.0 |
| Melanesia, Micronesia & Polynesia | 36 | 2.3 | 1163 | 73.4 | 385 | 24.3 | 0 | 0.0 | 1584 | 100.0 |
| Southern Europe | 13 | 1.4 | 622 | 67.2 | 290 | 31.3 | 1 | 0.1 | 926 | 100.0 |
| Western & Northern Europe | 5 | 0.8 | 405 | 62.4 | 238 | 36.7 | 1 | 0.2 | 649 | 100.0 |
| Eastern Europe, Russia, Central Asian & Baltic States | 2 | 0.4 | 408 | 78.8 | 108 | 20.8 | 0 | 0.0 | 518 | 100.0 |
| Middle East & Africa | 143 | 3.7 | 2967 | 76.5 | 766 | 19.8 | 0 | 0.0 | 3876 | 100.0 |
| South East Asia | 58 | 1.3 | 3353 | 75.4 | 1034 | 23.3 | 0 | 0.0 | 4445 | 100.0 |
| North East Asia | 18 | 0.6 | 1971 | 68.3 | 895 | 31.0 | 0 | 0.0 | 2884 | 100.0 |
| Southern Asia | 18 | 0.9 | 1617 | 83.8 | 295 | 15.3 | 0 | 0.0 | 1930 | 100.0 |
| Other–Not stated | 5 | 2.8 | 129 | 71.7 | 45 | 25.0 | 1 | 0.6 | 180 | 100.0 |
| TOTAL | 3387 | 4.0 | 64114 | 76.1 | 16769 | 19.9 | 18 | 0.0 | 84288 | 100.0 |

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

**FIGURE 4**

**MATERNAL AGE BY COUNTRY OF BIRTH GROUP, NSW 2004**




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

## Health area of residence

In 2004, the proportion of mothers born in non-English speaking countries was highest in the Sydney South West Area (38.6 per cent), followed by the Sydney West Area (29.1 per cent).

Five per cent of mothers were born in South East Asian countries, 53.9 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 80.3 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 2.3 per cent in Southern Asian countries, with the majority living in metropolitan areas (Table 56).

**TABLE 56**

**HEALTH AREA OF RESIDENCE BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2004#**

| Health Area | Country of birth group | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Sydney South West | 11445 | 61.1 | 265 | 1.4 | 683 | 3.6 | 393 | 2.1 | 115 | 0.6 | 122 | 0.7 | 1873 | 10.0 | 2398 | 12.8 | 839 | 4.5 | 535 | 2.9 | 52 | 0.3 | 18720 | 100.0 |
| South Eastern Sydney & Illawarra | 11328 | 80.2 | 146 | 1.0 | 140 | 1.0 | 258 | 1.8 | 157 | 1.1 | 171 | 1.2 | 441 | 3.1 | 573 | 4.1 | 638 | 4.5 | 205 | 1.5 | 64 | 0.5 | 14121 | 100.0 |
| Sydney West | 11211 | 70.8 | 122 | 0.8 | 513 | 3.2 | 146 | 0.9 | 88 | 0.6 | 90 | 0.6 | 1239 | 7.8 | 875 | 5.5 | 665 | 4.2 | 863 | 5.5 | 22 | 0.1 | 15834 | 100.0 |
| Northern Sydney & Central Coast | 10882 | 83.5 | 90 | 0.7 | 113 | 0.9 | 89 | 0.7 | 191 | 1.5 | 102 | 0.8 | 221 | 1.7 | 420 | 3.2 | 658 | 5.0 | 254 | 1.9 | 12 | 0.1 | 13032 | 100.0 |
| Hunter & New England | 9355 | 96.7 | 17 | 0.2 | 55 | 0.6 | 17 | 0.2 | 32 | 0.3 | 16 | 0.2 | 60 | 0.6 | 67 | 0.7 | 34 | 0.4 | 14 | 0.1 | 5 | 0.1 | 9672 | 100.0 |
| NorthCoast | 4479 | 95.5 | 16 | 0.3 | 29 | 0.6 | 6 | 0.1 | 42 | 0.9 | 5 | 0.1 | 13 | 0.3 | 58 | 1.2 | 19 | 0.4 | 16 | 0.3 | 7 | 0.1 | 4690 | 100.0 |
| Greater Southern | 3681 | 95.9 | 5 | 0.1 | 34 | 0.9 | 11 | 0.3 | 13 | 0.3 | – | – | 17 | 0.4 | 22 | 0.6 | 12 | 0.3 | 32 | 0.8 | – | – | 3838 | 100.0 |
| Greater Western | 3701 | 97.8 | – | – | 13 | 0.3 | – | – | 7 | 0.2 | 5 | 0.1 | 9 | 0.2 | 22 | 0.6 | 9 | 0.2 | 7 | 0.2 | – | – | 3784 | 100.0 |
| Other–Not stated | 539 | 90.3 | – | – | 4 | 0.7 | – | – | 4 | 0.7 | – | – | 3 | 0.5 | 10 | 1.7 | 10 | 1.7 | 4 | 0.7 | – | – | 597 | 100.0 |
| TOTAL | 66621 | 79.0 | 675 | 0.8 | 1584 | 1.9 | 926 | 1.1 | 649 | 0.8 | 518 | 0.6 | 3876 | 4.6 | 4445 | 5.3 | 2884 | 3.4 | 1930 | 2.3 | 180 | 0.2 | 84288 | 100.0 |

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.
# Data not shown for country of birth groups with less than 5 in a group.

## Booking status

In 2004, 97.3 per cent of all mothers were booked at the hospital of birth. The lowest rate (94.7 per cent) was in mothers born in Melanesia, Micronesia and Polynesia. This compared with 97.3 per cent of mothers born in English speaking countries and over 97 per cent of mothers in other country of birth groups.

## Duration of pregnancy at first antenatal visit

In 2004, 87.5 per cent of all mothers commenced antenatal care before 20 weeks gestation. There was some variation between country of birth groups, with 89.3 per cent of mothers born in English speaking countries commencing antenatal care before 20 weeks gestation, compared with 64.2 per cent of mothers born in Melanesia, Micronesia, and Polynesia, and 75.3 per cent of mothers born in the Middle East and Africa (Table 57).

**TABLE 57**

**DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT BY COUNTRY OF BIRTH GROUP, NSW 2004**

| Country of birth group | Duration of pregnancy at first antenatal visit (weeks) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0–19 | | 20+ | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % |
| English speaking | 59494 | 89.3 | 6625 | 9.9 | 502 | 0.8 | 66621 | 100.0 |
| Central & South America | 597 | 88.4 | 78 | 11.6 | 0 | 0.0 | 675 | 100.0 |
| Melanesia, Micronesia & Polynesia | 1017 | 64.2 | 539 | 34.0 | 28 | 1.8 | 1584 | 100.0 |
| Southern Europe | 826 | 89.2 | 99 | 10.7 | 1 | 0.1 | 926 | 100.0 |
| Western & Northern Europe | 572 | 88.1 | 77 | 11.9 | 0 | 0.0 | 649 | 100.0 |
| Eastern Europe, Russia, Central Asian & Baltic States | 445 | 85.9 | 73 | 14.1 | 0 | 0.0 | 518 | 100.0 |
| Middle East & Africa | 2917 | 75.3 | 946 | 24.4 | 13 | 0.3 | 3876 | 100.0 |
| South East Asia | 3726 | 83.8 | 703 | 15.8 | 16 | 0.4 | 4445 | 100.0 |
| North East Asia | 2403 | 83.3 | 478 | 16.6 | 3 | 0.1 | 2884 | 100.0 |
| Southern Asia | 1641 | 85.0 | 285 | 14.8 | 4 | 0.2 | 1930 | 100.0 |
| Other–Not stated | 137 | 76.1 | 31 | 17.2 | 12 | 6.7 | 180 | 100.0 |
| TOTAL | 73775 | 87.5 | 9934 | 11.8 | 579 | 0.7 | 84288 | 100.0 |

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

## Smoking in pregnancy

In 2004, 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 58). About one in 6 mothers born in English speaking countries smoked at some time during pregnancy, compared to one in 10 or fewer 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 59).

**TABLE 58**

**SMOKING IN PREGNANCY BY COUNTRY OF BIRTH GROUP, NSW 2004**

| Country of birth group | Smoking in pregnancy | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | No | | Yes | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % |
| English speaking | 54842 | 82.3 | 11772 | 17.7 | 7 | 0.0 | 66621 | 100.0 |
| Central & South America | 648 | 96.0 | 27 | 4.0 | 0 | 0.0 | 675 | 100.0 |
| Melanesia, Micronesia & Polynesia | 1435 | 90.6 | 149 | 9.4 | 0 | 0.0 | 1584 | 100.0 |
| Southern Europe | 824 | 89.0 | 102 | 11.0 | 0 | 0.0 | 926 | 100.0 |
| Western & Northern Europe | 609 | 93.8 | 40 | 6.2 | 0 | 0.0 | 649 | 100.0 |
| Eastern Europe, Russia, Central Asian & Baltic States | 497 | 95.9 | 21 | 4.1 | 0 | 0.0 | 518 | 100.0 |
| Middle East & Africa | 3661 | 94.5 | 215 | 5.5 | 0 | 0.0 | 3876 | 100.0 |
| South East Asia | 4361 | 98.1 | 84 | 1.9 | 0 | 0.0 | 4445 | 100.0 |
| North East Asia | 2855 | 99.0 | 29 | 1.0 | 0 | 0.0 | 2884 | 100.0 |
| Southern Asia | 1920 | 99.5 | 10 | 0.5 | 0 | 0.0 | 1930 | 100.0 |
| Other–Not stated | 156 | 86.7 | 23 | 12.8 | 1 | 0.6 | 180 | 100.0 |
| TOTAL | 71808 | 85.2 | 12472 | 14.8 | 8 | 0.0 | 84288 | 100.0 |

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

**TABLE 59**

**MOTHERS WHO SMOKED AT ALL DURING PREGNANCY BY NUMBER OF CIGARETTES SMOKED IN THE SECOND HALF OF PREGNANCY AND COUNTRY OF BIRTH GROUP, NSW 2004**

| Country of birth group | 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. | % |
| English speaking | 439 | 3.7 | 5900 | 50.1 | 5150 | 43.7 | 275 | 2.3 | 8 | 0.1 | 11772 | 100.0 |
| Central & South America | 3 | 11.1 | 17 | 63.0 | 5 | 18.5 | 1 | 3.7 | 1 | 3.7 | 27 | 100.0 |
| Melanesia, Micronesia & Polynesia | 11 | 7.4 | 91 | 61.1 | 44 | 29.5 | 3 | 2.0 | 0 | 0.0 | 149 | 100.0 |
| Southern Europe | 3 | 2.9 | 57 | 55.9 | 41 | 40.2 | 1 | 1.0 | 0 | 0.0 | 102 | 100.0 |
| Western & Northern Europe | 4 | 10.0 | 20 | 50.0 | 15 | 37.5 | 1 | 2.5 | 0 | 0.0 | 40 | 100.0 |
| Eastern Europe, Russia, Central Asian & Baltic States | 1 | 4.8 | 12 | 57.1 | 6 | 28.6 | 2 | 9.5 | 0 | 0.0 | 21 | 100.0 |
| Middle East & Africa | 10 | 4.7 | 117 | 54.4 | 77 | 35.8 | 11 | 5.1 | 0 | 0.0 | 215 | 100.0 |
| South East Asia | 6 | 7.1 | 51 | 60.7 | 25 | 29.8 | 2 | 2.4 | 0 | 0.0 | 84 | 100.0 |
| North East Asia | 5 | 17.2 | 20 | 69.0 | 4 | 13.8 | 0 | 0.0 | 0 | 0.0 | 29 | 100.0 |
| Southern Asia | 2 | 20.0 | 5 | 50.0 | 2 | 20.0 | 1 | 10.0 | 0 | 0.0 | 10 | 100.0 |
| Other–Not stated | 1 | 4.3 | 13 | 56.5 | 9 | 39.1 | 0 | 0.0 | 0 | 0.0 | 23 | 100.0 |
| TOTAL | 485 | 3.9 | 6303 | 50.5 | 5378 | 43.1 | 297 | 2.4 | 9 | 0.1 | 12472 | 100.0 |

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

## Medical conditions and obstetric complications

In 2004, 1.5 per cent of mothers born in Melanesia, Micronesia, and Polynesia were reported to have diabetes mellitus, over twice the rate for all mothers in NSW, though the number of mothers is small (Table 60). The rates of gestational diabetes in mothers born in Asian countries and Melanesia, Micronesia, and Polynesia were at least twice the rate for all mothers in NSW.

Overall, 1.1 per cent of mothers were reported to have essential hypertension, and 5.5 per cent were reported to have pre-eclampsia. Rates of reported pre-eclampsia were lower among mothers born in North East Asian countries than other country of birth groups.

**TABLE 60**

**MATERNAL MEDICAL CONDITIONS BY OBSTETRIC COMPLICATIONS AND COUNTRY OF BIRTH GROUP, NSW 2004**

| Condition | Country of birth group | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Diabetes mellitus | 326 | 0.5 | 0 | 0.0 | 24 | 1.5 | 9 | 1.0 | 4 | 0.6 | 3 | 0.6 | 19 | 0.5 | 41 | 0.9 | 21 | 0.7 | 15 | 0.8 | 2 | 1.1 | 464 | 0.6 |
| Gestational diabetes | 1991 | 3.0 | 34 | 5.0 | 163 | 10.3 | 66 | 7.1 | 19 | 2.9 | 16 | 3.1 | 292 | 7.5 | 461 | 10.4 | 315 | 10.9 | 230 | 11.9 | 5 | 2.8 | 3592 | 4.3 |
| Essential hypertension | 797 | 1.2 | 4 | 0.6 | 16 | 1.0 | 11 | 1.2 | 4 | 0.6 | 7 | 1.4 | 39 | 1.0 | 34 | 0.8 | 13 | 0.5 | 13 | 0.7 | 2 | 1.1 | 940 | 1.1 |
| Pre-eclampsia | 3876 | 5.8 | 43 | 6.4 | 91 | 5.7 | 54 | 5.8 | 32 | 4.9 | 34 | 6.6 | 134 | 3.5 | 161 | 3.6 | 84 | 2.9 | 82 | 4.2 | 15 | 8.3 | 4606 | 5.5 |
| TOTAL# | 66621 | 100.0 | 675 | 100.0 | 1584 | 100.0 | 926 | 100.0 | 649 | 100.0 | 518 | 100.0 | 3876 | 100.0 | 4445 | 100.0 | 2884 | 100.0 | 1930 | 100.0 | 180 | 100.0 | 84288 | 100.0 |

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.
# Total refers to total confinements in NSW.

## Labour and delivery

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 61).

Mothers born in the Middle East and Africa and Melanesia, Micronesia and Polynesia were more likely to have a normal vaginal delivery than mothers in other country of birth groups (Table 62). The highest caesarean section rates were among mothers born in Southern Asia (30.7 per cent) and Central and South America (31.3 per cent).

**TABLE 61**

**LABOUR ONSET BY COUNTRY OF BIRTH GROUP, NSW 2004**

| Country of birth group | Onset of labour | | | | | | | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Spontaneous | | No labour# | | Induced | | Not stated | | | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| English speaking | 38900 | 58.4 | 10452 | 15.7 | 17268 | 25.9 | 1 | 0.0 | 66621 | 100.0 |
| Central & South America | 420 | 62.2 | 125 | 18.5 | 130 | 19.3 | 0 | 0.0 | 675 | 100.0 |
| Melanesia, Micronesia & Polynesia | 1064 | 67.2 | 191 | 12.1 | 329 | 20.8 | 0 | 0.0 | 1584 | 100.0 |
| Southern Europe | 589 | 63.6 | 142 | 15.3 | 195 | 21.1 | 0 | 0.0 | 926 | 100.0 |
| Western & Northern Europe | 420 | 64.7 | 106 | 16.3 | 123 | 19.0 | 0 | 0.0 | 649 | 100.0 |
| Eastern Europe, Russia, Central Asian & Baltic States | 349 | 67.4 | 70 | 13.5 | 99 | 19.1 | 0 | 0.0 | 518 | 100.0 |
| Middle East & Africa | 2590 | 66.8 | 486 | 12.5 | 800 | 20.6 | 0 | 0.0 | 3876 | 100.0 |
| South East Asia | 3173 | 71.4 | 586 | 13.2 | 686 | 15.4 | 0 | 0.0 | 4445 | 100.0 |
| North East Asia | 1962 | 68.0 | 430 | 14.9 | 492 | 17.1 | 0 | 0.0 | 2884 | 100.0 |
| Southern Asia | 1235 | 64.0 | 290 | 15.0 | 405 | 21.0 | 0 | 0.0 | 1930 | 100.0 |
| Other–Not stated | 105 | 58.3 | 52 | 28.9 | 23 | 12.8 | 0 | 0.0 | 180 | 100.0 |
| TOTAL | 50807 | 60.3 | 12930 | 15.3 | 20550 | 24.4 | 1 | 0.0 | 84288 | 100.0 |

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.
# No labour indicates elective caesarean section.

**TABLE 62**

**TYPE OF DELIVERY BY COUNTRY OF BIRTH GROUP, NSW 2004**

| Country of birth group | Type of delivery | | | | | | | | | | | | | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Normal vaginal | | Forceps | | Vacuum extraction | | Vaginal breech | | Elective caesarean section | | Emergency caesarean section# | | Not stated | | | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| English speaking | 41317 | 62.0 | 2162 | 3.2 | 4521 | 6.8 | 277 | 0.4 | 10452 | 15.7 | 7886 | 11.8 | 6 | 0.0 | 66621 | 100.0 |
| Central & South America | 390 | 57.8 | 16 | 2.4 | 54 | 8.0 | 4 | 0.6 | 125 | 18.5 | 86 | 12.7 | 0 | 0.0 | 675 | 100.0 |
| Melanesia, Micronesia & Polynesia | 1091 | 68.9 | 38 | 2.4 | 77 | 4.9 | 8 | 0.5 | 191 | 12.1 | 179 | 11.3 | 0 | 0.0 | 1584 | 100.0 |
| Southern Europe | 584 | 63.1 | 26 | 2.8 | 73 | 7.9 | 3 | 0.3 | 142 | 15.3 | 98 | 10.6 | 0 | 0.0 | 926 | 100.0 |
| Western & Northern Europe | 374 | 57.6 | 28 | 4.3 | 65 | 10.0 | 2 | 0.3 | 106 | 16.3 | 74 | 11.4 | 0 | 0.0 | 649 | 100.0 |
| Eastern Europe, Russia, Central Asian & Baltic States | 322 | 62.2 | 22 | 4.2 | 41 | 7.9 | 1 | 0.2 | 70 | 13.5 | 62 | 12.0 | 0 | 0.0 | 518 | 100.0 |
| Middle East & Africa | 2694 | 69.5 | 91 | 2.3 | 210 | 5.4 | 19 | 0.5 | 486 | 12.5 | 376 | 9.7 | 0 | 0.0 | 3876 | 100.0 |
| South East Asia | 2784 | 62.6 | 130 | 2.9 | 390 | 8.8 | 16 | 0.4 | 586 | 13.2 | 538 | 12.1 | 1 | 0.0 | 4445 | 100.0 |
| North East Asia | 1651 | 57.2 | 142 | 4.9 | 291 | 10.1 | 7 | 0.2 | 430 | 14.9 | 363 | 12.6 | 0 | 0.0 | 2884 | 100.0 |
| Southern Asia | 1056 | 54.7 | 104 | 5.4 | 169 | 8.8 | 8 | 0.4 | 290 | 15.0 | 303 | 15.7 | 0 | 0.0 | 1930 | 100.0 |
| Other–Not stated | 103 | 57.2 | 3 | 1.7 | 11 | 6.1 | 2 | 1.1 | 52 | 28.9 | 9 | 5.0 | 0 | 0.0 | 180 | 100.0 |
| TOTAL | 52366 | 62.1 | 2762 | 3.3 | 5902 | 7.0 | 347 | 0.4 | 12930 | 15.3 | 9974 | 11.8 | 7 | 0.0 | 84288 | 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.

## Birth weight

The rate of low birth weight (less than 2,500 grams) in 2004 was 6.4 per cent in NSW. The highest rates of low birth weight were in babies of mothers born in Southern Asian countries (8.0 per cent) (Table 63). Babies of mothers born in North East Asian countries were least likely to be low birth weight.

**TABLE 63**

**BIRTH WEIGHT BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2004**

| Country of birth group | Birth weight (grams) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Less than 2,500 | | 2,500+ | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % |
| English speaking | 4287 | 6.3 | 63411 | 93.6 | 37 | 0.1 | 67735 | 100.0 |
| Central & South America | 37 | 5.4 | 646 | 94.6 | 0 | 0.0 | 683 | 100.0 |
| Melanesia, Micronesia & Polynesia | 109 | 6.8 | 1489 | 93.1 | 2 | 0.1 | 1600 | 100.0 |
| Southern Europe | 62 | 6.6 | 877 | 93.4 | 0 | 0.0 | 939 | 100.0 |
| Western & Northern Europe | 36 | 5.4 | 627 | 94.6 | 0 | 0.0 | 663 | 100.0 |
| Eastern Europe, Russia, Central Asian & Baltic States | 31 | 5.9 | 494 | 94.1 | 0 | 0.0 | 525 | 100.0 |
| Middle East & Africa | 248 | 6.3 | 3690 | 93.6 | 3 | 0.1 | 3941 | 100.0 |
| South East Asia | 307 | 6.8 | 4177 | 93.1 | 4 | 0.1 | 4488 | 100.0 |
| North East Asia | 146 | 5.0 | 2764 | 95.0 | 0 | 0.0 | 2910 | 100.0 |
| Southern Asia | 157 | 8.0 | 1795 | 91.9 | 1 | 0.1 | 1953 | 100.0 |
| Other–Not stated | 37 | 19.6 | 150 | 79.4 | 2 | 1.1 | 189 | 100.0 |
| TOTAL | 5457 | 6.4 | 80120 | 93.6 | 49 | 0.1 | 85626 | 100.0 |

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

## Gestational age

The rate of prematurity (less than 37 weeks gestation) in 2004 was 7.3 per cent in NSW. The highest rates of prematurity were in babies of mothers born in Melanesia, Micronesia and Polynesia (8.0 per cent). Babies of mothers born in Western and Northern Europe were least likely to be premature (Table 64).

**TABLE 64**

**GESTATIONAL AGE BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2004**

| Country of birth group | Gestational age (weeks) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Less than 37 | | 37+ | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % |
| English speaking | 5054 | 7.5 | 62678 | 92.5 | 3 | 0.0 | 67735 | 100.0 |
| Central & South America | 40 | 5.9 | 643 | 94.1 | 0 | 0.0 | 683 | 100.0 |
| Melanesia, Micronesia & Polynesia | 128 | 8.0 | 1472 | 92.0 | 0 | 0.0 | 1600 | 100.0 |
| Southern Europe | 63 | 6.7 | 875 | 93.2 | 1 | 0.1 | 939 | 100.0 |
| Western & Northern Europe | 36 | 5.4 | 627 | 94.6 | 0 | 0.0 | 663 | 100.0 |
| Eastern Europe, Russia, Central Asian & Baltic States | 37 | 7.0 | 488 | 93.0 | 0 | 0.0 | 525 | 100.0 |
| Middle East & Africa | 262 | 6.6 | 3679 | 93.4 | 0 | 0.0 | 3941 | 100.0 |
| South East Asia | 303 | 6.8 | 4185 | 93.2 | 0 | 0.0 | 4488 | 100.0 |
| North East Asia | 160 | 5.5 | 2750 | 94.5 | 0 | 0.0 | 2910 | 100.0 |
| Southern Asia | 124 | 6.3 | 1829 | 93.7 | 0 | 0.0 | 1953 | 100.0 |
| Other/Not stated | 40 | 21.2 | 149 | 78.8 | 0 | 0.0 | 189 | 100.0 |
| TOTAL | 6247 | 7.3 | 79375 | 92.7 | 4 | 0.0 | 85626 | 100.0 |

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

## Apgar score

In 2004, 2.1 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 65). The rate of Apgar scores of less than 7 was highest among babies of mothers born in Melanesia, Micronesia and Polynesia (3.0 per cent).

**TABLE 65**

**BIRTHS BY COUNTRY OF BIRTH GROUP AND APGAR SCORE AT 5 MINUTES, NSW 2004#**

| Country of birth group | Apgar score 0–4 | | 5–6 | | 7+ | | Not stated | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| English speaking | 703 | 1.0 | 649 | 1.0 | 66209 | 97.7 | 174 | 0.3 | 67735 | 100.0 |
| Central & South America | 12 | 1.8 | 4 | 0.6 | 666 | 97.5 | 1 | 0.1 | 683 | 100.0 |
| Melanesia, Micronesia & Polynesia | 30 | 1.9 | 18 | 1.1 | 1547 | 96.7 | 5 | 0.3 | 1600 | 100.0 |
| Southern Europe | 7 | 0.7 | 15 | 1.6 | 917 | 97.7 | 0 | 0.0 | 939 | 100.0 |
| Western & Northern Europe | 3 | 0.5 | 6 | 0.9 | 654 | 98.6 | 0 | 0.0 | 663 | 100.0 |
| Eastern Europe, Russia, Central Asian & Baltic States | 4 | 0.8 | 7 | 1.3 | 513 | 97.7 | 1 | 0.2 | 525 | 100.0 |
| Middle East & Africa | 55 | 1.4 | 34 | 0.9 | 3845 | 97.6 | 7 | 0.2 | 3941 | 100.0 |
| South East Asia | 52 | 1.2 | 57 | 1.3 | 4370 | 97.4 | 9 | 0.2 | 4488 | 100.0 |
| North East Asia | 23 | 0.8 | 24 | 0.8 | 2861 | 98.3 | 2 | 0.1 | 2910 | 100.0 |
| Southern Asia | 25 | 1.3 | 26 | 1.3 | 1896 | 97.1 | 6 | 0.3 | 1953 | 100.0 |
| Other–Not stated | 7 | 3.7 | 4 | 2.1 | 175 | 92.6 | 3 | 1.6 | 189 | 100.0 |
| TOTAL | 921 | 1.1 | 844 | 1.0 | 83653 | 97.7 | 208 | 0.2 | 85626 | 100.0 |

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

## Perinatal outcomes

In 2004, 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 66). The majority of perinatal deaths occurred among babies of mothers born in English speaking countries (n=594, 76.8 per cent). There were a further 44 deaths among babies of mothers born in South East Asian countries, and 42 deaths among babies of mothers born in the Middle East and Africa—comprising 5.7 and 5.4 per cent respectively of all perinatal deaths reported to the MDC.

**TABLE 66**

**PERINATAL OUTCOMES BY COUNTRY OF BIRTH GROUP, NSW 2004#**

| Country of birth group | Liveborn surviving | | Stillborn | | Perinatal outcome Neonatal | | Not stated death | | Total births | | Perinatal mortality rate/1,000 births |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | |
| English speaking | 67138 | 99.1 | 437 | 0.6 | 157 | 0.2 | 3 | 0.0 | 67735 | 100.0 | 8.8 |
| Central & South America | 671 | 98.2 | 7 | 1.0 | 5 | 0.7 | 0 | 0.0 | 683 | 100.0 | 17.6 |
| Melanesia, Micronesia & Polynesia | 1579 | 98.7 | 16 | 1.0 | 5 | 0.3 | 0 | 0.0 | 1600 | 100.0 | 13.1 |
| Southern Europe | 930 | 99.0 | 7 | 0.7 | 2 | 0.2 | 0 | 0.0 | 939 | 100.0 | 9.6 |
| Western & Northern Europe | 663 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 663 | 100.0 | – |
| Eastern Europe, Russia, Central Asian & Baltic States | 521 | 99.2 | 3 | 0.6 | 1 | 0.2 | 0 | 0.0 | 525 | 100.0 | 7.6 |
| Middle East & Africa | 3899 | 98.9 | 32 | 0.8 | 10 | 0.3 | 0 | 0.0 | 3941 | 100.0 | 10.7 |
| South East Asia | 4444 | 99.0 | 27 | 0.6 | 17 | 0.4 | 0 | 0.0 | 4488 | 100.0 | 9.8 |
| North East Asia | 2892 | 99.4 | 12 | 0.4 | 6 | 0.2 | 0 | 0.0 | 2910 | 100.0 | 6.2 |
| Southern Asia | 1931 | 98.9 | 17 | 0.9 | 5 | 0.3 | 0 | 0.0 | 1953 | 100.0 | 11.3 |
| Other–Not stated | 181 | 95.8 | 3 | 1.6 | 4 | 2.1 | 1 | 0.5 | 189 | 100.0 | – |
| TOTAL | 84849 | 99.1 | 561 | 0.7 | 212 | 0.2 | 4 | 0.0 | 85626 | 100.0 | 9.0 |

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

# 8. 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 2,231 infants registered in NICUS in 2004. The most common reasons for registration of an infant were assisted ventilation for 4 hours or more (47.4 per cent) and gestational age less than 29 weeks (16.6 per cent). Infants generally met more than one of the registration criteria.

The NICUS registration rate in 2004 was 24.8 per 1,000 livebirths, which has increased slightly each year since 1992 (17.9 per 1,000 livebirths). Table 67 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-two of the 2,231 infants (4.1 per cent) registered in NICUS were born to Aboriginal or Torres Strait Islander mothers. There were 2,392 livebirths to Aboriginal or Torres Strait Islander women recorded by the NSW and ACT Midwives Data Collections for 2004. The registration rate for these infants was 38.5 per 1,000 livebirths and has increased since 1992. Eighty-four of the 2,038 mothers (4.1 per cent) were Aboriginal or Torres Strait Islander, of whom 18 (21.4 per cent) were residents of the Greater Western and North Coast Health Areas (Table 68). Twenty-seven of the 353 mothers (7.6 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 2,038 mothers of the 2,231 infants registered in NICUS during 2004. Just over 80 per cent of the 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. Of the 353 mothers of infants in this group just over three-quarters (84.7 per cent) were residents of the Sydney South West, Sydney West, Hunter & New England, Northern Sydney & Central Coast, and South Eastern Sydney & Illawarra Health Areas.

The age of mothers of NICUS infants ranged from 15 to 48 years, with a mean age of 29.8 years. The mean maternal age was similar across all gestational age groups and has remained constant since 1992. In 2004, 22.3 per cent of mothers were aged 35 years or more (range 13.7 per cent in 1992 to 22.3 per cent in 2004). In 2004, 4.8 per cent of mothers were aged less than 20 years (range 4.7 per cent in 2004 to 6.8 per cent in 2000) (Table 69). The health area of residence with the highest proportion of teenage mothers was North Coast.

There were 1,795 mothers (88.1 per cent) who had an antenatal complication. The most common antenatal complications were preterm labour (45.2 per cent), pregnancy induced hypertension (17.6 per cent), fetal distress (16.7 per cent), antepartum haemorrhage (16.5 per cent), and intrauterine growth restriction (10.3 per cent). Antenatal complications were more frequent in mothers delivering at less than 37 weeks compared with at term. Even so, 56.2 per cent of mothers giving birth at term had an antenatal complication (Table 70).

**TABLE 67**

**NICUS REGISTRATIONS BY HEALTH AREA OF RESIDENCE, NSW & ACT 2004**

| Health Area | Total NICUS registrants | | Total NSW & ACT live births | Registrants per 1,000 live births |
|---|---|---|---|---|
| | No. | % | No. | |
| Sydney South West | 476 | 21.3 | 18893 | 25.2 |
| South Eastern Sydney & Illawarra | 281 | 12.6 | 14224 | 19.8 |
| Sydney West | 445 | 20.0 | 16017 | 27.8 |
| Northern Sydney & Central Coast | 256 | 11.5 | 13169 | 19.4 |
| Hunter & New England | 337 | 15.1 | 9761 | 34.5 |
| North Coast | 54 | 2.4 | 4585 | 11.8 |
| Greater Southern | 131 | 5.9 | 4621 | 28.3 |
| Greater Western | 100 | 4.5 | 3851 | 26.0 |
| ACT | 140 | 6.3 | 4115 | 34.0 |
| Overseas | 7 | 0.3 | 0 | 0.0 |
| Interstate | 4 | 0.2 | 614 | 11.4 |
| TOTAL | 2231 | 100.00 | 89850 | 24.8 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research. NSW Midwives Data Collection 2004. Centre for Epidemiology and Research, NSW Department of Health. ACT Maternal Perinatal Data Collection 2003, ACT Health.

Administration of corticosteroids to the mother prior to preterm birth improves the outcome for the infant. In 2004, 86.7 per cent of mothers of infants born at less than 28 weeks received corticosteroids (Figure 5, Table 71). 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 68**

**MOTHERS OF NICUS REGISTRANTS BY HEALTH AREA OF RESIDENCE AND ABORIGINALITY, NSW & ACT 2004**

| Health Area | Non-Aboriginal | | Aboriginal | | TOTAL | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Sydney South West | 432 | 97.7 | 10 | 2.3 | 442 | 21.7 |
| South Eastern Sydney & Ilawarra | 247 | 98.0 | 5 | 2.0 | 252 | 12.4 |
| Sydney West | 395 | 97.5 | 10 | 2.5 | 405 | 19.9 |
| Northern Sydney & Central Coast | 224 | 98.2 | 4 | 1.8 | 228 | 11.2 |
| Hunter & New England | 286 | 91.4 | 27 | 8.6 | 313 | 15.4 |
| North Coast | 44 | 86.3 | 7 | 13.7 | 51 | 2.5 |
| Greater Southern | 117 | 94.4 | 7 | 5.6 | 124 | 6.1 |
| Greater Western | 76 | 87.4 | 11 | 12.6 | 87 | 4.3 |
| ACT | 122 | 97.6 | 3 | 2.4 | 125 | 6.1 |
| Overseas | 7 | 100.0 | 0 | 0.0 | 7 | 0.3 |
| Interstate | 4 | 100.0 | 0 | 0.0 | 4 | 0.2 |
| TOTAL | 1954 | 95.9 | 84 | 4.1 | 2038 | 100.0 |

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

**TABLE 69**

**MOTHERS OF NICUS REGISTRANTS BY HEALTH AREA OF RESIDENCE AND MATERNAL AGE, NSW & ACT 2004**

| Health Area | Maternal age (years) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Less than 20 | | 20–34 | | 35+ | | TOTAL | |
| Sydney South West | 12 | 2.7 | 315 | 71.3 | 115 | 26.0 | 442 | 21.7 |
| South Eastern Sydney & Illawarra | 13 | 5.2 | 176 | 69.8 | 63 | 25.0 | 252 | 12.4 |
| Sydney West | 16 | 4.0 | 310 | 76.5 | 79 | 19.6 | 405 | 19.9 |
| Northern Sydney & Central Coast | 4 | 1.8 | 153 | 67.1 | 71 | 31.4 | 228 | 11.2 |
| Hunter & New England | 23 | 7.3 | 242 | 77.3 | 48 | 15.3 | 313 | 15.4 |
| North Coast | 5 | 9.8 | 38 | 74.5 | 8 | 15.7 | 51 | 2.5 |
| Greater Southern | 10 | 8.1 | 94 | 75.8 | 20 | 16.1 | 124 | 6.1 |
| Greater Western | 8 | 9.2 | 64 | 73.6 | 15 | 17.2 | 87 | 4.3 |
| ACT | 4 | 3.2 | 85 | 68.0 | 36 | 28.8 | 125 | 6.1 |
| Overseas | 0 | 0.0 | 7 | 100.0 | 0 | 0.0 | 7 | 0.3 |
| Interstate | 0 | 0.0 | 4 | 100.0 | 0 | 0.0 | 4 | 0.2 |
| TOTAL | 95 | 4.7 | 1488 | 73.0 | 455 | 22.3 | 2038 | 100.0 |

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

**TABLE 70**

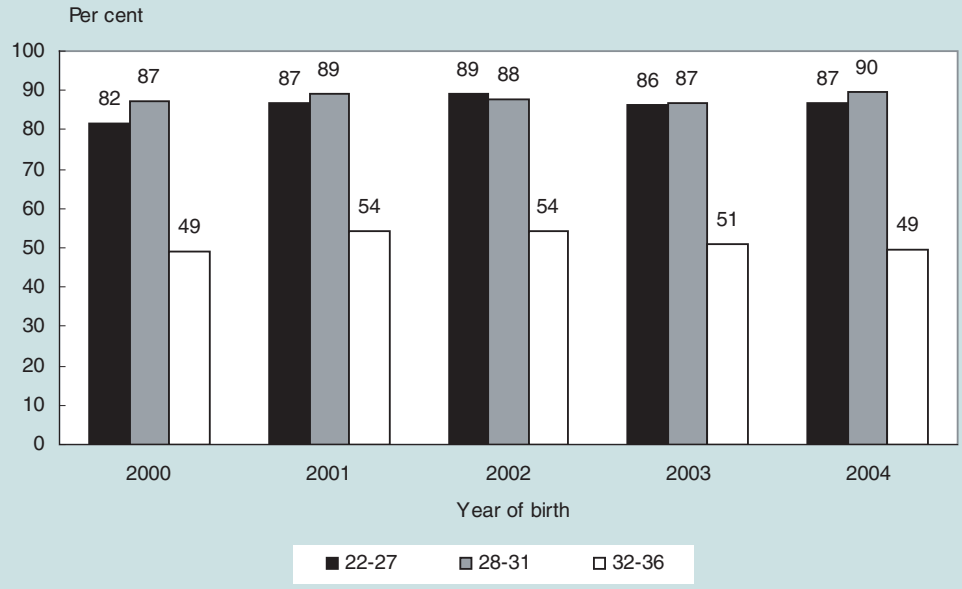
**MOTHERS OF NICUS REGISTRANTS BY ANTENATAL COMPLICATIONS AND GESTATIONAL AGE, NSW & ACT 2004**

| Antenatal complication | Gestational age (weeks) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 23–27 | | 28–31 | | 32–36 | | 37–41 | | 42+ | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Threatened preterm labour | 177 | 78.3 | 333 | 61.0 | 399 | 56.1 | 12 | 2.2 | 0 | 0.0 | 921 | 45.2 |
| Pregnancy induced hypertension | 31 | 13.7 | 125 | 22.9 | 160 | 22.5 | 42 | 7.6 | 0 | 0.0 | 358 | 17.6 |
| Fetal distress | 36 | 15.9 | 76 | 13.9 | 117 | 16.5 | 111 | 20.1 | 1 | 25.0 | 341 | 16.7 |
| Antepartum haemorrhage | 66 | 29.2 | 133 | 24.4 | 114 | 16.0 | 23 | 4.2 | 0 | 0.0 | 336 | 16.5 |
| Intrauterine growth restriction | 16 | 7.1 | 68 | 12.5 | 110 | 15.5 | 15 | 2.7 | 0 | 0.0 | 209 | 10.3 |
| Fetal diagnosis of anomaly | 1 | 0.4 | 12 | 2.2 | 54 | 7.6 | 73 | 13.2 | 0 | 0.0 | 140 | 6.9 |
| Chorioamnionitis | 49 | 21.7 | 50 | 9.2 | 21 | 3.0 | 5 | 0.9 | 0 | 0.0 | 125 | 6.1 |
| Gestational diabetes | 4 | 1.8 | 22 | 4.0 | 46 | 6.5 | 39 | 7.1 | 0 | 0.0 | 111 | 5.4 |
| Any complication | 226 | 100.0 | 546 | 100.0 | 711 | 100.0 | 311 | 56.4 | 1 | 25.0 | 1795 | 88.1 |
| TOTAL MOTHERS | 226 | 100.0 | 546 | 100.0 | 711 | 100.0 | 551 | 100.0 | 4 | 100.0 | 2038 | 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 2000–2004**




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

**TABLE 71**

**MOTHERS OF NICUS REGISTRANTS BY ANTENATAL CORTICOSTEROID ADMINISTRATION AND GESTATIONAL AGE, NSW & ACT 2000–2004**

| Year | Corticosteroid Administration | Gestational age (weeks) 22–27 No. | 22–27 % | 28–31 No. | 28–31 % | 32–36 No. | 32–36 % | TOTAL No. | TOTAL % |
|---|---|---|---|---|---|---|---|---|---|
| 2000 | No | 45 | 18.5 | 65 | 12.6 | 287 | 50.9 | 397 | 30.0 |
| | Yes | 198 | 81.5 | 451 | 87.4 | 277 | 49.1 | 926 | 70.0 |
| | TOTAL | 243 | 100.0 | 516 | 100.0 | 564 | 100.0 | 1323 | 100.0 |
| 2001 | No | 33 | 13.3 | 57 | 10.8 | 260 | 45.6 | 350 | 25.9 |
| | Yes | 216 | 86.7 | 473 | 89.2 | 310 | 54.4 | 999 | 74.1 |
| | TOTAL | 249 | 100.0 | 530 | 100.0 | 570 | 100.0 | 1349 | 100.0 |
| 2002 | No | 27 | 10.8 | 63 | 12.3 | 279 | 45.7 | 369 | 26.9 |
| | Yes | 224 | 89.2 | 449 | 87.7 | 331 | 54.3 | 1004 | 73.1 |
| | TOTAL | 251 | 100.0 | 512 | 100.0 | 610 | 100.0 | 1373 | 100.0 |
| 2003 | No | 31 | 13.9 | 68 | 13.1 | 310 | 49.1 | 409 | 29.8 |
| | Yes | 192 | 86.1 | 451 | 86.9 | 322 | 50.9 | 965 | 70.2 |
| | TOTAL | 223 | 100.0 | 519 | 100.0 | 632 | 100.0 | 1374 | 100.0 |
| 2004 | No | 30 | 13.3 | 56 | 10.3 | 360 | 50.6 | 446 | 30.1 |
| | Yes | 196 | 86.7 | 490 | 89.7 | 351 | 49.4 | 1037 | 69.9 |
| | TOTAL | 226 | 100.0 | 546 | 100.0 | 711 | 100.0 | 1483 | 100.0 |

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

## Transfer status, labour and delivery

Infants are admitted to a neonatal intensive care unit after:

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

Thirty-five per cent of all births were booked at a tertiary centre, ranging from 30 per cent for the 23–27 week gestational age group to 40.5 per cent for the 32–36 weeks gestational age group (Table 72). Maternal transfer was most common at gestations less than 32 weeks. The rate of maternal transfer was identical for infants born before 28 weeks gestation and for those born at 28–31 weeks gestation (58.9 per cent). The overall rate of maternal transfer was 35 per cent.

Nearly 30 per cent of infants were transferred to a tertiary centre following birth. There were 3.3 per cent (73/2,231) 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 (58.7 per cent). Forty-four infants (44/1,320; 3.3 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 73. The proportion of infants born in a tertiary centre increased from 60.0 per cent in 1992 to 74.8 per cent 2000. In 2004, 89.7 per cent of infants less than 32 weeks gestation were born in a tertiary centre compared with 72.3 per cent of 32–36 week gestation infants and 48.7 per cent of term infants.

The pattern of transfer status (Table 74) and place of birth by birth weight (Table 75) is similar to that of gestational age, with the majority (88.7 per cent) of the very low birth weight infants (less than 1,500 grams) born in a tertiary centre.

Spontaneous onset of labour was more common among mothers of infants less than 28 weeks gestation (Table 76). Augmentation and induction of labour were most common in term and post-term births. Similarly spontaneous onset of labour occurred in half (51.2 per cent) of all mothers of infants less than 2,500 grams birth weight (Table 77). As expected, augmentation, or induction of labour was most common in mothers of infants with a birth weight of 2,500 grams or more (29.1 per cent).

Prolonged rupture of membranes (greater than 24 hours) was more common at lower gestations, affecting 23.2 per cent of infants less than 28 weeks gestation (Table 78).

The proportion of NICUS registrants born by elective caesarean section (caesarean section without labour) was 38.3 per cent in 2004, previously ranging from 27.0 per cent in 1992 to 38.4 per cent in 2003 (Tables 79 and 80). The most common type of delivery was caesarean section (45.8 per cent in 1993 to 59.7 per cent in 2004), followed by 32.8 per cent for normal vaginal delivery (previously 41.9 per cent in 1993 to 35.6 per cent in 2003) and 3.3 per cent for vaginal breech delivery (7.0 per cent in 1998 to 4.2 per cent in 2003). The high rate of caesarean section and breech delivery 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 41.3 per cent, compared with 27.7 per cent for all livebirths in NSW in 2004.

*Continued on page 62*

**TABLE 72**

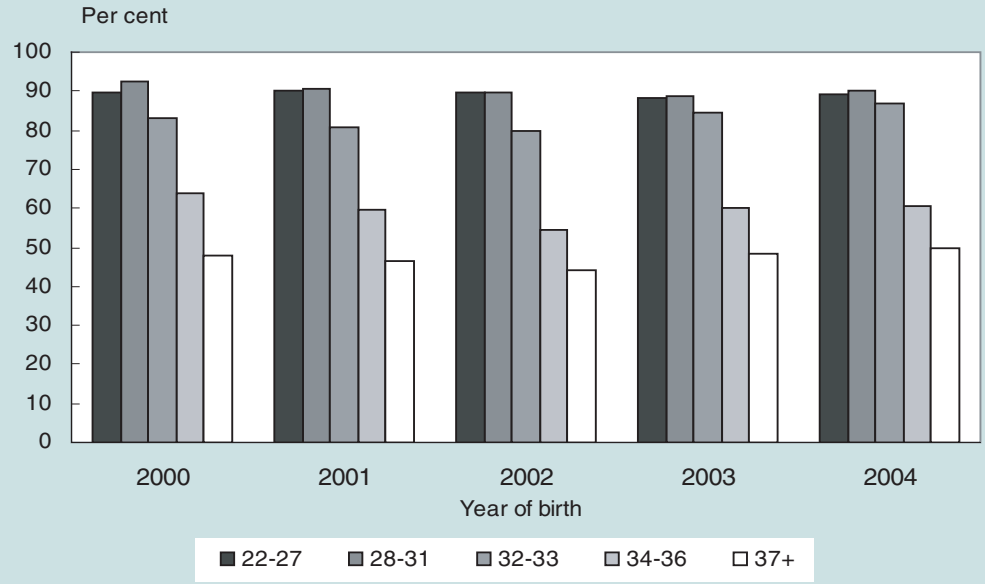
**NICUS REGISTRANTS BY BOOKING STATUS, TRANSFER STATUS AND GESTATIONAL AGE, NSW & ACT 2004**

| 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 | 79 | 30.0 | 200 | 30.9 | 309 | 40.5 | 187 | 33.8 | 3 | 75.0 | 778 | 34.9 |
| Transfer before birth | 155 | 58.9 | 382 | 59.0 | 217 | 28.4 | 26 | 4.7 | 0 | 0.0 | 780 | 35.0 |
| Transfer after birth | 28 | 10.6 | 65 | 10.0 | 217 | 28.4 | 326 | 59.0 | 1 | 25.0 | 637 | 28.6 |
| Booked at non-tertiary hospital | 1 | 0.4 | 1 | 0.2 | 20 | 2.6 | 14 | 2.5 | 0 | 0.0 | 36 | 1.6 |
| TOTAL | 263 | 100.0 | 648 | 100.0 | 763 | 100.0 | 553 | 100.0 | 4 | 100.0 | 2231 | 100.0 |

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

**FIGURE 6**

**NICUS REGISTRANTS BY TERTIARY HOSPITAL BIRTH AND GESTATIONAL AGE, NSW & ACT 2000-2004**




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

**TABLE 73**

**NICUS REGISTRANTS BY PLACE OF BIRTH (LEVEL OF OBSTETRIC HOSPITAL) AND GESTATIONAL AGE, NSW & ACT 2004**

| Place of birth | Gestational age (weeks) 22–27 | | 28–31 | | 32–33 | | 34–36 | | 37+ | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Level 1 | 0 | 0.0 | 1# | 0.2 | 0 | 0.0 | 0 | 0.0 | 1 | 0.2 | 2 | 0.1 |
| Level 2 | 1 | 0.4 | 2# | 0.3 | 1 | 0.3 | 2 | 0.5 | 11 | 2.0 | 17 | 0.8 |
| Level 3 | 3 | 1.1 | 10# | 1.5 | 4 | 1.1 | 12 | 2.9 | 28 | 5.0 | 57 | 2.6 |
| Level 4 | 13 | 4.9 | 19# | 2.9 | 8 | 2.3 | 37 | 9.0 | 71 | 12.7 | 148 | 6.6 |
| Level 5 | 9 | 3.4 | 17# | 2.6 | 22 | 6.3 | 50 | 12.1 | 68 | 12.2 | 166 | 7.4 |
| Level 6 | 234 | 89.0 | 583# | 90.0 | 303 | 86.6 | 249 | 60.3 | 271 | 48.7 | 1640 | 73.5 |
| Private hospital | 3 | 1.1 | 6# | 0.9 | 8 | 2.3 | 54 | 13.1 | 92 | 16.5 | 163 | 7.3 |
| Born before arrival | 0 | 0.0 | 6# | 0.9 | 2 | 0.6 | 1 | 0.2 | 4 | 0.7 | 13 | 0.6 |
| Interstate–Overseas | 0 | 0.0 | 4# | 0.6 | 2 | 0.6 | 8 | 1.9 | 11 | 2.0 | 25 | 1.2 |
| TOTAL | 263 | 100.0 | 648 | 100.0 | 350 | 100.0 | 413 | 100.0 | 557 | 100.0 | 2231 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# 39/65 (60.0%) babies not born in a level 6 hospital were 30–31 weeks gestation. 358/583 (61.4%) babies born in a level 6 hospital were 30–31 weeks gestation.

**TABLE 74**

**NICUS REGISTRANTS BY BOOKING STATUS, TRANSFER STATUS AND BIRTH WEIGHT, NSW & ACT 2004**

| 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 | 82 | 31.2 | 175 | 34.4 | 249 | 35.0 | 272 | 36.3 | 778 | 34.9 |
| Transfer before birth | 157 | 59.7 | 269 | 53.0 | 302 | 42.5 | 52 | 6.9 | 780 | 35.0 |
| Transfer after birth | 24 | 9.1 | 56 | 11.0 | 148 | 20.8 | 409 | 54.6 | 637 | 28.6 |
| Booked at non-tertiary hospital | 0 | 0.0 | 8 | 1.6 | 12 | 1.7 | 16 | 2.1 | 36 | 1.6 |
| TOTAL | 263 | 100.0 | 508 | 100.0 | 711 | 100.0 | 749 | 100.0 | 2231 | 100.0 |

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

**TABLE 75**

**NICUS REGISTRANTS BY PLACE OF BIRTH (LEVEL OF OBSTETRIC HOSPITAL) AND BIRTH WEIGHT, NSW & ACT 2004**

| Place of birth | Birth weight (grams) <1,000 | | 1,000–1,499 | | 1,500–2,499 | | 2,500+ | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Level 1 | 0 | 0.0 | 1 | 0.2 | 0 | 0.0 | 1 | 0.1 | 2 | 0.1 |
| Level 2 | 0 | 0.0 | 2 | 0.4 | 4 | 0.6 | 11 | 1.5 | 17 | 0.8 |
| Level 3 | 3 | 1.1 | 7 | 1.4 | 16 | 2.3 | 31 | 4.1 | 57 | 2.6 |
| Level 4 | 12 | 4.6 | 17 | 3.3 | 29 | 4.1 | 90 | 12.0 | 148 | 6.6 |
| Level 5 | 6 | 2.3 | 25 | 4.9 | 45 | 6.3 | 90 | 12.0 | 166 | 7.4 |
| Level 6 | 239 | 90.9 | 445 | 87.6 | 566 | 79.6 | 390 | 52.1 | 1640 | 73.5 |
| Private hospital | 2 | 0.8 | 4 | 0.8 | 40 | 5.6 | 117 | 15.6 | 163 | 7.3 |
| Born before arrival | 1 | 0.4 | 4 | 0.8 | 4 | 0.6 | 4 | 0.5 | 13 | 0.6 |
| Interstate–Overseas | 0 | 0.0 | 3 | 0.6 | 7 | 0.9 | 15 | 2.0 | 25 | 1.2 |
| TOTAL | 263 | 100.0 | 508 | 100.0 | 711 | 100.0 | 749 | 100.0 | 2231 | 100.0 |

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

**TABLE 76**

**MOTHERS OF NICUS REGISTRANTS BY ONSET OF LABOUR AND GESTATIONAL AGE, NSW & ACT 2004**

| Onset of labour | Gestational age (weeks) 23–27 | | 28–31 | | 32–36 | | 37–41 | | 42+ | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Spontaneous | 163 | 72.1 | 276 | 50.5 | 302 | 42.5 | 230 | 41.7 | 3 | 75.0 | 974 | 47.8 |
| Augmented | 7 | 3.1 | 14 | 2.6 | 24 | 3.4 | 60 | 10.9 | 0 | 0.0 | 105 | 5.2 |
| Induced | 0 | 0.0 | 6 | 1.1 | 45 | 6.3 | 130 | 23.6 | 1 | 25.0 | 182 | 8.9 |
| No labour | 56 | 24.8 | 250 | 45.8 | 340 | 47.8 | 131 | 23.8 | 0 | 0.0 | 777 | 38.1 |
| TOTAL | 226 | 100.0 | 546 | 100.0 | 711 | 100.0 | 551 | 100.0 | 4 | 100.0 | 2038 | 100.0 |

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

**TABLE 77**

**MOTHERS OF NICUS REGISTRANTS BY ONSET OF LABOUR AND BIRTH WEIGHT, NSW & ACT 2004**

| Onset of labour | Birth weight (grams) Less than 1,000 | | 1,000–1,499 | | 1,500–2,499 | | 2,500+ | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Spontaneous | 126 | 57.8 | 203 | 46.2 | 332 | 52.3 | 313 | 42.0 | 974 | 47.8 |
| Augmented | 3 | 1.4 | 16 | 3.6 | 18 | 2.8 | 68 | 9.1 | 105 | 5.2 |
| Induced | 1 | 0.5 | 10 | 2.3 | 22 | 3.5 | 149 | 20.0 | 182 | 8.9 |
| No labour | 88 | 40.4 | 210 | 47.8 | 263 | 41.4 | 216 | 29.0 | 777 | 38.1 |
| TOTAL | 218 | 100.0 | 439 | 100.0 | 635 | 100.0 | 746 | 100.0 | 2038 | 100.0 |

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

**TABLE 78**

**NICUS REGISTRANTS BY DURATION OF RUPTURE OF MEMBRANES AND GESTATIONAL AGE, NSW & ACT 2004**

| 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 | 202 | 76.8 | 510 | 78.7 | 679 | 89.0 | 534 | 96.6 | 4 | 100.0 | 1929 | 86.5 |
| 24 hours–7 days | 32 | 12.2 | 78 | 12.0 | 65 | 8.5 | 17 | 3.1 | 0 | 0.0 | 192 | 8.6 |
| 8+ days | 29 | 11.0 | 60 | 9.3 | 19 | 2.5 | 2 | 0.4 | 0 | 0.0 | 110 | 4.9 |
| TOTAL | 263 | 100.0 | 648 | 100.0 | 763 | 100.0 | 553 | 100.0 | 4 | 100.0 | 2231 | 100.0 |

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

**TABLE 79**

**NICUS REGISTRANTS BY TYPE OF DELIVERY AND GESTATIONAL AGE, NSW & ACT 2004**

| Type of delivery | Gestational age (weeks) 23–27 | | 28–31 | | 32–36 | | 37–41 | | 42+ | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Normal vaginal | 89 | 33.8 | 165 | 25.5 | 203 | 26.6 | 273 | 49.4 | 2 | 50.0 | 732 | 32.8 |
| Forceps | 1 | 0.4 | 12 | 1.9 | 17 | 2.2 | 13 | 2.4 | 1 | 25.0 | 44 | 2.0 |
| Forceps rotation | 0 | 0.0 | 4 | 0.6 | 0 | 0.0 | 1 | 0.2 | 0 | 0.0 | 5 | 0.2 |
| Vacuum extraction | 0 | 0.0 | 3 | 0.5 | 11 | 1.4 | 30 | 5.4 | 0 | 0.0 | 44 | 2.0 |
| Vaginal breech | 27 | 10.3 | 29 | 4.5 | 11 | 1.4 | 7 | 1.3 | 0 | 0.0 | 74 | 3.3 |
| Elective caesarean | 65 | 24.7 | 289 | 44.6 | 370 | 48.5 | 131 | 23.7 | 0 | 0.0 | 855 | 38.3 |
| Emergency caesarean | 81 | 30.8 | 146 | 22.5 | 151 | 19.8 | 98 | 17.7 | 1 | 25.0 | 477 | 21.4 |
| TOTAL | 263 | 100.0 | 648 | 100.0 | 763 | 100.0 | 553 | 100.0 | 4 | 100.0 | 2231 | 100.0 |

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

**TABLE 80**

**NICUS REGISTRANTS BY TYPE OF DELIVERY AND BIRTH WEIGHT, NSW & ACT 2004**

| Type of delivery | Birth weight (grams) Less than 1,000 | | 1,000–1,499 | | 1,500–2,499 | | 2,500+ | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Normal vaginal | 65 | 24.7 | 114 | 22.4 | 218 | 30.7 | 335 | 44.7 | 732 | 32.8 |
| Forceps | 1 | 0.4 | 8 | 1.6 | 17 | 2.4 | 18 | 2.4 | 44 | 2.0 |
| Forceps rotation | 0 | 0.0 | 3 | 0.6 | 1 | 0.1 | 1 | 0.1 | 5 | 0.2 |
| Vacuum extraction | 0 | 0.0 | 0 | 0.0 | 8 | 1.1 | 36 | 4.8 | 44 | 2.0 |
| Vaginal breech | 24 | 9.1 | 22 | 4.3 | 22 | 3.1 | 6 | 0.8 | 74 | 3.3 |
| Elective caesarean | 102 | 38.8 | 243 | 47.8 | 292 | 41.1 | 218 | 29.1 | 855 | 38.3 |
| Emergency caesarean | 71 | 27.0 | 118 | 23.2 | 153 | 21.5 | 135 | 18.0 | 477 | 21.4 |
| TOTAL | 263 | 100.0 | 508 | 100.0 | 711 | 100.0 | 749 | 100.0 | 2231 | 100.0 |

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

*(Continued from page 59)*

## Infant characteristics

Three-quarters of the infants (75 per cent) were preterm (less than 37 weeks gestation), 40.8 per cent were very preterm (less than 32 weeks gestation) and 11.8 per cent were extremely preterm (less than 28 weeks gestation) (Figure 7). The proportion of infants in each gestational age group has remained relatively constant (Table 81). Almost all liveborn infants at 24–31 weeks gestation were admitted to a NICU, about two-thirds at 32 weeks gestation, and one-fifth at 33–34 weeks gestation (Table 82).

Sixty-seven per cent of infants had a low birth weight (less than 2,500 grams), 34.6 per cent had a very low birth weight (less than 1,500 grams) and 11.8 per cent had an extremely low birth weight (less than 1,000 grams). The proportion of infants in each birth weight group has remained constant (Table 83). Almost all liveborn infants 600–1500 grams birth weight were admitted to a NICU (Table 84).

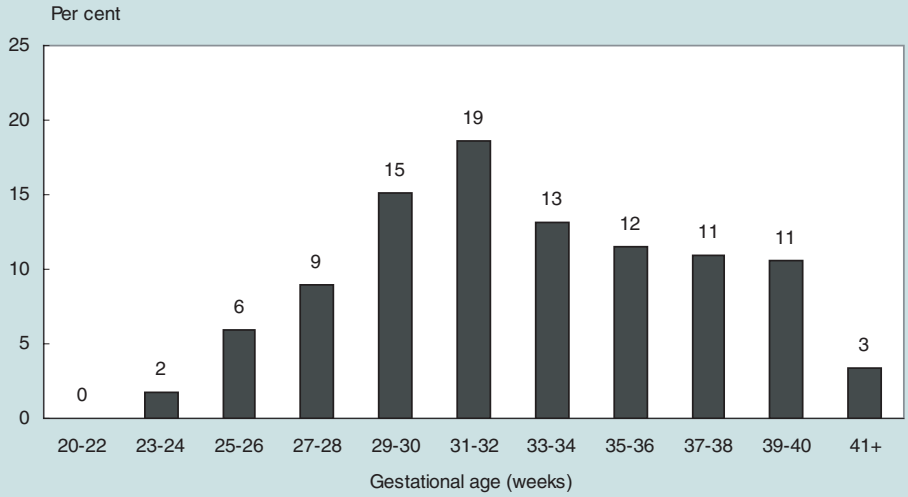
Overall, 58.8 per cent of infants were male. The ratio of males to females was approximately 3:2 in most gestational age groups (Table 85).

The overall proportion of the infants who had a major congenital anomaly decreased from 22.0 per cent in 1992 to 17.3 per cent in 2004. Congenital anomalies were more common among term infants (37-plus weeks gestational age), of whom 35.5 per cent had a major congenital anomaly and 2.3 per cent had a minor congenital anomaly (Table 86).

*Continued on page 66*

**FIGURE 7**

**NICUS REGISTRANTS BY GESTATIONAL AGE, NSW & ACT 2004**




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

**TABLE 81**

**NICUS REGISTRANTS BY GESTATIONAL AGE, NSW & ACT 2000-2004**

| Gestational age (weeks) | Year of birth | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| 22–27 | 275 | 13.7 | 277 | 13.8 | 281 | 14.0 | 253 | 12.0 | 263 | 11.8 |
| 28–31 | 609 | 30.3 | 640 | 31.8 | 604 | 30.0 | 608 | 28.8 | 648 | 29.0 |
| 32–36 | 601 | 29.9 | 611 | 30.4 | 640 | 31.8 | 677 | 32.0 | 763 | 34.2 |
| 37–41 | 512 | 25.5 | 473 | 23.5 | 479 | 23.8 | 561 | 26.5 | 553 | 24.8 |
| 42+ | 10 | 0.5 | 9 | 0.4 | 8 | 0.4 | 14 | 0.7 | 4 | 0.2 |
| TOTAL | 2007 | 100.0 | 2010 | 100.0 | 2012 | 100.0 | 2113 | 100.0 | 2231 | 100.0 |

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

**TABLE 82**

**BIRTHS BY NICUS REGISTRATION AND GESTATIONAL AGE, NSW & ACT 2004**

| Gestational age (weeks) | NSW & ACT NICUS Stillbirths No. | Live births No. | Registrations No. | Rate per 1,000 live births | % of cohort |
|---|---|---|---|---|---|
| Less than 21 | 48 | 17 | 0 | 0.0 | 0.0 |
| 21 | 68 | 24 | 0 | 0.0 | 0.0 |
| 22 | 55 | 36 | 0 | 0.0 | 0.0 |
| 23 | 48 | 18 | 11 | 611.1 | 0.5 |
| 24 | 29 | 34 | 29 | 852.9 | 1.3 |
| 25 | 25 | 66 | 53 | 803.0 | 2.4 |
| 26 | 20 | 85 | 78 | 917.6 | 3.5 |
| 27 | 25 | 86 | 92 | 1069.8 | 4.1 |
| 28 | 12 | 104 | 108 | 1038.5 | 4.8 |
| 29 | 12 | 135 | 143 | 1059.3 | 6.4 |
| 30 | 17 | 180 | 194 | 1077.8 | 8.7 |
| 31 | 21 | 212 | 203 | 957.5 | 9.1 |
| 32 | 21 | 342 | 212 | 619.9 | 9.5 |
| 33 | 25 | 455 | 138 | 303.3 | 6.2 |
| 34 | 21 | 788 | 155 | 196.7 | 7.0 |
| 35 | 20 | 1276 | 129 | 101.1 | 5.8 |
| 36 | 21 | 2331 | 129 | 55.3 | 5.8 |
| 37 | 29 | 5165 | 109 | 21.1 | 4.9 |
| 38 | 24 | 14101 | 135 | 9.6 | 6.1 |
| 39 | 22 | 21475 | 110 | 5.1 | 4.9 |
| 40 | 26 | 26514 | 127 | 4.8 | 5.7 |
| 41 | 25 | 14592 | 72 | 4.9 | 3.2 |
| 42 | 1 | 1694 | 4 | 2.4 | 0.2 |
| 43 | 1 | 143 | 0 | 0.0 | 0.0 |
| 44 | 0 | 1 | 0 | 0.0 | 0.0 |
| TOTAL | 616 | 89874# | 2231 | 24.8 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research. NSW Midwives Data Collection 2004. Centre for Epidemiology and Research, NSW Department of Health. ACT Maternal Perinatal Data Collection 2003, ACT Health.
# Excludes 8 babies reported to the MDC in 2003–2004 for whom the birth outcome was not known.

**TABLE 83**

**NICUS REGISTRANTS BY BIRTH WEIGHT, NSW & ACT 2000–2004**

| Birth weight (grams) | Year of birth 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Less than 400 | 1 | 0.0 | 2 | 0.1 | 1 | 0.0 | 1 | 0.0 | 1 | 0.0 |
| 400–499 | 6 | 0.3 | 5 | 0.2 | 7 | 0.3 | 9 | 0.4 | 5 | 0.2 |
| 500–599 | 21 | 1.0 | 30 | 1.5 | 21 | 1.0 | 24 | 1.1 | 25 | 1.1 |
| 600–699 | 56 | 2.8 | 49 | 2.4 | 53 | 2.6 | 38 | 1.8 | 35 | 1.6 |
| 700–799 | 62 | 3.1 | 49 | 2.4 | 63 | 3.1 | 54 | 2.6 | 54 | 2.4 |
| 800–899 | 53 | 2.6 | 72 | 3.6 | 58 | 2.9 | 60 | 2.8 | 66 | 3.0 |
| 900–999 | 84 | 4.2 | 63 | 3.1 | 81 | 4.0 | 80 | 3.8 | 77 | 3.5 |
| 1,000–1,249 | 212 | 10.6 | 219 | 10.9 | 181 | 9.0 | 197 | 9.3 | 230 | 10.3 |
| 1,250–1,499 | 281 | 14.0 | 274 | 13.6 | 263 | 13.1 | 257 | 12.2 | 278 | 12.5 |
| 1,500–1,749 | 204 | 10.2 | 231 | 11.5 | 228 | 11.3 | 215 | 10.2 | 257 | 11.5 |
| 1,750–1,999 | 144 | 7.2 | 159 | 7.9 | 163 | 8.1 | 185 | 8.8 | 174 | 7.8 |
| 2,000–2,499 | 254 | 12.7 | 251 | 12.5 | 273 | 13.6 | 258 | 12.2 | 280 | 12.6 |
| 2,500–2,999 | 201 | 10.0 | 215 | 10.7 | 205 | 10.2 | 244 | 11.5 | 280 | 12.6 |
| 3,000–3,499 | 200 | 10.0 | 195 | 9.7 | 195 | 9.7 | 228 | 10.8 | 226 | 10.1 |
| 3,500–3,999 | 149 | 7.4 | 132 | 6.6 | 158 | 7.9 | 176 | 8.3 | 153 | 6.9 |
| 4,000+ | 79 | 3.9 | 64 | 3.2 | 62 | 3.1 | 87 | 4.1 | 90 | 4.0 |
| TOTAL | 2007 | 100.0 | 2010 | 100.0 | 2012 | 100.0 | 2113 | 100.0 | 2231 | 100.0 |

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

**TABLE 84**

**BIRTHS BY NICUS REGISTRATION AND BIRTH WEIGHT, NSW & ACT 2004**

| Birth weight (grams) | NSW & ACT Stillbirths No. | NSW & ACT Live births No. | NICUS Registrations No. | NICUS Rate per 1,000 live births | NICUS % of cohort |
|---|---|---|---|---|---|
| Less than 400 | 143 | 56 | 1 | 17.9 | 0.04 |
| 400–499 | 67 | 34 | 5 | 147.1 | 0.22 |
| 500–599 | 59 | 55 | 25 | 454.5 | 1.12 |
| 600–699 | 28 | 41 | 35 | 853.7 | 1.57 |
| 700–799 | 19 | 54 | 54 | 1000.0 | 2.42 |
| 800–899 | 13 | 73 | 66 | 904.1 | 2.96 |
| 900–999 | 14 | 78 | 77 | 987.2 | 3.45 |
| 1,000–1,249 | 32 | 234 | 230 | 982.9 | 10.31 |
| 1,250–1,499 | 21 | 292 | 278 | 952.1 | 12.46 |
| 1,500–1,749 | 27 | 445 | 257 | 577.5 | 11.52 |
| 1,750–1,999 | 22 | 641 | 174 | 271.5 | 7.80 |
| 2,000–2,499 | 46 | 3367 | 280 | 83.2 | 12.55 |
| 2,500–2,999 | 52 | 13419 | 280 | 20.9 | 12.55 |
| 3,000–3,499 | 39 | 31889 | 226 | 7.1 | 10.13 |
| 3,500–3,999 | 23 | 28007 | 153 | 5.5 | 6.86 |
| 4,000+ | 10 | 11196 | 90 | 8.0 | 4.03 |
| TOTAL | 615# | 89881# | 2231 | 24.8 | 100.00 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research. NSW Midwives Data Collection 2004. Centre for Epidemiology and Research, NSW Department of Health ACT Maternal Perinatal Data Collection 2003, ACT Health.
# Excludes 6 babies reported to the MDC in 2003–2004 for whom the birth outcome was not known.

**TABLE 85**

**NICUS REGISTRANTS BY GENDER AND GESTATIONAL AGE, NSW & ACT 2004**

| Sex | Gestational age (weeks) 23–27 No. | 23–27 % | 28–31 No. | 28–31 % | 32–36 No. | 32–36 % | 37–41 No. | 37–41 % | 42+ No. | 42+ % | TOTAL No. | TOTAL % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Male | 144 | 54.8 | 354 | 54.6 | 464 | 60.8 | 346 | 62.6 | 3 | 75.0 | 1311 | 58.8 |
| Female | 119 | 45.2 | 294 | 45.4 | 299 | 39.2 | 207 | 37.4 | 1 | 25.0 | 920 | 41.2 |
| TOTAL | 263 | 100.0 | 648 | 100.0 | 763 | 100.0 | 553 | 100.0 | 4 | 100.0 | 2231 | 100.0 |

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

**TABLE 86**

**NICUS REGISTRANTS BY CONGENITAL ANOMALIES AND GESTATIONAL AGE, NSW & ACT 2004**

| Congenital anomaly | Gestational age (weeks) 23–27 No. | 23–27 % | 28–31 No. | 28–31 % | 32–36 No. | 32–36 % | 37–41 No. | 37–41 % | 42+ No. | 42+ % | TOTAL No. | TOTAL % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| None | 233 | 88.6 | 590 | 91.0 | 631 | 82.7 | 343 | 62.0 | 3 | 75.0 | 1800 | 80.7 |
| Minor | 5 | 1.9 | 11 | 1.7 | 15 | 2.0 | 13 | 2.4 | 0 | 0.0 | 44 | 2.0 |
| Major | 25 | 9.5 | 47 | 7.3 | 117 | 15.3 | 197 | 35.6 | 1 | 25.0 | 387 | 17.3 |
| TOTAL | 263 | 100.0 | 648 | 100.0 | 763 | 100.0 | 553 | 100.0 | 4 | 100.0 | 2231 | 100.0 |

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

*(Continued from page 62)*

The overall proportion of infants born following a multiple pregnancy was 21.4 per cent in 2004 (range 14.5 per cent in 1993 to 22.4 per cent in 2001). In 2004, most of the infants (78.7 per cent) were from a singleton pregnancy, 18.8 per cent were from a twin pregnancy, 2.4 per cent were from a triplet pregnancy and 0.2 per cent were from a quadruplet pregnancy. The higher than expected rate of multiple births among the 2004 NICUS cohort reflects the high proportion of multiple pregnancies resulting in preterm birth with 27.4 per cent of infants less than 37 weeks gestation (Table 87). Multiple births represented 3.1 per cent of all NSW–ACT livebirths in 2004.

Table 88 shows the median, 25th and 75th percentiles for one and 5 minute Apgar scores according to gestational age groups. For infants 32–42 weeks gestational age, the median one-minute Apgar score was 8. The median 5 minute score was 9 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 23.8 per cent in 2004. Similarly the proportion of infants with a 5 minute Apgar score of 0–4 has decreased from 10.8 per cent in 1992 to 6.1 per cent in 2004 (Table 89).

Infants with major congenital anomalies (n=387) were excluded from the analysis of morbidity and mortality.

The majority of infants without a major congenital anomaly (1,621/1,844; 87.9 per cent) in the 2004 NICUS cohort received assisted ventilation (intermittent mandatory ventilation and/or continuous positive airways pressure) (Table 90).

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, and transient tachypnoea were more common in the preterm groups, whereas perinatal asphyxia, meconium aspiration, pulmonary hypertension and apnoea were more common in term infants (Figure 8, Table 91).

The overall proportion of ventilated infants who received surfactant was 38.6 in 2004 (range 33.8 per cent in 1992 to 51.8 per cent in 1998) (Table 92). In 2004, 54.9 per cent of the infants who received surfactant were less than 32 weeks gestational age. The majority (56.2 per cent) of ventilated infants with a diagnosis of respiratory distress syndrome received surfactant.

Proven systemic infection has decreased from 21.5 per cent in 1992 to 9.8 per cent of infants in 2004. Infection was most common among infants less than 28 weeks gestation (37.4 per cent) (Table 93).

Overall, the incidence of treated patent ductus arteriosus (PDA) was 15.9 per cent in 2004 (range 10.7 in 1994 to 15.9 per cent in 2004). In 2004, 93.2 per cent of the infants treated for PDA were less than 32 weeks gestational age (Table 94). The majority of infants with a PDA requiring treatment received indomethacin only (14.3 per cent). Surgical treatment of PDA was predominantly performed on infants less than 28 weeks gestation (7.9 per cent). Some infants (7.1 per cent) were treated with both indomethacin and surgery.

*Continued on page 70*

**TABLE 87**

**NICUS REGISTRANTS BY PLURALITY AND GESTATIONAL AGE, NSW & ACT 2004**

| Plurality | Gestational age (weeks) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 23–27 | | 28–31 | | 32–36 | | 37–41 | | 42+ | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Singleton | 186 | 70.7 | 446 | 68.8 | 584 | 76.5 | 535 | 96.7 | 4 | 100.0 | 1755 | 78.7 |
| Twins | 65 | 24.7 | 178 | 27.5 | 158 | 20.7 | 18 | 3.3 | 0 | 0.0 | 419 | 18.8 |
| Triplets | 12 | 4.6 | 24 | 3.7 | 17 | 2.2 | 0 | 0.0 | 0 | 0.0 | 53 | 2.4 |
| Quads | 0 | 0.0 | 0 | 0.0 | 4 | 0.5 | 0 | 0.0 | 0 | 0.0 | 4 | 0.2 |
| TOTAL | 263 | 100.0 | 648 | 100.0 | 763 | 100.0 | 553 | 100.0 | 4 | 100.0 | 2231 | 100.0 |

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

## TABLE 88

### NICUS REGISTRANTS BY APGAR SCORE AND GESTATIONAL AGE, NSW & ACT 2004

| Apgar score | Gestational age (weeks) 23–27 Median (25%,75%) | | 28–31 Median (25%,75%) | | 32–36 Median (25%,75%) | | 37+ Median (25%,75%) | |
|---|---|---|---|---|---|---|---|---|
| One-minute Apgar | 5 | (3,6) | 7 | (5,8) | 8 | (6,9) | 7 | (5,9) |
| Five-minute Apgar | 7 | (6,9) | 9 | (8,9) | 9 | (8,9) | 9 | (7,9) |

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

## TABLE 89

### NICUS REGISTRANTS BY APGAR SCORE AT ONE AND 5 MINUTES, NSW & ACT 2000–2004

| Apgar score | Year of birth 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| ONE MINUTE | | | | | | | | | | |
| 0–4 | 509 | 25.4 | 516 | 25.7 | 474 | 23.6 | 475 | 22.5 | 530 | 23.8 |
| 5–7 | 746 | 37.2 | 744 | 37.0 | 691 | 34.3 | 750 | 35.5 | 733 | 32.9 |
| 8+ | 738 | 36.8 | 735 | 36.6 | 830 | 41.3 | 886 | 41.9 | 958 | 42.9 |
| Not stated | 14 | 0.7 | 15 | 0.7 | 17 | 0.8 | 2 | 0.1 | 10 | 0.4 |
| TOTAL | 2007 | 100.0 | 2010 | 100.0 | 2012 | 100.0 | 2113 | 100.0 | 2231 | 100.0 |
| FIVE MINUTES | | | | | | | | | | |
| 0–4 | 154 | 7.7 | 143 | 7.1 | 139 | 6.9 | 110 | 5.2 | 135 | 6.1 |
| 5–7 | 399 | 19.9 | 425 | 21.1 | 394 | 19.6 | 382 | 18.1 | 436 | 19.5 |
| 8+ | 1441 | 71.8 | 1429 | 71.1 | 1467 | 72.9 | 1618 | 76.6 | 1652 | 74.0 |
| Not stated | 13 | 0.6 | 13 | 0.6 | 12 | 0.6 | 3 | 0.1 | 8 | 0.4 |
| TOTAL | 2007 | 100.0 | 2010 | 100.0 | 2012 | 100.0 | 2113 | 100.0 | 2231 | 100.0 |

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

## TABLE 90

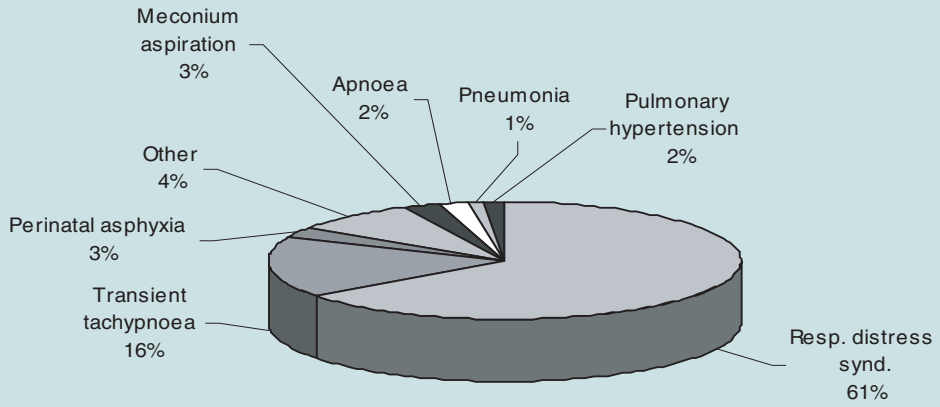
### NICUS REGISTRANTS BY ASSISTED VENTILATION AND GESTATIONAL AGE, NSW & ACT 2000–2004#

| Year | Assisted ventilation | Gestational age (weeks) 22–27 No. | % | 28–31 No. | % | 32–36 No. | % | 37+ No. | % | TOTAL No. | % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 | No | 1 | 0.4 | 117 | 20.5 | 65 | 12.4 | 6 | 1.9 | 189 | 11.3 |
| | Yes | 261 | 99.6 | 455 | 79.5 | 461 | 87.6 | 304 | 98.1 | 1481 | 88.7 |
| | TOTAL | 262 | 100.0 | 572 | 100.0 | 526 | 100.0 | 310 | 100.0 | 1670 | 100.0 |
| 2001 | No | 2 | 0.7 | 126 | 20.7 | 61 | 11.6 | 3 | 1.1 | 192 | 11.4 |
| | Yes | 265 | 99.3 | 482 | 79.3 | 464 | 88.4 | 276 | 98.9 | 1487 | 88.6 |
| | TOTAL | 267 | 100.0 | 608 | 100.0 | 525 | 100.0 | 279 | 100.0 | 1679 | 100.0 |
| 2002 | No | 2 | 0.7 | 90 | 16.2 | 50 | 9.0 | 4 | 1.4 | 146 | 8.8 |
| | Yes | 266 | 99.3 | 464 | 83.8 | 504 | 91.0 | 284 | 98.6 | 1518 | 91.2 |
| | TOTAL | 268 | 100.0 | 554 | 100.0 | 554 | 100.0 | 288 | 100.0 | 1664 | 100.0 |
| 2003 | No | 1 | 0.4 | 104 | 17.9 | 97 | 15.8 | 75 | 20.1 | 277 | 15.4 |
| | Yes | 234 | 99.6 | 476 | 82.1 | 515 | 84.2 | 298 | 79.9 | 1523 | 84.6 |
| | TOTAL | 235 | 100.0 | 580 | 100.0 | 612 | 100.0 | 373 | 100.0 | 1800 | 100.0 |
| 2004 | No | 0 | 0.0 | 78 | 13.0 | 83 | 12.8 | 62 | 17.3 | 223 | 12.1 |
| | Yes | 238 | 100.0 | 523 | 87.0 | 563 | 87.2 | 297 | 82.7 | 1621 | 87.9 |
| | TOTAL | 238 | 100.0 | 601 | 100.0 | 646 | 100.0 | 359 | 100.0 | 1844 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies excluded.

**FIGURE 8**

**NICUS REGISTRANTS BY MAIN INDICATION FOR ASSISTED VENTILATION, NSW & ACT 2004#**




Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies or not ventilated excluded.

**TABLE 91**

**NICUS REGISTRANTS BY MAIN INDICATION FOR ASSISTED VENTILATION AND GESTATIONAL AGE, NSW & ACT 2004#**

| Indication | Gestational age (weeks) 23–27 | | 28–31 | | 32–36 | | 37+ | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Transient tachypnoea of newborn | 0 | 0.0 | 81 | 15.5 | 128 | 22.7 | 65 | 21.9 | 274 | 16.9 |
| Hyaline membrane disease | 225 | 94.5 | 394 | 75.3 | 366 | 65.0 | 60 | 20.2 | 1045 | 64.5 |
| Meconium aspiration | 0 | 0.0 | 0 | 0.0 | 2 | 0.4 | 40 | 13.5 | 42 | 2.6 |
| Pneumonia | 2 | 0.8 | 0 | 0.0 | 4 | 0.7 | 11 | 3.7 | 17 | 1.0 |
| Pulmonary hypertension | 1 | 0.4 | 0 | 0.0 | 4 | 0.7 | 19 | 6.4 | 24 | 1.5 |
| Immature lung | 1 | 0.4 | 8 | 1.5 | 1 | 0.2 | 0 | 0.0 | 10 | 0.6 |
| Apnoea | 0 | 0.0 | 10 | 1.9 | 10 | 1.8 | 11 | 3.7 | 31 | 1.9 |
| Congenital anomaly | 0 | 0.0 | 2 | 0.4 | 2 | 0.4 | 0 | 0.0 | 4 | 0.2 |
| Other | 9 | 3.8 | 23 | 4.4 | 39 | 6.9 | 49 | 16.5 | 120 | 7.4 |
| Perinatal surgery | 0 | 0.0 | 0 | 0.0 | 1 | 0.2 | 4 | 1.3 | 5 | 0.3 |
| Newborn encephalopathy | 0 | 0.0 | 3 | 0.6 | 5 | 0.9 | 38 | 12.8 | 46 | 2.8 |
| Not stated | 0 | 0.0 | 2 | 0.4 | 1 | 0.2 | 0 | 0.0 | 3 | 0.2 |
| TOTAL | 238 | 100.0 | 523 | 100.0 | 563 | 100.0 | 297 | 100.0 | 1621 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies or not ventilated excluded.

**TABLE 92**

**NICUS REGISTRANTS BY SURFACTANT ADMINISTRATION AND GESTATIONAL AGE, NSW & ACT 2000–2004#**

| Year | Surfactant administration | Gestational age (weeks) 22–27 No. | % | 28–31 No. | % | 32–36 No. | % | 37+ No. | % | TOTAL No. | % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 | No | 59 | 22.6 | 255 | 56.0 | 282 | 61.2 | 255 | 83.9 | 851 | 57.5 |
| | Yes | 202 | 77.4 | 200 | 44.0 | 179 | 38.8 | 49 | 16.1 | 630 | 42.5 |
| | TOTAL | 261 | 100.0 | 455 | 100.0 | 461 | 100.0 | 304 | 100.0 | 1481 | 100.0 |
| 2001 | No | 56 | 21.1 | 275 | 57.1 | 325 | 70.0 | 221 | 80.1 | 877 | 59.0 |
| | Yes | 209 | 78.9 | 207 | 42.9 | 139 | 30.0 | 55 | 19.9 | 610 | 41.0 |
| | TOTAL | 265 | 100.0 | 482 | 100.0 | 464 | 100.0 | 276 | 100.0 | 1487 | 100.0 |
| 2002 | No | 66 | 24.8 | 276 | 59.5 | 366 | 72.6 | 241 | 84.9 | 949 | 62.5 |
| | Yes | 200 | 75.2 | 188 | 40.5 | 138 | 27.4 | 43 | 15.1 | 569 | 37.5 |
| | TOTAL | 266 | 100.0 | 464 | 100.0 | 504 | 100.0 | 284 | 100.0 | 1518 | 100.0 |
| 2003 | No | 45 | 19.2 | 257 | 54.0 | 353 | 68.5 | 239 | 80.2 | 894 | 58.7 |
| | Yes | 189 | 80.8 | 219 | 46.0 | 162 | 31.5 | 59 | 19.8 | 629 | 41.3 |
| | TOTAL | 234 | 100.0 | 476 | 100.0 | 515 | 100.0 | 298 | 100.0 | 1523 | 100.0 |
| 2004 | No | 42 | 17.6 | 301 | 57.6 | 406 | 72.1 | 247 | 83.2 | 996 | 61.4 |
| | Yes | 196 | 82.4 | 222 | 42.4 | 157 | 27.9 | 50 | 16.8 | 625 | 38.6 |
| | TOTAL | 238 | 100.0 | 523 | 100.0 | 563 | 100.0 | 297 | 100.0 | 1621 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies and babies not ventilated excluded.

**TABLE 93**

**NICUS REGISTRANTS BY PROVEN SYSTEMIC INFECTION AND GESTATIONAL AGE, NSW & ACT 2004#**

| Infection | Gestational age (weeks) 23–27 No. | % | 28–31 No. | % | 32–36 No. | % | 37+ No. | % | TOTAL No. | % |
|---|---|---|---|---|---|---|---|---|---|---|
| No | 149 | 62.6 | 549 | 91.3 | 632 | 97.8 | 333 | 92.8 | 1663 | 90.2 |
| Yes | 89 | 37.4 | 52 | 8.7 | 14 | 2.2 | 26 | 7.2 | 181 | 9.8 |
| TOTAL | 238 | 100.0 | 601 | 100.0 | 646 | 100.0 | 359 | 100.0 | 1844 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies excluded.

**TABLE 94**

**NICUS REGISTRANTS BY TREATED PATENT DUCTUS ARTERIOSUS (PDA) AND GESTATIONAL AGE, NSW & ACT 2004#**

| PDA–Treatment for PDA | Gestational age (weeks) 23–27 No. | % | 28–31 No. | % | 32–36 No. | % | TOTAL No. | % |
|---|---|---|---|---|---|---|---|---|
| No treated PDA | 109 | 45.8 | 510 | 84.9 | 630 | 97.5 | 1249 | 84.1 |
| Indomethacin only | 110 | 46.2 | 87 | 14.5 | 16 | 2.5 | 213 | 14.3 |
| Surgery only | 2 | 0.8 | 2 | 0.3 | 0 | 0.0 | 4 | 0.3 |
| Indomethacin & surgery | 17 | 7.1 | 2 | 0.3 | 0 | 0.0 | 19 | 1.3 |
| TOTAL | 238 | 100.0 | 601 | 100.0 | 646 | 100.0 | 1485 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies excluded.

*Continued from page 66*

Overall, the incidence of necrotising enterocolitis (NEC) was 2.4 per cent in 2004 (range 9.8 per cent in 1992 to 2.2 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 age groups and 89.1 per cent of the infants with NEC were born at less than 32 weeks gestation (Table 95).

The overall incidence of major surgery was 3.5 per cent in 2004 (range 7.7 per cent in 1992 to 3.1 per cent in 2000). In 2004, 75 per cent of the infants who required major surgery were less than 32 weeks gestation (Table 96). The most common surgical procedures amongst these infants were for patent ductus arteriosus and necrotising enterocolitis.

In 2004, the incidence of intraventricular haemorrhage (IVH) among preterm infants (less than 37 weeks gestational age) was 13.9 per cent (range 20.5 per cent in 1993 to 12.9 per cent in 2003). In 2004, confirmed IVH was most common among infants less than 28-weeks gestation (46.2 per cent); 38.5 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 (4/53, 7.5 per cent). Of the surviving infants born before 32 weeks gestation, 95.8 per cent had a head ultrasound examination to detect IVH (Table 97).

The proportion of infants with severe grades (Grades 3, 4 or 5) of retinopathy of prematurity (ROP) was 2.8 per cent in 2004 (range 7.5 per cent in 1992 to 2.8 per cent in 2004). In 2004, 4 infants with Grade 3 ROP were 28-31 weeks gestation and 94.7 per cent of the infants less than 28 weeks gestation with severe ROP received either cryo- or laser therapy. Importantly, 25 per cent of surviving infants of 28–31 weeks gestational age did not have an eye examination recorded (Table 98).

*Continued on page 72*

**TABLE 95**

**NICUS REGISTRANTS BY NECROTISING ENTEROCOLITIS (NEC) AND GESTATIONAL AGE, NSW & ACT 2004#**

| NEC–Treatment for NEC | Gestational age (weeks) 23–27 | | 28–31 | | 32–36 | | 37+ | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| No NEC | 217 | 91.2 | 581 | 96.7 | 643 | 99.5 | 357 | 99.4 | 1798 | 97.5 |
| Clinical diagnosis | 9 | 3.8 | 10 | 1.7 | 2 | 0.3 | 2 | 0.6 | 23 | 1.2 |
| X-ray diagnosis | 8 | 3.4 | 4 | 0.7 | 1 | 0.2 | 0 | 0.0 | 13 | 0.7 |
| Surgery for NEC | 4 | 1.7 | 6 | 1.0 | 0 | 0.0 | 0 | 0.0 | 10 | 0.5 |
| TOTAL | 238 | 100.0 | 601 | 100.0 | 646 | 100.0 | 359 | 100.0 | 1844 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies excluded.

**TABLE 96**

**NICUS REGISTRANTS BY MAJOR SURGERY AND GESTATIONAL AGE, NSW & ACT 2004#**

| Major surgery | Gestational age (weeks) 23–27 | | 28–31 | | 32–36 | | 37+ | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| No | 212 | 89.1 | 579 | 96.3 | 640 | 99.1 | 349 | 97.2 | 1780 | 96.5 |
| Yes | 26 | 10.9 | 22 | 3.7 | 6 | 0.9 | 10 | 2.8 | 64 | 3.5 |
| TOTAL | 238 | 100.0 | 601 | 100.0 | 646 | 100.0 | 359 | 100.0 | 1844 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies excluded.

**TABLE 97**

**NICUS REGISTRANTS BY INTRAVENTRICULAR HAEMORRHAGE (IVH) AND GESTATIONAL AGE, NSW & ACT 2004#**

| Head ultrasound | Gestational age (weeks) 23–27 | | 28–31 | | 32–36 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % |
| No IVH | 121 | 50.8 | 485 | 80.7 | 250 | 38.7 | 856 | 57.6 |
| Grade 1 | 43 | 18.1 | 59 | 9.8 | 19 | 2.9 | 121 | 8.1 |
| Grade 2 | 21 | 8.8 | 6 | 1.0 | 2 | 0.3 | 29 | 2.0 |
| Grade 3 | 15 | 6.3 | 10 | 1.7 | 2 | 0.3 | 27 | 1.8 |
| Grade 4 | 25 | 10.5 | 3 | 0.5 | 1 | 0.2 | 29 | 2.0 |
| Hydrocephalus requiring drainage | 3 | 1.3 | 1 | 0.2 | 2 | 0.3 | 6 | 0.4 |
| Not examined & lived | 0 | 0.0 | 35 | 5.8 | 370 | 57.3 | 405 | 27.3 |
| Not examined & died | 13 | 5.5 | 3 | 0.5 | 2 | 0.3 | 18 | 1.2 |
| TOTAL | 238 | 100.0 | 601 | 100.0 | 646 | 100.0 | 1485 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies excluded.

**TABLE 98**

**NICUS REGISTRANTS BY RETINOPATHY OF PREMATURITY (ROP) AND GESTATIONAL AGE, NSW & ACT 2004#**

| Retinopathy of prematurity (ROP) | Gestational age (weeks) 23–27 | | 28–31 | | TOTAL | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| No ROP | 83 | 34.9 | 402 | 66.9 | 485 | 57.8 |
| Grade 1 | 34 | 14.3 | 20 | 3.3 | 54 | 6.4 |
| Grade 2 | 44 | 18.5 | 10 | 1.7 | 54 | 6.4 |
| Grade 3 | 16 | 6.7 | 4 | 0.7 | 20 | 2.4 |
| Grade 5 | 3 | 1.3 | 0 | 0.0 | 3 | 0.4 |
| Treatment with cryo–laser therapy | 18 | 7.6 | 2 | 0.3 | 20 | 2.4 |
| Not examined & lived | 0 | 0 | 150 | 25.0 | 150 | 17.9 |
| Not examined & died | 58 | 24.4 | 15 | 2.5 | 73 | 8.7 |
| TOTAL | 238 | 100.0 | 601 | 100.0 | 839 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies excluded.

*(Continued from page 70)*

## Service utilisation

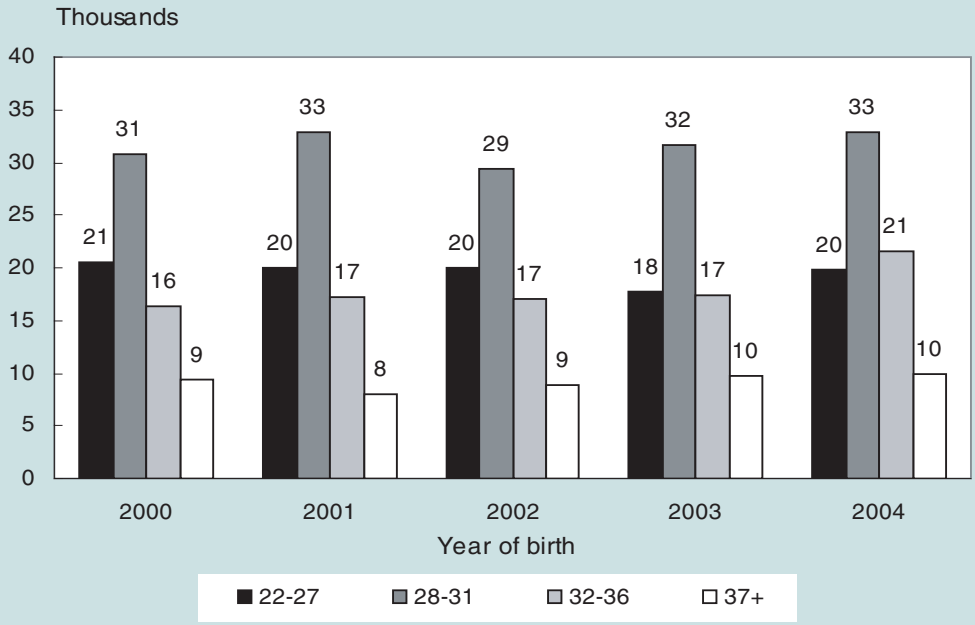
Indicators of service utilisation collected as part of NICUS include length of stay in tertiary and non-tertiary centres, days on assisted ventilation, and days in oxygen (Figures 9, 10 and 11 and Table 99). On an individual basis, infants born at less than 28 weeks gestation consumed most resources. However, as a group those born at 28–31 weeks gestation consumed more bed days than any other group. In 2004, the total cohort used 62,852 bed days in a tertiary centre in NSW and the ACT (range 46,090 in 1993 to 62,852 in 2004); as well as 21,342 in a non-tertiary centre (level 2 neonatal unit) in NSW and the ACT (14,288 in 1992 to 21,342 in 2004). Even when these infants leave the neonatal intensive care unit, they still require substantial resources.

In 2004, NICUS registrants used 18,557 days of assisted ventilation (range 15,282 in 1993 to 18,557 in 2004) and 27,575 days of oxygen therapy (range 22,526 in 1992 to 30,802 in 2001). In 2004, 59 (3.2 per cent) infants were discharged home on oxygen therapy (range 2.1 per cent in 1992 to 5.1 per cent in 1998). The proportion of infants less than 28 weeks gestation discharged home on oxygen therapy was 18.5 per cent (range 7.5 per cent in 1992 to 21.3 per cent in 2002) (Table 100).

*Continued on page 76*

**FIGURE 9**

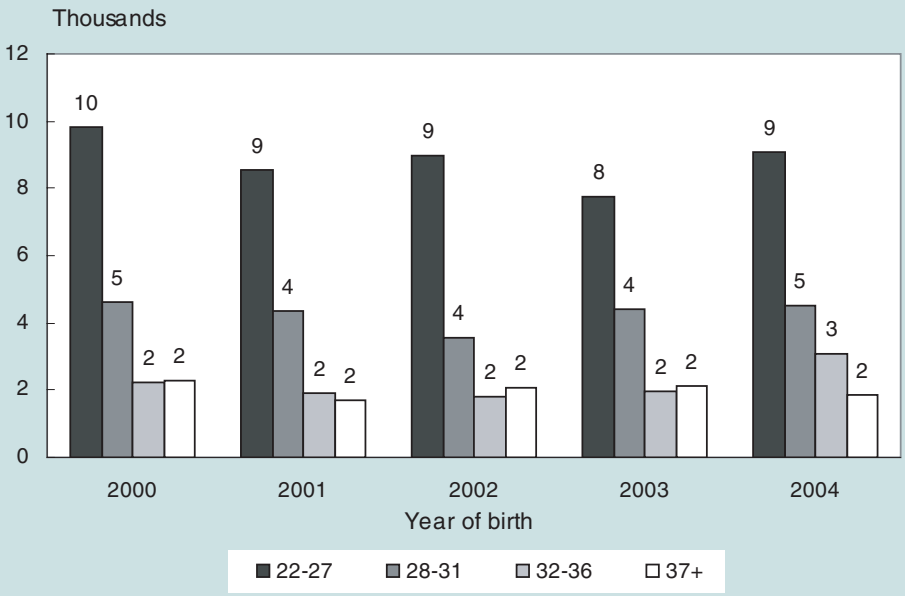
**NICUS REGISTRANTS BY TOTAL NUMBER OF DAYS IN HOSPITAL AND GESTATIONAL AGE, NSW & ACT 2004**




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

**FIGURE 10**

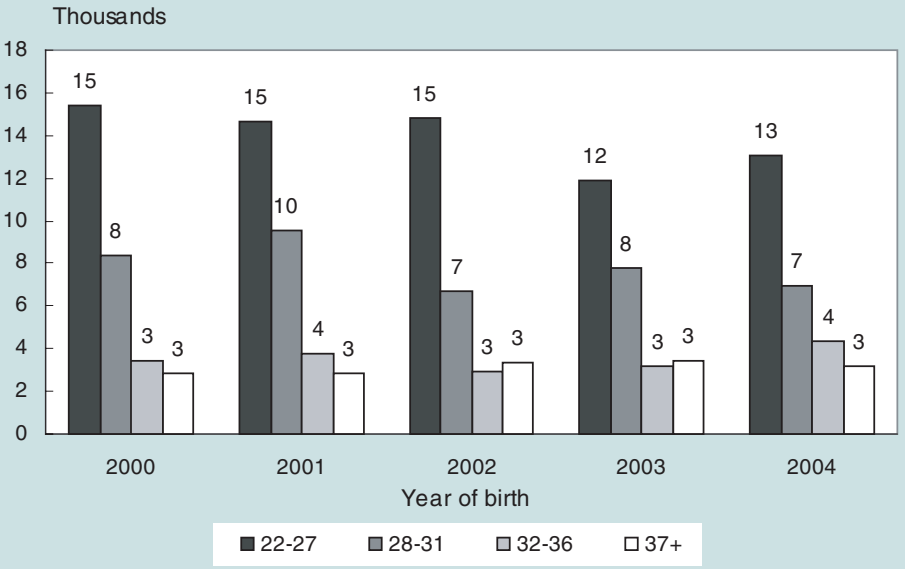
**NICUS REGISTRANTS BY TOTAL NUMBER OF DAYS OF ASSISTED VENTILATION AND GESTATIONAL AGE, NSW & ACT 2004**




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 2000–2004**




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

**TABLE 99**

**NICUS REGISTRANTS BY SERVICE UTILISATION INDICATORS AND GESTATIONAL AGE, NSW & ACT 2004**

| Indicators | Gestational age (weeks) | | | | |
|---|---|---|---|---|---|
| | 23–27 | 28–31 | 32–36 | 37+ | TOTAL |
| Non-tertiary hospital stay (days) | | | | | |
| Minimum | 0 | 0 | 0 | 0 | 0 |
| Maximum | 95 | 99 | 160 | 336 | 336 |
| Sum | 2327 | 10552 | 6881 | 1582 | 21342 |
| Median | 0 | 16 | 4 | 0 | 1 |
| 25th percentile | 0 | 0 | 0 | 0 | 0 |
| 75th percentile | 14 | 29 | 16 | 3 | 17 |
| Tertiary hospital stay (days) | | | | | |
| Minimum | 0 | 0 | 0 | 0 | 0 |
| Maximum | 394 | 403 | 642 | 322 | 642 |
| Sum | 17525 | 22352 | 14639 | 8336 | 62852 |
| Median | 72 | 29 | 12 | 9 | 16 |
| 25th percentile | 36 | 15 | 7 | 5 | 7 |
| 75th percentile | 92 | 48 | 21 | 18 | 37 |
| Total hospital stay (days) | | | | | |
| Minimum | 0 | 1 | 1 | 1 | 0 |
| Maximum | 394 | 448 | 642 | 440 | 642 |
| Sum | 19852 | 32824 | 21498 | 9899 | 84073 |
| Median | 79 | 47 | 23 | 11 | 29 |
| 25th percentile | 60 | 38 | 16 | 6 | 0 |
| 75th percentile | 98 | 60 | 33 | 20 | 50 |
| Mechanical ventilation (days) | | | | | |
| Minimum | 0 | 0 | 0 | 0 | 0 |
| Maximum | 191 | 90 | 217 | 43 | 21 |
| Sum | 3415 | 1420 | 1461 | 1457 | 7753 |
| Median | 5 | 0 | 0 | 1 | 1 |
| 25th percentile | 1 | 0 | 0 | 0 | 0 |
| 75th percentile | 18 | 1 | 1 | 3 | 3 |
| Continuous Positive Airways Pressure (days) | | | | | |
| Minimum | 0 | 0 | 0 | 0 | 0 |
| Maximum | 155 | 83 | 132 | 35 | 155 |
| Sum | 5675 | 3117 | 1601 | 411 | 10804 |
| Median | 19 | 2 | 1 | 0 | 1 |
| 25th percentile | 4 | 0 | 0 | 0 | 0 |
| 75th percentile | 33 | 5 | 2 | 1 | 3 |
| Assisted ventilation (days) | | | | | |
| Minimum | 0 | 0 | 0 | 0 | 0 |
| Maximum | 345 | 164 | 315 | 56 | 345 |
| Sum | 9090 | 4537 | 3062 | 1868 | 18557 |
| Median | 31 | 3 | 2 | 2 | 2 |
| 25th percentile | 11 | 1 | 0 | 0 | 0 |
| 75th percentile | 50 | 8 | 4 | 4 | 6 |
| Oxygen (days) | | | | | |
| Minimum | 0 | 0 | 0 | 0 | 0 |
| Maximum | 274 | 193 | 317 | 245 | 317 |
| Sum | 13098 | 6960 | 4330 | 3187 | 27575 |
| Median | 35 | 2 | 2 | 2 | 3 |
| 25th percentile | 7 | 1 | 1 | 1 | 1 |
| 75th percentile | 80 | 9 | 5 | 7 | 8 |

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

**TABLE 100**

**NICUS REGISTRANTS BY HOME OXYGEN ADMINISTRATION AND GESTATIONAL AGE, NSW & ACT 2000–2004#**

| Year | Home oxygen | Gestational age (weeks) 22–27 | | 28–31 | | 32–36 | | 37+ | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. | % | No. | % | No. | % | No. | % | No. | % |
| 2000 | No | 211 | 80.5 | 557 | 97.4 | 519 | 98.7 | 306 | 98.7 | 1593 | 95.4 |
| | Yes | 51 | 19.5 | 15 | 2.6 | 7 | 1.3 | 4 | 1.3 | 77 | 4.6 |
| | TOTAL | 262 | 100.0 | 572 | 100.0 | 526 | 100.0 | 310 | 100.0 | 1670 | 100.0 |
| 2001 | No | 217 | 81.3 | 579 | 95.2 | 524 | 99.8 | 276 | 98.9 | 1596 | 95.1 |
| | Yes | 50 | 18.7 | 29 | 4.8 | 1 | 0.2 | 3 | 1.1 | 83 | 4.9 |
| | TOTAL | 267 | 100.0 | 608 | 100.0 | 525 | 100.0 | 279 | 100.0 | 1679 | 100.0 |
| 2002 | No | 210 | 78.4 | 541 | 97.7 | 551 | 99.5 | 283 | 98.3 | 1585 | 95.3 |
| | Yes | 58 | 21.6 | 13 | 2.3 | 3 | 0.5 | 5 | 1.7 | 79 | 4.7 |
| | TOTAL | 268 | 100.0 | 554 | 100.0 | 554 | 100.0 | 288 | 100.0 | 1664 | 100.0 |
| 2003 | No | 200 | 85.1 | 556 | 95.9 | 610 | 99.7 | 371 | 99.5 | 1737 | 96.5 |
| | Yes | 35 | 14.9 | 24 | 4.1 | 2 | 0.3 | 2 | 0.5 | 63 | 3.5 |
| | TOTAL | 235 | 100.0 | 580 | 100.0 | 612 | 100.0 | 373 | 100.0 | 1800 | 100.0 |
| 2004 | No | 194 | 81.5 | 589 | 98.0 | 644 | 99.7 | 358 | 99.7 | 1785 | 96.8 |
| | Yes | 44 | 18.5 | 12 | 2.0 | 2 | 0.3 | 1 | 0.3 | 59 | 3.2 |
| | TOTAL | 238 | 100.0 | 601 | 100.0 | 646 | 100.0 | 359 | 100.0 | 1844 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies excluded.

*(Continued from page 72)*

## Survival

Infants with a major congenital anomaly have been excluded from the analysis of survival, with the exception of data reported in Table 104.

The 6 month survival rate for all infants without a major congenital anomaly in the 2004 cohort was 94.4 per cent (range 87.8 per cent in 1992 to 94.4 per cent in 2004). Survival of infants born at less than 25 weeks gestation was 50 per cent (range 33.3 per cent in 2003 to 54.8 per cent in 1993). There was a trend for survival to improve with gestational age (Figure 12 and Table 101). There was no difference in the survival rate between term (94.4 per cent) and preterm infants (94.3 per cent). Among infants who died, 75 per cent of deaths occurred during the first week of life (range 62.5 per cent in 1998 to 76.2 per cent in 2002) with a further 18.3 per cent occurring during the first month of life (Table 101).

The 6 month survival rate improved with increasing birth weight, ranging from 30.4 per cent for infants in the 500–599 gram group to 91 per cent for the 900–999 gram group. Six-month survival continued to improve with increasing birth weight to a maximum of 98.3 per cent for infants of 2,000–2,499 grams birth weight and then decreased slightly (Table 102).

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 2004, place of birth did not significantly affect survival for infants in any of the gestational age groups (Table 103).

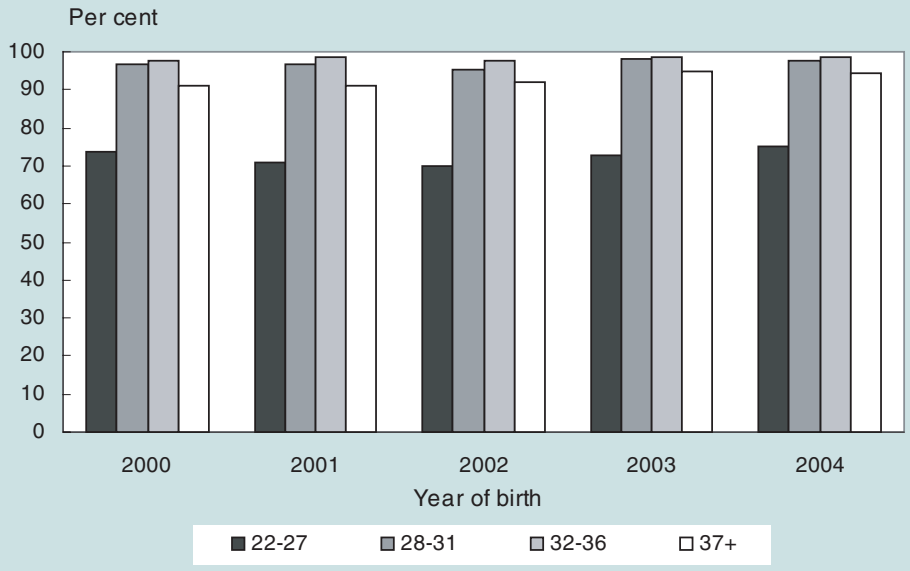
The 6 month survival rate was similar for males (94.8 per cent) and females (93.7 per cent) overall, and for all gestational age groups: less than 28 weeks (76 per cent versus 74.3 per cent); 28–31 weeks (97.2 per cent versus 97.8 per cent); 32–36 weeks (98.7 per cent versus 98 per cent); and 37–41 weeks gestation groups (95.2 per cent versus 93 per cent).

The 6 month survival rate was 93.8 per cent (n=1,410) for singleton infants and 96.3 per cent (n=434) for multiple gestation infants. Plurality did not influence survival in infants 28–36 weeks gestational age. In 2004 the survival rate for infants in the less than 28 week gestation group was higher for infants born of a multiple (58/73; 79.5 per cent) than a singleton pregnancy (121/ 165; 73.3 per cent); this was due to the high survival rate (31/33; 93.9 per cent) of infants born of multiple pregnancies at 27 weeks who accounted for almost half of the multiples in the 23–27 week gestational age group.

As expected the overall survival rate was generally lower (82.7 per cent) in the presence of a major congenital anomaly (Table 104).

**FIGURE 12**

**NICUS REGISTRANTS BY 6-MONTHS SURVIVAL AND GESTATIONAL AGE, NSW & ACT 2000–2004#**




Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies excluded.

Post-mortem examinations were performed on 31/104 infants (29.8 per cent) who died in the 2004 cohort (Figure 13 and Table 105). Post-mortem examinations were most commonly not requested for infants 23–27 weeks gestation (52.5 per cent). The highest rate of refusal was in the 32–36 week group (40 per cent) and the highest rate of post-mortems done was in the 28-31 week (46.7 per cent) and over 37 week group (45 per cent).

**TABLE 101**

**NICUS REGISTRANTS BY DURATION OF SURVIVAL AND GESTATIONAL AGE, NSW & ACT 2004#**

| Gestational age (weeks) | Alive at 6 months | | Age at death (days) 0–7 | | 8–28 | | 28+ | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| 23 | 3 | 30.0 | 6 | 60.0 | 0 | 0.0 | 1 | 10.0 | 10 | 0.5 |
| 24 | 15 | 57.7 | 7 | 26.9 | 4 | 15.4 | 0 | 0.0 | 26 | 1.4 |
| 25 | 31 | 66.0 | 12 | 25.5 | 2 | 4.3 | 2 | 4.3 | 47 | 2.5 |
| 26 | 52 | 76.5 | 11 | 16.2 | 3 | 4.4 | 2 | 2.9 | 68 | 3.7 |
| 27 | 78 | 89.7 | 7 | 8.0 | 1 | 1.1 | 1 | 1.1 | 87 | 4.7 |
| 28 | 88 | 91.7 | 7 | 7.3 | 1 | 1.0 | 0 | 0.0 | 96 | 5.2 |
| 29 | 128 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 128 | 6.9 |
| 30 | 178 | 97.8 | 2 | 1.1 | 2 | 1.1 | 0 | 0.0 | 182 | 9.9 |
| 31 | 192 | 98.5 | 3 | 1.5 | 0 | 0.0 | 0 | 0.0 | 195 | 10.6 |
| 32 | 196 | 99.5 | 0 | 0.0 | 1 | 0.5 | 0 | 0.0 | 197 | 10.7 |
| 33 | 123 | 98.4 | 2 | 1.6 | 0 | 0.0 | 0 | 0.0 | 125 | 6.8 |
| 34 | 131 | 98.5 | 0 | 0.0 | 1 | 0.8 | 1 | 0.8 | 133 | 7.2 |
| 35 | 98 | 98.0 | 2 | 2.0 | 0 | 0.0 | 0 | 0.0 | 100 | 5.4 |
| 36 | 88 | 96.7 | 2 | 2.2 | 1 | 1.1 | 0 | 0.0 | 91 | 4.9 |
| 37 | 78 | 96.3 | 3 | 3.7 | 0 | 0.0 | 0 | 0.0 | 81 | 4.4 |
| 38 | 78 | 95.1 | 2 | 2.4 | 2 | 2.4 | 0 | 0.0 | 82 | 4.4 |
| 39 | 59 | 96.7 | 2 | 3.3 | 0 | 0.0 | 0 | 0.0 | 61 | 3.3 |
| 40 | 81 | 94.2 | 4 | 4.7 | 1 | 1.2 | 0 | 0.0 | 86 | 4.7 |
| 41 | 40 | 87.0 | 6 | 13.0 | 0 | 0.0 | 0 | 0.0 | 46 | 2.5 |
| 42 | 3 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.2 |
| TOTAL | 1740 | 94.4 | 78 | 4.2 | 19 | 1.0 | 7 | 0.4 | 1844 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies excluded.

**TABLE 102**

**NICUS REGISTRANTS BY DURATION OF SURVIVAL AND BIRTH WEIGHT, NSW & ACT 2004#**

| Birth weight (grams) | Alive at 5 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 | 2 | 40.0 | 2 | 40.0 | 1 | 20.0 | 0 | 0.0 | 5 | 0.3 |
| 500–599 | 7 | 30.4 | 10 | 43.5 | 3 | 13.0 | 3 | 13.0 | 23 | 1.2 |
| 600–699 | 22 | 68.8 | 10 | 31.3 | 0 | 0.0 | 0 | 0.0 | 32 | 1.7 |
| 700–799 | 36 | 78.3 | 5 | 10.9 | 4 | 8.7 | 1 | 2.2 | 46 | 2.5 |
| 800–899 | 48 | 82.8 | 9 | 15.5 | 1 | 1.7 | 0 | 0.0 | 58 | 3.1 |
| 900–999 | 61 | 91.0 | 4 | 6.0 | 1 | 1.5 | 1 | 1.5 | 67 | 3.6 |
| 1,000–1,249 | 194 | 96.0 | 6 | 3.0 | 1 | 0.5 | 1 | 0.5 | 202 | 11.0 |
| 1,250–1,499 | 257 | 97.3 | 6 | 2.3 | 1 | 0.4 | 0 | 0.0 | 264 | 14.3 |
| 1,500–1,749 | 235 | 98.3 | 4 | 1.7 | 0 | 0.0 | 0 | 0.0 | 239 | 13.0 |
| 1,750–,999 | 151 | 98.1 | 2 | 1.3 | 1 | 0.6 | 0 | 0.0 | 154 | 8.4 |
| 2,000–2,499 | 234 | 98.3 | 2 | 0.8 | 2 | 0.8 | 0 | 0.0 | 238 | 12.9 |
| 2,500–2,999 | 197 | 96.6 | 4 | 2.0 | 2 | 1.0 | 1 | 0.5 | 204 | 11.1 |
| 3,000–3,499 | 140 | 95.2 | 5 | 3.4 | 2 | 1.4 | 0 | 0.0 | 147 | 8.0 |
| 3,500–3,999 | 94 | 96.9 | 3 | 3.1 | 0 | 0.0 | 0 | 0.0 | 97 | 5.3 |
| 4,000+ | 62 | 92.5 | 5 | 7.5 | 0 | 0.0 | 0 | 0.0 | 67 | 3.6 |
| TOTAL | 1740 | 94.4 | 78 | 4.2 | 19 | 1.0 | 7 | 0.4 | 1844 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies excluded.

**TABLE 103**

**NICUS REGISTRANTS BY DURATION OF SURVIVAL, PLACE OF BIRTH AND GESTATIONAL AGE, NSW & ACT 2004[#]**

| 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 | 22 | 78.6 | 6 | 21.4 | 0 | 0.0 | 0 | 0.0 | 28 | 11.8 |
| | Tertiary | 157 | 74.8 | 37 | 17.6 | 10 | 4.8 | 6 | 2.9 | 210 | 88.2 |
| | Sub-total | 179 | 75.2 | 43 | 18.1 | 10 | 4.2 | 6 | 2.5 | 238 | 100.0 |
| 28–31 | Non tertiary | 49 | 94.2 | 3 | 5.8 | 0 | 0.0 | 0 | 0.0 | 52 | 8.7 |
| | Tertiary | 531 | 97.8 | 9 | 1.7 | 3 | 0.6 | 0 | 0.0 | 543 | 91.3 |
| | Sub-total | 580 | 97.5 | 12 | 2.0 | 3 | 0.5 | 0 | 0.0 | 595 | 100.0 |
| 32–36 | Non tertiary | 169 | 97.1 | 2 | 1.1 | 2 | 1.1 | 1 | 0.6 | 174 | 27.0 |
| | Tertiary | 465 | 98.9 | 4 | 0.9 | 1 | 0.2 | 0 | 0.0 | 470 | 73.0 |
| | Sub-total | 634 | 98.4 | 6 | 0.9 | 3 | 0.5 | 1 | 0.2 | 644 | 100.0 |
| 37–41 | Non tertiary | 181 | 95.3 | 8 | 4.2 | 1 | 0.5 | 0 | 0.0 | 190 | 53.8 |
| | Tertiary | 152 | 93.3 | 9 | 5.5 | 2 | 1.2 | 0 | 0.0 | 163 | 46.2 |
| | Sub-total | 333 | 94.3 | 17 | 4.8 | 3 | 0.8 | 0 | 0.0 | 353 | 100.0 |
| 42+ | Non tertiary | 1 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 33.3 |
| | Tertiary | 2 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 66.7 |
| | Sub-total | 3 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 100.0 |
| TOTAL | | 1729 | 94.3 | 78 | 4.3 | 19 | 1.0 | 7 | 0.4 | 1833 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies excluded. Babies born before arrival excluded.

**TABLE 104**

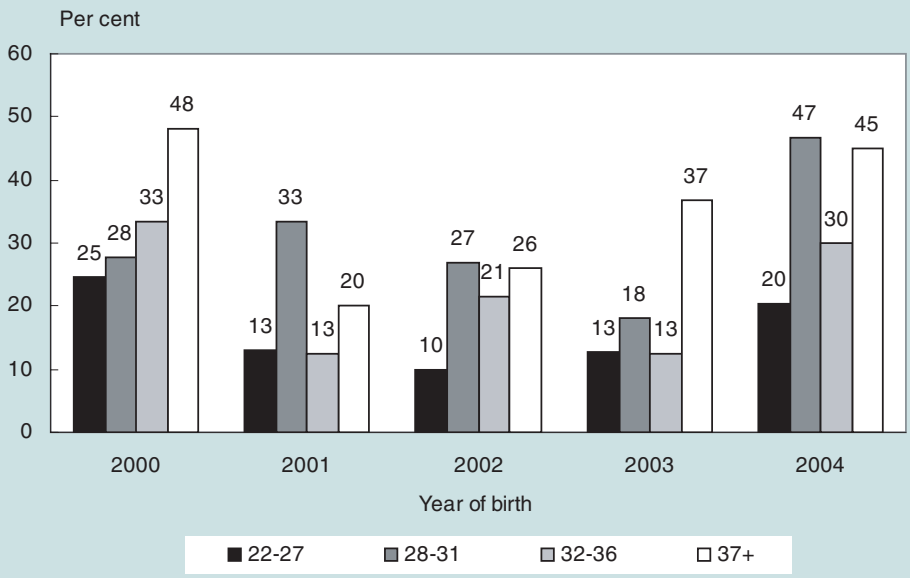
**NICUS REGISTRANTS BY DURATION OF SURVIVAL, MAJOR CONGENITAL ANOMALY AND GESTATIONAL AGE, NSW & ACT 2004**

| Gestational age (weeks) | Major congenital anomaly | Alive at 6 months | | Age at death (days) 0–7 | | 8–28 | | 28+ | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. | % | No. | % | No. | % | No. | % | No. | % |
| 23–27 | No | 79 | 75.2 | 43 | 18.1 | 10 | 4.2 | 6 | 2.5 | 238 | 90.5 |
| | Yes | 19 | 76.0 | 2 | 8.0 | 0 | 0.0 | 4 | 16.0 | 25 | 9.5 |
| | Sub-total | 198 | 75.3 | 45 | 17.1 | 10 | 3.8 | 10 | 3.8 | 263 | 100.0 |
| 28–31 | No | 586 | 97.5 | 12 | 2.0 | 3 | 0.5 | 0 | 0.0 | 601 | 92.7 |
| | Yes | 40 | 85.1 | 3 | 6.4 | 0 | 0.0 | 4 | 8.5 | 47 | 7.3 |
| | Sub-total | 626 | 96.6 | 15 | 2.3 | 3 | 0.5 | 4 | 0.6 | 648 | 100.0 |
| 32–36 | No | 636 | 98.5 | 6 | 0.9 | 3 | 0.5 | 1 | 0.2 | 646 | 84.7 |
| | Yes | 89 | 76.1 | 17 | 14.5 | 5 | 4.3 | 6 | 5.1 | 117 | 15.3 |
| | Sub-total | 725 | 95.1 | 23 | 3.0 | 8 | 1.0 | 7 | 0.9 | 763 | 100.0 |
| 37–41 | No | 336 | 94.4 | 17 | 4.8 | 3 | 0.8 | 0 | 0.0 | 356 | 64.4 |
| | Yes | 172 | 87.3 | 14 | 7.1 | 3 | 1.5 | 8 | 4.1 | 197 | 35.6 |
| | Sub-total | 508 | 91.9 | 31 | 5.6 | 6 | 1.1 | 8 | 1.4 | 553 | 100.0 |
| 42+ | No | 3 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 75.0 |
| | Yes | 0 | 0.0 | 1 | 100.0 | 0 | 0.0 | 0 | 0.0 | 1 | 25.0 |
| | Sub-total | 3 | 75.0 | 1 | 25.0 | 0 | 0.0 | 0 | 0.0 | 4 | 100.0 |
| TOTAL | | 2060 | 92.4 | 115 | 5.2 | 27 | 1.2 | 29 | 1.3 | 2231 | 100.0 |

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

**FIGURE 13**

**NICUS REGISTRANT DEATHS BY POST-MORTEM EXAMINATION AND GESTATIONAL AGE, NSW & ACT 2000–2004#**




Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies excluded.

**TABLE 105**

**NICUS REGISTRANTS BY POST-MORTEM EXAMINATION AND GESTATIONAL AGE, NSW & ACT 2004#**

| Post-mortem | Gestational age (weeks) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 23–27 | | 28–31 | | 32–36 | | 37+ | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Not requested | 31 | 52.5 | 3 | 20.0 | 3 | 30.0 | 4 | 20.0 | 41 | 39.4 |
| Refused | 16 | 27.1 | 5 | 33.3 | 4 | 40.0 | 7 | 35.0 | 32 | 30.8 |
| Done | 12 | 20.3 | 7 | 46.7 | 3 | 30.0 | 9 | 45.0 | 31 | 29.8 |
| TOTAL | 59 | 100.0 | 15 | 100.0 | 10 | 100.0 | 20 | 100.0 | 104 | 100.0 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.
# Babies with major congenital anomalies excluded.

# 9. EXTREMELY PRE-TERM FOLLOW UP

This is the first time that follow up of infants 22–28 weeks gestation has been reported in the Mothers and Babies Report. 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 NSW or the ACT who survived to hospital discharge were enrolled in the follow up clinic at their registration hospital. Table 106 shows the health area of mother's residence at birth of the 1591 infants who were born between 1 January 1998 and 31 December 2001. The majority of liveborn infants were admitted to a neonatal intensive care unit in all aealth areas.

Overall 1,790/2,595 (69.0 per cent) infants were liveborn, 1,591/1,790 (88.9 per cent) were admitted to a neonatal intensive care unit, 1,236/1,591 (77.7 per cent) survived to hospital discharge, 22/1,236 (1.8 per cent) died post-discharge (Table 107). Live births increased with increasing gestational age from 36.7 per cent at 22 weeks gestation to 88.2 per cent at 28 weeks gestation. Similarly admission to a neonatal intensive care unit increased from 3.5 per cent at 22 weeks gestation to 98.0 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 92.2 per cent at 28 weeks gestation.

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 1,214 children available for follow up at 2–3 years of age, corrected for prematurity, of these 249 children were not followed up (16 families moved overseas, 17 families moved interstate, and 216 were either lost to follow up or refused the appointment). The follow up rate at 2–3 years of age, corrected for prematurity was 965 (79.5 per cent) children.

**TABLE 106**

**NICUS REGISTRATIONS BY HEALTH AREA OF RESIDENCE, NSW & ACT 1998–2001**

| Health Area | Total NICUS Registrants | | Total NSW & ACT Live births | Registrants per 1,000 live births |
|---|---|---|---|---|
| | No. | % | No. | |
| Sydney South West | 349 | 21.9 | 390 | 894.9 |
| South Eastern Sydney & Illawarra | 224 | 14.1 | 255 | 878.4 |
| Sydney West | 260 | 16.3 | 289 | 899.7 |
| Northern Sydney & Central Coast | 230 | 14.5 | 250 | 920.0 |
| Hunter & New England | 232 | 14.6 | 243 | 954.7 |
| North Coast | 36 | 2.3 | 59 | 610.2 |
| Greater Southern | 94 | 5.9 | 106 | 886.8 |
| Greater Western | 80 | 5.0 | 92 | 869.6 |
| ACT | 79 | 5.0 | 92 | 858.7 |
| Interstate | 5 | 0.4 | 12 | 416.7 |
| Overseas | 2 | 0.1 | 2 | 1000.0 |
| TOTAL | 1591 | 100.0 | 1790# | 888.8 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research. NSW Midwives Data Collection 1998–2001. Centre for Epidemiology and Research, NSW Department of Health. ACT Maternal Perinatal Data Collection 1998–2001, ACT Health.
# Excludes 15 babies for whom the birth outcome was not known.

**TABLE 107**

**BIRTHS BY NICUS REGISTRATION, HOSPITAL SURVIVAL AND GESTATIONAL AGE, NSW & ACT 1998–2001**

| Gestational age (weeks) | Total births | NSW & ACT Stillbirths | | Live births | | NICUS Registrations | | Hospital Survival | | Died Post-discharge | | Available 2–3 years | Refused/ Lost | Assessed Available | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | No. | % | No. | % | No. | % | No. | % | No. | % | No. | No. | No. | % |
| 22 | 313 | 198 | 63.3 | 115 | 36.7 | 4 | 3.5 | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| 23 | 271# | 149 | 55.2 | 121 | 44.8 | 63 | 52.1 | 18 | 28.6 | 1 | 5.5 | 17 | 3 | 14 | 82.4 |
| 24 | 335 | 128 | 38.2 | 207 | 61.8 | 180 | 87.0 | 89 | 49.4 | 1 | 1.1 | 88 | 10 | 78 | 88.6 |
| 25 | 315 | 86 | 27.3 | 229 | 72.7 | 222 | 96.9 | 141 | 63.5 | 0 | 0.0 | 141 | 13 | 128 | 90.8 |
| 26 | 410# | 94 | 23.0 | 315 | 77.0 | 322 | | 254 | 78.9 | 9 | 3.5 | 245 | 44 | 201 | 82.0 |
| 27 | 423# | 74 | 17.6 | 346 | 82.4 | 337 | 97.4 | 307 | 91.1 | 5 | 1.6 | 302 | 70 | 232 | 76.8 |
| 28 | 528# | 61 | 11.8 | 457 | 88.2 | 463 | | 427 | 92.2 | 6 | 1.4 | 421 | 109 | 312 | 74.1 |
| TOTAL | 2595 | 790# | 30.6 | 1790# | 69.4 | 1591 | 88.9 | 1236 | 77.7 | 22 | 1.8 | 1214 | 249 | 965 | 79.5 |

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research. NSW Midwives Data Collection 1998–2001. Centre for Epidemiology and Research, NSW Department of Health. ACT Maternal Perinatal Data Collection 1998-2001, ACT Health.
# Excludes 15 babies for whom the birth outcome was not known.

## Assessment and tools

Children were assessed by the developmental assessment team (91 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 (7 per cent) or general practitioner (2 per cent) examined the child. The median (25th, 75th) age of assessment was 35.6 (29.1, 36.9) 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-II performed by a psychologist or a developmental paediatrician.

## Developmental outcome

Of the 965 children with information at 2-3 years of age, corrected for prematurity, 912 (94.5 per cent) had a neurological examination performed. Of these 100 (11.0 per cent) had cerebral palsy. A further 57 (6.3 per cent) children had motor incoordination. The proportion of children with cerebral palsy (mild n=44, moderate n=25 or severe n=31) and motor incoordination decreased with increasing gestational age (Table 108).

Of the 965 children with information at 2–3 years of age, corrected for prematurity, 606 (62.8 per cent) had their eyes examined by an ophthalmologist or optometrist post discharge from hospital. Of these 7 (1.2 per cent) children were bilaterally blind with a visual acuity of less than 6/60 in the better eye. Another 87 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 109).

**TABLE 108**

**NEUROLOGICAL STATUS AT 2–3 YEAR FOLLOW UP BY GESTATIONAL AGE, NSW & ACT 1998–2001**

| Gestational age (weeks) | Neurological examination Performed | | Normal | | Motor Incoordination | | Cerebral Palsy | | Total Infants | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| 23 | 14 | 100.0 | 7 | 50.0 | 5 | 35.7 | 2 | 14.3 | 14 | 100.0 |
| 24 | 77 | 98.7 | 60 | 77.9 | 7 | 9.1 | 10 | 13.0 | 78 | 100.0 |
| 25 | 125 | 97.7 | 93 | 74.4 | 13 | 10.4 | 19 | 15.2 | 128 | 100.0 |
| 26 | 193 | 96.0 | 158 | 82.3 | 10 | 5.2 | 25 | 13.0 | 201 | 100.0 |
| 27 | 219 | 94.4 | 191 | 87.2 | 9 | 4.1 | 19 | 8.7 | 232 | 100.0 |
| 28 | 284 | 91.0 | 246 | 86.6 | 13 | 4.6 | 25 | 8.8 | 312 | 100.0 |
| TOTAL | 912 | 94.5 | 755 | 82.9 | 57 | 6.3 | 100 | 11.0 | 965 | 100.0 |

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

**TABLE 109**

**VISUAL STATUS AT 2–3 YEAR FOLLOW UP BY GESTATIONAL AGE, NSW & ACT 1998–2001**

| Gestational age (weeks) | Visual examination Performed | | Visual Problems# | | Bilateral Blind | | Total Infants | |
|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % |
| 23 | 13 | 92.9 | 5 | 38.5 | 2 | 15.4 | 14 | 100.0 |
| 24 | 67 | 85.9 | 14 | 20.9 | 1 | 1.5 | 78 | 100.0 |
| 25 | 105 | 82.0 | 24 | 22.9 | 1 | 1.0 | 128 | 100.0 |
| 26 | 139 | 69.2 | 16 | 11.5 | 0 | 0.0 | 201 | 100.0 |
| 27 | 94 | 40.5 | 13 | 13.8 | 0 | 0.0 | 232 | 100.0 |
| 28 | 204 | 65.4 | 15 | 7.4 | 3 | 1.5 | 312 | 100.0 |
| TOTAL | 606 | 62.8 | 87 | 14.4 | 7 | 1.2 | 965 | 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, and corrective lenses

Of the 965 children with information at 2–3 years of age, corrected for prematurity, 773 (80.1 per cent) had their hearing tested by an audiologist post discharge from hospital. Of these 40 (5.2 per cent) required bilateral hearing aids or unilateral/bilateral cochlear implants. Another 79 (10.2 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 110).

Of the 965 children with information at 2–3 years of age, corrected for prematurity, 809 (83.8 per cent) had a standardised psychological test performed. The majority of children, 609 (85.7 per cent) were assessed using the Griffiths Mental Development Scales, 17 (1.8 per cent) using the Bayley Scales of Development-II and 18 using the Reynell-Zinkin Scales for Visually Impaired Children, Vineland Adaptive Behaviour Scales, Denver Developmental Scales. The proportion of children with a mild (n=99, 12.2 per cent), moderate (n=46, 5.7 per cent) or severe (n=41, 5.1 percent) developmental delay decreased with increasing gestational age (Table 111).

Table 112 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=114, 11.8 per cent), moderate (83, n=8.6 per cent) or severe (n=70, 7.2 per cent) functional disability decreased and concomitantly the proportion of children with no apparent disability increased.

**TABLE 110**

**HEARING STATUS AT 2–3 YEAR FOLLOW UP BY GESTATIONAL AGE, NSW & ACT 1998–2001**

| Gestational age (weeks) | Hearing examination Performed | | Hearing Problems# | | Bilateral Deafness | | Total Infants | |
|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % |
| 23 | 14 | 100.0 | 1 | 7.1 | 1 | 7.1 | 14 | 100.0 |
| 24 | 66 | 84.6 | 9 | 13.6 | 9 | 13.6 | 78 | 100.0 |
| 25 | 98 | 76.6 | 13 | 13.3 | 5 | 5.1 | 128 | 100.0 |
| 26 | 169 | 84.1 | 21 | 12.4 | 13 | 7.7 | 201 | 100.0 |
| 27 | 177 | 76.3 | 20 | 11.3 | 6 | 3.4 | 232 | 100.0 |
| 28 | 249 | 79.8 | 17 | 6.8 | 6 | 2.4 | 312 | 100.0 |
| TOTAL | 773 | 80.1 | 79 | 10.2 | 40 | 5.2 | 965 | 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 111**

**DEVELOPMENTAL STATUS AT 2–3 YEAR FOLLOW UP BY GESTATIONAL AGE, NSW & ACT 1998–2001**

| Gestational age | Psychological assessment Performed | | Normal | | Developmental delay Mild | | Moderate | | Severe | | Total Infants | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| 23 | 12 | 85.7 | 6 | 50.0 | 2 | 16.7 | 3 | 25.0 | 1 | 8.3 | 14 | 100.0 |
| 24 | 66 | 84.6 | 40 | 60.6 | 11 | 16.7 | 7 | 10.6 | 8 | 12.1 | 78 | 100.0 |
| 25 | 115 | 89.8 | 74 | 64.3 | 18 | 15.7 | 7 | 6.1 | 16 | 13.9 | 128 | 100.0 |
| 26 | 167 | 83.1 | 132 | 79.0 | 17 | 10.2 | 13 | 7.8 | 5 | 3.0 | 201 | 100.0 |
| 27 | 193 | 83.2 | 154 | 79.8 | 25 | 13.0 | 8 | 4.1 | 6 | 3.1 | 232 | 100.0 |
| 28 | 256 | 82.1 | 217 | 84.8 | 26 | 10.2 | 8 | 3.1 | 5 | 2.0 | 312 | 100.0 |
| TOTAL | 809 | 83.8 | 623 | 77.0 | 99 | 12.2 | 46 | 5.7 | 41 | 5.1 | 965 | 100.0 |

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

Of the 965 children with information at 2-3 years of age, corrected for prematurity, 153 (15.9 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.

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 (11.8 per cent versus 2 per cent), moderate (8.6 per cent versus 1 per cent) or severe (7.2 per cent versus 0.5 per cent) functional disability than the term control children. This represented an increased risk of mild (6 times higher), moderate (9 times higher) or severe (14 times higher) functional disability in 23–28 week prematurely born children.

## Weight for age

Of the children with a weight recorded 116 (13.4 per cent) were less than 3rd centile, 113 (13.1 per cent) were between the 3rd and 9th centile, 558 (64.5 per cent) were appropriately grown and 78 (9.0 per cent) had a weight above the 90th centile for sex and age (Table 113).

## 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, Australia. 2001: P139).


**TABLE 112**

**SEVERITY OF FUNCTIONAL DISABILITY AT 2–3 YEAR FOLLOW UP BY GESTATIONAL AGE, NSW & ACT 1998–2001**

| Gestational age (weeks) | Severity of functional disability | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | None | | Mild | | Moderate | | Severe | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| 23 | 5 | 35.7 | 2 | 14.3 | 2 | 14.3 | 5 | 35.7 | 14 | 100.0 |
| 24 | 40 | 51.3 | 11 | 14.1 | 12 | 15.4 | 15 | 19.2 | 78 | 100.0 |
| 25 | 81 | 63.3 | 20 | 15.6 | 10 | 7.8 | 17 | 13.3 | 128 | 100.0 |
| 26 | 145 | 72.5 | 19 | 9.5 | 22 | 11.0 | 15 | 7.0 | 201 | 100.0 |
| 27 | 174 | 75.0 | 33 | 14.2 | 16 | 6.9 | 9 | 3.9 | 232 | 100.0 |
| 28 | 253 | 81.1 | 29 | 9.3 | 21 | 6.7 | 9 | 2.9 | 312 | 100.0 |
| TOTAL | 698 | 72.4 | 114 | 11.8 | 83 | 8.6 | 70 | 7.2 | 965 | 100.0 |

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

**TABLE 113**

**WEIGHT FOR AGE AT 2–3 YEAR FOLLOW UP BY GESTATIONAL AGE, NSW & ACT 1998–2001**

| Gestational age (weeks) | Weight for age centile | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | <3 | | 3–9 | | 10–90 | | >90 | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % with weight |
| 23 | 1 | 8.3 | 1 | 8.3 | 8 | 66.7 | 2 | 16.7 | 12 | 85.7 |
| 24 | 10 | 15.2 | 17 | 25.8 | 36 | 54.6 | 3 | 4.6 | 66 | 84.6 |
| 25 | 23 | 19.8 | 18 | 15.5 | 66 | 56.9 | 9 | 7.8 | 116 | 90.6 |
| 26 | 32 | 17.4 | 30 | 16.3 | 105 | 57.1 | 17 | 9.2 | 184 | 91.5 |
| 27 | 19 | 9.4 | 23 | 11.4 | 146 | 72.3 | 14 | 6.9 | 202 | 87.1 |
| 28 | 31 | 10.9 | 24 | 8.4 | 197 | 69.1 | 33 | 11.6 | 285 | 91.3 |
| TOTAL | 116 | 13.4 | 113 | 13.1 | 558 | 64.5 | 78 | 9.0 | 865 | 89.6 |

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

# 10. BIRTH DEFECTS

## Birth defects among stillborn and liveborn 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). The quality of information received by the BDR has improved since 1998, particularly in relation to pregnancy outcome.

This chapter reports birth defects detected during pregnancy or in the first year of life for 1998–2003 and birth defects detected during pregnancy or at birth for 2004.

## Trends in reported birth defects

Between 1998 and 2004, the reported number of infants with birth defects has remained stable at just over 2 per cent (Table 114). In 2004, 997 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 115. 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 1998–2004, defects of the cardiovascular system were most commonly reported, followed by defects of the musculoskeletal system and defects of the genito-urinary system (Table 115). This is a similar pattern to previous years. In 2003, the overall rate of defects was lower than the previous 5 years (35.4 versus 38.1 per 1,000), due to a lower overall birth defect rate among infants.

**TABLE 114**

**BIRTH DEFECT CASES, NSW 1998–2004#**

| Year | Birth defect cases | Births | Rate/1,000 births |
|---|---|---|---|
| 1998 | 1941 | 85627 | 22.7 |
| 1999 | 1828 | 86468 | 21.1 |
| 2000 | 1858 | 87279 | 21.3 |
| 2001 | 1775 | 85285 | 20.8 |
| 2002 | 1739 | 85398 | 20.4 |
| 2003 | 1761 | 85853 | 20.5 |
| 2004 | 997 | 85016 | 11.7 |

Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.
# For 1998–2003, cases reported during pregnancy and up to one year of age are included. For 2004, cases reported during pregnancy or at birth are reported.

**TABLE 115**

**BIRTH DEFECTS AMONG STILLBIRTHS AND LIVE BIRTHS BY DIAGNOSTIC CATEGORY, NSW 1998–2004**

| Diagnostic category | No. defects | | | | Rate/1,000 births | | | |
|---|---|---|---|---|---|---|---|---|
| | 1998–2002 | 2003 | 2004 | 1998–2004 | 1998–2002 | 2003 | 2004 | 1998–2004 |
| **Defects of nervous system** | | | | | | | | |
| Anencephaly | 49 | 11 | 6 | 66 | 0.1 | 0.1 | 0.1 | 0.1 |
| Spina Bifida | 140 | 25 | 21 | 186 | 0.3 | 0.3 | 0.2 | 0.3 |
| Encephalocele | 27 | 6 | 6 | 39 | 0.1 | 0.1 | 0.1 | 0.1 |
| Microcephaly | 116 | 23 | 11 | 150 | 0.3 | 0.3 | 0.1 | 0.2 |
| Congenital hydrocephalus | 174 | 38 | 33 | 245 | 0.4 | 0.4 | 0.4 | 0.4 |
| Other nervous system defects | 366 | 58 | 41 | 465 | 0.9 | 0.7 | 0.5 | 0.8 |
| TOTAL | 872 | 161 | 118 | 1151 | 2.0 | 1.9 | 1.4 | 1.9 |
| **Defects of eye** | | | | | | | | |
| Anophthalmos–microphthalmos | 55 | 11 | 15 | 81 | 0.1 | 0.1 | 0.2 | 0.1 |
| Buphthalmos–congenital glaucoma | 30 | 2 | 1 | 33 | 0.1 | 0.0 | 0.0 | 0.1 |
| Congenital cataract | 83 | 15 | 5 | 103 | 0.2 | 0.2 | 0.1 | 0.2 |
| Other eye defects | 176 | 27 | 23 | 226 | 0.4 | 0.3 | 0.3 | 0.4 |
| TOTAL | 344 | 55 | 44 | 443 | 0.8 | 0.6 | 0.5 | 0.7 |
| **Defects of ear, face and neck** | | | | | | | | |
| Absence–stricture auditory canal | 56 | 9 | 7 | 72 | 0.1 | 0.1 | 0.1 | 0.1 |
| Absent auricle | 9 | 0 | 1 | 10 | 0.0 | 0.0 | 0.0 | 0.0 |
| Defects of face and neck | 43 | 9 | 8 | 60 | 0.1 | 0.1 | 0.1 | 0.1 |
| Other ear defects | 89 | 12 | 11 | 112 | 0.2 | 0.1 | 0.1 | 0.2 |
| TOTAL | 197 | 30 | 27 | 254 | 0.5 | 0.3 | 0.3 | 0.4 |
| **Defects of cardiovascular system** | | | | | | | | |
| Transposition of great vessels | 210 | 52 | 26 | 288 | 0.5 | 0.6 | 0.3 | 0.5 |
| Tetralogy of Fallot | 148 | 35 | 16 | 199 | 0.3 | 0.4 | 0.2 | 0.3 |
| Ventricular septal defect | 902 | 160 | 102 | 1164 | 2.1 | 1.9 | 1.2 | 1.9 |
| Atrial septal defect | 834 | 157 | 79 | 1070 | 1.9 | 1.8 | 0.9 | 1.8 |

**TABLE 115 *(continued)***

**BIRTH DEFECTS AMONG STILLBIRTHS AND LIVE BIRTHS BY DIAGNOSTIC CATEGORY, NSW 1998–2004#**

| Diagnostic category | No. defects | | | | Rate/1,000 births | | | |
|---|---|---|---|---|---|---|---|---|
| | 1998–2002 | 2003 | 2004 | 1998–2004 | 1998–2002 | 2003 | 2004 | 1998–2004 |
| **Defects of cardiovascular system (cont.)** | | | | | | | | |
| Heart valve defects | 640 | 106 | 60 | 806 | 1.5 | 1.2 | 0.7 | 1.3 |
| Patent ductus arteriosus > 37 weeks | 470 | 81 | 69 | 620 | 1.1 | 0.9 | 0.8 | 1.0 |
| Coarctation of aorta | 198 | 38 | 22 | 258 | 0.5 | 0.4 | 0.3 | 0.4 |
| Other defects of aorta | 111 | 27 | 16 | 154 | 0.3 | 0.3 | 0.2 | 0.3 |
| Defects of pulmonary artery | 144 | 27 | 15 | 186 | 0.3 | 0.3 | 0.2 | 0.3 |
| Other cardiovascular defects | 774 | 148 | 114 | 1036 | 1.8 | 1.7 | 1.3 | 1.7 |
| TOTAL | 4431 | 831 | 519 | 5781 | 10.3 | 9.7 | 6.1 | 9.6 |
| **Defects of respiratory system** | | | | | | | | |
| Defects of nose | 77 | 9 | 8 | 94 | 0.2 | 0.1 | 0.1 | 0.2 |
| Defects of larynx, trachea and bronchus | 50 | 9 | 4 | 63 | 0.1 | 0.1 | 0.0 | 0.1 |
| Defects of lung | 93 | 7 | 10 | 110 | 0.2 | 0.1 | 0.1 | 0.2 |
| TOTAL | 220 | 25 | 22 | 267 | 0.5 | 0.3 | 0.3 | 0.4 |
| **Defects of gastrointestinal system** | | | | | | | | |
| Cleft palate only | 365 | 103 | 67 | 535 | 0.8 | 1.2 | 0.8 | 0.9 |
| Cleft lip only | 145 | 34 | 31 | 210 | 0.3 | 0.4 | 0.4 | 0.3 |
| Cleft palate and cleft lip | 235 | 46 | 40 | 321 | 0.5 | 0.5 | 0.5 | 0.5 |
| Oesophageal atresia only | 8 | 3 | 2 | 13 | 0.0 | 0.0 | 0.0 | 0.0 |
| Oesophageal atresia with TOF | 87 | 14 | 9 | 110 | 0.2 | 0.2 | 0.1 | 0.2 |
| Tracheo-oesophageal fistula (TOF) only | 28 | 1 | 2 | 31 | 0.1 | 0.0 | 0.0 | 0.1 |
| Atresia/stenosis of small intestine | 142 | 22 | 8 | 172 | 0.3 | 0.3 | 0.1 | 0.3 |
| Atresia/stenosis of anus | 133 | 27 | 15 | 175 | 0.3 | 0.3 | 0.2 | 0.3 |
| Other gastrointestinal defects | 487 | 95 | 47 | 629 | 1.1 | 1.1 | 0.6 | 1.0 |
| TOTAL | 1630 | 345 | 221 | 2196 | 3.8 | 4.0 | 2.6 | 3.7 |
| **Defects of genitourinary system** | | | | | | | | |
| Defects of female genitals | 46 | 11 | 15 | 72 | 0.1 | 0.1 | 0.2 | 0.1 |
| Undescended testis | 349 | 48 | 26 | 423 | 0.8 | 0.6 | 0.3 | 0.7 |
| Hypospadias | 886 | 170 | 121 | 1177 | 2.1 | 2.0 | 1.4 | 2.0 |
| Epispadias | 18 | 2 | 0 | 20 | 0.0 | 0.0 | . | 0.0 |
| Chordee | 133 | 32 | 12 | 177 | 0.3 | 0.4 | 0.1 | 0.3 |
| Indeterminate sex–ambiguous genitalia | 53 | 8 | 10 | 71 | 0.1 | 0.1 | 0.1 | 0.1 |
| Renal agenesis–dysgenesis | 215 | 31 | 30 | 276 | 0.5 | 0.4 | 0.4 | 0.5 |
| Obstructive defects of renal pelvis and ureter | 747 | 126 | 66 | 939 | 1.7 | 1.5 | 0.8 | 1.6 |
| Other genito-urinary system defects | 635 | 117 | 67 | 819 | 1.5 | 1.4 | 0.8 | 1.4 |
| TOTAL | 3082 | 545 | 347 | 3974 | 7.2 | 6.3 | 4.1 | 6.6 |
| **Defects of musculoskeletal system** | | | | | | | | |
| Congenital dislocation of the hips | 668 | 146 | 55 | 869 | 1.6 | 1.7 | 0.6 | 1.4 |
| Talipes equinovarus | 294 | 78 | 42 | 414 | 0.7 | 0.9 | 0.5 | 0.7 |
| Polydactyly | 479 | 103 | 85 | 667 | 1.1 | 1.2 | 1.0 | 1.1 |
| Syndactyly | 114 | 17 | 18 | 149 | 0.3 | 0.2 | 0.2 | 0.2 |
| Reduction deformities of limbs | 256 | 34 | 36 | 326 | 0.6 | 0.4 | 0.4 | 0.5 |
| Craniosynostosis | 326 | 53 | 5 | 384 | 0.8 | 0.6 | 0.1 | 0.6 |
| Diaphragmatic hernia | 127 | 21 | 25 | 173 | 0.3 | 0.2 | 0.3 | 0.3 |
| Exomphalos | 72 | 14 | 14 | 100 | 0.2 | 0.2 | 0.2 | 0.2 |
| Gastroschisis | 94 | 16 | 14 | 124 | 0.2 | 0.2 | 0.2 | 0.2 |
| Other musculoskeletal defects | 919 | 132 | 108 | 1159 | 2.1 | 1.5 | 1.3 | 1.9 |
| TOTAL | 3349 | 614 | 402 | 4365 | 7.8 | 7.2 | 4.7 | 7.3 |
| **Defects of integumentary system** | 339 | 62 | 29 | 430 | 0.8 | 0.7 | 0.3 | 0.7 |
| **Cystic hygroma** | 53 | 8 | 6 | 67 | 0.1 | 0.1 | 0.1 | 0.1 |
| **Chromosomal defects** | | | | | | | | |
| Trisomy 21 | 513 | 103 | 79 | 695 | 1.2 | 1.2 | 0.9 | 1.2 |
| Trisomy 13 | 35 | 7 | 7 | 49 | 0.1 | 0.1 | 0.1 | 0.1 |
| Trisomy 18 | 91 | 19 | 13 | 123 | 0.2 | 0.2 | 0.2 | 0.2 |
| Turner syndrome | 68 | 13 | 6 | 87 | 0.2 | 0.2 | 0.1 | 0.1 |
| Other chromosomal defects | 278 | 66 | 34 | 378 | 0.6 | 0.8 | 0.4 | 0.6 |
| TOTAL | 985 | 208 | 139 | 1332 | 2.3 | 2.4 | 1.6 | 2.2 |
| **Situs inversus** | 20 | 12 | 3 | 35 | 0.0 | 0.1 | 0.0 | 0.1 |
| **Congenital malformation syndromes** | 195 | 38 | 31 | 264 | 0.5 | 0.4 | 0.4 | 0.4 |
| **Congenital cytomegalovirus infection** | 4 | 0 | 0.0 | 4 | 0.0 | 0 | 0.0 | 0.0 |
| **Congenital toxoplasmosis** | 1 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0.0 |
| **Non-immune hydrops foetalis** | 126 | 19 | 20 | 165 | 0.3 | 0.2 | 0.2 | 0.3 |
| **Other and unspecified birth defects** | 550 | 87 | 15 | 652 | 1.3 | 1.0 | 0.2 | 1.1 |
| TOTAL | 16398 | 3040 | 1943 | 21381 | 38.1 | 35.4 | 22.9 | 35.6 |

Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.
# For 1998–2003, cases reported during pregnancy and up to one year of age are included. For 2004, cases reported during pregnancy or at birth are reported.

## Infant characteristics

In the period 1998–2004, a single defect was reported in 63.8 per cent of infants, 2 defects in 18.7 per cent, 3 defects in 8.0 per cent, and 4 or more defects in 10.0 per cent of cases.

The sex was male in 58.1 per cent of infants, female in 41.4 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 116). Birth defects were also more common in infants born of a multiple pregnancy than a singleton pregnancy: in 1998–2004, 2.0 per cent of singleton babies, 2.5 per cent of twins, and 4.2 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 117). 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 2004 (see Chapter 4).

**TABLE 116**

**BIRTH DEFECT CASES BY GESTATIONAL AGE, NSW 1998–2004#**

| Gestational age (weeks) | Year | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1998–2002 | | 2003 | | 2004 | | 1998–2004 | | |
| | No. | % | No. | % | No. | % | No. | % | Rate/1,000 births |
| 20–27 | 552 | 6.0 | 131 | 7.4 | 94 | 9.4 | 777 | 6.5 | 186.8 |
| 28–31 | 275 | 3.0 | 50 | 2.8 | 37 | 3.7 | 362 | 3.0 | 81.3 |
| 32–36 | 1080 | 11.8 | 197 | 11.2 | 134 | 13.4 | 1411 | 11.9 | 41.3 |
| 37–41 | 6723 | 73.5 | 1229 | 69.8 | 713 | 71.5 | 8665 | 72.8 | 15.9 |
| 42 + | 204 | 2.2 | 29 | 1.6 | 18 | 1.8 | 251 | 2.1 | 18.1 |
| Not stated | 307 | 3.4 | 125 | 7.1 | 1 | 0.1 | 433 | 3.6 | – |
| TOTAL | 9141 | 100.0 | 1761 | 100.0 | 997 | 100.0 | 11899 | 100.0 | 19.8 |

Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.
# For 1998–2003, cases reported during pregnancy and up to one year of age are included. For 2004, cases reported during pregnancy or at birth are reported.

**TABLE 117**

**BIRTH DEFECT CASES BY PREGNANCY OUTCOME, NSW 1998–2004#**

| Pregnancy outcome | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1998–2002 | | 2003 | | 2004 | | 1998–2004 | |
| | No. | % | No. | % | No. | % | No. | % |
| Stillbirth | 541 | 5.9 | 121 | 6.9 | 104 | 10.4 | 766 | 6.4 |
| Liveborn–neonatal death | 397 | 4.3 | 69 | 3.9 | 56 | 5.6 | 522 | 4.4 |
| Liveborn–postneonatal death | 84 | 0.9 | 10 | 0.6 | 4 | 0.4 | 98 | 0.8 |
| Liveborn surviving | 8119 | 88.8 | 1561 | 88.6 | 833 | 83.6 | 10513 | 88.4 |
| TOTAL | 9141 | 100.0 | 1761 | 100.0 | 997 | 100.0 | 11899 | 100.0 |

Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.
# For 1998–2003, cases reported during pregnancy and up to one year of age are included. For 2004, cases reported during pregnancy or at birth are reported. Postneonatal deaths are likely to be under-reported.

## Maternal characteristics

After 30 years of age, the incidence of birth defects increased with increasing maternal age (Table 118). While the rate of birth defects is higher in older women, the majority of births occur in younger women. In 1998–2004, 74.7 per cent of babies with birth defects were born to women aged less than 35 years.

In 1998–2004, 286 babies of Aboriginal or Torres Strait Islander mothers were reported to have birth defects. The rate of birth defects among these babies was 19.1 per 1,000 compared with 18.9 per 1,000 for non-Aboriginal mothers.

**TABLE 118**

**BIRTH DEFECT CASES BY MATERNAL AGE, NSW 1998–2004#**

| Maternal age (years) | Year | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1998–2002 | | 2003 | | 2004 | | 1998–2004 | | |
| | No. | % | No. | % | No. | % | No. | % | Rate/1,000 births |
| Under 20 | 416 | 4.6 | 62 | 3.5 | 41 | 4.1 | 519 | 4.4 | 19.8 |
| 20–24 | 1360 | 14.9 | 228 | 12.9 | 151 | 15.1 | 1739 | 14.6 | 19.0 |
| 25–29 | 2643 | 28.9 | 404 | 22.9 | 261 | 26.2 | 3308 | 27.8 | 18.3 |
| 30–34 | 2514 | 27.5 | 487 | 27.7 | 323 | 32.4 | 3324 | 27.9 | 17.3 |
| 35–39 | 1328 | 14.5 | 255 | 14.5 | 172 | 17.3 | 1755 | 14.7 | 19.2 |
| 40–44 | 329 | 3.6 | 67 | 3.8 | 44 | 4.4 | 440 | 3.7 | 25.1 |
| 45+ | 20 | 0.2 | 3 | 0.2 | 4 | 0.4 | 27 | 0.2 | 34.1 |
| Not stated | 531 | 5.8 | 255 | 14.5 | 1 | 0.1 | 787 | 6.6 | – |
| TOTAL | 9141 | 100.0 | 1761 | 100.0 | 997 | 100.0 | 11899 | 100.0 | 19.8 |

Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.
# For 1998–2003, cases reported during pregnancy and up to one year of age are included. For 2004, 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 1998–2003, on average about 280 terminations of pregnancy per year were reported to the NSW Birth Defects Register (Table 119). To date, 172 terminations of pregnancy have been reported to the Register for 2004. This number is expected to increase as outcomes for mothers with defects detected during pregnancy in 2004 continue to be reported. Of the 1,852 terminations of pregnancy reported in 1998–2004, 1,372 (74.1 per cent) were associated with a chromosomal abnormality, the most common of which was Trisomy 21 (Down syndrome), and 231 (12.5 per cent) were associated with a neural tube defect (Tables 119 and 120).

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 119**

**PREGNANCIES WITH FETUSES AFFECTED BY BIRTH DEFECTS AND RESULTING IN SPONTANEOUS ABORTION, TERMINATION OF PREGNANCY OR UNKNOWN OUTCOME, NSW 1998–2004**

| Pregnancy outcome | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1998 No. | 1999 No. | 2000 No. | 2001 No. | 2002 No. | 2003 No. | 2004 No. | 1998–2004 No. |
| Spontaneous abortion | 84 | 119 | 124 | 171 | 202 | 232 | 280 | 1212 |
| Termination of pregnancy less than 20 weeks gestation | 254 | 310 | 262 | 257 | 285 | 312 | 172 | 1852 |
| Unknown outcome | 13 | 16 | 22 | 19 | 7 | 18 | – | 95 |
| TOTAL | 351 | 445 | 408 | 447 | 494 | 562 | 452 | 3159 |

Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.

**TABLE 120**

**BIRTH DEFECTS AMONG SPONTANEOUS ABORTIONS, TERMINATIONS OF PREGNANCY AND UNKNOWN OUTCOME OF PREGNANCY BY DIAGNOSTIC CATEGORY, NSW 1998–2004**

| Diagnostic category | Year 1998–2002 | | | 2003 | | | 2004 | | 1998–2004 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Spont. abortion | Termination of pregnancy less than 20 weeks gestation | Unknown outcome | Spont. abortion | Termination of pregnancy less than 20 weeks gestation | Unknown outcome | Spont. abortion | Termination of pregnancy less than 20 weeks gestation | Spont. abortion | Termination of pregnancy less than 20 weeks gestation | Unknown outcome |
| | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. |
| **Defects of nervous system** | | | | | | | | | | | |
| Neural tube defects | 8 | 183 | 3 | 0 | 29 | 0 | 1 | 19 | 9 | 231 | 3 |
| Other nervous system defects | 4 | 142 | 6 | 1 | 12 | 0 | 1 | 19 | 6 | 173 | 6 |
| TOTAL | 12 | 325 | 9 | 1 | 41 | 0 | 2 | 38 | 15 | 404 | 9 |
| **Defects of eye** | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 |
| **Defects of ear, face and neck** | 0 | 11 | 1 | 1 | 1 | 0 | 0 | 2 | 1 14 | 1 | |
| **Defects of cardiovascular system** | 9 | 172 | 7 | 4 | 37 | 0 | 1 | 24 | 14 | 233 | 7 |
| **Defects of respiratory system** | 0 | 25 | 3 | 2 | 1 | 0 | 0 | 3 | 2 | 29 | 3 |
| **Defects of gastrointestinal system** | 3 | 110 | 4 | 5 | 25 | 0 | 2 | 23 | 10 | 158 | 4 |
| **Defects of musculoskeletal system** | 30 | 317 | 9 | 4 | 47 | 0 | 7 | 49 | 41 | 413 | 9 |
| **Defects of genitourinary system** | 8 | 153 | 6 | 3 | 28 | 0 | 2 | 27 | 13 | 208 | 6 |
| **Defects of integumentary system** | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 2 2 | 0 | |
| **Cystic hygroma** | 7 | 84 | 0 | 2 | 30 | 3 | 6 | 20 | 15 | 134 | 3 |
| **Chromosomal defects** | | | | | | | | | | | |
| Trisomy 21 | 53 | 486 | 16 | 19 | 126 | 11 | 25 | 60 | 97 | 672 | 27 |
| Trisomy 13 | 30 | 73 | 10 | 7 | 16 | 1 | 9 | 9 | 46 | 98 | 11 |
| Trisomy 18 | 38 | 181 | 8 | 9 | 47 | 0 | 15 | 20 | 62 | 248 | 8 |
| Turner syndrome | 65 | 77 | 2 | 26 | 23 | 0 | 33 | 13 | 124 | 113 | 2 |
| Other chromosomal defects | 494 | 195 | 25 | 169 | 33 | 6 | 192 | 13 | 855 | 241 | 31 |
| TOTAL | 680 | 1012 | 61 | 230 | 245 | 18 | 274 | 115 | 1184 | 1372 | 79 |
| **Situs inversus** | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |
| **Congenital malformation syndromes** | 2 | 11 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 13 | 0 |
| **Non-immune hydrops foetalis** | 7 | 45 | 2 | 2 | 8 | 1 | 2 | 6 | 11 | 59 | 3 |
| **Other and unspecified birth defects** | 3 | 36 | 3 | 2 | 3 | 0 | 0 | 6 | 5 | 45 | 3 |
| TOTAL | 762 | 2310 | 105 | 256 | 469 | 22 | 297 | 313 | 1315 | 3092 | 127 |

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 121 and Figures 14 to 17. For 1998–2003, malformations reported up to one year of age are included; for 2004, malformations reported during pregnancy or at birth are included.

The reported number of liveborn and stillborn infants with neural tube defects was 42 in 1998 and 39 in 2003, and 33 have been reported for 2004 to date. The number of reported terminations of pregnancy was 38 in 1998, 28 in 2003, and 19 in 2004 (Figure 14).

Over the period 1998–2004, the number of cases of isolated cleft palate ranged from 60 to 88 per year, and for total cleft lip (including cases of cleft lip and cleft palate) from 71 to 89 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 liveborn and stillborn infants with chromosomal defects was 201 in 1998 and 207 in 2003, and the number of reported terminations of pregnancy associated with chromosomal defects rose from 156 in 1998 to 244 in 2003. The number of infants born with Down syndrome was 111 in 1998 and 102 in 2003, while the number of reported terminations of pregnancy associated with Down syndrome rose from 74 in 1998 to 125 in 2003.

In 1998, 19 liveborn infants and 2 stillborn infants had a diaphragmatic hernia, and there were 3 terminations of pregnancy for this condition. In 2003, there were 17 liveborn infants and 4 stillborn infants who had a diaphragmatic hernia, and there were no terminations of pregnancy (Figure 17).

**TABLE 121**

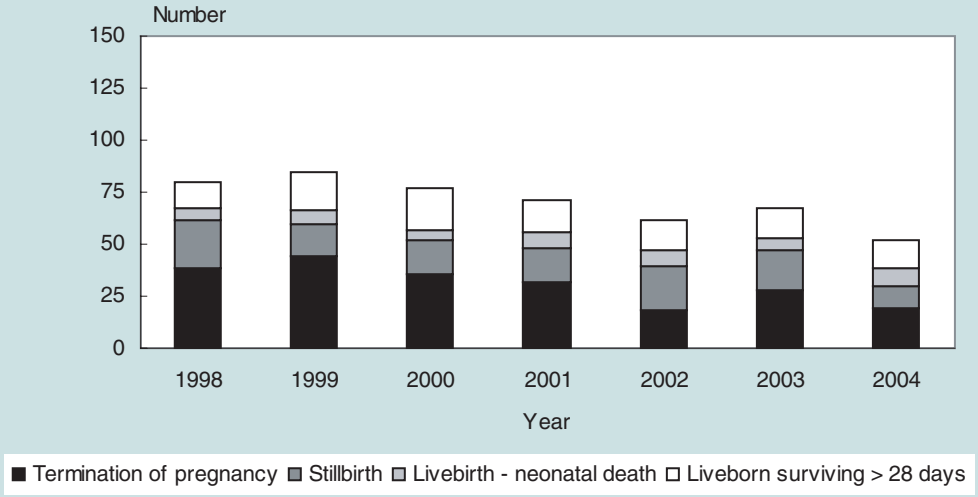
**SELECTED BIRTH DEFECT CASES BY YEAR, NSW 1998–2004#**

| Birth defect | Year | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1998 | | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | Rate/ 1,000 | No. | Rate/ 1,000 | No. | Rate/ 1,000 | No. | Rate/ 1,000 | No. | Rate/ 1,000 | No. | Rate/ 1,000 | No. | Rate/ 1,000 |
| Neural tube defects | 80 | 0.9 | 85 | 1.0 | 77 | 0.9 | 71 | 0.8 | 62 | 0.7 | 67 | 0.8 | 52 | 0.6 |
| Anencephalus | 34 | 0.4 | 24 | 0.3 | 29 | 0.3 | 25 | 0.3 | 20 | 0.2 | 18 | 0.2 | 15 | 0.2 |
| Spina bifida | 42 | 0.5 | 57 | 0.7 | 42 | 0.5 | 39 | 0.5 | 33 | 0.4 | 46 | 0.5 | 31 | 0.4 |
| Encephalocele | 10 | 0.1 | 8 | 0.1 | 13 | 0.1 | 8 | 0.1 | 10 | 0.1 | 7 | 0.1 | 6 | 0.1 |
| Cleft palate | 68 | 0.8 | 67 | 0.8 | 79 | 0.9 | 67 | 0.8 | 60 | 0.7 | 88 | 1.0 | 61 | 0.7 |
| Total cleft lip | 89 | 1.0 | 84 | 1.0 | 71 | 0.8 | 88 | 1.0 | 76 | 0.9 | 85 | 1.0 | 74 | 0.9 |
| Hypospadias | 191 | 2.2 | 199 | 2.3 | 191 | 2.2 | 173 | 2.0 | 133 | 1.6 | 171 | 2.0 | 121 | 1.4 |
| Limb reduction defects | 54 | 0.6 | 56 | 0.6 | 61 | 0.7 | 42 | 0.5 | 21 | 0.2 | 31 | 0.4 | 27 | 0.3 |
| Chromosomal abnormalities | 357 | 4.2 | 412 | 4.8 | 412 | 4.7 | 370 | 4.3 | 441 | 5.2 | 451 | 5.3 | 253 | 3.0 |
| Down syndrome | 185 | 2.2 | 199 | 2.3 | 214 | 2.5 | 180 | 2.1 | 221 | 2.6 | 227 | 2.6 | 139 | 1.6 |
| Renal agenesis and dysgenesis | 100 | 1.2 | 80 | 0.9 | 82 | 0.9 | 75 | 0.9 | 63 | 0.7 | 68 | 0.8 | 60 | 0.7 |
| Exomphalos | 25 | 0.3 | 17 | 0.2 | 28 | 0.3 | 22 | 0.3 | 22 | 0.3 | 20 | 0.2 | 24 | 0.3 |
| Gastroschisis | 18 | 0.2 | 18 | 0.2 | 20 | 0.2 | 23 | 0.3 | 18 | 0.2 | 19 | 0.2 | 15 | 0.2 |
| Diaphragmatic hernia | 24 | 0.3 | 41 | 0.5 | 22 | 0.3 | 28 | 0.3 | 23 | 0.3 | 21 | 0.2 | 25 | 0.3 |

Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.
# Includes terminations of pregnancy, stillbirths and livebirths. From 1 January 1998 birth defects became notifiable under the *NSW Public Health Act 1991*. This resulted in increased reporting of birth defects, particularly those associated with termination of pregnancy. For 1998–2003, cases reported during pregnancy and up to one year of age are included. For 2004, cases reported during pregnancy or at birth are reported.

**FIGURE 14**

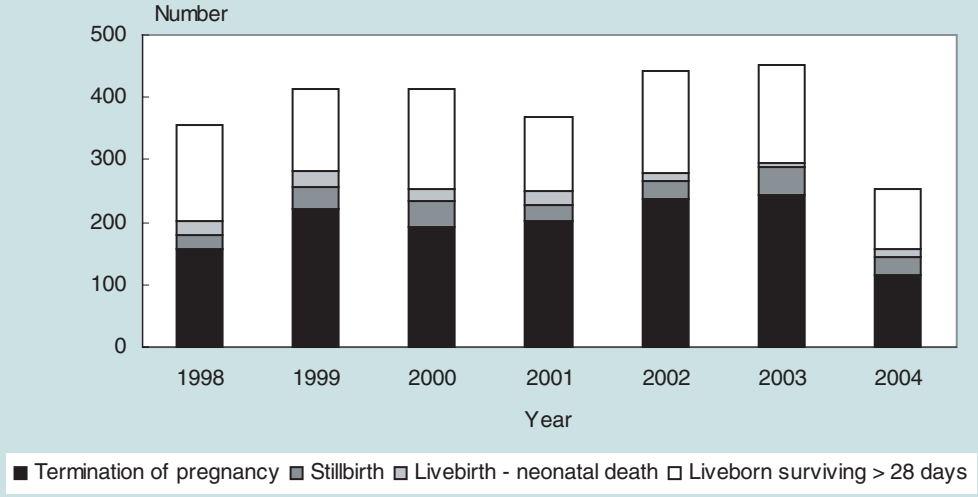
**NEURAL TUBE DEFECTS: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1998–2004#**




Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.
# For 1998–2003, cases reported during pregnancy and up to one year of age are included. For 2004, cases reported during pregnancy or at birth are reported.

**FIGURE 15**

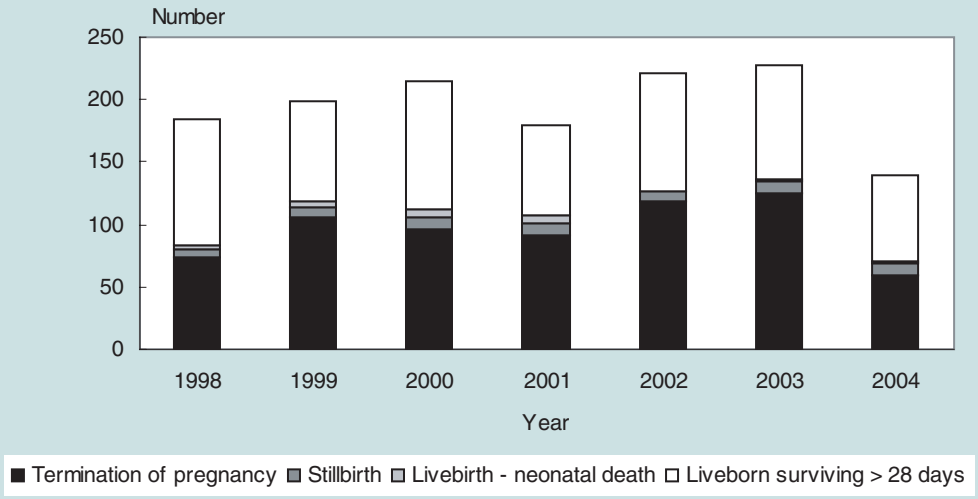
**CHROMOSOMAL ABNORMALITIES: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1998–2004#**




Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.
# For 1998–2003, cases reported during pregnancy and up to one year of age are included. For 2004, cases reported during pregnancy or at birth are reported.

**FIGURE 16**

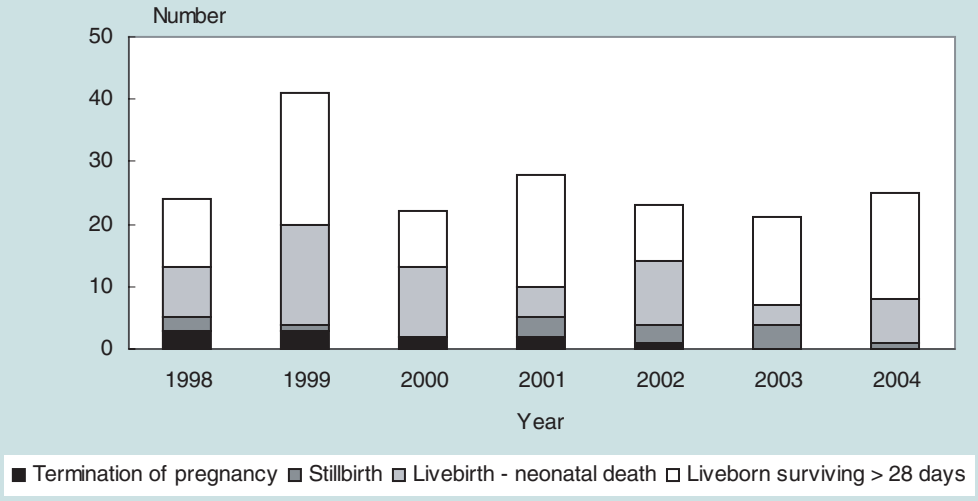
**DOWN SYNDROME: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1998–2004#**




Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.
# For 1998–2003, cases reported during pregnancy and up to one year of age are included. For 2004, cases reported during pregnancy or at birth are reported.

**FIGURE 17**

**DIAPHRAGMATIC HERNIA: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1998–2004#**




Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.
# For 1998–2003, cases reported during pregnancy and up to one year of age are included. For 2004, 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 122. The denominator population includes livebirths and stillbirths among NSW residents as reported to the MDC. The rate of birth defects increases with increasing maternal age (Table 118). In order to allow direct comparison of geographic areas, rates have been standardised to the maternal age distribution of births in NSW in 1991.

Information shown in this table reflects the reporting practices of the various areas. 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*. Thus, higher rates of reported birth defects may be expected from 1998 onwards compared to previous years.

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 1998–2004, standardised rates of reported birth defects were lowest in the Greater Southern Area and highest in the Hunter & New England Area. Review of cases showed slightly increased reported rates of a range of birth defects in the Hunter & New England Area compared to NSW overall including: unstable hips (but not dislocated hips), isolated atrial septal defect and ventricular septal defect, and first degree hypospadias. The range and pattern of these defects suggests that enumeration of less severe conditions is better in the Hunter & New England Health Area compared with NSW as a whole.

**TABLE 122**

**BIRTH DEFECTS IN NSW HEALTH AREAS, 1998–2004[#]**

| Health Area | Year | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1998–2002 | | | 2003 | | | 2004 | | | 1998–2004 | | | |
| | No. | Crude rate per 1,000 births | Standardised rate per 1,000 births | No. | Crude rate per 1,000 births | Standardised rate per 1,000 births | No. | Crude rate per 1,000 births | Standardised rate per 1,000 births | No. | Crude rate per 1,000 births | Standardised rate per 1,000 births | 99% confidence intervals |
| Sydney South West | 2196 | 22.8 | 21.4 | 455 | 23.0 | 18.9 | 250 | 13.2 | 12.5 | 2901 | 21.5 | 19.8 | 18.8–20.9 |
| South Eastern Sydney & Illawarra | 1698 | 24.3 | 21.7 | 354 | 25.0 | 20.2 | 164 | 11.4 | 10.3 | 2216 | 22.5 | 19.9 | 18.6–21.1 |
| Sydney West | 1898 | 23.6 | 22.4 | 359 | 22.2 | 18.4 | 220 | 13.7 | 13.5 | 2477 | 22.0 | 20.6 | 19.5–21.7 |
| Northern Sydney & Central Coast | 1536 | 23.4 | 20.9 | 285 | 21.3 | 14.6 | 172 | 13.0 | 11.7 | 1993 | 21.6 | 18.8 | 17.4–20.2 |
| Hunter & New England | 1371 | 26.9 | 25.8 | 282 | 28.6 | 24.2 | 177 | 18.0 | 16.0 | 1830 | 25.9 | 24.2 | 22.7–25.8 |
| North Coast | 516 | 21.2 | 20.8 | 83 | 17.9 | 16.4 | 64 | 13.5 | 12.0 | 663 | 19.6 | 19.0 | 17.1–21.1 |
| Greater Southern | 388 | 17.7 | 16.4 | 72 | 18.5 | 15.3 | 46 | 11.8 | 11.5 | 506 | 17.0 | 15.7 | 13.8–17.6 |
| Greater Western | 428 | 20.6 | 19.6 | 78 | 19.7 | 18.9 | 61 | 15.9 | 15.6 | 567 | 19.8 | 19.0 | 16.9–21.2 |
| TOTAL NSW | 10031 | 23.3 | 21.8 | 1968 | 22.9 | 18.9 | 1154 | 13.6 | 12.8 | 13153 | 21.9 | 20.1 | 19.7–20.6 |

Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.
# Cases exclude terminations of pregnancy, stillbirths and livebirths where the place of residence is unknown. For 1998–2003, cases reported during pregnancy and up to one year of age are included. For 2004, cases reported during pregnancy or at birth are reported.

# 11. NSW HOSPITALS

## Onset and augmentation of labour in selected hospitals

Table 123 gives onset or augmentation of labour for individual hospitals where the number of reported deliveries exceeded 200 in 2004, totals for all hospitals within each health area, and the NSW total.

**TABLE 123**

**ONSET AND AUGMENTATION OF LABOUR BY HOSPITAL, NSW 2004[#]**

| Health Area and Hospital | Onset and augmentation of labour | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Spontaneous | | Spontaneous augmented with ARM | | Spontaneous augmented oxytocics–prostagl.[##] | | No Labour | | Induced oxytocics–prostagl. | | Induced ARM only | | Induced ARM+ oxytocics–prostagl. | | Induced other[###] | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Sydney South West** | | | | | | | | | | | | | | | | | | | | |
| Canterbury | 833 | 57.5 | 0 | 0.0 | 159 | 11.0 | 151 | 10.4 | 293 | 20.2 | 10 | 0.7 | 0 | 0.0 | 2 | 0.1 | 0 | 0.0 | 1448 | 100.0 |
| Royal Prince Alfred | 1982 | 49.3 | 0 | 0.0 | 618 | 15.4 | 581 | 14.4 | 750 | 18.6 | 48 | 1.2 | 38 | 0.9 | 5 | 0.1 | 0 | 0.0 | 4022 | 100.0 |
| Camden | 299 | 65.4 | 58 | 12.7 | 8 | 1.8 | 6 | 1.3 | 30 | 6.6 | 21 | 4.6 | 35 | 7.7 | 0 | 0.0 | 0 | 0.0 | 457 | 100.0 |
| Fairfield | 870 | 53.4 | 117 | 7.2 | 172 | 10.6 | 151 | 9.3 | 76 | 4.7 | 4 | 0.2 | 231 | 14.2 | 7 | 0.4 | 0 | 0.0 | 1628 | 100.0 |
| Liverpool | 1431 | 47.0 | 221 | 7.3 | 352 | 11.6 | 363 | 11.9 | 265 | 8.7 | 33 | 1.1 | 342 | 11.2 | 35 | 1.2 | 0 | 0.0 | 3042 | 100.0 |
| Campbelltown | 760 | 42.5 | 131 | 7.3 | 125 | 7.0 | 242 | 13.5 | 153 | 8.6 | 36 | 2.0 | 325 | 18.2 | 15 | 0.8 | 0 | 0.0 | 1787 | 100.0 |
| Bankstown–Lidcombe | 1013 | 55.6 | 79 | 4.3 | 104 | 5.7 | 211 | 11.6 | 148 | 8.1 | 17 | 0.9 | 243 | 13.3 | 7 | 0.4 | 0 | 0.0 | 1822 | 100.0 |
| Sydney Southwest Private | 255 | 23.5 | 93 | 8.6 | 124 | 11.4 | 204 | 18.8 | 93 | 8.6 | 26 | 2.4 | 291 | 26.8 | 1 | 0.1 | 0 | 0.0 | 1087 | 100.0 |
| Bowral | 362 | 54.5 | 6 | 0.9 | 53 | 8.0 | 62 | 9.3 | 59 | 8.9 | 13 | 2.0 | 100 | 15.1 | 9 | 1.4 | 0 | 0.0 | 664 | 100.0 |
| ALL HOSPITALS | 7805 | 48.9 | 705 | 4.4 | 1715 | 10.7 | 1971 | 12.4 | 1867 | 11.7 | 208 | 1.3 | 1605 | 10.1 | 81 | 0.5 | 0 | 0.0 | 15957 | 100.0 |
| **South Eastern Sydney & Illawarra** | | | | | | | | | | | | | | | | | | | | |
| Royal Hospital for Women | 2024 | 55.0 | 57 | 1.6 | 255 | 6.9 | 595 | 16.2 | 222 | 6.0 | 39 | 1.1 | 445 | 12.1 | 40 | 1.1 | 0 | 0.0 | 3677 | 100.0 |
| St. George | 1293 | 58.3 | 84 | 3.8 | 203 | 9.2 | 223 | 10.1 | 195 | 8.8 | 24 | 1.1 | 176 | 7.9 | 18 | 0.8 | 0 | 0.0 | 2216 | 100.0 |
| Sutherland | 461 | 49.5 | 30 | 3.2 | 53 | 5.7 | 152 | 16.3 | 62 | 6.7 | 6 | 0.6 | 164 | 17.6 | 4 | 0.4 | 0 | 0.0 | 932 | 100.0 |
| Hurstville Community | 229 | 23.2 | 105 | 10.6 | 146 | 14.8 | 228 | 23.1 | 53 | 5.4 | 9 | 0.9 | 219 | 22.1 | 0 | 0.0 | 0 | 0.0 | 989 | 100.0 |
| Kareena Private | 108 | 17.3 | 22 | 3.5 | 68 | 10.9 | 195 | 31.2 | 88 | 14.1 | 8 | 1.3 | 137 | 21.9 | 0 | 0.0 | 0 | 0.0 | 626 | 100.0 |
| St. George Private | 455 | 27.9 | 159 | 9.8 | 197 | 12.1 | 365 | 22.4 | 184 | 11.3 | 34 | 2.1 | 217 | 13.3 | 18 | 1.1 | 0 | 0.0 | 1629 | 100.0 |
| Prince of Wales Private | 409 | 26.9 | 199 | 13.1 | 142 | 9.3 | 398 | 26.2 | 120 | 7.9 | 42 | 2.8 | 201 | 13.2 | 7 | 0.5 | 1 | 0.1 | 1519 | 100.0 |
| Shoalhaven | 526 | 59.4 | 22 | 2.5 | 29 | 3.3 | 160 | 18.1 | 65 | 7.3 | 13 | 1.5 | 64 | 7.2 | 6 | 0.7 | 0 | 0.0 | 885 | 100.0 |
| Wollongong | 774 | 36.9 | 415 | 19.8 | 207 | 9.9 | 195 | 9.3 | 97 | 4.6 | 19 | 0.9 | 389 | 18.6 | 1 | 0.0 | 0 | 0.0 | 2097 | 100.0 |
| Illawarra Private | 264 | 24.6 | 81 | 7.5 | 111 | 10.3 | 201 | 18.7 | 69 | 6.4 | 16 | 1.5 | 331 | 30.8 | 1 | 0.1 | 0 | 0.0 | 1074 | 100.0 |
| Other area hospitals | 27 | 56.3 | 0 | 0.0 | 7 | 14.6 | 4 | 8.3 | 4 | 8.3 | 0 | 0.0 | 5 | 10.4 | 1 | 2.1 | 0 | 0.0 | 48 | 100.0 |
| ALL HOSPITALS | 6570 | 41.9 | 1174 | 7.5 | 1418 | 9.0 | 2716 | 17.3 | 1159 | 7.4 | 210 | 1.3 | 2348 | 15.0 | 96 | 0.6 | 1 | 0.0 | 15692 | 100.0 |
| **Sydney West** | | | | | | | | | | | | | | | | | | | | |
| Auburn | 691 | 62.8 | 37 | 3.4 | 79 | 7.2 | 102 | 9.3 | 61 | 5.5 | 5 | 0.5 | 119 | 10.8 | 7 | 0.6 | 0 | 0.0 | 1101 | 100.0 |
| Blacktown | 1411 | 56.3 | 85 | 3.4 | 201 | 8.0 | 253 | 10.1 | 149 | 6.0 | 15 | 0.6 | 380 | 15.2 | 10 | 0.4 | 0 | 0.0 | 2504 | 100.0 |
| Blue Mountains | 155 | 62.5 | 9 | 3.6 | 15 | 6.0 | 20 | 8.1 | 11 | 4.4 | 11 | 4.4 | 26 | 10.5 | 1 | 0.4 | 0 | 0.0 | 248 | 100.0 |
| Nepean | 1447 | 47.5 | 177 | 5.8 | 136 | 4.5 | 480 | 15.7 | 177 | 5.8 | 47 | 1.5 | 572 | 18.8 | 13 | 0.4 | 0 | 0.0 | 3049 | 100.0 |
| Westmead | 1679 | 40.9 | 448 | 10.9 | 530 | 12.9 | 591 | 14.4 | 225 | 5.5 | 29 | 0.7 | 585 | 14.3 | 16 | 0.4 | 0 | 0.0 | 4103 | 100.0 |
| The Hills Private | 336 | 26.7 | 105 | 8.3 | 158 | 12.5 | 181 | 14.4 | 78 | 6.2 | 17 | 1.4 | 383 | 30.4 | 1 | 0.1 | 0 | 0.0 | 1259 | 100.0 |
| Hawkesbury | 448 | 56.9 | 17 | 2.2 | 30 | 3.8 | 120 | 15.2 | 62 | 7.9 | 17 | 2.2 | 90 | 11.4 | 3 | 0.4 | 0 | 0.0 | 787 | 100.0 |
| Nepean Private | 280 | 30.4 | 94 | 10.2 | 59 | 6.4 | 198 | 21.5 | 77 | 8.4 | 23 | 2.5 | 188 | 20.4 | 3 | 0.3 | 0 | 0.0 | 922 | 100.0 |
| Westmead Private | 507 | 30.0 | 206 | 12.2 | 231 | 13.7 | 248 | 14.7 | 181 | 10.7 | 19 | 1.1 | 295 | 17.5 | 1 | 0.1 | 0 | 0.0 | 1688 | 100.0 |
| Other area hospitals | 67 | 33.0 | 26 | 12.8 | 32 | 15.8 | 23 | 11.3 | 27 | 13.3 | 0 | 0.0 | 28 | 13.8 | 0 | 0.0 | 0 | 0.0 | 203 | 100.0 |
| ALL HOSPITALS | 7021 | 44.3 | 1204 | 7.6 | 1471 | 9.3 | 2216 | 14.0 | 1048 | 6.6 | 183 | 1.2 | 2666 | 16.8 | 55 | 0.3 | 0 | 0.0 | 15864 | 100.0 |
| **Northern Sydney & Central Coast** | | | | | | | | | | | | | | | | | | | | |
| Gosford | 822 | 37.4 | 315 | 14.3 | 275 | 12.5 | 305 | 13.9 | 174 | 7.9 | 8 | 0.4 | 299 | 13.6 | 0 | 0.0 | 0 | 0.0 | 2198 | 100.0 |
| Wyong | 185 | 67.3 | 62 | 22.5 | 11 | 4.0 | 2 | 0.7 | 1 | 0.4 | 3 | 1.1 | 11 | 4.0 | 0 | 0.0 | 0 | 0.0 | 275 | 100.0 |
| Hornsby | 463 | 48.6 | 40 | 4.2 | 86 | 9.0 | 152 | 16.0 | 69 | 7.2 | 4 | 0.4 | 138 | 14.5 | 0 | 0.0 | 0 | 0.0 | 952 | 100.0 |
| Manly | 343 | 50.2 | 9 | 1.3 | 55 | 8.1 | 91 | 13.3 | 71 | 10.4 | 13 | 1.9 | 101 | 14.8 | 0 | 0.0 | 0 | 0.0 | 683 | 100.0 |
| Mona Vale | 310 | 50.9 | 24 | 3.9 | 88 | 14.4 | 65 | 10.7 | 31 | 5.1 | 4 | 0.7 | 87 | 14.3 | 0 | 0.0 | 0 | 0.0 | 609 | 100.0 |
| Royal North Shore | 960 | 43.1 | 119 | 5.3 | 293 | 13.1 | 363 | 16.3 | 155 | 7.0 | 17 | 0.8 | 322 | 14.4 | 0 | 0.0 | 0 | 0.0 | 2229 | 100.0 |
| Ryde | 185 | 70.1 | 11 | 4.2 | 14 | 5.3 | 26 | 9.8 | 6 | 2.3 | 0 | 0.0 | 22 | 8.3 | 0 | 0.0 | 0 | 0.0 | 264 | 100.0 |
| Mater, North Sydney | 388 | 21.9 | 159 | 9.0 | 251 | 14.2 | 501 | 28.3 | 111 | 6.3 | 47 | 2.7 | 313 | 17.7 | 1 | 0.1 | 0 | 0.0 | 1771 | 100.0 |
| North Shore Private | 772 | 32.2 | 73 | 3.0 | 271 | 11.3 | 680 | 28.4 | 104 | 4.3 | 30 | 1.3 | 444 | 18.5 | 21 | 0.9 | 0 | 0.0 | 2395 | 100.0 |
| Sydney Adventist | 1087 | 49.2 | 0 | 0.0 | 3 | 0.1 | 446 | 20.2 | 126 | 5.7 | 24 | 1.1 | 520 | 23.5 | 4 | 0.2 | 0 | 0.0 | 2210 | 100.0 |
| North Gosford Private | 221 | 24.6 | 73 | 8.1 | 100 | 11.1 | 255 | 28.3 | 60 | 6.7 | 17 | 1.9 | 174 | 19.3 | 0 | 0.0 | 0 | 0.0 | 900 | 100.0 |
| ALL HOSPITALS | 5736 | 39.6 | 885 | 6.1 | 1447 | 10.0 | 2886 | 19.9 | 908 | 6.3 | 167 | 1.2 | 2431 | 16.8 | 26 | 0.2 | 0 | 0.0 | 14486 | 100.0 |

**TABLE 123 *(continued)***

**ONSET AND AUGMENTATION OF LABOUR BY HOSPITAL, NSW 2004[#]**

| Health Area and Hospital | Onset and augmentation of labour | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Spontaneous | | Spontaneous augmented with ARM | | Spontaneous augmented oxytocics–prostagl.[##] | | No Labour | | Induced oxytocics–prostagl. | | Induced ARM only | | Induced ARM+ oxytocics–prostagl. | | Induced other[###] | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Hunter & New England** | | | | | | | | | | | | | | | | | | | | |
| Armidale | 117 | 27.6 | 73 | 17.2 | 39 | 9.2 | 64 | 15.1 | 52 | 12.3 | 9 | 2.1 | 70 | 16.5 | 0 | 0.0 | 0 | 0.0 | 424 | 100.0 |
| Inverell | 32 | 13.8 | 26 | 11.2 | 46 | 19.8 | 48 | 20.7 | 26 | 11.2 | 7 | 3.0 | 47 | 20.3 | 0 | 0.0 | 0 | 0.0 | 232 | 100.0 |
| Moree | 84 | 41.4 | 16 | 7.9 | 19 | 9.4 | 19 | 9.4 | 17 | 8.4 | 1 | 0.5 | 47 | 23.2 | 0 | 0.0 | 0 | 0.0 | 203 | 100.0 |
| Tamworth Base | 251 | 37.0 | 103 | 15.2 | 48 | 7.1 | 86 | 12.7 | 64 | 9.4 | 13 | 1.9 | 113 | 16.7 | 0 | 0.0 | 0 | 0.0 | 678 | 100.0 |
| Manning Base | 256 | 37.3 | 72 | 10.5 | 54 | 7.9 | 93 | 13.5 | 53 | 7.7 | 26 | 3.8 | 133 | 19.4 | 0 | 0.0 | 0 | 0.0 | 687 | 100.0 |
| Maitland | 759 | 53.8 | 29 | 2.1 | 55 | 3.9 | 243 | 17.2 | 118 | 8.4 | 23 | 1.6 | 179 | 12.7 | 6 | 0.4 | 0 | 0.0 | 1412 | 100.0 |
| Muswellbrook | 113 | 50.7 | 21 | 9.4 | 11 | 4.9 | 11 | 4.9 | 26 | 11.7 | 8 | 3.6 | 33 | 14.8 | 0 | 0.0 | 0 | 0.0 | 223 | 100.0 |
| Belmont | 327 | 56.1 | 11 | 1.9 | 22 | 3.8 | 85 | 14.6 | 47 | 8.1 | 8 | 1.4 | 82 | 14.1 | 1 | 0.2 | 0 | 0.0 | 583 | 100.0 |
| John Hunter | 1457 | 50.2 | 214 | 7.4 | 184 | 6.3 | 366 | 12.6 | 155 | 5.3 | 71 | 2.4 | 421 | 14.5 | 32 | 1.1 | 0 | 0.0 | 2900 | 100.0 |
| Christo Road Private | 214 | 44.4 | 23 | 4.8 | 20 | 4.1 | 88 | 18.3 | 32 | 6.6 | 12 | 2.5 | 92 | 19.1 | 1 | 0.2 | 0 | 0.0 | 482 | 100.0 |
| NIB Private | 407 | 44.7 | 9 | 1.0 | 15 | 1.6 | 201 | 22.1 | 86 | 9.5 | 39 | 4.3 | 153 | 16.8 | 0 | 0.0 | 0 | 0.0 | 910 | 100.0 |
| Other area hospitals | 384 | 40.0 | 124 | 12.9 | 55 | 5.7 | 137 | 14.3 | 122 | 12.7 | 19 | 2.0 | 116 | 12.1 | 2 | 0.2 | 0 | 0.0 | 959 | 100.0 |
| ALL HOSPITALS | 4401 | 45.4 | 721 | 7.4 | 568 | 5.9 | 1441 | 14.9 | 798 | 8.2 | 236 | 2.4 | 1486 | 15.3 | 42 | 0.4 | 0 | 0.0 | 9693 | 100.0 |
| **North Coast** | | | | | | | | | | | | | | | | | | | | |
| Coffs Harbour | 300 | 39.8 | 88 | 11.7 | 64 | 8.5 | 133 | 17.7 | 47 | 6.2 | 7 | 0.9 | 113 | 15.0 | 1 | 0.1 | 0 | 0.0 | 753 | 100.0 |
| Grafton Base | 157 | 40.3 | 33 | 8.5 | 28 | 7.2 | 77 | 19.7 | 58 | 14.9 | 1 | 0.3 | 36 | 9.2 | 0 | 0.0 | 0 | 0.0 | 390 | 100.0 |
| Kempsey | 157 | 48.9 | 46 | 14.3 | 19 | 5.9 | 28 | 8.7 | 36 | 11.2 | 0 | 0.0 | 35 | 10.9 | 0 | 0.0 | 0 | 0.0 | 321 | 100.0 |
| Lismore Base | 526 | 44.5 | 119 | 10.1 | 102 | 8.6 | 158 | 13.4 | 99 | 8.4 | 32 | 2.7 | 146 | 12.4 | 0 | 0.0 | 0 | 0.0 | 1182 | 100.0 |
| Murwillumbah | 152 | 40.6 | 37 | 9.9 | 50 | 13.4 | 51 | 13.6 | 25 | 6.7 | 7 | 1.9 | 52 | 13.9 | 0 | 0.0 | 0 | 0.0 | 374 | 100.0 |
| Tweed Heads | 360 | 40.1 | 100 | 11.1 | 105 | 11.7 | 111 | 12.4 | 57 | 6.3 | 13 | 1.4 | 150 | 16.7 | 2 | 0.2 | 0 | 0.0 | 898 | 100.0 |
| Port Macquarie Base | 302 | 42.1 | 113 | 15.7 | 53 | 7.4 | 97 | 13.5 | 67 | 9.3 | 12 | 1.7 | 73 | 10.2 | 1 | 0.1 | 0 | 0.0 | 718 | 100.0 |
| Other area hospitals | 259 | 57.3 | 51 | 11.3 | 27 | 6.0 | 47 | 10.4 | 19 | 4.2 | 9 | 2.0 | 40 | 8.8 | 0 | 0.0 | 0 | 0.0 | 452 | 100.0 |
| ALL HOSPITALS | 2213 | 43.5 | 587 | 11.5 | 448 | 8.8 | 702 | 13.8 | 408 | 8.0 | 81 | 1.6 | 645 | 12.7 | 4 | 0.1 | 0 | 0.0 | 5088 | 100.0 |
| **Greater Southern** | | | | | | | | | | | | | | | | | | | | |
| Cooma | 113 | 54.9 | 9 | 4.4 | 19 | 9.2 | 19 | 9.2 | 23 | 11.2 | 2 | 1.0 | 21 | 10.2 | 0 | 0.0 | 0 | 0.0 | 206 | 100.0 |
| Goulburn Base | 141 | 50.0 | 29 | 10.3 | 54 | 19.1 | 41 | 14.5 | 14 | 5.0 | 1 | 0.4 | 2 | 0.7 | 0 | 0.0 | 0 | 0.0 | 282 | 100.0 |
| Moruya | 116 | 46.2 | 29 | 11.6 | 20 | 8.0 | 28 | 11.2 | 20 | 8.0 | 3 | 1.2 | 35 | 13.9 | 0 | 0.0 | 0 | 0.0 | 251 | 100.0 |
| Queanbeyan | 152 | 57.8 | 21 | 8.0 | 12 | 4.6 | 23 | 8.7 | 45 | 17.1 | 3 | 1.1 | 7 | 2.7 | 0 | 0.0 | 0 | 0.0 | 263 | 100.0 |
| Griffith Base | 227 | 52.8 | 43 | 10.0 | 18 | 4.2 | 62 | 14.4 | 47 | 10.9 | 14 | 3.3 | 18 | 4.2 | 1 | 0.2 | 0 | 0.0 | 430 | 100.0 |
| Wagga Wagga Base | 291 | 45.5 | 65 | 10.2 | 49 | 7.7 | 85 | 13.3 | 78 | 12.2 | 15 | 2.3 | 55 | 8.6 | 1 | 0.2 | 0 | 0.0 | 639 | 100.0 |
| Calvary, Wagga Wagga | 215 | 38.0 | 30 | 5.3 | 25 | 4.4 | 112 | 19.8 | 103 | 18.2 | 28 | 4.9 | 41 | 7.2 | 12 | 2.1 | 0 | 0.0 | 566 | 100.0 |
| Other area hospitals | 493 | 41.0 | 144 | 12.0 | 58 | 4.8 | 148 | 12.3 | 214 | 17.8 | 25 | 2.1 | 121 | 10.1 | 0 | 0.0 | 0 | 0.0 | 1203 | 100.0 |
| ALL HOSPITALS | 1748 | 45.5 | 370 | 9.6 | 255 | 6.6 | 518 | 13.5 | 544 | 14.2 | 91 | 2.4 | 300 | 7.8 | 14 | 0.4 | 0 | 0.0 | 3840 | 100.0 |
| **Greater Western** | | | | | | | | | | | | | | | | | | | | |
| Dubbo Base | 449 | 37.8 | 169 | 14.2 | 96 | 8.1 | 127 | 10.7 | 92 | 7.7 | 54 | 4.5 | 200 | 16.8 | 1 | 0.1 | 0 | 0.0 | 1188 | 100.0 |
| Bathurst Base | 307 | 54.5 | 61 | 10.8 | 19 | 3.4 | 77 | 13.7 | 64 | 11.4 | 6 | 1.1 | 29 | 5.2 | 0 | 0.0 | 0 | 0.0 | 563 | 100.0 |
| Cowra | 74 | 35.4 | 37 | 17.7 | 15 | 7.2 | 26 | 12.4 | 29 | 13.9 | 7 | 3.3 | 21 | 10.0 | 0 | 0.0 | 0 | 0.0 | 209 | 100.0 |
| Orange Base | 249 | 32.8 | 107 | 14.1 | 74 | 9.8 | 122 | 16.1 | 50 | 6.6 | 14 | 1.8 | 139 | 18.3 | 3 | 0.4 | 0 | 0.0 | 758 | 100.0 |
| Broken Hill Base | 170 | 66.1 | 12 | 4.7 | 22 | 8.6 | 25 | 9.7 | 20 | 7.8 | 1 | 0.4 | 7 | 2.7 | 0 | 0.0 | 0 | 0.0 | 257 | 100.0 |
| Other area hospitals | 302 | 50.3 | 57 | 9.5 | 32 | 5.3 | 103 | 17.2 | 62 | 10.3 | 9 | 1.5 | 35 | 5.8 | 0 | 0.0 | 0 | 0.0 | 600 | 100.0 |
| ALL HOSPITALS | 1551 | 43.4 | 443 | 12.4 | 258 | 7.2 | 480 | 13.4 | 317 | 8.9 | 91 | 2.5 | 431 | 12.1 | 4 | 0.1 | 0 | 0.0 | 3575 | 100.0 |
| **Other–Not stated** | 92 | 98.9 | 1 | 1.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 93 | 100.0 |
| TOTAL NSW | 37137 | 44.1 | 6090 | 7.2 | 7580 | 9.0 | 12930 | 15.3 | 7049 | 8.4 | 1267 | 1.5 | 11912 | 14.1 | 322 | 0.4 | 1 | 0.0 | 84288 | 100.0 |

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Health Department.
# Hospitals with more than 200 deliveries are identified individually. All hospitals include all public and private hospitals.
## May include artificial rupture of membranes.
### This category includes other forms of induction such as Foley's catheter.
*King George and Royal North Shore Hospitals supply data electronically and report augmentation by oxytocin–prostaglandin only.

## Type of delivery in selected hospitals

Table 124 gives type of delivery for individual hospitals where the number of reported confinements exceeded 200 in 2004, totals for all hospitals within each health area, and the NSW total.

**TABLE 124**

**TYPE OF DELIVERY BY HOSPITAL, NSW 2004[#]**

| Health Area and Hospital | Type of delivery | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Normal vaginal | | Forceps | | Vacuum extraction | | Vaginal breech section | | Elective caesarean section[#] | | Emergency caesarean | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Sydney South West** | | | | | | | | | | | | | | | | |
| Canterbury | 1012 | 69.9 | 13 | 0.9 | 118 | 8.1 | 3 | 0.2 | 151 | 10.4 | 151 | 10.4 | 0 | 0.0 | 1448 | 100.0 |
| Royal Prince Alfred | 2504 | 62.3 | 107 | 2.7 | 330 | 8.2 | 24 | 0.6 | 581 | 14.4 | 476 | 11.8 | 0 | 0.0 | 4022 | 100.0 |
| Camden | 409 | 89.5 | 13 | 2.8 | 7 | 1.5 | 1 | 0.2 | 6 | 1.3 | 21 | 4.6 | 0 | 0.0 | 457 | 100.0 |
| Fairfield | 1282 | 78.7 | 7 | 0.4 | 105 | 6.4 | 4 | 0.2 | 151 | 9.3 | 79 | 4.9 | 0 | 0.0 | 1628 | 100.0 |
| Liverpool | 2105 | 69.2 | 32 | 1.1 | 186 | 6.1 | 25 | 0.8 | 363 | 11.9 | 331 | 10.9 | 0 | 0.0 | 3042 | 100.0 |
| Campbelltown | 1227 | 68.7 | 6 | 0.3 | 101 | 5.7 | 9 | 0.5 | 242 | 13.5 | 202 | 11.3 | 0 | 0.0 | 1787 | 100.0 |
| Bankstown/Lidcombe | 1288 | 70.7 | 33 | 1.8 | 139 | 7.6 | 5 | 0.3 | 211 | 11.6 | 146 | 8.0 | 0 | 0.0 | 1822 | 100.0 |
| Sydney Southwest Private | 606 | 55.7 | 27 | 2.5 | 149 | 13.7 | 2 | 0.2 | 204 | 18.8 | 99 | 9.1 | 0 | 0.0 | 1087 | 100.0 |
| Bowral | 427 | 64.3 | 27 | 4.1 | 96 | 14.5 | 2 | 0.3 | 62 | 9.3 | 50 | 7.5 | 0 | 0.0 | 664 | 100.0 |
| ALL HOSPITALS | 10860 | 68.1 | 265 | 1.7 | 1231 | 7.7 | 75 | 0.5 | 1971 | 12.4 | 1555 | 9.7 | 0 | 0.0 | 15957 | 100.0 |
| **South Eastern Sydney & Illawarra** | | | | | | | | | | | | | | | | |
| Royal Hospital for Women | 2014 | 54.8 | 202 | 5.5 | 297 | 8.1 | 28 | 0.8 | 595 | 16.2 | 541 | 14.7 | 0 | 0.0 | 3677 | 100.0 |
| St. George | 1380 | 62.3 | 50 | 2.3 | 260 | 11.7 | 5 | 0.2 | 223 | 10.1 | 298 | 13.4 | 0 | 0.0 | 2216 | 100.0 |
| Sutherland | 595 | 63.8 | 25 | 2.7 | 62 | 6.7 | 2 | 0.2 | 152 | 16.3 | 96 | 10.3 | 0 | 0.0 | 932 | 100.0 |
| Hurstville Community | 443 | 44.8 | 33 | 3.3 | 121 | 12.2 | 0 | 0.0 | 228 | 23.1 | 164 | 16.6 | 0 | 0.0989 | 100.0 | |
| Kareena Private | 242 | 38.7 | 85 | 13.6 | 30 | 4.8 | 1 | 0.2 | 195 | 31.2 | 73 | 11.7 | 0 | 0.0 | 626 | 100.0 |
| St. George Private | 784 | 48.1 | 77 | 4.7 | 158 | 9.7 | 0 | 0.0 | 365 | 22.4 | 245 | 15.0 | 0 | 0.0 | 1629 | 100.0 |
| Prince of Wales Private | 696 | 45.8 | 60 | 3.9 | 170 | 11.2 | 0 | 0.0 | 398 | 26.2 | 190 | 12.5 | 5 | 0.3 | 1519 | 100.0 |
| Shoalhaven | 564 | 63.7 | 43 | 4.9 | 23 | 2.6 | 2 | 0.2 | 160 | 18.1 | 93 | 10.5 | 0 | 0.0 | 885 | 100.0 |
| Wollongong | 1425 | 68.0 | 21 | 1.0 | 179 | 8.5 | 6 | 0.3 | 195 | 9.3 | 271 | 12.9 | 0 | 0.0 | 2097 | 100.0 |
| Illawarra Private | 587 | 54.7 | 13 | 1.2 | 165 | 15.4 | 1 | 0.1 | 201 | 18.7 | 107 | 10.0 | 0 | 0.0 | 1074 | 100.0 |
| Other area hospitals | 39 | 81.3 | 0 | 0.0 | 3 | 6.3 | 1 | 2.1 | 4 | 8.3 | 1 | 2.1 | 0 | 0.0 | 48 | 100.0 |
| ALL HOSPITALS | 8769 | 55.9 | 609 | 3.9 | 1468 | 9.4 | 46 | 0.3 | 2716 | 17.3 | 2079 | 13.2 | 5 | 0.0 | 15692 | 100.0 |
| **Sydney West** | | | | | | | | | | | | | | | | |
| Auburn | 870 | 79.0 | 17 | 1.5 | 36 | 3.3 | 3 | 0.3 | 102 | 9.3 | 73 | 6.6 | 0 | 0.0 | 1101 | 100.0 |
| Blacktown | 1726 | 68.9 | 81 | 3.2 | 131 | 5.2 | 6 | 0.2 | 253 | 10.1 | 307 | 12.3 | 0 | 0.0 | 2504 | 100.0 |
| Blue Mountains | 192 | 77.4 | 2 | 0.8 | 9 | 3.6 | 0 | 0.0 | 20 | 8.1 | 25 | 10.1 | 0 | 0.0 | 248 | 100.0 |
| Nepean | 1954 | 64.1 | 56 | 1.8 | 127 | 4.2 | 12 | 0.4 | 480 | 15.7 | 420 | 13.8 | 0 | 0.0 | 3049 | 100.0 |
| Westmead | 2544 | 62.0 | 262 | 6.4 | 133 | 3.2 | 39 | 1.0 | 591 | 14.4 | 534 | 13.0 | 0 | 0.0 | 4103 | 100.0 |
| The Hills Private | 778 | 61.8 | 106 | 8.4 | 66 | 5.2 | 6 | 0.5 | 181 | 14.4 | 122 | 9.7 | 0 | 0.0 | 1259 | 100.0 |
| Hawkesbury | 515 | 65.4 | 34 | 4.3 | 21 | 2.7 | 2 | 0.3 | 120 | 15.2 | 95 | 12.1 | 0 | 0.0 | 787 | 100.0 |
| Nepean Private | 480 | 52.1 | 45 | 4.9 | 68 | 7.4 | 1 | 0.1 | 198 | 21.5 | 130 | 14.1 | 0 | 0.0 | 922 | 100.0 |
| Westmead Private | 884 | 52.4 | 181 | 10.7 | 133 | 7.9 | 4 | 0.2 | 248 | 14.7 | 238 | 14.1 | 0 | 0.0 | 1688 | 100.0 |
| Other area hospitals | 133 | 65.5 | 4 | 2.0 | 17 | 8.4 | 0 | 0.0 | 23 | 11.3 | 26 | 12.8 | 0 | 0.0 | 203 | 100.0 |
| ALL HOSPITALS | 10076 | 63.5 | 788 | 5.0 | 741 | 4.7 | 73 | 0.5 | 2216 | 14.0 | 1970 | 12.4 | 0 | 0.0 | 15864 | 100.0 |
| **Northern Sydney & Central Coast** | | | | | | | | | | | | | | | | |
| Gosford | 1308 | 59.5 | 23 | 1.0 | 192 | 8.7 | 8 | 0.4 | 305 | 13.9 | 362 | 16.5 | 0 | 0.0 | 2198 | 100.0 |
| Wyong | 248 | 90.2 | 1 | 0.4 | 12 | 4.4 | 1 | 0.4 | 2 | 0.7 | 11 | 4.0 | 0 | 0.0 | 275 | 100.0 |
| Hornsby | 570 | 59.9 | 28 | 2.9 | 80 | 8.4 | 3 | 0.3 | 152 | 16.0 | 119 | 12.5 | 0 | 0.0 | 952 | 100.0 |
| Manly | 436 | 63.8 | 9 | 1.3 | 68 | 10.0 | 3 | 0.4 | 91 | 13.3 | 76 | 11.1 | 0 | 0.0 | 683 | 100.0 |
| Mona Vale | 370 | 60.8 | 17 | 2.8 | 78 | 12.8 | 3 | 0.5 | 65 | 10.7 | 76 | 12.5 | 0 | 0.0 | 609 | 100.0 |
| Royal North Shore | 1317 | 59.1 | 116 | 5.2 | 85 | 3.8 | 15 | 0.7 | 363 | 16.3 | 333 | 14.9 | 0 | 0.0 | 2229 | 100.0 |
| Ryde | 216 | 81.8 | 5 | 1.9 | 6 | 2.3 | 0 | 0.0 | 26 | 9.8 | 11 | 4.2 | 0 | 0.0 | 264 | 100.0 |
| Mater, North Sydney | 733 | 41.4 | 69 | 3.9 | 235 | 13.3 | 0 | 0.0 | 501 | 28.3 | 233 | 13.2 | 0 | 0.0 | 1771 | 100.0 |
| North Shore Private | 1051 | 43.9 | 74 | 3.1 | 241 | 10.1 | 5 | 0.2 | 680 | 28.4 | 344 | 14.4 | 0 | 0.0 | 2395 | 100.0 |
| Sydney Adventist | 1206 | 54.6 | 104 | 4.7 | 158 | 7.1 | 6 | 0.3 | 446 | 20.2 | 290 | 13.1 | 0 | 0.0 | 2210 | 100.0 |
| North Gosford Private | 430 | 47.8 | 12 | 1.3 | 97 | 10.8 | 3 | 0.3 | 255 | 28.3 | 103 | 11.4 | 0 | 0.0 | 900 | 100.0 |
| ALL HOSPITALS | 7885 | 54.4 | 458 | 3.2 | 1252 | 8.6 | 47 | 0.3 | 2886 | 19.9 | 1958 | 13.5 | 0 | 0.0 | 14486 | 100.0 |

**TABLE 124 *(continued)***

**TYPE OF DELIVERY BY HOSPITAL, NSW 2004#**

| Health Area and Hospital | Type of delivery: Normal vaginal | | Forceps | | Vacuum extraction | | Vaginal breech section | | Elective caesarean section# | | Emergency caesarean | | Not stated | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Hunter & New England** | | | | | | | | | | | | | | | | |
| Armidale | 295 | 69.6 | 20 | 4.7 | 7 | 1.7 | 0 | 0.0 | 64 | 15.1 | 38 | 9.0 | 0 | 0.0 | 424 | 100.0 |
| Inverell | 150 | 64.7 | 23 | 9.9 | 0 | 0.0 | 1 | 0.4 | 48 | 20.7 | 10 | 4.3 | 0 | 0.0 | 232 | 100.0 |
| Moree | 141 | 69.5 | 9 | 4.4 | 6 | 3.0 | 1 | 0.5 | 19 | 9.4 | 27 | 13.3 | 0 | 0.0 | 203 | 100.0 |
| Tamworth Base | 455 | 67.1 | 14 | 2.1 | 40 | 5.9 | 5 | 0.7 | 86 | 12.7 | 78 | 11.5 | 0 | 0.0 | 678 | 100.0 |
| Manning Base | 466 | 67.8 | 2 | 0.3 | 48 | 7.0 | 8 | 1.2 | 93 | 13.5 | 70 | 10.2 | 0 | 0.0 | 687 | 100.0 |
| Maitland | 915 | 64.8 | 16 | 1.1 | 87 | 6.2 | 1 | 0.1 | 243 | 17.2 | 150 | 10.6 | 0 | 0.0 | 1412 | 100.0 |
| Muswellbrook | 177 | 79.4 | 1 | 0.4 | 13 | 5.8 | 2 | 0.9 | 11 | 4.9 | 19 | 8.5 | 0 | 0.0 | 223 | 100.0 |
| Belmont | 402 | 69.0 | 7 | 1.2 | 37 | 6.3 | 0 | 0.0 | 85 | 14.6 | 52 | 8.9 | 0 | 0.0 | 583 | 100.0 |
| John Hunter | 1959 | 67.6 | 73 | 2.5 | 156 | 5.4 | 26 | 0.9 | 366 | 12.6 | 320 | 11.0 | 0 | 0.0 | 2900 | 100.0 |
| Christo Road Private | 256 | 53.1 | 18 | 3.7 | 59 | 12.2 | 1 | 0.2 | 88 | 18.3 | 60 | 12.4 | 0 | 0.0 | 482 | 100.0 |
| NIB Private | 444 | 48.8 | 43 | 4.7 | 102 | 11.2 | 3 | 0.3 | 201 | 22.1 | 117 | 12.9 | 0 | 0.0 | 910 | 100.0 |
| Other area hospitals | 668 | 69.7 | 26 | 2.7 | 48 | 5.0 | 4 | 0.4 | 137 | 14.3 | 76 | 7.9 | 0 | 0.0 | 959 | 100.0 |
| ALL HOSPITALS | 6328 | 65.3 | 252 | 2.6 | 603 | 6.2 | 52 | 0.5 | 1441 | 14.9 | 1017 | 10.5 | 0 | 0.0 | 9693 | 100.0 |
| **North Coast** | | | | | | | | | | | | | | | | |
| Coffs Harbour | 490 | 65.1 | 26 | 3.5 | 32 | 4.2 | 4 | 0.5 | 133 | 17.7 | 68 | 9.0 | 0 | 0.0 | 753 | 100.0 |
| Grafton Base | 221 | 56.7 | 14 | 3.6 | 14 | 3.6 | 0 | 0.0 | 77 | 19.7 | 64 | 16.4 | 0 | 0.0 | 390 | 100.0 |
| Kempsey | 259 | 80.7 | 3 | 0.9 | 7 | 2.2 | 3 | 0.9 | 28 | 8.7 | 21 | 6.5 | 0 | 0.0 | 321 | 100.0 |
| Lismore Base | 802 | 67.9 | 37 | 3.1 | 21 | 1.8 | 6 | 0.5 | 158 | 13.4 | 158 | 13.4 | 0 | 0.0 | 1182 | 100.0 |
| Murwillumbah | 213 | 57.0 | 6 | 1.6 | 31 | 8.3 | 0 | 0.0 | 51 | 13.6 | 73 | 19.5 | 0 | 0.0 | 374 | 100.0 |
| Tweed Heads | 637 | 70.9 | 8 | 0.9 | 42 | 4.7 | 6 | 0.7 | 111 | 12.4 | 94 | 10.5 | 0 | 0.0 | 898 | 100.0 |
| Port Macquarie Base | 450 | 62.7 | 34 | 4.7 | 39 | 5.4 | 3 | 0.4 | 97 | 13.5 | 95 | 13.2 | 0 | 0.0 | 718 | 100.0 |
| Other area hospitals | 356 | 78.8 | 13 | 2.9 | 27 | 6.0 | 2 | 0.4 | 47 | 10.4 | 7 | 1.5 | 0 | 0.0 | 452 | 100.0 |
| ALL HOSPITALS | 3428 | 67.4 | 141 | 2.8 | 213 | 4.2 | 24 | 0.5 | 702 | 13.8 | 580 | 11.4 | 0 | 0.0 | 5088 | 100.0 |
| **Greater Southern** | | | | | | | | | | | | | | | | |
| Cooma | 152 | 73.8 | 1 | 0.5 | 7 | 3.4 | 0 | 0.0 | 19 | 9.2 | 27 | 13.1 | 0 | 0.0 | 206 | 100.0 |
| Goulburn Base | 163 | 57.8 | 27 | 9.6 | 20 | 7.1 | 0 | 0.0 | 41 | 14.5 | 31 | 11.0 | 0 | 0.0 | 282 | 100.0 |
| Moruya | 156 | 62.2 | 11 | 4.4 | 21 | 8.4 | 1 | 0.4 | 28 | 11.2 | 34 | 13.5 | 0 | 0.0 | 251 | 100.0 |
| Queanbeyan | 198 | 75.3 | 9 | 3.4 | 14 | 5.3 | 1 | 0.4 | 23 | 8.7 | 18 | 6.8 | 0 | 0.0 | 263 | 100.0 |
| Griffith Base | 280 | 65.1 | 23 | 5.3 | 15 | 3.5 | 1 | 0.2 | 62 | 14.4 | 49 | 11.4 | 0 | 0.0 | 430 | 100.0 |
| Wagga Wagga Base | 421 | 65.9 | 26 | 4.1 | 25 | 3.9 | 2 | 0.3 | 85 | 13.3 | 80 | 12.5 | 0 | 0.0 | 639 | 100.0 |
| Calvary, Wagga Wagga | 273 | 48.2 | 48 | 8.5 | 53 | 9.4 | 0 | 0.0 | 112 | 19.8 | 78 | 13.8 | 2 | 0.4 | 566 | 100.0 |
| Other area hospitals | 826 | 68.7 | 23 | 1.9 | 91 | 7.6 | 5 | 0.4 | 148 | 12.3 | 110 | 9.1 | 0 | 0.0 | 1203 | 100.0 |
| ALL HOSPITALS | 2469 | 64.3 | 168 | 4.4 | 246 | 6.4 | 10 | 0.3 | 518 | 13.5 | 427 | 11.1 | 2 | 0.1 | 3840 | 100.0 |
| **Greater Western** | | | | | | | | | | | | | | | | |
| Dubbo Base | 879 | 74.0 | 41 | 3.5 | 13 | 1.1 | 9 | 0.8 | 127 | 10.7 | 119 | 10.0 | 0 | 0.0 | 1188 | 100.0 |
| Bathurst Base | 365 | 64.8 | 20 | 3.6 | 25 | 4.4 | 2 | 0.4 | 77 | 13.7 | 74 | 13.1 | 0 | 0.0 | 563 | 100.0 |
| Cowra | 150 | 71.8 | 1 | 0.5 | 14 | 6.7 | 1 | 0.5 | 26 | 12.4 | 17 | 8.1 | 0 | 0.0 | 209 | 100.0 |
| Orange Base | 476 | 62.8 | 12 | 1.6 | 63 | 8.3 | 3 | 0.4 | 122 | 16.1 | 82 | 10.8 | 0 | 0.0 | 758 | 100.0 |
| Broken Hill Base | 182 | 70.8 | 1 | 0.4 | 7 | 2.7 | 1 | 0.4 | 25 | 9.7 | 41 | 16.0 | 0 | 0.0 | 257 | 100.0 |
| Other area hospitals | 408 | 68.0 | 6 | 1.0 | 26 | 4.3 | 2 | 0.3 | 103 | 17.2 | 55 | 9.2 | 0 | 0.0 | 600 | 100.0 |
| ALL HOSPITALS | 2460 | 68.8 | 81 | 2.3 | 148 | 4.1 | 18 | 0.5 | 480 | 13.4 | 388 | 10.9 | 0 | 0.0 | 3575 | 100.0 |
| **Other–Not stated** | 91 | 97.8 | 0 | 0.0 | 0 | 0.0 | 2 | 2.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 93 | 100.0 |
| TOTAL NSW | 52366 | 62.1 | 2762 | 3.3 | 5902 | 7.0 | 347 | 0.4 | 12930 | 15.3 | 9974 | 11.8 | 7 | 0.0 | 84288 | 100.0 |

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Health Department.
# Hospitals with more than 200 deliveries are identified individually. All hospitals include all public and private hospitals.

## Pain relief in selected hospitals

Table 125 gives type of pain relief provided to women for individual hospitals where the number of reported confinements exceeded 200 in 2004, totals for all hospitals within each health area and the NSW total. In addition to the types of pain relief listed a further 23,695 (27.9 per cent) women were reported to have received local anaesthetic to the perineum, and 778 (0.9 per cent) received a pudendal block.

**TABLE 125**

**PAIN RELIEF BY HOSPITAL, NSW 2004[#]**

| Health Area and Hospital | Type of pain relief | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Epidural | | General anaesthetic | | IM narcotics | | Nitrous oxide | | Spinal | | Nil | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Sydney South West** | | | | | | | | | | | | | | |
| Canterbury | 259 | 17.9 | 90 | 6.2 | 459 | 31.7 | 650 | 44.9 | 128 | 8.8 | 206 | 14.2 | 1448 | 100.0 |
| Royal Prince Alfred | 1337 | 33.2 | 210 | 5.2 | 1438 | 35.8 | 1455 | 36.2 | 403 | 10.0 | 465 | 11.6 | 4022 | 100.0 |
| Camden | 1 | 0.2 | 16 | 3.5 | 108 | 23.6 | 272 | 59.5 | 18 | 3.9 | 96 | 21.0 | 457 | 100.0 |
| Fairfield | 35 | 2.1 | 163 | 10.0 | 435 | 26.7 | 834 | 51.2 | 76 | 4.7 | 265 | 16.3 | 1628 | 100.0 |
| Liverpool | 521 | 17.1 | 205 | 6.7 | 1291 | 42.4 | 1290 | 42.4 | 402 | 13.2 | 269 | 8.8 | 3042 | 100.0 |
| Campbelltown | 220 | 12.3 | 131 | 7.3 | 610 | 34.1 | 1014 | 56.7 | 289 | 16.2 | 196 | 11.0 | 1787 | 100.0 |
| Bankstown–Lidcombe | 150 | 8.2 | 92 | 5.0 | 365 | 20.0 | 1079 | 59.2 | 235 | 12.9 | 196 | 10.8 | 1822 | 100.0 |
| Sydney Southwest Private | 337 | 31.0 | 50 | 4.6 | 390 | 35.9 | 648 | 59.6 | 94 | 8.6 | 43 | 4.0 | 1087 | 100.0 |
| Bowral | 144 | 21.7 | 29 | 4.4 | 282 | 42.5 | 346 | 52.1 | 61 | 9.2 | 44 | 6.6 | 664 | 100.0 |
| Other–Not stated | 3004 | 18.8 | 986 | 6.2 | 5378 | 33.7 | 7588 | 47.6 | 1706 | 10.7 | 1780 | 11.2 | 15957 | 100.0 |
| **South Eastern Sydney & Illawarra** | | | | | | | | | | | | | | |
| Royal Hospital for Women | 1960 | 53.3 | 53 | 1.4 | 466 | 12.7 | 1077 | 29.3 | 638 | 17.4 | 383 | 10.4 | 3677 | 100.0 |
| St. George | 603 | 27.2 | 105 | 4.7 | 423 | 19.1 | 1018 | 45.9 | 290 | 13.1 | 311 | 14.0 | 2216 | 100.0 |
| Sutherland | 259 | 27.8 | 36 | 3.9 | 74 | 7.9 | 422 | 45.3 | 179 | 19.2 | 87 | 9.3 | 932 | 100.0 |
| Hurstville Community | 619 | 62.6 | 36 | 3.6 | 77 | 7.8 | 311 | 31.4 | 98 | 9.9 | 49 | 5.0 | 989 | 100.0 |
| Kareena Private | 420 | 67.1 | 17 | 2.7 | 22 | 3.5 | 139 | 22.2 | 95 | 15.2 | 11 | 1.8 | 626 | 100.0 |
| St. George Private | 1092 | 67.0 | 50 | 3.1 | 104 | 6.4 | 674 | 41.4 | 102 | 6.3 | 43 | 2.6 | 1629 | 100.0 |
| Prince of Wales Private | 1138 | 74.9 | 14 | 0.9 | 67 | 4.4 | 496 | 32.7 | 46 | 3.0 | 52 | 3.4 | 1519 | 100.0 |
| Shoalhaven | 100 | 11.3 | 35 | 4.0 | 228 | 25.8 | 381 | 43.1 | 211 | 23.8 | 106 | 12.0 | 885 | 100.0 |
| Wollongong | 382 | 18.2 | 120 | 5.7 | 466 | 22.2 | 1315 | 62.7 | 268 | 12.8 | 201 | 9.6 | 2097 | 100.0 |
| Illawarra Private | 318 | 29.6 | 41 | 3.8 | 122 | 11.4 | 560 | 52.1 | 204 | 19.0 | 48 | 4.5 | 1074 | 100.0 |
| Other area hospitals | 5 | 10.4 | . | . | 15 | 31.3 | 14 | 29.2 | 5 | 10.4 | 16 | 33.3 | 48 | 100.0 |
| Other–Not stated | 6896 | 43.9 | 507 | 3.2 | 2064 | 13.2 | 6407 | 40.8 | 2136 | 13.6 | 1307 | 8.3 | 15692 | 100.0 |
| **Sydney West** | | | | | | | | | | | | | | |
| Auburn | 92 | 8.4 | 63 | 5.7 | 211 | 19.2 | 552 | 50.1 | 90 | 8.2 | 219 | 19.9 | 1101 | 100.0 |
| Blacktown | 516 | 20.6 | 160 | 6.4 | 450 | 18.0 | 1311 | 52.4 | 297 | 11.9 | 315 | 12.6 | 2504 | 100.0 |
| Blue Mountains | 28 | 11.3 | 8 | 3.2 | 55 | 22.2 | 107 | 43.1 | 32 | 12.9 | 45 | 18.1 | 248 | 100.0 |
| Nepean | 715 | 23.5 | 281 | 9.2 | 841 | 27.6 | 1689 | 55.4 | 479 | 15.7 | 252 | 8.3 | 3049 | 100.0 |
| Westmead | 1366 | 33.3 | 323 | 7.9 | 675 | 16.5 | 1848 | 45.0 | 586 | 14.3 | 322 | 7.8 | 4103 | 100.0 |
| The Hills Private | 672 | 53.4 | 34 | 2.7 | 178 | 14.1 | 428 | 34.0 | 52 | 4.1 | 79 | 6.3 | 1259 | 100.0 |
| Hawkesbury | 65 | 8.3 | 57 | 7.2 | 166 | 21.1 | 411 | 52.2 | 147 | 18.7 | 102 | 13.0 | 787 | 100.0 |
| Nepean Private | 260 | 28.2 | 37 | 4.0 | 257 | 27.9 | 519 | 56.3 | 225 | 24.4 | 32 | 3.5 | 922 | 100.0 |
| Westmead Private | 637 | 37.7 | 64 | 3.8 | 279 | 16.5 | 799 | 47.3 | 294 | 17.4 | 98 | 5.8 | 1688 | 100.0 |
| Other area hospitals | 44 | 21.7 | 8 | 3.9 | 57 | 28.1 | 100 | 49.3 | 16 | 7.9 | 32 | 15.8 | 203 | 100.0 |
| Other–Not stated | 4395 | 27.7 | 1035 | 6.5 | 3169 | 20.0 | 7764 | 48.9 | 2218 | 14.0 | 1496 | 9.4 | 15864 | 100.0 |
| **Northern Sydney & Central Coast** | | | | | | | | | | | | | | |
| Gosford | 427 | 19.4 | 119 | 5.4 | 671 | 30.5 | 929 | 42.3 | 472 | 21.5 | 48 | 2.2 | 2198 | 100.0 |
| Wyong | . | . | 12 | 4.4 | 36 | 13.1 | 116 | 42.2 | 4 | 1.5 | 11 | 4.0 | 275 | 100.0 |
| Hornsby | 380 | 39.9 | 52 | 5.5 | 205 | 21.5 | 455 | 47.8 | 69 | 7.2 | 65 | 6.8 | 952 | 100.0 |
| Manly | 171 | 25.0 | 21 | 3.1 | 157 | 23.0 | 315 | 46.1 | 128 | 18.7 | 59 | 8.6 | 683 | 100.0 |
| Mona Vale | 179 | 29.4 | 20 | 3.3 | 255 | 41.9 | 248 | 40.7 | 102 | 16.7 | 56 | 9.2 | 609 | 100.0 |
| Royal North Shore | 700 | 31.4 | 55 | 2.5 | 455 | 20.4 | 1033 | 46.3 | 499 | 22.4 | 153 | 6.9 | 2229 | 100.0 |
| Ryde | 20 | 7.6 | 10 | 3.8 | 41 | 15.5 | 134 | 50.8 | 27 | 10.2 | 54 | 20.5 | 264 | 100.0 |
| Mater, North Sydney | 978 | 55.2 | 39 | 2.2 | 195 | 11.0 | 633 | 35.7 | 293 | 16.5 | 43 | 2.4 | 1771 | 100.0 |
| North Shore Private | 1351 | 56.4 | 55 | 2.3 | 135 | 5.6 | 713 | 29.8 | 671 | 28.0 | 43 | 1.8 | 2395 | 100.0 |
| Sydney Adventist | 1198 | 54.2 | 96 | 4.3 | 234 | 10.6 | 739 | 33.4 | 215 | 9.7 | 55 | 2.5 | 2210 | 100.0 |
| North Gosford Private | 217 | 24.1 | 17 | 1.9 | 149 | 16.6 | 327 | 36.3 | 290 | 32.2 | 81 | 9.0 | 900 | 100.0 |
| Other–Not stated | 5621 | 38.8 | 496 | 3.4 | 2533 | 17.5 | 5642 | 38.9 | 2770 | 19.1 | 668 | 4.6 | 14486 | 100.0 |

**TABLE 125 *(continued)***

**PAIN RELIEF BY HOSPITAL, NSW 2004#**

| Health Area and Hospital | Type of pain relief | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Epidural | | General anaesthetic | | IM narcotics | | Nitrous oxide | | Spinal | | Nil | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Hunter & New England** | | | | | | | | | | | | | | |
| Armidale | 29 | 6.8 | 35 | 8.3 | 99 | 23.3 | 197 | 46.5 | 52 | 12.3 | 33 | 7.8 | 424 | 100.0 |
| Inverell | 1 | 0.4 | 1 | 0.4 | 41 | 17.7 | 106 | 45.7 | 59 | 25.4 | 53 | 22.8 | 232 | 100.0 |
| Moree | 20 | 9.9 | 6 | 3.0 | 34 | 16.7 | 99 | 48.8 | 39 | 19.2 | 45 | 22.2 | 203 | 100.0 |
| Tamworth Base | 158 | 23.3 | 51 | 7.5 | 123 | 18.1 | 383 | 56.5 | 58 | 8.6 | 77 | 11.4 | 678 | 100.0 |
| Manning Base | 98 | 14.3 | 47 | 6.8 | 280 | 40.8 | 365 | 53.1 | 109 | 15.9 | 74 | 10.8 | 687 | 100.0 |
| Maitland | 90 | 6.4 | 61 | 4.3 | 376 | 26.6 | 745 | 52.8 | 331 | 23.4 | 164 | 11.6 | 1412 | 100.0 |
| Muswellbrook | 5 | 2.2 | 3 | 1.3 | 61 | 27.4 | 118 | 52.9 | 26 | 11.7 | 55 | 24.7 | 223 | 100.0 |
| Belmont | 29 | 5.0 | 39 | 6.7 | 205 | 35.2 | 310 | 53.2 | 106 | 18.2 | 78 | 13.4 | 583 | 100.0 |
| John Hunter | 524 | 18.1 | 221 | 7.6 | 687 | 23.7 | 1432 | 49.4 | 472 | 16.3 | 342 | 11.8 | 2900 | 100.0 |
| Christo Road Private | 128 | 26.6 | 10 | 2.1 | 75 | 15.6 | 192 | 39.8 | 116 | 24.1 | 44 | 9.1 | 482 | 100.0 |
| NIB Private | 268 | 29.5 | 23 | 2.5 | 126 | 13.8 | 303 | 33.3 | 240 | 26.4 | 97 | 10.7 | 910 | 100.0 |
| Other area hospitals | 97 | 10.1 | 54 | 5.6 | 201 | 21.0 | 502 | 52.3 | 132 | 13.8 | 161 | 16.8 | 959 | 100.0 |
| Other–Not stated | 1447 | 14.9 | 551 | 5.7 | 2308 | 23.8 | 4752 | 49.0 | 1740 | 18.0 | 1223 | 12.6 | 9693 | 100.0 |
| **North Coast** | | | | | | | | | | | | | | |
| Coffs Harbour | 106 | 14.1 | 46 | 6.1 | 166 | 22.0 | 354 | 47.0 | 137 | 18.2 | 125 | 16.6 | 753 | 100.0 |
| Grafton Base | 110 | 28.2 | 45 | 11.5 | 79 | 20.3 | 183 | 46.9 | 42 | 10.8 | 55 | 14.1 | 390 | 100.0 |
| Kempsey | 61 | 19.0 | 7 | 2.2 | 126 | 39.3 | 181 | 56.4 | 19 | 5.9 | 58 | 18.1 | 321 | 100.0 |
| Lismore Base | 337 | 28.5 | 53 | 4.5 | 287 | 24.3 | 539 | 45.6 | 163 | 13.8 | 119 | 10.1 | 1182 | 100.0 |
| Murwillumbah | 41 | 11.0 | 35 | 9.4 | 117 | 31.3 | 168 | 44.9 | 84 | 22.5 | 57 | 15.2 | 374 | 100.0 |
| Tweed Heads | 128 | 14.3 | 38 | 4.2 | 272 | 30.3 | 477 | 53.1 | 144 | 16.0 | 122 | 13.6 | 898 | 100.0 |
| Port Macquarie Base | 126 | 17.5 | 30 | 4.2 | 177 | 24.7 | 383 | 53.3 | 130 | 18.1 | 103 | 14.3 | 718 | 100.0 |
| Other area hospitals | 36 | 8.0 | 5 | 1.1 | 65 | 14.4 | 178 | 39.4 | 36 | 8.0 | 170 | 37.6 | 452 | 100.0 |
| Other–Not stated | 945 | 18.6 | 259 | 5.1 | 1289 | 25.3 | 2463 | 48.4 | 755 | 14.8 | 809 | 15.9 | 5088 | 100.0 |
| **Greater Southern** | | | | | | | | | | | | | | |
| Cooma | 41 | 19.9 | 3 | 1.5 | 1 | 0.5 | 119 | 57.8 | 26 | 12.6 | 34 | 16.5 | 206 | 100.0 |
| Goulburn Base | 83 | 29.4 | 27 | 9.6 | 51 | 18.1 | 148 | 52.5 | 5 | 1.8 | 29 | 10.3 | 282 | 100.0 |
| Moruya | 28 | 11.2 | 18 | 7.2 | 52 | 20.7 | 107 | 42.6 | 42 | 16.7 | 62 | 24.7 | 251 | 100.0 |
| Queanbeyan | 41 | 15.6 | 16 | 6.1 | 46 | 17.5 | 116 | 44.1 | 6 | 2.3 | 79 | 30.0 | 263 | 100.0 |
| Griffith Base | 41 | 9.5 | 10 | 2.3 | 187 | 43.5 | 236 | 54.9 | 93 | 21.6 | 49 | 11.4 | 430 | 100.0 |
| Wagga Wagga Base | 114 | 17.8 | 20 | 3.1 | 186 | 29.1 | 320 | 50.1 | 112 | 17.5 | 101 | 15.8 | 639 | 100.0 |
| Calvary, Wagga Wagga | 139 | 24.6 | 13 | 2.3 | 145 | 25.6 | 252 | 44.5 | 148 | 26.1 | 67 | 11.8 | 566 | 100.0 |
| Other area hospitals | 110 | 9.1 | 47 | 3.9 | 368 | 30.6 | 687 | 57.1 | 188 | 15.6 | 186 | 15.5 | 1203 | 100.0 |
| Other–Not stated | 597 | 15.5 | 154 | 4.0 | 1036 | 27.0 | 1985 | 51.7 | 620 | 16.1 | 607 | 15.8 | 3840 | 100.0 |
| **Greater Western** | | | | | | | | | | | | | | |
| Dubbo Base | 178 | 15.0 | 96 | 8.1 | 384 | 32.3 | 679 | 57.2 | 105 | 8.8 | 161 | 13.6 | 1188 | 100.0 |
| Bathurst Base | 137 | 24.3 | 35 | 6.2 | 39 | 6.9 | 278 | 49.4 | 27 | 4.8 | 100 | 17.8 | 563 | 100.0 |
| Cowra | 6 | 2.9 | 6 | 2.9 | 48 | 23.0 | 128 | 61.2 | 35 | 16.7 | 34 | 16.3 | 209 | 100.0 |
| Orange Base | 182 | 24.0 | 35 | 4.6 | 137 | 18.1 | 399 | 52.6 | 87 | 11.5 | 127 | 16.8 | 758 | 100.0 |
| Broken Hill Base | 19 | 7.4 | 10 | 3.9 | 74 | 28.8 | 163 | 63.4 | 51 | 19.8 | 38 | 14.8 | 257 | 100.0 |
| Other area hospitals | 60 | 10.0 | 43 | 7.2 | 128 | 21.3 | 270 | 45.0 | 86 | 14.3 | 146 | 24.3 | 600 | 100.0 |
| Other–Not stated | 582 | 16.3 | 225 | 6.3 | 810 | 22.7 | 1917 | 53.6 | 391 | 10.9 | 606 | 17.0 | 3575 | 100.0 |
| **Other–Not stated** | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0. | 0 | 0.0 | 88 | 94.6 | 93 | 100.0 |
| TOTALS | 23487 | 27.9 | 4213 | 5.0 | 18587 | 22.1 | 38518 | 45.7 | 12336 | 14.6 | 8584 | 10.2 | 84288 | 100.00 |

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Health Department.
# Hospitals with more than 200 deliveries are identified individually. All hospitals include all public and private hospitals.

## Perineal status in selected hospitals

Table 126 show the perineal status in vaginal births for individual hospitals where the number of reported confinements exceeded 200 in 2004, totals for all hospitals within each health area and the NSW total.

In addition to the perinatal outcomes described in the table there were a total of 88 cases of fourth degree tear reported in 2004.

**TABLE 126**

**VAGINAL BIRTHS BY PERINEAL STATUS AND HOSPITAL, NSW 2004[#]**

| Health Area and 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. | % |
| **Sydney South West** | | | | | | | | | | | | | | | | | | |
| Canterbury | 284 | 24.8 | 408 | 35.6 | 307 | 26.8 | 30 | 2.6 | 94 | 8.2 | 1 | 0.1 | 22 | 1.9 | 0 | 0.0 | 1146 | 100.0 |
| Royal Prince Alfred | 473 | 16.0 | 1157 | 39.0 | 943 | 31.8 | 79 | 2.7 | 219 | 7.4 | 10 | 0.3 | 84 | 2.8 | 0 | 0.0 | 2965 | 100.0 |
| Camden | 138 | 32.1 | 164 | 38.1 | 66 | 15.3 | 2 | 0.5 | 23 | 5.3 | 1 | 0.2 | 36 | 8.4 | 0 | 0.0 | 430 | 100.0 |
| Fairfield | 401 | 28.7 | 328 | 23.5 | 326 | 23.3 | 32 | 2.3 | 229 | 16.4 | 0 | 0.0 | 82 | 5.9 | 0 | 0.0 | 1398 | 100.0 |
| Liverpool | 643 | 27.4 | 601 | 25.6 | 453 | 19.3 | 39 | 1.7 | 475 | 20.2 | 4 | 0.2 | 133 | 5.7 | 0 | 0.0 | 2348 | 100.0 |
| Campbelltown | 409 | 30.5 | 327 | 24.3 | 290 | 21.6 | 20 | 1.5 | 150 | 11.2 | 1 | 0.1 | 146 | 10.9 | 0 | 0.0 | 1343 | 100.0 |
| Bankstown–Lidcombe | 340 | 23.2 | 432 | 29.5 | 323 | 22.0 | 32 | 2.2 | 207 | 14.1 | 5 | 0.3 | 126 | 8.6 | 0 | 0.0 | 1465 | 100.0 |
| Sydney Southwest Private | 162 | 20.7 | 175 | 22.3 | 164 | 20.9 | 9 | 1.1 | 253 | 32.3 | 10 | 1.3 | 11 | 1.4 | 0 | 0.0 | 784 | 100.0 |
| Bowral | 169 | 30.6 | 153 | 27.7 | 167 | 30.3 | 9 | 1.6 | 32 | 5.8 | 0 | 0.0 | 22 | 4.0 | 0 | 0.0 | 552 | 100.0 |
| ALL HOSPITALS | 3019 | 24.3 | 3745 | 30.1 | 3039 | 24.4 | 252 | 2.0 | 1682 | 13.5 | 32 | 0.3 | 662 | 5.3 | 0 | 0.0 | 12431 | 100.0 |
| **South Eastern Sydney & Illawarra** | | | | | | | | | | | | | | | | | | |
| Royal Hospital for Women | 485 | 19.1 | 834 | 32.8 | 701 | 27.6 | 33 | 1.3 | 351 | 13.8 | 8 | 0.3 | 128 | 5.0 | 1 | 0.0 | 2541 | 100.0 |
| St. George | 418 | 24.7 | 515 | 30.4 | 483 | 28.5 | 36 | 2.1 | 128 | 7.6 | 2 | 0.1 | 113 | 6.7 | 0 | 0.0 | 1695 | 100.0 |
| Sutherland | 169 | 24.7 | 171 | 25.0 | 207 | 30.3 | 6 | 0.9 | 62 | 9.1 | 1 | 0.1 | 68 | 9.9 | 0 | 0.0 | 684 | 100.0 |
| Hurstville Community | 91 | 15.2 | 143 | 24.0 | 161 | 27.0 | 5 | 0.8 | 177 | 29.6 | 14 | 2.3 | 6 | 1.0 | 0 | 0.0 | 597 | 100.0 |
| Kareena Private | 85 | 23.7 | 78 | 21.8 | 100 | 27.9 | 3 | 0.8 | 77 | 21.5 | 11 | 3.1 | 4 | 1.1 | 0 | 0.0 | 358 | 100.0 |
| St. George Private | 209 | 20.5 | 207 | 20.3 | 342 | 33.6 | 17 | 1.7 | 164 | 16.1 | 29 | 2.8 | 51 | 5.0 | 0 | 0.0 | 1019 | 100.0 |
| Prince of Wales Private | 145 | 15.7 | 220 | 23.8 | 274 | 29.6 | 11 | 1.2 | 238 | 25.7 | 11 | 1.2 | 24 | 2.6 | 3 | 0.3 | 926 | 100.0 |
| Shoalhaven | 195 | 30.9 | 217 | 34.3 | 91 | 14.4 | 19 | 3.0 | 60 | 9.5 | 2 | 0.3 | 48 | 7.6 | 0 | 0.0 | 632 | 100.0 |
| Wollongong | 345 | 21.2 | 710 | 43.5 | 390 | 23.9 | 28 | 1.7 | 151 | 9.3 | 5 | 0.3 | 2 | 0.1 | 0 | 0.0 | 1631 | 100.0 |
| Illawarra Private | 185 | 24.2 | 107 | 14.0 | 227 | 29.6 | 7 | 0.9 | 216 | 28.2 | 12 | 1.6 | 12 | 1.6 | 0 | 0.0 | 766 | 100.0 |
| Other area hospitals | 27 | 62.8 | 7 | 16.3 | 4 | 9.3 | 0 | 0.0 | 4 | 9.3 | 0 | 0.0 | 1 | 2.3 | 0 | 0.0 | 43 | 100.0 |
| ALL HOSPITALS | 2354 | 21.6 | 3209 | 29.5 | 2980 | 27.4 | 165 | 1.5 | 1628 | 14.9 | 95 | 0.9 | 457 | 4.2 | 4 | 0.0 | 10892 | 100.0 |
| **Sydney West** | | | | | | | | | | | | | | | | | | |
| Auburn | 393 | 42.4 | 223 | 24.1 | 159 | 17.2 | 6 | 0.6 | 89 | 9.6 | 0 | 0.0 | 55 | 5.9 | 1 | 0.1 | 926 | 100.0 |
| Blacktown | 435 | 22.4 | 653 | 33.6 | 338 | 17.4 | 44 | 2.3 | 303 | 15.6 | 9 | 0.5 | 162 | 8.3 | 0 | 0.0 | 1944 | 100.0 |
| Blue Mountains | 66 | 32.5 | 56 | 27.6 | 52 | 25.6 | 4 | 2.0 | 9 | 4.4 | 0 | 0.0 | 16 | 7.9 | 0 | 0.0 | 203 | 100.0 |
| Nepean | 616 | 28.7 | 692 | 32.2 | 415 | 19.3 | 32 | 1.5 | 180 | 8.4 | 9 | 0.4 | 205 | 9.5 | 0 | 0.0 | 2149 | 100.0 |
| Westmead | 626 | 21.0 | 833 | 28.0 | 583 | 19.6 | 67 | 2.2 | 646 | 21.7 | 16 | 0.5 | 207 | 7.0 | 0 | 0.0 | 2978 | 100.0 |
| The Hills Private | 267 | 27.9 | 168 | 17.6 | 297 | 31.1 | 7 | 0.7 | 186 | 19.5 | 16 | 1.7 | 14 | 1.5 | 1 | 0.1 | 956 | 100.0 |
| Hawkesbury | 225 | 39.3 | 154 | 26.9 | 111 | 19.4 | 7 | 1.2 | 43 | 7.5 | 1 | 0.2 | 31 | 5.4 | 0 | 0.0 | 572 | 100.0 |
| Nepean Private | 103 | 17.3 | 82 | 13.8 | 180 | 30.3 | 1 | 0.2 | 200 | 33.7 | 17 | 2.9 | 11 | 1.9 | 0 | 0.0 | 594 | 100.0 |
| Westmead Private | 245 | 20.4 | 251 | 20.9 | 284 | 23.6 | 9 | 0.7 | 390 | 32.4 | 14 | 1.2 | 9 | 0.7 | 0 | 0.0 | 1202 | 100.0 |
| Other area hospitals | 39 | 25.3 | 41 | 26.6 | 33 | 21.4 | 0 | 0.0 | 33 | 21.4 | 7 | 4.5 | 1 | 0.6 | 0 | 0.0 | 154 | 100.0 |
| ALL HOSPITALS | 3015 | 25.8 | 3153 | 27.0 | 2452 | 21.0 | 177 | 1.5 | 2079 | 17.8 | 89 | 0.8 | 711 | 6.1 | 2 | 0.0 | 11678 | 100.0 |
| **Northern Sydney & Central Coast** | | | | | | | | | | | | | | | | | | |
| Gosford | 577 | 37.7 | 415 | 27.1 | 487 | 31.8 | 30 | 2.0 | 9 | 0.6 | 12 | 0.8 | 1 | 0.1 | 0 | 0.0 | 153 | 100.0 |
| Wyong | 130 | 49.6 | 53 | 20.2 | 74 | 28.2 | 2 | 0.8 | 0 | 0.0 | 3 | 1.1 | 0 | 0.0 | 0 | 0.0 | 262 | 100.0 |
| Hornsby | 117 | 17.2 | 152 | 22.3 | 261 | 38.3 | 20 | 2.9 | 59 | 8.7 | 3 | 0.4 | 69 | 10.1 | 0 | 0.0 | 681 | 100.0 |
| Manly | 74 | 14.3 | 154 | 29.8 | 165 | 32.0 | 20 | 3.9 | 32 | 6.2 | 1 | 0.2 | 70 | 13.6 | 0 | 0.0 | 516 | 100.0 |
| Mona Vale | 113 | 24.1 | 170 | 36.3 | 112 | 23.9 | 5 | 1.1 | 36 | 7.7 | 1 | 0.2 | 31 | 6.6 | 0 | 0.0 | 468 | 100.0 |
| Royal North Shore | 234 | 15.3 | 384 | 25.0 | 524 | 34.2 | 41 | 2.7 | 189 | 12.3 | 3 | 0.2 | 158 | 10.3 | 0 | 0.0 | 1533 | 100.0 |
| Ryde | 35 | 15.4 | 91 | 40.1 | 57 | 25.1 | 4 | 1.8 | 16 | 7.0 | 0 | 0.0 | 24 | 10.6 | 0 | 0.0 | 227 | 100.0 |
| Mater, North Sydney | 160 | 15.4 | 216 | 20.8 | 285 | 27.5 | 8 | 0.8 | 304 | 29.3 | 30 | 2.9 | 34 | 3.3 | 0 | 0.0 | 1037 | 100.0 |
| North Shore Private | 195 | 14.2 | 287 | 20.9 | 428 | 31.2 | 33 | 2.4 | 370 | 27.0 | 1 | 0.1 | 57 | 4.2 | 0 | 0.0 | 1371 | 100.0 |
| Sydney Adventist | 265 | 18.0 | 366 | 24.8 | 372 | 25.2 | 13 | 0.9 | 430 | 29.2 | 25 | 1.7 | 3 | 0.2 | 0 | 0.0 | 1474 | 100.0 |
| North Gosford Private | 128 | 23.6 | 111 | 20.5 | 166 | 30.6 | 6 | 1.1 | 101 | 18.6 | 15 | 2.8 | 15 | 2.8 | 0 | 0.0 | 542 | 100.0 |
| ALL HOSPITALS | 2028 | 21.0 | 2399 | 24.9 | 2931 | 30.4 | 182 | 1.9 | 1546 | 16.0 | 94 | 1.0 | 462 | 4.8 | 0 | 0.0 | 9642 | 100.0 |

**TABLE 126 *(continued)***

**VAGINAL BIRTHS BY PERINEAL STATUS AND HOSPITAL, NSW 2004[#]**

| Health Area and 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. | % |
| **Hunter & New England** | | | | | | | | | | | | | | | | | | |
| Armidale | 96 | 29.8 | 62 | 19.3 | 75 | 23.3 | 0 | 0.0 | 71 | 22.0 | 6 | 1.9 | 12 | 3.7 | 0 | 0.0 | 322 | 100.0 |
| Inverell | 62 | 35.6 | 46 | 26.4 | 11 | 6.3 | 2 | 1.1 | 50 | 28.7 | 1 | 0.6 | 2 | 1.1 | 0 | 0.0 | 174 | 100.0 |
| Moree | 67 | 42.7 | 37 | 23.6 | 34 | 21.7 | 2 | 1.3 | 6 | 3.8 | 7 | 4.5 | 4 | 2.5 | 0 | 0.0 | 157 | 100.0 |
| Tamworth Base | 148 | 28.8 | 197 | 38.3 | 107 | 20.8 | 3 | 0.6 | 40 | 7.8 | 5 | 1.0 | 14 | 2.7 | 0 | 0.0 | 514 | 100.0 |
| Manning Base | 237 | 45.2 | 145 | 27.7 | 85 | 16.2 | 4 | 0.8 | 19 | 3.6 | 8 | 1.5 | 26 | 5.0 | 0 | 0.0 | 524 | 100.0 |
| Maitland | 357 | 35.0 | 327 | 32.1 | 187 | 18.4 | 13 | 1.3 | 51 | 5.0 | 1 | 0.1 | 83 | 8.1 | 0 | 0.0 | 1019 | 100.0 |
| Muswellbrook | 84 | 43.5 | 45 | 23.3 | 42 | 21.8 | 2 | 1.0 | 12 | 6.2 | 5 | 2.6 | 3 | 1.6 | 0 | 0.0 | 193 | 100.0 |
| Belmont | 148 | 33.2 | 179 | 40.1 | 69 | 15.5 | 9 | 2.0 | 24 | 5.4 | 1 | 0.2 | 16 | 3.6 | 0 | 0.0 | 446 | 100.0 |
| John Hunter | 488 | 22.0 | 975 | 44.0 | 414 | 18.7 | 82 | 3.7 | 119 | 5.4 | 5 | 0.2 | 131 | 5.9 | 0 | 0.0 | 2214 | 100.0 |
| Christo Road Private | 94 | 28.1 | 54 | 16.2 | 120 | 35.9 | 6 | 1.8 | 57 | 17.1 | 0 | 0.0 | 3 | 0.9 | 0 | 0.0 | 334 | 100.0 |
| NIB Private | 161 | 27.2 | 108 | 18.2 | 198 | 33.4 | 11 | 1.9 | 102 | 17.2 | 3 | 0.5 | 9 | 1.5 | 0 | 0.0 | 592 | 100.0 |
| Other area hospitals | 296 | 39.7 | 182 | 24.4 | 161 | 21.6 | 4 | 0.5 | 84 | 11.3 | 12 | 1.6 | 7 | 0.9 | 0 | 0.0 | 746 | 100.0 |
| ALL HOSPITALS | 2238 | 30.9 | 2357 | 32.6 | 1503 | 20.8 | 138 | 1.9 | 635 | 8.8 | 54 | 0.7 | 310 | 4.3 | 0 | 0.0 | 7235 | 100.0 |
| **North Coast** | | | | | | | | | | | | | | | | | | |
| Coffs Harbour | 207 | 37.5 | 143 | 25.9 | 114 | 20.7 | 2 | 0.4 | 59 | 10.7 | 5 | 0.9 | 22 | 4.0 | 0 | 0.0 | 552 | 100.0 |
| Grafton Base | 113 | 45.4 | 57 | 22.9 | 38 | 15.3 | 2 | 0.8 | 28 | 11.2 | 7 | 2.8 | 4 | 1.6 | 0 | 0.0 | 249 | 100.0 |
| Kempsey | 143 | 52.6 | 64 | 23.5 | 50 | 18.4 | 3 | 1.1 | 10 | 3.7 | 1 | 0.4 | 1 | 0.4 | 0 | 0.0 | 272 | 100.0 |
| Lismore Base | 242 | 27.9 | 268 | 30.9 | 237 | 27.4 | 20 | 2.3 | 70 | 8.1 | 23 | 2.7 | 6 | 0.7 | 0 | 0.0 | 866 | 100.0 |
| Murwillumbah | 82 | 32.8 | 56 | 22.4 | 51 | 20.4 | 2 | 0.8 | 42 | 16.8 | 5 | 2.0 | 12 | 4.8 | 0 | 0.0 | 250 | 100.0 |
| Tweed Heads | 244 | 35.2 | 239 | 34.5 | 142 | 20.5 | 11 | 1.6 | 31 | 4.5 | 4 | 0.6 | 22 | 3.2 | 0 | 0.0 | 693 | 100.0 |
| Port Macquarie Base | 192 | 36.5 | 93 | 17.7 | 138 | 26.2 | 2 | 0.4 | 68 | 12.9 | 12 | 2.3 | 21 | 4.0 | 0 | 0.0 | 526 | 100.0 |
| Other area hospitals | 160 | 40.2 | 116 | 29.1 | 62 | 15.6 | 5 | 1.3 | 39 | 9.8 | 8 | 2.0 | 8 | 2.0 | 0 | 0.0 | 398 | 100.0 |
| ALL HOSPITALS | 1383 | 36.3 | 1036 | 27.2 | 832 | 21.9 | 47 | 1.2 | 347 | 9.1 | 65 | 1.7 | 96 | 2.5 | 0 | 0.0 | 3806 | 100.0 |
| **Greater Southern** | | | | | | | | | | | | | | | | | | |
| Cooma | 83 | 51.9 | 34 | 21.3 | 37 | 23.1 | 0 | 0.0 | 5 | 3.1 | 0 | 0.0 | 1 | 0.6 | 0 | 0.0 | 160 | 100.0 |
| Goulburn Base | 60 | 28.6 | 18 | 8.6 | 39 | 18.6 | 2 | 1.0 | 79 | 37.6 | 7 | 3.3 | 5 | 2.4 | 0 | 0.0 | 210 | 100.0 |
| Moruya | 69 | 36.5 | 57 | 30.2 | 47 | 24.9 | 1 | 0.5 | 13 | 6.9 | 2 | 1.1 | 0 | 0.0 | 0 | 0.0 | 189 | 100.0 |
| Queanbeyan | 92 | 41.4 | 60 | 27.0 | 49 | 22.1 | 3 | 1.4 | 10 | 4.5 | 3 | 1.4 | 5 | 2.3 | 0 | 0.0 | 222 | 100.0 |
| Griffith Base | 135 | 42.3 | 115 | 36.1 | 34 | 10.7 | 3 | 0.9 | 25 | 7.8 | 4 | 1.3 | 3 | 0.9 | 0 | 0.0 | 319 | 100.0 |
| Wagga Wagga Base | 180 | 38.0 | 149 | 31.4 | 93 | 19.6 | 4 | 0.8 | 36 | 7.6 | 4 | 0.8 | 8 | 1.7 | 0 | 0.0 | 474 | 100.0 |
| Calvary, Wagga Wagga | 88 | 23.5 | 56 | 15.0 | 145 | 38.8 | 9 | 2.4 | 54 | 14.4 | 17 | 4.5 | 2 | 0.5 | 3 | 0.8 | 374 | 100.0 |
| Other area hospitals | 389 | 41.2 | 230 | 24.3 | 193 | 20.4 | 5 | 0.5 | 105 | 11.1 | 12 | 1.3 | 11 | 1.2 | 0 | 0.0 | 945 | 100.0 |
| ALL HOSPITALS | 1096 | 37.9 | 719 | 24.9 | 637 | 22.0 | 27 | 0.9 | 327 | 11.3 | 49 | 1.7 | 35 | 1.2 | 3 | 0.1 | 2893 | 100.0 |
| **Greater Western** | | | | | | | | | | | | | | | | | | |
| Dubbo Base | 278 | 29.5 | 349 | 37.0 | 160 | 17.0 | 10 | 1.1 | 116 | 12.3 | 16 | 1.7 | 13 | 1.4 | 0 | 0.0 | 942 | 100.0 |
| Bathurst Base | 140 | 34.0 | 127 | 30.8 | 88 | 21.4 | 2 | 0.5 | 38 | 9.2 | 6 | 1.5 | 11 | 2.7 | 0 | 0.0 | 412 | 100.0 |
| Cowra | 78 | 47.0 | 27 | 16.3 | 40 | 24.1 | 5 | 3.0 | 8 | 4.8 | 4 | 2.4 | 4 | 2.4 | 0 | 0.0 | 166 | 100.0 |
| Orange Base | 204 | 36.8 | 125 | 22.6 | 152 | 27.4 | 12 | 2.2 | 38 | 6.9 | 5 | 0.9 | 18 | 3.2 | 0 | 0.0 | 554 | 100.0 |
| Broken Hill Base | 106 | 55.5 | 42 | 22.0 | 35 | 18.3 | 0 | 0.0 | 6 | 3.1 | 1 | 0.5 | 1 | 0.5 | 0 | 0.0 | 191 | 100.0 |
| Other area hospitals | 183 | 41.4 | 115 | 26.0 | 87 | 19.7 | 10 | 2.3 | 37 | 8.4 | 5 | 1.1 | 5 | 1.1 | 0 | 0.0 | 442 | 100.0 |
| ALL HOSPITALS | 989 | 36.5 | 785 | 29.0 | 562 | 20.8 | 39 | 1.4 | 243 | 9.0 | 37 | 1.4 | 52 | 1.9 | 0 | 0.0 | 2707 | 100.0 |
| **Other–Not stated** | 49 | 52.7 | 24 | 25.8 | 16 | 17.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 1.1 | 3 | 3.2 | 93 | 100.0 |
| TOTAL NSW | 16171 | 26.3 | 17427 | 28.4 | 14952 | 24.4 | 1027 | 1.7 | 8487 | 13.8 | 515 | 0.8 | 2786 | 4.5 | 12 | 0.0 | 61377 | 100.0 |

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Health Department.
# Hospitals with more than 200 deliveries are identified individually. All hospitals include all public and private hospitals.

## Birth weight in selected hospitals

Table 127 shows the birth weight of babies for individual hospitals where the number of reported confinements exceeded 200 in 2004, totals for all hospitals within each health area and the NSW total.

**TABLE 127**

**BIRTHS BY BABY BIRTH WEIGHT AND HOSPITAL, NSW 2004[#]**

| Health Area and Hospital | Birth weight (grams) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Less than 1,000 | | 1,000–1,499 | | 1,500–2,499 | | 2,500+ | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Sydney South West** | | | | | | | | | | | | |
| Canterbury | 6 | 0.4 | 1 | 0.1 | 61 | 4.2 | 1384 | 95.2 | 2 | 0.1 | 1454 | 100.0 |
| Royal Prince Alfred | 61 | 1.5 | 63 | 1.5 | 261 | 6.4 | 3716 | 90.5 | 5 | 0.1 | 4106 | 100.0 |
| Camden | 0 | 0.0 | 0 | 0.0 | 3 | 0.7 | 454 | 99.3 | 0 | 0.0 | 457 | 100.0 |
| Fairfield | 10 | 0.6 | 2 | 0.1 | 64 | 3.9 | 1558 | 95.2 | 2 | 0.1 | 1636 | 100.0 |
| Liverpool | 62 | 2.0 | 79 | 2.5 | 290 | 9.3 | 2684 | 86.1 | 2 | 0.1 | 3117 | 100.0 |
| Campbelltown | 8 | 0.4 | 5 | 0.3 | 102 | 5.6 | 1699 | 93.7 | 0 | 0.0 | 1814 | 100.0 |
| Bankstown–Lidcombe | 10 | 0.5 | 4 | 0.2 | 68 | 3.7 | 1753 | 95.5 | 0 | 0.0 | 1835 | 100.0 |
| Sydney Southwest Private | 4 | 0.4 | 3 | 0.3 | 44 | 4.0 | 1048 | 95.3 | 1 | 0.1 | 1100 | 100.0 |
| Bowral | 3 | 0.4 | 0 | 0.0 | 15 | 2.2 | 654 | 97.3 | 0 | 0.0 | 672 | 100.0 |
| ALL HOSPITALS | 164 | 1.0 | 157 | 1.0 | 908 | 5.6 | 14950 | 92.3 | 12 | 0.1 | 16191 | 100.0 |
| **South Eastern Sydney & Illawarra** | | | | | | | | | | | | |
| Royal Hospital for Women | 64 | 1.7 | 58 | 1.5 | 221 | 5.9 | 3427 | 90.8 | 3 | 0.1 | 3773 | 100.0 |
| St. George | 11 | 0.5 | 6 | 0.3 | 99 | 4.4 | 2113 | 94.7 | 2 | 0.1 | 2231 | 100.0 |
| Sutherland | 0 | 0.0 | 2 | 0.2 | 33 | 3.5 | 905 | 96.1 | 2 | 0.2 | 942 | 100.0 |
| Hurstville Community | 2 | 0.2 | 0 | 0.0 | 36 | 3.6 | 961 | 96.1 | 1 | 0.1 | 1000 | 100.0 |
| Kareena Private | 2 | 0.3 | 1 | 0.2 | 24 | 3.8 | 608 | 95.7 | 0 | 0.0 | 635 | 100.0 |
| St. George Private | 1 | 0.1 | 0 | 0.0 | 56 | 3.4 | 1608 | 96.6 | 0 | 0.0 | 1665 | 100.0 |
| Prince of Wales Private | 0 | 0.0 | 2 | 0.1 | 43 | 2.8 | 1491 | 96.8 | 5 | 0.3 | 1541 | 100.0 |
| Shoalhaven | 6 | 0.7 | 1 | 0.1 | 47 | 5.2 | 842 | 94.0 | 0 | 0.0 | 896 | 100.0 |
| Wollongong | 9 | 0.4 | 7 | 0.3 | 133 | 6.2 | 1984 | 93.0 | 1 | 0.0 | 2134 | 100.0 |
| Illawarra Private | 0 | 0.0 | 1 | 0.1 | 26 | 2.4 | 1068 | 97.5 | 0 | 0.0 | 1095 | 100.0 |
| Other area hospitals | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 47 | 97.9 | 1 | 2.1 | 48 | 100.0 |
| ALL HOSPITALS | 95 | 0.6 | 78 | 0.5 | 718 | 4.5 | 15054 | 94.3 | 15 | 0.1 | 15960 | 100.0 |
| **Sydney West** | | | | | | | | | | | | |
| Auburn | 4 | 0.4 | 3 | 0.3 | 31 | 2.8 | 1067 | 96.6 | 0 | 0.0 | 1105 | 100.0 |
| Blacktown | 10 | 0.4 | 5 | 0.2 | 121 | 4.8 | 2396 | 94.6 | 1 | 0.0 | 2533 | 100.0 |
| Blue Mountains | 0 | 0.0 | 0 | 0.0 | 7 | 2.8 | 243 | 97.2 | 0 | 0.0 | 250 | 100.0 |
| Nepean | 34 | 1.1 | 33 | 1.1 | 220 | 7.1 | 2813 | 90.7 | 0 | 0.0 | 3100 | 100.0 |
| Westmead | 87 | 2.1 | 92 | 2.2 | 311 | 7.3 | 3746 | 88.4 | 2 | 0.0 | 4238 | 100.0 |
| The Hills Private | 4 | 0.3 | 1 | 0.1 | 48 | 3.7 | 1230 | 95.9 | 0 | 0.0 | 1283 | 100.0 |
| Hawkesbury | 3 | 0.4 | 1 | 0.1 | 23 | 2.9 | 766 | 96.6 | 0 | 0.0 | 793 | 100.0 |
| Nepean Private | 1 | 0.1 | 0 | 0.0 | 28 | 3.0 | 905 | 96.9 | 0 | 0.0 | 934 | 100.0 |
| Westmead Private | 4 | 0.2 | 1 | 0.1 | 58 | 3.4 | 1644 | 96.3 | 0 | 0.0 | 1707 | 100.0 |
| Other area hospitals | 0 | 0.0 | 0 | 0.0 | 8 | 3.9 | 195 | 96.1 | 0 | 0.0 | 203 | 100.0 |
| ALL HOSPITALS | 147 | 0.9 | 136 | 0.8 | 855 | 5.3 | 15005 | 92.9 | 3 | 0.0 | 16146 | 100.0 |
| **Northern Sydney & Central Coast** | | | | | | | | | | | | |
| Gosford | 11 | 0.5 | 13 | 0.6 | 114 | 5.1 | 2083 | 93.8 | 0 | 0.0 | 2221 | 100.0 |
| Wyong | 0 | 0.0 | 2 | 0.7 | 8 | 2.9 | 267 | 96.4 | 0 | 0.0 | 277 | 100.0 |
| Hornsby | 2 | 0.2 | 1 | 0.1 | 21 | 2.2 | 936 | 97.5 | 0 | 0.0 | 960 | 100.0 |
| Manly | 1 | 0.1 | 2 | 0.3 | 26 | 3.8 | 664 | 95.8 | 0 | 0.0 | 693 | 100.0 |
| Mona Vale | 0 | 0.0 | 1 | 0.2 | 12 | 1.9 | 603 | 97.9 | 0 | 0.0 | 616 | 100.0 |
| Royal North Shore | 45 | 2.0 | 46 | 2.0 | 188 | 8.2 | 2016 | 87.8 | 2 | 0.1 | 2297 | 100.0 |
| Ryde | 0 | 0.0 | 0 | 0.0 | 1 | 0.4 | 263 | 99.6 | 0 | 0.0 | 264 | 100.0 |
| Mater, North Sydney | 4 | 0.2 | 2 | 0.1 | 64 | 3.5 | 1733 | 96.1 | 0 | 0.0 | 1803 | 100.0 |
| North Shore Private | 13 | 0.5 | 5 | 0.2 | 86 | 3.5 | 2348 | 95.8 | 0 | 0.0 | 2452 | 100.0 |
| Sydney Adventist | 3 | 0.1 | 6 | 0.3 | 83 | 3.7 | 2150 | 95.9 | 0 | 0.0 | 2242 | 100.0 |
| North Gosford Private | 2 | 0.2 | 1 | 0.1 | 32 | 3.5 | 883 | 96.2 | 0 | 0.0 | 918 | 100.0 |
| ALL HOSPITALS | 81 | 0.5 | 79 | 0.5 | 635 | 4.3 | 13946 | 94.6 | 2 | 0.0 | 14743 | 100.0 |

**TABLE 127 *(continued)***

**BIRTHS BY BABY BIRTH WEIGHT AND HOSPITAL, NSW 2004[#]**

| Health Area and Hospital | Birth weight (grams) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Less than 1,000 | | 1,000–1,499 | | 1,500–2,499 | | 2,500+ | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Hunter & New England** | | | | | | | | | | | | |
| Armidale | 2 | 0.5 | 1 | 0.2 | 26 | 6.0 | 402 | 93.3 | 0 | 0.0 | 431 | 100.0 |
| Inverell | 0 | 0.0 | 1 | 0.4 | 13 | 5.5 | 220 | 93.6 | 1 | 0.4 | 235 | 100.0 |
| Moree | 1 | 0.5 | 1 | 0.5 | 7 | 3.4 | 194 | 95.6 | 0 | 0.0 | 203 | 100.0 |
| Tamworth Base | 7 | 1.0 | 5 | 0.7 | 38 | 5.5 | 637 | 92.6 | 1 | 0.1 | 688 | 100.0 |
| Manning Base | 9 | 1.3 | 2 | 0.3 | 36 | 5.1 | 654 | 93.2 | 1 | 0.1 | 702 | 100.0 |
| Maitland | 1 | 0.1 | 1 | 0.1 | 83 | 5.8 | 1343 | 94.0 | 0 | 0.0 | 1428 | 100.0 |
| Muswellbrook | 0 | 0.0 | 1 | 0.4 | 9 | 4.0 | 216 | 95.6 | 0 | 0.0 | 226 | 100.0 |
| Belmont | 0 | 0.0 | 0 | 0.0 | 21 | 3.6 | 567 | 96.3 | 1 | 0.2 | 589 | 100.0 |
| John Hunter | 51 | 1.7 | 67 | 2.3 | 263 | 8.9 | 2581 | 87.1 | 2 | 0.1 | 2964 | 100.0 |
| Christo Road Private | 1 | 0.2 | 0 | 0.0 | 20 | 4.1 | 468 | 95.5 | 1 | 0.2 | 490 | 100.0 |
| NIB Private | 0 | 0.0 | 1 | 0.1 | 34 | 3.7 | 888 | 96.2 | 0 | 0.0 | 923 | 100.0 |
| Other area hospitals | 5 | 0.5 | 1 | 0.1 | 27 | 2.8 | 926 | 96.4 | 2 | 0.2 | 961 | 100.0 |
| ALL HOSPITALS | 77 | 0.8 | 81 | 0.8 | 577 | 5.9 | 9096 | 92.4 | 9 | 0.1 | 9840 | 100.0 |
| **North Coast** | | | | | | | | | | | | |
| Grafton Base | 2 | 0.5 | 0 | 0.0 | 16 | 4.1 | 373 | 95.4 | 0 | 0.0 | 391 | 100.0 |
| Coffs Harbour | 1 | 0.1 | 1 | 0.1 | 42 | 5.5 | 719 | 94.1 | 1 | 0.1 | 764 | 100.0 |
| Kempsey | 1 | 0.3 | 0 | 0.0 | 19 | 5.9 | 301 | 93.8 | 0 | 0.0 | 321 | 100.0 |
| Lismore Base | 6 | 0.5 | 5 | 0.4 | 68 | 5.7 | 1120 | 93.4 | 0 | 0.0 | 1199 | 100.0 |
| Murwillumbah | 1 | 0.3 | 1 | 0.3 | 19 | 5.0 | 361 | 94.5 | 0 | 0.0 | 382 | 100.0 |
| Tweed Heads | 6 | 0.7 | 1 | 0.1 | 48 | 5.3 | 856 | 94.0 | 0 | 0.0 | 911 | 100.0 |
| Port Macquarie Base | 1 | 0.1 | 1 | 0.1 | 32 | 4.4 | 696 | 95.2 | 1 | 0.1 | 731 | 100.0 |
| Other area hospitals | 0 | 0.0 | 0 | 0.0 | 8 | 1.8 | 447 | 98.2 | 0 | 0.0 | 455 | 100.0 |
| ALL HOSPITALS | 18 | 0.3 | 9 | 0.2 | 252 | 4.9 | 4873 | 94.5 | 2 | 0.0 | 5154 | 100.0 |
| **Greater Southern** | | | | | | | | | | | | |
| Cooma | 0 | 0.0 | 0 | 0.0 | 7 | 3.4 | 200 | 96.6 | 0 | 0.0 | 207 | 100.0 |
| Goulburn Base | 0 | 0.0 | 1 | 0.4 | 8 | 2.8 | 274 | 96.8 | 0 | 0.0 | 283 | 100.0 |
| Moruya | 2 | 0.8 | 2 | 0.8 | 12 | 4.8 | 236 | 93.7 | 0 | 0.0 | 252 | 100.0 |
| Queanbeyan | 0 | 0.0 | 0 | 0.0 | 3 | 1.1 | 261 | 98.9 | 0 | 0.0 | 264 | 100.0 |
| Griffith Base | 0 | 0.0 | 1 | 0.2 | 16 | 3.7 | 420 | 95.9 | 1 | 0.2 | 438 | 100.0 |
| Wagga Wagga Base | 2 | 0.3 | 4 | 0.6 | 59 | 9.0 | 587 | 89.8 | 2 | 0.3 | 654 | 100.0 |
| Calvary, Wagga Wagga | 2 | 0.3 | 1 | 0.2 | 21 | 3.7 | 547 | 95.3 | 3 | 0.5 | 574 | 100.0 |
| Other area hospitals | 1 | 0.1 | 0 | 0.0 | 36 | 3.0 | 1168 | 96.9 | 0 | 0.0 | 1205 | 100.0 |
| ALL HOSPITALS | 7 | 0.2 | 9 | 0.2 | 162 | 4.2 | 3693 | 95.3 | 6 | 0.2 | 3877 | 100.0 |
| **Greater Western** | | | | | | | | | | | | |
| Dubbo Base | 5 | 0.4 | 3 | 0.2 | 66 | 5.5 | 1132 | 93.9 | 0 | 0.0 | 1206 | 100.0 |
| Bathurst Base | 3 | 0.5 | 0 | 0.0 | 28 | 4.9 | 541 | 94.6 | 0 | 0.0 | 572 | 100.0 |
| Cowra | 0 | 0.0 | 0 | 0.0 | 3 | 1.4 | 206 | 98.6 | 0 | 0.0 | 209 | 100.0 |
| Orange Base | 8 | 1.0 | 1 | 0.1 | 52 | 6.7 | 711 | 92.1 | 0 | 0.0 | 772 | 100.0 |
| Broken Hill Base | 0 | 0.0 | 0 | 0.0 | 16 | 6.2 | 244 | 93.8 | 0 | 0.0 | 260 | 100.0 |
| Other area hospitals | 4 | 0.7 | 5 | 0.8 | 17 | 2.8 | 577 | 95.7 | 0 | 0.0 | 603 | 100.0 |
| ALL HOSPITALS | 20 | 0.6 | 9 | 0.2 | 182 | 5.0 | 3411 | 94.2 | 0 | 0.0 | 3622 | 100.0 |
| **Other–Not stated** | 0 | 0.0 | 0 | 0.0 | 1 | 1.1 | 92 | 98.9 | 0 | 0.0 | 93 | 100.0 |
| TOTAL NSW | 609 | 0.7 | 558 | 0.7 | 4290 | 5.0 | 80120 | 93.6 | 49 | 0.1 | 85626 | 100.0 |

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Health Department.
# Hospitals with more than 200 deliveries are identified individually. All hospitals include all public and private hospitals.

## Gestational age in selected hospitals

Table 128 shows the gestational age of babies for individual hospitals where the number of reported confinements exceeded 200 in 2004, totals for all hospitals within each health area, and the NSW total.

**TABLE 128**

**BIRTHS BY GESTATIONAL AGE AND HOSPITAL, NSW 2004#**

| Health Area and Hospital | Gestational age (weeks) <31 | | 32–33 | | 34–36 | | 37+ | | Not stated | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Sydney South West** | | | | | | | | | | | | |
| Canterbury | 10 | 0.7 | 2 | 0.1 | 57 | 3.9 | 1385 | 95.3 | 0 | 0.0 | 1454 | 100.0 |
| Royal Prince Alfred | 150 | 3.7 | 80 | 1.9 | 197 | 4.8 | 3679 | 89.6 | 0 | 0.0 | 4106 | 100.0 |
| Camden | 0 | 0.0 | 0 | 0.0 | 5 | 1.1 | 452 | 98.9 | 0 | 0.0 | 457 | 100.0 |
| Fairfield | 14 | 0.9 | 4 | 0.2 | 54 | 3.3 | 1564 | 95.6 | 0 | 0.0 | 1636 | 100.0 |
| Liverpool | 158 | 5.1 | 99 | 3.2 | 179 | 5.7 | 2681 | 86.0 | 0 | 0.0 | 3117 | 100.0 |
| Campbelltown | 13 | 0.7 | 3 | 0.2 | 124 | 6.8 | 1674 | 92.3 | 0 | 0.0 | 1814 | 100.0 |
| Bankstown–Lidcombe | 13 | 0.7 | 3 | 0.2 | 69 | 3.8 | 1750 | 95.4 | 0 | 0.0 | 1835 | 100.0 |
| Sydney Southwest Private | 8 | 0.7 | 4 | 0.4 | 49 | 4.5 | 1039 | 94.5 | 0 | 0.0 | 1100 | 100.0 |
| Bowral | 3 | 0.4 | 1 | 0.1 | 22 | 3.3 | 646 | 96.1 | 0 | 0.0 | 672 | 100.0 |
| ALL HOSPITALS | 369 | 2.3 | 196 | 1.2 | 756 | 4.7 | 14870 | 91.8 | 0 | 0.0 | 16191 | 100.0 |
| **South Eastern Sydney & Illawarra** | | | | | | | | | | | | |
| Royal Hospital for Women | 131 | 3.5 | 62 | 1.6 | 200 | 5.3 | 3380 | 89.6 | 0 | 0.0 | 3773 | 100.0 |
| St. George | 15 | 0.7 | 14 | 0.6 | 84 | 3.8 | 2118 | 94.9 | 0 | 0.0 | 2231 | 100.0 |
| Sutherland | 2 | 0.2 | 1 | 0.1 | 36 | 3.8 | 903 | 95.9 | 0 | 0.0 | 942 | 100.0 |
| Hurstville Community | 5 | 0.5 | 4 | 0.4 | 39 | 3.9 | 952 | 95.2 | 0 | 0.0 | 1000 | 100.0 |
| Kareena Private | 2 | 0.3 | 5 | 0.8 | 30 | 4.7 | 598 | 94.2 | 0 | 0.0 | 635 | 100.0 |
| St. George Private | 1 | 0.1 | 4 | 0.2 | 90 | 5.4 | 1570 | 94.3 | 0 | 0.0 | 1665 | 100.0 |
| Prince of Wales Private | 2 | 0.1 | 3 | 0.2 | 68 | 4.4 | 1466 | 95.1 | 2 | 0.1 | 1541 | 100.0 |
| Shoalhaven | 5 | 0.6 | 7 | 0.8 | 43 | 4.8 | 841 | 93.9 | 0 | 0.0 | 896 | 100.0 |
| Wollongong | 13 | 0.6 | 31 | 1.5 | 137 | 6.4 | 1953 | 91.5 | 0 | 0.0 | 2134 | 100.0 |
| Illawarra Private | 0 | 0.0 | 1 | 0.1 | 44 | 4.0 | 1050 | 95.9 | 0 | 0.0 | 1095 | 100.0 |
| Other area hospitals | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 48 | 100.0 | 0 | 0.0 | 48 | 100.0 |
| ALL HOSPITALS | 176 | 1.1 | 132 | 0.8 | 771 | 4.8 | 14879 | 93.2 | 2 | 0.0 | 15960 | 100.0 |
| **Sydney West** | | | | | | | | | | | | |
| Auburn | 5 | 0.5 | 5 | 0.5 | 33 | 3.0 | 1062 | 96.1 | 0 | 0.0 | 1105 | 100.0 |
| Blacktown | 13 | 0.5 | 15 | 0.6 | 104 | 4.1 | 2401 | 94.8 | 0 | 0.0 | 2533 | 100.0 |
| Blue Mountains | 0 | 0.0 | 0 | 0.0 | 8 | 3.2 | 242 | 96.8 | 0 | 0.0 | 250 | 100.0 |
| Nepean | 73 | 2.4 | 54 | 1.7 | 181 | 5.8 | 2792 | 90.1 | 0 | 0.0 | 3100 | 100.0 |
| Westmead | 200 | 4.7 | 90 | 2.1 | 209 | 4.9 | 3739 | 88.2 | 0 | 0.0 | 4238 | 100.0 |
| The Hills Private | 6 | 0.5 | 8 | 0.6 | 69 | 5.4 | 1200 | 93.5 | 0 | 0.0 | 1283 | 100.0 |
| Hawkesbury | 5 | 0.6 | 4 | 0.5 | 33 | 4.2 | 751 | 94.7 | 0 | 0.0 | 793 | 100.0 |
| Nepean Private | 1 | 0.1 | 0 | 0.0 | 38 | 4.1 | 895 | 95.8 | 0 | 0.0 | 934 | 100.0 |
| Westmead Private | 6 | 0.4 | 5 | 0.3 | 73 | 4.3 | 1623 | 95.1 | 0 | 0.0 | 1707 | 100.0 |
| Other area hospitals | 0 | 0.0 | 1 | 0.5 | 7 | 3.4 | 195 | 96.1 | 0 | 0.0 | 203 | 100.0 |
| ALL HOSPITALS | 309 | 1.9 | 182 | 1.1 | 755 | 4.7 | 14900 | 92.3 | 0 | 0.0 | 16146 | 100.0 |
| **Northern Sydney & Central Coast** | | | | | | | | | | | | |
| Gosford | 25 | 1.1 | 17 | 0.8 | 139 | 6.3 | 2040 | 91.9 | 0 | 0.0 | 2221 | 100.0 |
| Wyong | 2 | 0.7 | 1 | 0.4 | 4 | 1.4 | 270 | 97.5 | 0 | 0.0 | 277 | 100.0 |
| Hornsby | 4 | 0.4 | 4 | 0.4 | 28 | 2.9 | 924 | 96.3 | 0 | 0.0 | 960 | 100.0 |
| Manly | 3 | 0.4 | 2 | 0.3 | 32 | 4.6 | 656 | 94.7 | 0 | 0.0 | 693 | 100.0 |
| Mona Vale | 1 | 0.2 | 3 | 0.5 | 26 | 4.2 | 586 | 95.1 | 0 | 0.0 | 616 | 100.0 |
| Royal North Shore | 113 | 4.9 | 58 | 2.5 | 122 | 5.3 | 2004 | 87.2 | 0 | 0.0 | 2297 | 100.0 |
| Ryde | 0 | 0.0 | 0 | 0.0 | 7 | 2.7 | 257 | 97.3 | 0 | 0.0 | 264 | 100.0 |
| Mater, North Sydney | 4 | 0.2 | 11 | 0.6 | 79 | 4.4 | 1709 | 94.8 | 0 | 0.0 | 1803 | 100.0 |
| North Shore Private | 13 | 0.5 | 12 | 0.5 | 107 | 4.4 | 2320 | 94.6 | 0 | 0.0 | 2452 | 100.0 |
| Sydney Adventist | 8 | 0.4 | 13 | 0.6 | 124 | 5.5 | 2097 | 93.5 | 0 | 0.0 | 2242 | 100.0 |
| North Gosford Private | 2 | 0.2 | 3 | 0.3 | 53 | 5.8 | 860 | 93.7 | 0 | 0.0 | 918 | 100.0 |
| ALL HOSPITALS | 175 | 1.2 | 124 | 0.8 | 721 | 4.9 | 13723 | 93.1 | 0 | 0.0 | 14743 | 100.0 |

**TABLE 128 *(continued)***

**BIRTHS BY GESTATIONAL AGE AND HOSPITAL, NSW 2004#**

| Health Area and Hospital | Gestational age (weeks) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | <31 | | 32–33 | | 34–36 | | 37+ | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Hunter & New England** | | | | | | | | | | | | |
| Armidale | 4 | 0.9 | 0 | 0.0 | 28 | 6.5 | 399 | 92.6 | 0 | 0.0 | 431 | 100.0 |
| Inverell | 2 | 0.9 | 3 | 1.3 | 10 | 4.3 | 220 | 93.6 | 0 | 0.0 | 235 | 100.0 |
| Moree | 2 | 1.0 | 1 | 0.5 | 7 | 3.4 | 193 | 95.1 | 0 | 0.0 | 203 | 100.0 |
| Tamworth Base | 11 | 1.6 | 3 | 0.4 | 55 | 8.0 | 619 | 90.0 | 0 | 0.0 | 688 | 100.0 |
| Manning Base | 11 | 1.6 | 4 | 0.6 | 34 | 4.8 | 653 | 93.0 | 0 | 0.0 | 702 | 100.0 |
| Maitland | 2 | 0.1 | 10 | 0.7 | 77 | 5.4 | 1339 | 93.8 | 0 | 0.0 | 1428 | 100.0 |
| Muswellbrook | 1 | 0.4 | 0 | 0.0 | 9 | 4.0 | 216 | 95.6 | 0 | 0.0 | 226 | 100.0 |
| Belmont | 0 | 0.0 | 1 | 0.2 | 26 | 4.4 | 562 | 95.4 | 0 | 0.0 | 589 | 100.0 |
| John Hunter | 121 | 4.1 | 68 | 2.3 | 239 | 8.1 | 2536 | 85.6 | 0 | 0.0 | 2964 | 100.0 |
| Christo Road Private | 1 | 0.2 | 1 | 0.2 | 40 | 8.2 | 448 | 91.4 | 0 | 0.0 | 490 | 100.0 |
| NIB Private | 2 | 0.2 | 3 | 0.3 | 60 | 6.5 | 858 | 93.0 | 0 | 0.0 | 923 | 100.0 |
| Other area hospitals | 6 | 0.6 | 0 | 0.0 | 15 | 1.6 | 940 | 97.8 | 0 | 0.0 | 961 | 100.0 |
| ALL HOSPITALS | 163 | 1.7 | 94 | 1.0 | 600 | 6.1 | 8983 | 91.3 | 0 | 0.0 | 9840 | 100.0 |
| **North Coast** | | | | | | | | | | | | |
| Coffs Harbour | 5 | 0.7 | 4 | 0.5 | 43 | 5.6 | 712 | 93.2 | 0 | 0.0 | 764 | 100.0 |
| Grafton Base | 2 | 0.5 | 2 | 0.5 | 20 | 5.1 | 367 | 93.9 | 0 | 0.0 | 391 | 100.0 |
| Kempsey | 1 | 0.3 | 0 | 0.0 | 8 | 2.5 | 312 | 97.2 | 0 | 0.0 | 321 | 100.0 |
| Lismore Base | 8 | 0.7 | 12 | 1.0 | 77 | 6.4 | 1102 | 91.9 | 0 | 0.0 | 1199 | 100.0 |
| Murwillumbah | 2 | 0.5 | 0 | 0.0 | 15 | 3.9 | 365 | 95.5 | 0 | 0.0 | 382 | 100.0 |
| Tweed Heads | 6 | 0.7 | 2 | 0.2 | 53 | 5.8 | 850 | 93.3 | 0 | 0.0 | 911 | 100.0 |
| Port Macquarie Base | 3 | 0.4 | 4 | 0.5 | 38 | 5.2 | 686 | 93.8 | 0 | 0.0 | 731 | 100.0 |
| Other area hospitals | 0 | 0.0 | 0 | 0.0 | 5 | 1.1 | 450 | 98.9 | 0 | 0.0 | 455 | 100.0 |
| ALL HOSPITALS | 27 | 0.5 | 24 | 0.5 | 259 | 5.0 | 4844 | 94.0 | 0 | 0.0 | 5154 | 100.0 |
| **Greater Southern** | | | | | | | | | | | | |
| Cooma | 0 | 0.0 | 0 | 0.0 | 8 | 3.9 | 199 | 96.1 | 0 | 0.0 | 207 | 100.0 |
| Goulburn Base | 0 | 0.0 | 0 | 0.0 | 12 | 4.2 | 271 | 95.8 | 0 | 0.0 | 283 | 100.0 |
| Moruya | 4 | 1.6 | 0 | 0.0 | 9 | 3.6 | 239 | 94.8 | 0 | 0.0 | 252 | 100.0 |
| Queanbeyan | 0 | 0.0 | 0 | 0.0 | 5 | 1.9 | 259 | 98.1 | 0 | 0.0 | 264 | 100.0 |
| Griffith Base | 3 | 0.7 | 2 | 0.5 | 20 | 4.6 | 413 | 94.3 | 0 | 0.0 | 438 | 100.0 |
| Wagga Wagga Base | 9 | 1.4 | 6 | 0.9 | 69 | 10.6 | 570 | 87.2 | 0 | 0.0 | 654 | 100.0 |
| Calvary, Wagga Wagga | 4 | 0.7 | 2 | 0.3 | 19 | 3.3 | 548 | 95.5 | 1 | 0.2 | 574 | 100.0 |
| Other area hospitals | 4 | 0.3 | 1 | 0.1 | 28 | 2.3 | 1171 | 97.2 | 1 | 0.1 | 1205 | 100.0 |
| ALL HOSPITALS | 24 | 0.6 | 11 | 0.3 | 170 | 4.4 | 3670 | 94.7 | 2 | 0.1 | 3877 | 100.0 |
| **Greater Western** | | | | | | | | | | | | |
| Dubbo Base | 7 | 0.6 | 7 | 0.6 | 57 | 4.7 | 1135 | 94.1 | 0 | 0.0 | 1206 | 100.0 |
| Bathurst Base | 5 | 0.9 | 0 | 0.0 | 27 | 4.7 | 540 | 94.4 | 0 | 0.0 | 572 | 100.0 |
| Cowra | 0 | 0.0 | 0 | 0.0 | 5 | 2.4 | 204 | 97.6 | 0 | 0.0 | 209 | 100.0 |
| Orange Base | 9 | 1.2 | 3 | 0.4 | 53 | 6.9 | 707 | 91.6 | 0 | 0.0 | 772 | 100.0 |
| Broken Hill Base | 0 | 0.0 | 1 | 0.4 | 16 | 6.2 | 243 | 93.5 | 0 | 0.0 | 260 | 100.0 |
| Other area hospitals | 8 | 1.3 | 1 | 0.2 | 8 | 1.3 | 586 | 97.2 | 0 | 0.0 | 603 | 100.0 |
| ALL HOSPITALS | 29 | 0.8 | 12 | 0.3 | 166 | 4.6 | 3415 | 94.3 | 0 | 0.0 | 3622 | 100.0 |
| **Other–Not stated** | 0 | 0.0 | 0 | 0.0 | 2 | 2.2 | 91 | 97.8 | 0 | 0.0 | 93 | 100.0 |
| TOTAL NSW | 1272 | 1.5 | 775 | 0.9 | 4200 | 4.9 | 79375 | 92.7 | 4 | 0.0 | 85626 | 100.0 |

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Health Department.
# Hospitals with more than 200 deliveries are identified individually. All hospitals include all public and private hospitals.

## Neonatal resuscitation in selected hospitals

Table 129 shows the type of neonatal resuscitation for individual hospitals where the number of reported confinements exceeded 200 in 2004, totals for all hospitals within each health area, and the NSW total.

**TABLE 129**

**BIRTHS BY TYPE OF RESUSCITATION AND HOSPITAL, NSW 2004[#]**

| Health Area and Hospital | None | | Suction | | Oxygen therapy | | IPPR by bag and mask | | Resuscitation Intubation and IPPR massage and ventilation | | External cardiac | | Other | | Not stated | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Sydney South West** | | | | | | | | | | | | | | | | | | |
| Canterbury | 919 | 63.2 | 425 | 29.2 | 65 | 4.5 | 31 | 2.1 | 8 | 0.6 | 4 | 0.3 | 2 | 0.1 | 0 | 0.0 | 1454 | 100.0 |
| Royal Prince Alfred | 2489 | 60.6 | 1010 | 24.6 | 269 | 6.6 | 233 | 5.7 | 86 | 2.1 | 11 | 0.3 | 8 | 0.2 | 0 | 0.0 | 4106 | 100.0 |
| Camden | 372 | 81.4 | 42 | 9.2 | 25 | 5.5 | 18 | 3.9 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 457 | 100.0 |
| Fairfield | 1060 | 64.8 | 331 | 20.2 | 201 | 12.3 | 37 | 2.3 | 6 | 0.4 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 1636 | 100.0 |
| Liverpool | 2034 | 65.3 | 521 | 16.7 | 309 | 9.9 | 211 | 6.8 | 36 | 1.2 | 6 | 0.2 | 0 | 0.0 | 0 | 0.0 | 3117 | 100.0 |
| Campbelltown | 1408 | 77.6 | 164 | 9.0 | 204 | 11.2 | 26 | 1.4 | 2 | 0.1 | 10 | 0.6 | 0 | 0.0 | 0 | 0.0 | 1814 | 100.0 |
| Bankstown–Lidcombe | 1307 | 71.2 | 303 | 16.5 | 141 | 7.7 | 76 | 4.1 | 4 | 0.2 | 4 | 0.2 | 0 | 0.0 | 0 | 0.0 | 1835 | 100.0 |
| Sydney Southwest Private | 651 | 59.2 | 224 | 20.4 | 147 | 13.4 | 71 | 6.5 | 1 | 0.1 | 1 | 0.1 | 3 | 0.3 | 2 | 0.2 | 1100 | 100.0 |
| Bowral | 557 | 82.9 | 41 | 6.1 | 50 | 7.4 | 20 | 3.0 | 4 | 0.6 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 672 | 100.0 |
| ALL HOSPITALS | 10797 | 66.7 | 3061 | 18.9 | 1411 | 8.7 | 723 | 4.5 | 147 | 0.9 | 37 | 0.2 | 13 | 0.1 | 2 | 0.0 | 16191 | 100.0 |
| **South Eastern Sydney & Illawarra** | | | | | | | | | | | | | | | | | | |
| Royal Hospital for Women | 2317 | 61.4 | 851 | 22.6 | 372 | 9.9 | 164 | 4.3 | 51 | 1.4 | 18 | 0.5 | 0 | 0.0 | 0 | 0.0 | 3773 | 100.0 |
| St. George | 1684 | 75.5 | 172 | 7.7 | 270 | 12.1 | 92 | 4.1 | 5 | 0.2 | 8 | 0.4 | 0 | 0.0 | 0 | 0.0 | 2231 | 100.0 |
| Sutherland | 490 | 52.0 | 260 | 27.6 | 173 | 18.4 | 14 | 1.5 | 1 | 0.1 | 4 | 0.4 | 0 | 0.0 | 0 | 0.0 | 942 | 100.0 |
| Hurstville Community | 46 | 4.6 | 520 | 52.0 | 390 | 39.0 | 37 | 3.7 | 1 | 0.1 | 2 | 0.2 | 4 | 0.4 | 0 | 0.0 | 1000 | 100.0 |
| Kareena Private | 25 | 3.9 | 360 | 56.7 | 208 | 32.8 | 36 | 5.7 | 0 | 0.0 | 0 | 0.0 | 6 | 0.9 | 0 | 0.0 | 635 | 100.0 |
| St. George Private | 143 | 8.6 | 747 | 44.9 | 599 | 36.0 | 83 | 5.0 | 2 | 0.1 | 3 | 0.2 | 88 | 5.3 | 0 | 0.0 | 1665 | 100.0 |
| Prince of Wales Private | 497 | 32.3 | 684 | 44.4 | 232 | 15.1 | 81 | 5.3 | 5 | 0.3 | 0 | 0.0 | 31 | 2.0 | 11 | 0.7 | 1541 | 100.0 |
| Shoalhaven | 631 | 70.4 | 85 | 9.5 | 141 | 15.7 | 35 | 3.9 | 4 | 0.4 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 896 | 100.0 |
| Wollongong | 1091 | 51.1 | 502 | 23.5 | 406 | 19.0 | 128 | 6.0 | 7 | 0.3 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2134 | 100.0 |
| Illawarra Private | 67 | 6.1 | 751 | 68.6 | 230 | 21.0 | 45 | 4.1 | 2 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1095 | 100.0 |
| Other area hospitals | 39 | 81.3 | 3 | 6.3 | 4 | 8.3 | 1 | 2.1 | 1 | 2.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 48 | 100.0 |
| ALL HOSPITALS | 7030 | 44.0 | 4935 | 30.9 | 3025 | 19.0 | 716 | 4.5 | 79 | 0.5 | 35 | 0.2 | 129 | 0.8 | 11 | 0.1 | 15960 | 100.0 |
| **Sydney West** | | | | | | | | | | | | | | | | | | |
| Auburn | 860 | 77.8 | 87 | 7.9 | 75 | 6.8 | 75 | 6.8 | 5 | 0.5 | 3 | 0.3 | 0 | 0.0 | 0 | 0.0 | 1105 | 100.0 |
| Blacktown | 1421 | 56.1 | 623 | 24.6 | 362 | 14.3 | 101 | 4.0 | 15 | 0.6 | 11 | 0.4 | 0 | 0.0 | 0 | 0.0 | 2533 | 100.0 |
| Blue Mountains | 170 | 68.0 | 29 | 11.6 | 41 | 16.4 | 10 | 4.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 250 | 100.0 |
| Nepean | 1794 | 57.9 | 541 | 17.5 | 567 | 18.3 | 145 | 4.7 | 44 | 1.4 | 9 | 0.3 | 0 | 0.0 | 0 | 0.0 | 3100 | 100.0 |
| Westmead | 2978 | 70.3 | 443 | 10.5 | 518 | 12.2 | 165 | 3.9 | 98 | 2.3 | 36 | 0.8 | 0 | 0.0 | 0 | 0.0 | 4238 | 100.0 |
| The Hills Private | 835 | 65.1 | 221 | 17.2 | 179 | 14.0 | 46 | 3.6 | 1 | 0.1 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 1283 | 100.0 |
| Hawkesbury | 628 | 79.2 | 65 | 8.2 | 83 | 10.5 | 15 | 1.9 | 1 | 0.1 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 793 | 100.0 |
| Nepean Private | 398 | 42.6 | 134 | 14.3 | 323 | 34.6 | 73 | 7.8 | 2 | 0.2 | 1 | 0.1 | 3 | 0.3 | 0 | 0.0 | 934 | 100.0 |
| Westmead Private | 1005 | 58.9 | 355 | 20.8 | 216 | 12.7 | 114 | 6.7 | 4 | 0.2 | 5 | 0.3 | 8 | 0.5 | 0 | 0.0 | 1707 | 100.0 |
| Other area hospitals | 30 | 14.8 | 87 | 42.9 | 70 | 34.5 | 10 | 4.9 | 3 | 1.5 | 3 | 1.5 | 0 | 0.0 | 0 | 0.0 | 203 | 100.0 |
| ALL HOSPITALS | 10119 | 62.7 | 2585 | 16.0 | 2434 | 15.1 | 754 | 4.7 | 173 | 1.1 | 70 | 0.4 | 11 | 0.1 | 0 | 0.0 | 16146 | 100.0 |
| **Northern Sydney & Central Coast** | | | | | | | | | | | | | | | | | | |
| Gosford | 1208 | 54.4 | 350 | 15.8 | 476 | 21.4 | 162 | 7.3 | 7 | 0.3 | 17 | 0.8 | 1 | 0.0 | 0 | 0.0 | 2221 | 100.0 |
| Wyong | 179 | 64.6 | 38 | 13.7 | 39 | 14.1 | 18 | 6.5 | 1 | 0.4 | 2 | 0.7 | 0 | 0.0 | 0 | 0.0 | 277 | 100.0 |
| Hornsby | 633 | 65.9 | 159 | 16.6 | 141 | 14.7 | 18 | 1.9 | 4 | 0.4 | 5 | 0.5 | 0 | 0.0 | 0 | 0.0 | 960 | 100.0 |
| Manly | 350 | 50.5 | 216 | 31.2 | 88 | 12.7 | 38 | 5.5 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 693 | 100.0 |
| Mona Vale | 360 | 58.4 | 173 | 28.1 | 62 | 10.1 | 19 | 3.1 | 2 | 0.3 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 616 | 100.0 |
| Royal North Shore | 1175 | 51.2 | 738 | 32.1 | 210 | 9.1 | 118 | 5.1 | 50 | 2.2 | 5 | 0.2 | 1 | 0.0 | 0 | 0.0 | 2297 | 100.0 |
| Ryde | 180 | 68.2 | 49 | 18.6 | 27 | 10.2 | 8 | 3.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 264 | 100.0 |
| Mater, North Sydney | 732 | 40.6 | 604 | 33.5 | 276 | 15.3 | 140 | 7.8 | 4 | 0.2 | 1 | 0.1 | 46 | 2.6 | 0 | 0.0 | 1803 | 100.0 |
| North Shore Private | 971 | 39.6 | 1000 | 40.8 | 389 | 15.9 | 89 | 3.6 | 2 | 0.1 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2452 | 100.0 |
| Sydney Adventist | 475 | 21.2 | 1296 | 57.8 | 256 | 11.4 | 204 | 9.1 | 4 | 0.2 | 2 | 0.1 | 5 | 0.2 | 0 | 0.0 | 2242 | 100.0 |
| North Gosford Private | 386 | 42.0 | 272 | 29.6 | 219 | 23.9 | 38 | 4.1 | 0 | 0.0 | 1 | 0.1 | 2 | 0.2 | 0 | 0.0 | 918 | 100.0 |
| ALL HOSPITALS | 6649 | 45.1 | 4895 | 33.2 | 2183 | 14.8 | 852 | 5.8 | 74 | 0.5 | 35 | 0.2 | 55 | 0.4 | 0 | 0.0 | 14743 | 100.0 |

**TABLE 129 *(continued)***

**BIRTHS BY TYPE OF RESUSCITATION AND HOSPITAL, NSW 2004#**

| Health Area and Hospital | None | | Suction | | Oxygen therapy | | Resuscitatoin 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. | % |
| **Hunter & New England** | | | | | | | | | | | | | | | | | | |
| Armidale | 125 | 29.0 | 72 | 16.7 | 198 | 45.9 | 18 | 4.2 | 1 | 0.2 | 0 | 0.0 | 17 | 3.9 | 0 | 0.0 | 431 | 100.0 |
| Inverell | 3 | 1.3 | 11 | 4.7 | 211 | 89.8 | 9 | 3.8 | 0 | 0.0 | 1 | 0.4 | 0 | 0.0 | 0 | 0.0 | 235 | 100.0 |
| Moree | 97 | 47.8 | 50 | 24.6 | 46 | 22.7 | 7 | 3.4 | 2 | 1.0 | 0 | 0.0 | 1 | 0.5 | 0 | 0.0 | 203 | 100.0 |
| Tamworth Base | 230 | 33.4 | 150 | 21.8 | 188 | 27.3 | 73 | 10.6 | 5 | 0.7 | 4 | 0.6 | 38 | 5.5 | 0 | 0.0 | 688 | 100.0 |
| Manning Base | 316 | 45.0 | 179 | 25.5 | 133 | 18.9 | 55 | 7.8 | 2 | 0.3 | 1 | 0.1 | 16 | 2.3 | 0 | 0.0 | 702 | 100.0 |
| Maitland | 1178 | 82.5 | 78 | 5.5 | 140 | 9.8 | 29 | 2.0 | 2 | 0.1 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 1428 | 100.0 |
| Muswellbrook | 161 | 71.2 | 21 | 9.3 | 26 | 11.5 | 15 | 6.6 | 2 | 0.9 | 1 | 0.4 | 0 | 0.0 | 0 | 0.0 | 226 | 100.0 |
| Belmont | 353 | 59.9 | 110 | 18.7 | 63 | 10.7 | 61 | 10.4 | 0 | 0.0 | 2 | 0.3 | 0 | 0.0 | 0 | 0.0 | 589 | 100.0 |
| John Hunter | 1931 | 65.1 | 477 | 16.1 | 308 | 10.4 | 205 | 6.9 | 28 | 0.9 | 15 | 0.5 | 0 | 0.0 | 0 | 0.0 | 2964 | 100.0 |
| Christo Road Private | 320 | 65.3 | 64 | 13.1 | 84 | 17.1 | 19 | 3.9 | 3 | 0.6 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 490 | 100.0 |
| NIB Private | 560 | 60.7 | 231 | 25.0 | 87 | 9.4 | 40 | 4.3 | 5 | 0.5 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 923 | 100.0 |
| Other area hospitals | 236 | 24.6 | 385 | 40.1 | 286 | 29.8 | 46 | 4.8 | 2 | 0.2 | 3 | 0.3 | 2 | 0.2 | 1 | 0.1 | 961 | 100.0 |
| ALL HOSPITALS | 5510 | 56.0 | 1828 | 18.6 | 1770 | 18.0 | 577 | 5.9 | 52 | 0.5 | 28 | 0.3 | 74 | 0.8 | 1 | 0.0 | 9840 | 100.0 |
| **North Coast** | | | | | | | | | | | | | | | | | | |
| Coffs Harbour | 365 | 47.8 | 191 | 25.0 | 121 | 15.8 | 56 | 7.3 | 1 | 0.1 | 3 | 0.4 | 27 | 3.5 | 0 | 0.0 | 764 | 100.0 |
| Grafton Base | 60 | 15.3 | 251 | 64.2 | 44 | 11.3 | 34 | 8.7 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 | 0 | 0.0 | 391 | 100.0 |
| Kempsey | 229 | 71.3 | 14 | 4.4 | 38 | 11.8 | 36 | 11.2 | 0 | 0.0 | 4 | 1.2 | 0 | 0.0 | 0 | 0.0 | 321 | 100.0 |
| Lismore Base | 316 | 26.4 | 457 | 38.1 | 266 | 22.2 | 87 | 7.3 | 11 | 0.9 | 4 | 0.3 | 58 | 4.8 | 0 | 0.0 | 1199 | 100.0 |
| Murwillumbah | 46 | 12.0 | 205 | 53.7 | 110 | 28.8 | 17 | 4.5 | 2 | 0.5 | 2 | 0.5 | 0 | 0.0 | 0 | 0.0 | 382 | 100.0 |
| Tweed Heads | 434 | 47.6 | 106 | 11.6 | 219 | 24.0 | 142 | 15.6 | 4 | 0.4 | 4 | 0.4 | 0 | 0.0 | 2 | 0.2 | 911 | 100.0 |
| Port Macquarie Base | 328 | 44.9 | 168 | 23.0 | 142 | 19.4 | 54 | 7.4 | 7 | 1.0 | 2 | 0.3 | 29 | 4.0 | 1 | 0.1 | 731 | 100.0 |
| Other area hospitals | 198 | 43.5 | 106 | 23.3 | 112 | 24.6 | 22 | 4.8 | 1 | 0.2 | 0 | 0.0 | 16 | 3.5 | 0 | 0.0 | 455 | 100.0 |
| ALL HOSPITALS | 1976 | 38.3 | 1498 | 29.1 | 1052 | 20.4 | 448 | 8.7 | 27 | 0.5 | 20 | 0.4 | 130 | 2.5 | 3 | 0.1 | 5154 | 100.0 |
| **Greater Southern** | | | | | | | | | | | | | | | | | | |
| Cooma | 173 | 83.6 | 12 | 5.8 | 9 | 4.3 | 7 | 3.4 | 0 | 0.0 | 0 | 0.0 | 6 | 2.9 | 0 | 0.0 | 207 | 100.0 |
| Goulburn Base | 114 | 40.3 | 54 | 19.1 | 94 | 33.2 | 13 | 4.6 | 5 | 1.8 | 0 | 0.0 | 3 | 1.1 | 0 | 0.0 | 283 | 100.0 |
| Moruya | 133 | 52.8 | 56 | 22.2 | 48 | 19.0 | 13 | 5.2 | 0 | 0.0 | 1 | 0.4 | 1 | 0.4 | 0 | 0.0 | 252 | 100.0 |
| Queanbeyan | 173 | 65.5 | 38 | 14.4 | 31 | 11.7 | 9 | 3.4 | 1 | 0.4 | 1 | 0.4 | 11 | 4.2 | 0 | 0.0 | 264 | 100.0 |
| Griffith Base | 117 | 26.7 | 145 | 33.1 | 123 | 28.1 | 24 | 5.5 | 2 | 0.5 | 1 | 0.2 | 26 | 5.9 | 0 | 0.0 | 438 | 100.0 |
| Wagga Wagga Base | 231 | 35.3 | 170 | 26.0 | 124 | 19.0 | 47 | 7.2 | 6 | 0.9 | 1 | 0.2 | 75 | 11.5 | 0 | 0.0 | 654 | 100.0 |
| Calvary, Wagga Wagga | 285 | 49.7 | 111 | 19.3 | 130 | 22.6 | 40 | 7.0 | 4 | 0.7 | 3 | 0.5 | 0 | 0.0 | 1 | 0.2 | 574 | 100.0 |
| Other area hospitals | 621 | 51.5 | 279 | 23.2 | 206 | 17.1 | 86 | 7.1 | 3 | 0.2 | 2 | 0.2 | 7 | 0.6 | 1 | 0.1 | 1205 | 100.0 |
| ALL HOSPITALS | 1847 | 47.6 | 865 | 22.3 | 765 | 19.7 | 239 | 6.2 | 21 | 0.5 | 9 | 0.2 | 129 | 3.3 | 2 | 0.1 | 3877 | 100.0 |
| **Greater Western** | | | | | | | | | | | | | | | | | | |
| Dubbo Base | 568 | 47.1 | 230 | 19.1 | 268 | 22.2 | 49 | 4.1 | 2 | 0.2 | 0 | 0.0 | 89 | 7.4 | 0 | 0.0 | 1206 | 100.0 |
| Bathurst Base | 107 | 18.7 | 275 | 48.1 | 109 | 19.1 | 75 | 13.1 | 3 | 0.5 | 3 | 0.5 | 0 | 0.0 | 0 | 0.0 | 572 | 100.0 |
| Cowra | 137 | 65.6 | 20 | 9.6 | 47 | 22.5 | 4 | 1.9 | 0 | 0.0 | 0 | 0.0 | 1 | 0.5 | 0 | 0.0 | 209 | 100.0 |
| Orange Base | 438 | 56.7 | 89 | 11.5 | 183 | 23.7 | 52 | 6.7 | 4 | 0.5 | 0 | 0.0 | 6 | 0.8 | 0 | 0.0 | 772 | 100.0 |
| Broken Hill Base | 160 | 61.5 | 45 | 17.3 | 42 | 16.2 | 11 | 4.2 | 1 | 0.4 | 0 | 0.0 | 1 | 0.4 | 0 | 0.0 | 260 | 100.0 |
| Other area hospitals | 257 | 42.6 | 121 | 20.1 | 179 | 29.7 | 37 | 6.1 | 2 | 0.3 | 2 | 0.3 | 4 | 0.7 | 1 | 0.2 | 603 | 100.0 |
| ALL HOSPITALS | 1667 | 46.0 | 780 | 21.5 | 828 | 22.9 | 228 | 6.3 | 12 | 0.3 | 5 | 0.1 | 101 | 2.8 | 1 | 0.0 | 3622 | 100.0 |
| **Other–Not stated** | 80 | 86.0 | 4 | 4.3 | 7 | 7.5 | 1 | 1.1 | 0 | 0.0 | 0 | 0.0 | 1 | 1.1 | 0 | 0.0 | 93 | 100.0 |
| TOTAL NSW | 45675 | 53.3 | 20451 | 23.9 | 13475 | 15.7 | 4538 | 5.3 | 585 | 0.7 | 239 | 0.3 | 643 | 0.8 | 20 | 0.0 | 85626 | 100.0 |

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Health Department.
# Hospitals with more than 200 deliveries are identified individually. All hospitals include all public and private hospitals.

## Admission to special care and neonatal intensive care units in selected hospitals

Table 130 shows admissions of liveborn babies to special care and neonatal intensive care units for individual hospitals where the number of reported confinements exceeded 200 in 2004, totals for all hospitals within each health area, and the NSW total. The number of babies admitted to neonatal intensive care units reported here is higher than the numbers reported in Chapter 8, as some babies admitted to a neonatal intensive care unit do not meet the registration criteria for inclusion in the Neonatal Intensive Care Units Data Collection.

**TABLE 130**

**LIVEBIRTHS BY ADMISSION TO SPECIAL CARE–NICU AND HOSPITAL, NSW 2004#**

| Health Area and Hospital | Admission to special care | | | | | | | | Admission to neonatal intensive care | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No | | Yes | | Not stated | | TOTAL | | No | | Yes | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Sydney South West** | | | | | | | | | | | | | | |
| Canterbury | 1262 | 87.2 | 186 | 12.8 | 0 | 0.0 | 1448 | 100.0 | 1448 | 100.0 | 0 | 0.0 | 1448 | 100.0 |
| Royal Prince Alfred | 3706 | 91.1 | 363 | 8.9 | 0 | 0.0 | 4069 | 100.0 | 3850 | 94.6 | 219 | 5.4 | 4069 | 100.0 |
| Camden | 446 | 97.6 | 11 | 2.4 | 0 | 0.0 | 457 | 100.0 | 456 | 99.8 | 1 | 0.2 | 457 | 100.0 |
| Fairfield | 1304 | 80.3 | 319 | 19.7 | 0 | 0.0 | 1623 | 100.0 | 1622 | 99.9 | 1 | 0.1 | 1623 | 100.0 |
| Liverpool | 2711 | 88.1 | 365 | 11.9 | 0 | 0.0 | 3076 | 100.0 | 2870 | 93.3 | 206 | 6.7 | 3076 | 100.0 |
| Campbelltown | 1499 | 83.2 | 303 | 16.8 | 0 | 0.0 | 1802 | 100.0 | 1794 | 99.6 | 8 | 0.4 | 1802 | 100.0 |
| Bankstown–Lidcombe | 1533 | 84.3 | 286 | 15.7 | 0 | 0.0 | 1819 | 100.0 | 1810 | 99.5 | 9 | 0.5 | 1819 | 100.0 |
| Sydney Southwest Private | 859 | 78.5 | 235 | 21.5 | 0 | 0.0 | 1094 | 100.0 | 1088 | 99.5 | 6 | 0.5 | 1094 | 100.0 |
| Bowral | 578 | 86.5 | 90 | 13.5 | 0 | 0.0 | 668 | 100.0 | 660 | 98.8 | 8 | 1.2 | 668 | 100.0 |
| ALL HOSPITALS | 13898 | 86.6 | 2158 | 13.4 | 0 | 0.0 | 16056 | 100.0 | 15598 | 97.1 | 458 | 2.9 | 16056 | 100.0 |
| **South Eastern Sydney & Illawarra** | | | | | | | | | | | | | | |
| Royal Hospital for Women | 3289 | 88.0 | 447 | 12.0 | 0 | 0.0 | 3736 | 100.0 | 3546 | 94.9 | 190 | 5.1 | 3736 | 100.0 |
| St. George | 1890 | 85.2 | 329 | 14.8 | 0 | 0.0 | 2219 | 100.0 | 2213 | 99.7 | 6 | 0.3 | 2219 | 100.0 |
| Sutherland | 835 | 88.8 | 105 | 11.2 | 0 | 0.0 | 940 | 100.0 | 938 | 99.8 | 2 | 0.2 | 940 | 100.0 |
| Hurstville Community | 803 | 80.5 | 194 | 19.5 | 0 | 0.0 | 997 | 100.0 | 989 | 99.2 | 8 | 0.8 | 997 | 100.0 |
| Kareena Private | 502 | 79.4 | 130 | 20.6 | 0 | 0.0 | 632 | 100.0 | 627 | 99.2 | 5 | 0.8 | 632 | 100.0 |
| St. George Private | 1332 | 80.2 | 329 | 19.8 | 0 | 0.0 | 1661 | 100.0 | 1649 | 99.3 | 12 | 0.7 | 1661 | 100.0 |
| Prince of Wales Private | 1310 | 85.2 | 212 | 13.8 | 16 | 1.0 | 1538 | 100.0 | 1533 | 99.7 | 5 | 0.3 | 1538 | 100.0 |
| Shoalhaven | 771 | 87.2 | 113 | 12.8 | 0 | 0.0 | 884 | 100.0 | 883 | 99.9 | 1 | 0.1 | 884 | 100.0 |
| Wollongong | 1744 | 82.0 | 382 | 18.0 | 0 | 0.0 | 2126 | 100.0 | 2113 | 99.4 | 13 | 0.6 | 2126 | 100.0 |
| Illawarra Private | 988 | 90.5 | 104 | 9.5 | 0 | 0.0 | 1092 | 100.0 | 1091 | 99.9 | 1 | 0.1 | 1092 | 100.0 |
| Other area hospitals | 46 | 97.9 | 1 | 2.1 | 0 | 0.0 | 47 | 100.0 | 47 | 100.0 | 0 | 0.0 | 47 | 100.0 |
| ALL HOSPITALS | 13510 | 85.1 | 2346 | 14.8 | 16 | 0.1 | 15872 | 100.0 | 15629 | 98.5 | 243 | 1.5 | 15872 | 100. |
| **Sydney West** | | | | | | | | | | | | | | |
| Auburn | 804 | 73.2 | 294 | 26.8 | 0 | 0.0 | 1098 | 100.0 | 1096 | 99.8 | 2 | 0.2 | 1098 | 100.0 |
| Blacktown | 2051 | 81.3 | 472 | 18.7 | 0 | 0.0 | 2523 | 100.0 | 2519 | 99.8 | 4 | 0.2 | 2523 | 100.0 |
| Blue Mountains | 228 | 91.2 | 22 | 8.8 | 0 | 0.0 | 250 | 100.0 | 248 | 99.2 | 2 | 0.8 | 250 | 100.0 |
| Nepean | 2683 | 87.0 | 400 | 13.0 | 0 | 0.0 | 3083 | 100.0 | 2687 | 87.2 | 396 | 12.8 | 3083 | 100.0 |
| Westmead | 3700 | 88.3 | 488 | 11.7 | 0 | 0.0 | 4188 | 100.0 | 3686 | 88.0 | 502 | 12.0 | 4188 | 100. |
| The Hills Private | 1046 | 82.0 | 229 | 18.0 | 0 | 0.0 | 1275 | 100.0 | 1266 | 99.3 | 9 | 0.7 | 1275 | 100.0 |
| Hawkesbury | 638 | 80.8 | 152 | 19.2 | 0 | 0.0 | 790 | 100.0 | 786 | 99.5 | 4 | 0.5 | 790 | 100.0 |
| Nepean Private | 770 | 82.7 | 161 | 17.3 | 0 | 0.0 | 931 | 100.0 | 922 | 99.0 | 9 | 1.0 | 931 | 100.0 |
| Westmead Private | 1347 | 79.3 | 352 | 20.7 | 0 | 0.0 | 1699 | 100.0 | 1686 | 99.2 | 13 | 0.8 | 1699 | 100.0 |
| Other area hospitals | 187 | 93.0 | 14 | 7.0 | 0 | 0.0 | 201 | 100.0 | 194 | 96.5 | 7 | 3.5 | 201 | 100.0 |
| ALL HOSPITALS | 13454 | 83.9 | 2584 | 16.1 | 0 | 0.0 | 16038 | 100.0 | 15090 | 94.1 | 948 | 5.9 | 16038 | 100.0 |
| **Northern Sydney & Central Coast** | | | | | | | | | | | | | | |
| Gosford | 1899 | 86.0 | 310 | 14.0 | 0 | 0.0 | 2209 | 100.0 | 2180 | 98.7 | 29 | 1.3 | 2209 | 100.0 |
| Wyong | 262 | 94.9 | 14 | 5.1 | 0 | 0.0 | 276 | 100.0 | 273 | 98.9 | 3 | 1.1 | 276 | 100.0 |
| Hornsby | 578 | 60.5 | 377 | 39.5 | 0 | 0.0 | 955 | 100.0 | 952 | 99.7 | 3 | 0.3 | 955 | 100.0 |
| Manly | 545 | 78.9 | 146 | 21.1 | 0 | 0.0 | 691 | 100.0 | 689 | 99.7 | 2 | 0.3 | 691 | 100.0 |
| Mona Vale | 482 | 78.5 | 132 | 21.5 | 0 | 0.0 | 614 | 100.0 | 614 | 100.0 | 0 | 0.0 | 614 | 100.0 |
| Royal North Shore | 2122 | 93.3 | 153 | 6.7 | 0 | 0.0 | 2275 | 100.0 | 2024 | 89.0 | 251 | 11.0 | 2275 | 100.0 |
| Ryde | 233 | 88.3 | 31 | 11.7 | 0 | 0.0 | 264 | 100.0 | 264 | 100.0 | 0 | 0.0 | 264 | 100.0 |
| Mater, North Sydney | 1593 | 88.5 | 206 | 11.5 | 0 | 0.0 | 1799 | 100.0 | 1793 | 99.7 | 6 | 0.3 | 1799 | 100.0 |
| North Shore Private | 2242 | 91.9 | 197 | 8.1 | 0 | 0.0 | 2439 | 100.0 | 2426 | 99.5 | 13 | 0.5 | 2439 | 100.0 |
| Sydney Adventist | 1866 | 83.6 | 366 | 16.4 | 0 | 0.0 | 2232 | 100.0 | 2223 | 99.6 | 9 | 0.4 | 2232 | 100.0 |
| North Gosford Private | 790 | 86.3 | 125 | 13.7 | 0 | 0.0 | 915 | 100.0 | 901 | 98.5 | 14 | 1.5 | 915 | 100.0 |
| ALL HOSPITALS | 12612 | 86.0 | 2057 | 14.0 | 0 | 0.0 | 14669 | 100.0 | 14339 | 97.8 | 330 | 2.2 | 14669 | 100.0 |

**TABLE 130 *(continued)***

**LIVEBIRTHS BY ADMISSION TO SPECIAL CARE/NICU AND HOSPITAL, NSW 2004#**

| Health Area and Hospital | Admission to special care | | | | | | | | Admission to neonatal intensive care | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No | | Yes | | Not stated | | TOTAL | | No | | Yes | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Hunter & New England** | | | | | | | | | | | | | | |
| Armidale | 348 | 81.5 | 79 | 18.5 | 0 | 0.0 | 427 | 100.0 | 421 | 98.6 | 6 | 1.4 | 427 | 100.0 |
| Inverell | 223 | 95.7 | 10 | 4.3 | 0 | 0.0 | 233 | 100.0 | 230 | 98.7 | 3 | 1.3 | 233 | 100.0 |
| Moree | 177 | 88.5 | 23 | 11.5 | 0 | 0.0 | 200 | 100.0 | 198 | 99.0 | 2 | 1.0 | 200 | 100.0 |
| Tamworth Base | 416 | 61.0 | 266 | 39.0 | 0 | 0.0 | 682 | 100.0 | 669 | 98.1 | 13 | 1.9 | 682 | 100.0 |
| Manning Base | 596 | 85.6 | 100 | 14.4 | 0 | 0.0 | 696 | 100.0 | 690 | 99.1 | 6 | 0.9 | 696 | 100.0 |
| Maitland | 1188 | 83.7 | 232 | 16.3 | 0 | 0.0 | 1420 | 100.0 | 1417 | 99.8 | 3 | 0.2 | 1420 | 100.0 |
| Muswellbrook | 214 | 95.1 | 11 | 4.9 | 0 | 0.0 | 225 | 100.0 | 223 | 99.1 | 2 | 0.9 | 225 | 100.0 |
| Belmont | 515 | 87.6 | 73 | 12.4 | 0 | 0.0 | 588 | 100.0 | 586 | 99.7 | 2 | 0.3 | 588 | 100.0 |
| John Hunter | 2453 | 83.8 | 473 | 16.2 | 0 | 0.0 | 2926 | 100.0 | 2663 | 91.0 | 263 | 9.0 | 2926 | 100.0 |
| Christo Road Private | 412 | 84.3 | 77 | 15.7 | 0 | 0.0 | 489 | 100.0 | 489 | 100.0 | 0 | 0.0 | 489 | 100.0 |
| NIB Private | 806 | 87.6 | 114 | 12.4 | 0 | 0.0 | 920 | 100.0 | 907 | 98.6 | 13 | 1.4 | 920 | 100.0 |
| Other area hospitals | 922 | 96.3 | 35 | 3.7 | 0 | 0.0 | 957 | 100.0 | 951 | 99.4 | 6 | 0.6 | 957 | 100.0 |
| ALL HOSPITALS | 8270 | 84.7 | 1493 | 15.3 | 0 | 0.0 | 9763 | 100.0 | 9444 | 96.7 | 319 | 3.3 | 9763 | 100.0 |
| **North Coast** | | | | | | | | | | | | | | |
| Coffs Harbour | 642 | 84.6 | 117 | 15.4 | 0 | 0.0 | 759 | 100.0 | 756 | 99.6 | 3 | 0.4 | 759 | 100.0 |
| Grafton Base | 348 | 89.2 | 42 | 10.8 | 0 | 0.0 | 390 | 100.0 | 385 | 98.7 | 5 | 1.3 | 390 | 100.0 |
| Kempsey | 292 | 91.0 | 29 | 9.0 | 0 | 0.0 | 321 | 100.0 | 319 | 99.4 | 2 | 0.6 | 321 | 100.0 |
| Lismore Base | 910 | 76.5 | 280 | 23.5 | 0 | 0.0 | 1190 | 100.0 | 1170 | 98.3 | 20 | 1.7 | 1190 | 100.0 |
| Murwillumbah | 328 | 86.1 | 53 | 13.9 | 0 | 0.0 | 381 | 100.0 | 376 | 98.7 | 5 | 1.3 | 381 | 100.0 |
| Tweed Heads | 706 | 78.0 | 199 | 22.0 | 0 | 0.0 | 905 | 100.0 | 900 | 99.4 | 5 | 0.6 | 905 | 100.0 |
| Port Macquarie Base | 589 | 80.9 | 139 | 19.1 | 0 | 0.0 | 728 | 100.0 | 725 | 99.6 | 3 | 0.4 | 728 | 100.0 |
| Other area hospitals | 432 | 95.2 | 22 | 4.8 | 0 | 0.0 | 454 | 100.0 | 453 | 99.8 | 1 | 0.2 | 454 | 100.0 |
| ALL HOSPITALS | 4247 | 82.8 | 881 | 17.2 | 0 | 0.0 | 5128 | 100.0 | 5084 | 99.1 | 44 | 0.9 | 5128 | 100.0 |
| **Greater Southern** | | | | | | | | | | | | | | |
| Cooma | 196 | 95.1 | 10 | 4.9 | 0 | 0.0 | 206 | 100.0 | 204 | 99.0 | 2 | 1.0 | 206 | 100.0 |
| Goulburn Base | 244 | 86.5 | 38 | 13.5 | 0 | 0.0 | 282 | 100.0 | 282 | 100.0 | 0 | 0.0 | 282 | 100.0 |
| Moruya | 241 | 96.0 | 10 | 4.0 | 0 | 0.0 | 251 | 100.0 | 247 | 98.4 | 4 | 1.6 | 251 | 100.0 |
| Queanbeyan | 255 | 96.6 | 9 | 3.4 | 0 | 0.0 | 264 | 100.0 | 261 | 98.9 | 3 | 1.1 | 264 | 100.0 |
| Griffith Base | 302 | 69.3 | 134 | 30.7 | 0 | 0.0 | 436 | 100.0 | 435 | 99.8 | 1 | 0.2 | 436 | 100.0 |
| Wagga Wagga Base | 514 | 79.6 | 132 | 20.4 | 0 | 0.0 | 646 | 100.0 | 642 | 99.4 | 4 | 0.6 | 646 | 100.0 |
| Calvary, Wagga Wagga | 510 | 89.8 | 54 | 9.5 | 4 | 0.7 | 568 | 100.0 | 563 | 99.1 | 5 | 0.9 | 568 | 100.0 |
| Other area hospitals | 1087 | 90.3 | 116 | 9.6 | 1 | 0.1 | 1204 | 100.0 | 1192 | 99.0 | 12 | 1.0 | 1204 | 100.0 |
| ALL HOSPITALS | 3349 | 86.8 | 503 | 13.0 | 5 | 0.1 | 3857 | 100.0 | 3826 | 99.2 | 31 | 0.8 | 3857 | 100.0 |
| **Greater Western** | | | | | | | | | | | | | | |
| Dubbo Base | 1001 | 83.7 | 195 | 16.3 | 0 | 0.0 | 1196 | 100.0 | 1178 | 98.5 | 18 | 1.5 | 1196 | 100.0 |
| Bathurst Base | 510 | 90.4 | 54 | 9.6 | 0 | 0.0 | 564 | 100.0 | 555 | 98.4 | 9 | 1.6 | 564 | 100.0 |
| Cowra | 194 | 93.3 | 14 | 6.7 | 0 | 0.0 | 208 | 100.0 | 207 | 99.5 | 1 | 0.5 | 208 | 100.0 |
| Orange Base | 638 | 83.7 | 124 | 16.3 | 0 | 0.0 | 762 | 100.0 | 753 | 98.8 | 9 | 1.2 | 762 | 100.0 |
| Broken Hill Base | 238 | 91.9 | 21 | 8.1 | 0 | 0.0 | 259 | 100.0 | 259 | 100.0 | 0 | 0.0 | 259 | 100.0 |
| Other area hospitals | 561 | 94.0 | 36 | 6.0 | 0 | 0.0 | 597 | 100.0 | 591 | 99.0 | 6 | 1.0 | 597 | 100.0 |
| ALL HOSPITALS | 3142 | 87.6 | 444 | 12.4 | 0 | 0.0 | 3586 | 100.0 | 3543 | 98.8 | 43 | 1.2 | 3586 | 100.0 |
| **Other–Not stated** | 92 | 100.0 | 0 | 0.0 | 0 | 0.0 | 92 | 100.0 | 92 | 100.0 | 0 | 0.0 | 92 | 100.0 |
| TOTAL NSW | 72574 | 85.3 | 12466 | 14.7 | 21 | 0.0 | 85061 | 100.0 | 82645 | 97.2 | 2416 | 2.8 | 85061 | 100.0 |

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Health Department.
# Hospitals with more than 200 deliveries are identified individually. All hospitals include all public and private hospitals.

## Baby discharge status in selected hospitals

Table 131 shows the discharge status of babies born in hospitals where the number of reported confinements exceeded 200 in 2004, totals for all hospitals within each health area, and the NSW total.

**TABLE 131**

**CONFINEMENTS BY BABY DISCHARGE STATUS AND HOSPITAL, NSW 2004#**

| Health Area and Hospital | Baby discharge status | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Discharged | | Stillborn | | Neonatal Death | | Transferred | | Not stated | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Sydney South West** | | | | | | | | | | | | |
| Canterbury | 1434 | 98.6 | 6 | 0.4 | 2 | 0.1 | 12 | 0.8 | 0 | 0.0 | 1454 | 100.0 |
| Royal Prince Alfred | 3914 | 95.3 | 37 | 0.9 | 30 | 0.7 | 125 | 3.0 | 0 | 0.0 | 4106 | 100.0 |
| Camden | 452 | 98.9 | 0 | 0.0 | 1 | 0.2 | 4 | 0.9 | 0 | 0.0 | 457 | 100.0 |
| Fairfield | 1600 | 97.8 | 13 | 0.8 | 3 | 0.2 | 20 | 1.2 | 0 | 0.0 | 1636 | 100.0 |
| Liverpool | 2825 | 90.6 | 41 | 1.3 | 27 | 0.9 | 224 | 7.2 | 0 | 0.0 | 3117 | 100.0 |
| Campbelltown | 1772 | 97.7 | 12 | 0.7 | 2 | 0.1 | 28 | 1.5 | 0 | 0.0 | 1814 | 100.0 |
| Bankstown–Lidcombe | 1799 | 98.0 | 16 | 0.9 | 2 | 0.1 | 18 | 1.0 | 0 | 0.0 | 1835 | 100.0 |
| Sydney Southwest Private | 1082 | 98.4 | 6 | 0.5 | 2 | 0.2 | 10 | 0.9 | 0 | 0.0 | 1100 | 100.0 |
| Bowral | 512 | 76.2 | 4 | 0.6 | 1 | 0.1 | 155 | 23.1 | 0 | 0.0 | 672 | 100.0 |
| ALL HOSPITALS | 15390 | 95.1 | 135 | 0.8 | 70 | 0.4 | 596 | 3.7 | 0 | 0.0 | 16191 | 100.0 |
| **South Eastern Sydney & Illawarra** | | | | | | | | | | | | |
| Royal Hospital for Women | 3623 | 96.0 | 37 | 1.0 | 25 | 0.7 | 88 | 2.3 | 0 | 0.0 | 3773 | 100.0 |
| St. George | 2194 | 98.3 | 12 | 0.5 | 7 | 0.3 | 18 | 0.8 | 0 | 0.0 | 2231 | 100.0 |
| Sutherland | 935 | 99.3 | 2 | 0.2 | 0 | 0.0 | 5 | 0.5 | 0 | 0.0 | 942 | 100.0 |
| Hurstville Community | 982 | 98.2 | 3 | 0.3 | 1 | 0.1 | 14 | 1.4 | 0 | 0.0 | 1000 | 100.0 |
| Kareena Private | 624 | 98.3 | 3 | 0.5 | 0 | 0.0 | 8 | 1.3 | 0 | 0.0 | 635 | 100.0 |
| St. George Private | 1642 | 98.6 | 4 | 0.2 | 0 | 0.0 | 19 | 1.1 | 0 | 0.0 | 1665 | 100.0 |
| Prince of Wales Private | 1530 | 99.3 | 2 | 0.1 | 0 | 0.0 | 8 | 0.5 | 1 | 0.1 | 1541 | 100.0 |
| Shoalhaven | 771 | 86.0 | 12 | 1.3 | 0 | 0.0 | 113 | 12.6 | 0 | 0.0 | 896 | 100.0 |
| Wollongong | 1576 | 73.9 | 8 | 0.4 | 2 | 0.1 | 548 | 25.7 | 0 | 0.0 | 2134 | 100.0 |
| Illawarra Private | 1073 | 98.0 | 3 | 0.3 | 0 | 0.0 | 19 | 1.7 | 0 | 0.0 | 1095 | 100.0 |
| Other area hospitals | 41 | 85.4 | 1 | 2.1 | 0 | 0.0 | 6 | 12.5 | 0 | 0.0 | 48 | 100.0 |
| ALL HOSPITALS | 14991 | 93.9 | 87 | 0.5 | 35 | 0.2 | 846 | 5.3 | 1 | 0.0 | 15960 | 100.0 |
| **Sydney West** | | | | | | | | | | | | |
| Auburn | 1084 | 98.1 | 7 | 0.6 | 0 | 0.0 | 14 | 1.3 | 0 | 0.0 | 1105 | 100.0 |
| Blacktown | 2489 | 98.3 | 10 | 0.4 | 1 | 0.0 | 33 | 1.3 | 0 | 0.0 | 2533 | 100.0 |
| Blue Mountains | 245 | 98.0 | 0 | 0.0 | 0 | 0.0 | 5 | 2.0 | 0 | 0.0 | 250 | 100.0 |
| Nepean | 2937 | 94.7 | 16 | 0.5 | 9 | 0.3 | 137 | 4.4 | 1 | 0.0 | 3100 | 100.0 |
| Westmead | 3875 | 91.4 | 50 | 1.2 | 35 | 0.8 | 278 | 6.6 | 0 | 0.0 | 4238 | 100.0 |
| The Hills Private | 1260 | 98.2 | 8 | 0.6 | 0 | 0.0 | 15 | 1.2 | 0 | 0.0 | 1283 | 100.0 |
| Hawkesbury | 769 | 97.0 | 3 | 0.4 | 2 | 0.3 | 19 | 2.4 | 0 | 0.0 | 793 | 100.0 |
| Nepean Private | 921 | 98.6 | 3 | 0.3 | 0 | 0.0 | 10 | 1.1 | 0 | 0.0 | 934 | 100.0 |
| Westmead Private | 1678 | 98.3 | 8 | 0.5 | 2 | 0.1 | 19 | 1.1 | 0 | 0.0 | 1707 | 100.0 |
| Other area hospitals | 193 | 95.1 | 2 | 1.0 | 0 | 0.0 | 8 | 3.9 | 0 | 0.0 | 203 | 100.0 |
| ALL HOSPITALS | 15451 | 95.7 | 107 | 0.7 | 49 | 0.3 | 538 | 3.3 | 1 | 0.0 | 16146 | 100.0 |
| **Northern Sydney & Central Coast** | | | | | | | | | | | | |
| Gosford | 1866 | 84.0 | 12 | 0.5 | 4 | 0.2 | 339 | 15.3 | 0 | 0.0 | 2221 | 100.0 |
| Wyong | 264 | 95.3 | 1 | 0.4 | 0 | 0.0 | 12 | 4.3 | 0 | 0.0 | 277 | 100.0 |
| Hornsby | 943 | 98.2 | 5 | 0.5 | 1 | 0.1 | 11 | 1.1 | 0 | 0.0 | 960 | 100.0 |
| Manly | 684 | 98.7 | 2 | 0.3 | 0 | 0.0 | 7 | 1.0 | 0 | 0.0 | 693 | 100.0 |
| Mona Vale | 605 | 98.2 | 2 | 0.3 | 1 | 0.2 | 8 | 1.3 | 0 | 0.0 | 616 | 100.0 |
| Royal North Shore | 2122 | 92.4 | 22 | 1.0 | 9 | 0.4 | 144 | 6.3 | 0 | 0.0 | 2297 | 100.0 |
| Ryde | 262 | 99.2 | 0 | 0.0 | 0 | 0.0 | 2 | 0.8 | 0 | 0.0 | 264 | 100.0 |
| Mater, North Sydney | 1786 | 99.1 | 4 | 0.2 | 3 | 0.2 | 10 | 0.6 | 0 | 0.0 | 1803 | 100.0 |
| North Shore Private | 2428 | 99.0 | 13 | 0.5 | 1 | 0.0 | 10 | 0.4 | 0 | 0.0 | 2452 | 100.0 |
| Sydney Adventist | 2221 | 99.1 | 10 | 0.4 | 1 | 0.0 | 10 | 0.4 | 0 | 0.0 | 2242 | 100.0 |
| North Gosford Private | 898 | 97.8 | 3 | 0.3 | 0 | 0.0 | 17 | 1.9 | 0 | 0.0 | 918 | 100.0 |
| ALL HOSPITALS | 14079 | 95.5 | 74 | 0.5 | 20 | 0.1 | 570 | 3.9 | 0 | 0.0 | 14743 | 100.0 |

**TABLE 131 *(continued)***

**CONFINEMENTS BY BABY DISCHARGE STATUS AND HOSPITAL, NSW 2004#**

| Health Area and Hospital | Baby discharge status: Discharged | | Stillborn | | Neonatal Death | | Transferred | | Not stated | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| **Hunter & New England** | | | | | | | | | | | | |
| Armidale | 409 | 94.9 | 4 | 0.9 | 0 | 0.0 | 18 | 4.2 | 0 | 0.0 | 431 | 100.0 |
| Inverell | 227 | 96.6 | 2 | 0.9 | 0 | 0.0 | 6 | 2.6 | 0 | 0.0 | 235 | 100.0 |
| Moree | 196 | 96.6 | 3 | 1.5 | 0 | 0.0 | 4 | 2.0 | 0 | 0.0 | 203 | 100.0 |
| Tamworth Base | 610 | 88.7 | 6 | 0.9 | 1 | 0.1 | 71 | 10.3 | 0 | 0.0 | 688 | 100.0 |
| Manning Base | 665 | 94.7 | 6 | 0.9 | 4 | 0.6 | 27 | 3.8 | 0 | 0.0 | 702 | 100.0 |
| Maitland | 1205 | 84.4 | 8 | 0.6 | 0 | 0.0 | 215 | 15.1 | 0 | 0.0 | 1428 | 100.0 |
| Muswellbrook | 217 | 96.0 | 1 | 0.4 | 1 | 0.4 | 7 | 3.1 | 0 | 0.0 | 226 | 100.0 |
| Belmont | 569 | 96.6 | 1 | 0.2 | 0 | 0.0 | 19 | 3.2 | 0 | 0.0 | 589 | 100.0 |
| John Hunter | 2547 | 85.9 | 38 | 1.3 | 21 | 0.7 | 358 | 12.1 | 0 | 0.0 | 2964 | 100.0 |
| Christo Road Private | 452 | 92.2 | 1 | 0.2 | 0 | 0.0 | 37 | 7.6 | 0 | 0.0 | 490 | 100.0 |
| NIB Private | 848 | 91.9 | 3 | 0.3 | 0 | 0.0 | 72 | 7.8 | 0 | 0.0 | 923 | 100.0 |
| Other area hospitals | 910 | 94.7 | 4 | 0.4 | 2 | 0.2 | 45 | 4.7 | 0 | 0.0 | 961 | 100.0 |
| ALL HOSPITALS | 8855 | 90.0 | 77 | 0.8 | 29 | 0.3 | 879 | 8.9 | 0 | 0.0 | 9840 | 100.0 |
| **North Coast** | | | | | | | | | | | | |
| Coffs Harbour | 708 | 92.7 | 5 | 0.7 | 1 | 0.1 | 50 | 6.5 | 0 | 0.0 | 764 | 100.0 |
| Grafton Base | 382 | 97.7 | 1 | 0.3 | 2 | 0.5 | 6 | 1.5 | 0 | 0.0 | 391 | 100.0 |
| Kempsey | 310 | 96.6 | 0 | 0.0 | 0 | 0.0 | 11 | 3.4 | 0 | 0.0 | 321 | 100.0 |
| Lismore Base | 1040 | 86.7 | 9 | 0.8 | 2 | 0.2 | 148 | 12.3 | 0 | 0.0 | 1199 | 100.0 |
| Murwillumbah | 373 | 97.6 | 1 | 0.3 | 1 | 0.3 | 7 | 1.8 | 0 | 0.0 | 382 | 100.0 |
| Tweed Heads | 890 | 97.7 | 5 | 0.5 | 1 | 0.1 | 14 | 1.5 | 1 | 0.1 | 911 | 100.0 |
| Port Macquarie Base | 714 | 97.7 | 3 | 0.4 | 0 | 0.0 | 14 | 1.9 | 0 | 0.0 | 731 | 100.0 |
| Other area hospitals | 434 | 95.4 | 1 | 0.2 | 0 | 0.0 | 20 | 4.4 | 0 | 0.0 | 455 | 100.0 |
| ALL HOSPITALS | 4851 | 94.1 | 25 | 0.5 | 7 | 0.1 | 270 | 5.2 | 1 | 0.0 | 5154 | 100.0 |
| **Greater Southern** | | | | | | | | | | | | |
| Cooma | 204 | 98.6 | 1 | 0.5 | 0 | 0.0 | 2 | 1.0 | 0 | 0.0 | 207 | 100.0 |
| Goulburn Base | 275 | 97.2 | 1 | 0.4 | 0 | 0.0 | 7 | 2.5 | 0 | 0.0 | 283 | 100.0 |
| Moruya | 241 | 95.6 | 1 | 0.4 | 2 | 0.8 | 8 | 3.2 | 0 | 0.0 | 252 | 100.0 |
| Queanbeyan | 261 | 98.9 | 0 | 0.0 | 0 | 0.0 | 3 | 1.1 | 0 | 0.0 | 264 | 100.0 |
| Griffith Base | 430 | 98.2 | 2 | 0.5 | 1 | 0.2 | 5 | 1.1 | 0 | 0.0 | 438 | 100.0 |
| Wagga Wagga Base | 583 | 89.1 | 8 | 1.2 | 0 | 0.0 | 63 | 9.6 | 0 | 0.0 | 654 | 100.0 |
| Calvary, Wagga Wagga | 559 | 97.4 | 6 | 1.0 | 0 | 0.0 | 9 | 1.6 | 0 | 0.0 | 574 | 100.0 |
| Other area hospitals | 1164 | 96.6 | 1 | 0.1 | 0 | 0.0 | 40 | 3.3 | 0 | 0.0 | 1205 | 100.0 |
| ALL HOSPITALS | 3717 | 95.9 | 20 | 0.5 | 3 | 0.1 | 137 | 3.5 | 0 | 0.0 | 3877 | 100.0 |
| **Greater Western** | | | | | | | | | | | | |
| Dubbo Base | 811 | 67.2 | 10 | 0.8 | 1 | 0.1 | 384 | 31.8 | 0 | 0.0 | 1206 | 100.0 |
| Bathurst Base | 456 | 79.7 | 8 | 1.4 | 0 | 0.0 | 108 | 18.9 | 0 | 0.0 | 572 | 100.0 |
| Cowra | 200 | 95.7 | 1 | 0.5 | 0 | 0.0 | 8 | 3.8 | 0 | 0.0 | 209 | 100.0 |
| Orange Base | 627 | 81.2 | 10 | 1.3 | 1 | 0.1 | 134 | 17.4 | 0 | 0.0 | 772 | 100.0 |
| Broken Hill Base | 259 | 99.6 | 1 | 0.4 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 260 | 100.0 |
| Other area hospitals | 547 | 90.7 | 6 | 1.0 | 1 | 0.2 | 49 | 8.1 | 0 | 0.0 | 603 | 100.0 |
| ALL HOSPITALS | 2900 | 80.1 | 36 | 1.0 | 3 | 0.1 | 683 | 18.9 | 0 | 0.0 | 3622 | 100.0 |
| **Other–Not stated** | 91 | 97.8 | 0 | 0.0 | 0 | 0.0 | 1 | 1.1 | 1 | 1.1 | 93 | 100.0 |
| ALL HOSPITALS | 91 | 97.8 | 0 | 0.0 | 0 | 0.0 | 1 | 1.1 | 1 | 1.1 | 93 | 100.0 |
| TOTAL NSW | 80325 | 93.8 | 561 | 0.7 | 216 | 0.3 | 4520 | 5.3 | 4 | 0.0 | 85626 | 100.0 |

Source: NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Health Department.
# Hospitals with more than 200 deliveries are identified individually. All hospitals include all public and private hospitals.

## Postnatal length of stay in selected hospitals

Table 132 shows the mother's postnatal length of stay in the hospital of birth for hospitals where the number of reported confinements exceeded 200 in 2003, totals for all hospitals within each health area, and the NSW total.

**TABLE 132**

**AVERAGE MATERNAL POSTNATAL LENGTH OF STAY IN HOSPITAL OF BIRTH, NSW 1999–2003#**

| Health Area and Hospital | Average postnatal length of stay (days) | | | | |
|---|---|---|---|---|---|
| | 1999 | 2000 | 2001 | 2002 | 2003 |
| **Sydney South West** | | | | | |
| Canterbury | 2.9 | 2.8 | 2.7 | 2.9 | 3.0 |
| Royal Prince Alfred | 4.0 | 3.6 | 3.7 | 3.8 | 3.7 |
| Camden | 2.8 | - | - | - | 2.7 |
| Fairfield | 2.8 | 2.6 | 2.6 | 2.5 | 2.6 |
| Liverpool | 3.0 | 2.8 | 2.7 | 2.6 | 2.7 |
| Campbelltown | 2.6 | 2.5 | 2.5 | 2.6 | 2.6 |
| Bankstown/Lidcombe | 2.9 | 2.8 | 2.8 | 2.7 | 2.8 |
| Sydney Southwest Private | 4.5 | 4.9 | 4.6 | 4.3 | 4.5 |
| Bowral | 3.0 | 2.7 | 2.6 | 2.4 | 2.2 |
| Other area hospitals | 4.8 | 4.5 | - | - | 5.0 |
| ALL HOSPITALS | 3.2 | 3.0 | 3.0 | 3.0 | 3.1 |
| **South Eastern Sydney & Illawarra** | | | | | |
| Royal Hospital for Women | 3.6 | 3.5 | 3.6 | 3.6 | 3.5 |
| St. George | 3.5 | 3.3 | 2.9 | 2.7 | 2.8 |
| Sutherland | 3.6 | 3.2 | 3.0 | 3.1 | 3.1 |
| Hurstville Community | 5.5 | 4.5 | 4.4 | 4.5 | 4.5 |
| Kareena Private | 5.9 | 5.7 | 5.2 | 5.0 | 4.8 |
| St. George Private | 5.3 | 5.1 | 5.2 | 4.9 | 4.6 |
| Prince of Wales Private | 5.2 | 4.9 | 4.6 | 4.8 | 4.8 |
| Shoalhaven | 2.7 | 2.6 | 2.5 | 2.3 | 2.4 |
| Shellharbour | 2.8 | 2.7 | 2.8 | 2.8 | 2.5 |
| Wollongong | 2.8 | 2.2 | 2.6 | 2.6 | 2.7 |
| Illawarra Private | 5.6 | 5.6 | 5.4 | 5.5 | 5.3 |
| Other area hospitals | 2.8 | 2.3 | 2.7 | 2.7 | 2.7 |
| ALL HOSPITALS | 3.9 | 3.7 | 3.8 | 3.7 | 3.7 |
| **Sydney West** | | | | | |
| Auburn | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| Blacktown | 3.0 | 3.0 | 3.0 | 2.9 | 3.1 |
| Blue Mountains | 3.5 | 3.5 | 3.7 | 3.6 | 3.4 |
| Nepean | 3.3 | 3.3 | 3.2 | 3.0 | 3.2 |
| Westmead | 3.4 | 3.3 | 3.2 | 3.2 | 3.2 |
| The Hills Private | 5.5 | 5.2 | 5.0 | 4.8 | 4.7 |
| Hawkesbury | 3.4 | 3.3 | 3.2 | 3.4 | 3.2 |
| Nepean Private | - | 4.3 | 4.8 | 4.7 | 4.7 |
| Westmead Private | - | 4.8 | 4.9 | 4.7 | 4.2 |
| Other area hospitals | 4.9 | 4.3 | 4.0 | 3.1 | 3.5 |
| ALL HOSPITALS | 3.5 | 3.4 | 3.5 | 3.4 | 3.5 |
| **Northern Sydney & Central Coast** | | | | | |
| Gosford | 2.5 | 2.4 | 2.3 | 2.5 | 2.5 |
| Wyong | 2.4 | 2.3 | 2.2 | 2.1 | 2.1 |
| Hornsby | 3.7 | 3.6 | 3.5 | 3.1 | 2.9 |
| Manly | 3.8 | 3.8 | 3.6 | 3.5 | 3.6 |
| Mona Vale | 3.7 | 3.8 | 3.5 | 3.5 | 3.3 |
| Royal North Shore | 4.3 | 3.9 | 3.7 | 3.6 | 3.5 |
| Ryde | 3.4 | 3.3 | 3.1 | 3.4 | 3.3 |
| Mater, North Sydney | 5.4 | 5.2 | 4.8 | 4.5 | 4.5 |
| North Shore Private | 4.8 | 4.7 | 4.6 | 4.5 | 4.4 |
| Sydney Adventist | 5.5 | 5.2 | 4.7 | 4.6 | 4.6 |
| North Gosford Private | 5.6 | 5.3 | 4.9 | 4.9 | 4.7 |
| ALL HOSPITALS | 4.2 | 4.1 | 3.9 | 3.9 | 3.8 |
| **Hunter & New England** | | | | | |
| Armidale | 4.4 | 3.9 | 3.8 | 3.7 | 3.9 |
| Inverell | 3.4 | 3.2 | 3.0 | 3.1 | 3.0 |
| Tamworth Base | 3.8 | 3.6 | 3.5 | 3.3 | 3.4 |
| Manning Base | 4.1 | 3.6 | 3.2 | 3.0 | 3.1 |
| Maitland | 3.4 | 2.9 | 2.6 | 2.5 | 2.4 |
| Muswellbrook | 3.5 | 3.4 | 3.3 | 3.2 | 3.2 |
| Belmont | 3.6 | 3.1 | 3.3 | 3.1 | 3.1 |
| John Hunter | 3.6 | 3.3 | 3.3 | 3.2 | 3.2 |
| Christo Road Private | 5.3 | 4.9 | 4.9 | 4.7 | 4.6 |
| Other area hospitals | 3.9 | 3.8 | 3.9 | 3.8 | 3.7 |
| ALL HOSPITALS | 3.8 | 3.5 | 3.5 | 3.3 | 3.3 |
| **North Coast** | | | | | |
| Coffs Harbour | 3.9 | 4.0 | 3.8 | 3.8 | 3.9 |
| Grafton Base | 3.9 | 3.8 | 3.5 | 3.6 | 3.6 |
| Kempsey | 3.8 | 3.6 | 3.2 | 3.0 | 3.1 |
| Lismore Base | 3.1 | 3.2 | 3.1 | 3.2 | 3.2 |
| Murwillumbah | 3.7 | 3.7 | 3.6 | 3.6 | 3.4 |
| Tweed Heads | 3.4 | 3.0 | 3.0 | 3.1 | 3.1 |
| Port Macquarie Base | 4.1 | 3.8 | 3.7 | 3.8 | 3.5 |
| Other area hospitals | 3.9 | 3.7 | 3.7 | 3.5 | 3.6 |
| ALL HOSPITALS | 3.6 | 3.6 | 3.4 | 3.4 | 3.4 |
| **Greater Southern** | | | | | |
| Goulburn Base | 3.5 | 3.5 | 3.4 | 3.4 | 3.3 |
| Queanbeyan | 3.4 | 3.2 | 3.1 | 3.2 | 3.0 |
| Griffith Base | 3.1 | 3.1 | 3.1 | 3.1 | 3.2 |
| Wagga Wagga Base | 3.8 | 3.1 | 2.9 | 3.0 | 3.0 |
| Calvary, Wagga Wagga | 5.2 | 4.7 | 5.0 | 4.6 | 5.0 |
| Other area hospitals | 3.9 | 3.6 | 3.7 | 3.6 | 3.6 |
| ALL HOSPITALS | 3.8 | 3.5 | 3.6 | 3.6 | 3.6 |
| **Greater Western** | | | | | |
| Dubbo Base | 2.9 | 2.7 | 2.5 | 2.4 | 2.5 |
| Mudgee | 3.2 | 3.2 | 2.9 | 3.2 | 3.1 |
| Bathurst Base | 3.4 | 3.2 | 3.1 | 3.1 | 2.9 |
| Orange Base | 3.4 | 3.2 | 3.2 | 3.3 | 3.1 |
| Broken Hill Base | 4.4 | 3.4 | 3.6 | 3.4 | 3.3 |
| Other area hospitals | 3.7 | 3.5 | 3.5 | 3.2 | 3.3 |
| ALL HOSPITALS | 3.3 | 3.1 | 3.0 | 3.0 | 2.9 |
| TOTAL NSW | 3.7 | 3.5 | 3.5 | 3.5 | 3.4 |

Source: Linked data of the NSW Midwives Data Collection and NSW Inpatient Statistics Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.
# Hospitals with more than 200 deliveries are identified individually. All hospitals include all public and private hospitals.

## Induction of labour for other than defined indications, Indicator 1.1

**Definition:** The number of patients undergoing induction of labour other than for defined indications (excluding augmentation of labour) as a percentage of the total number of patients undergoing induction of labour for any reason (excluding augmentation of labour).

Table 133 shows aggregate information for hospitals where the reported confinements exceeded 200 in 2004, totals for hospitals within each health area and the NSW total.

**TABLE 133**

**INDICATOR 1.1: INDUCTION OF LABOUR FOR OTHER THAN DEFINED INDICATIONS# BY HOSPITAL, NSW 2000–2004**

| Health Area and Hospital | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| **Sydney South West** | | | | | |
| Canterbury | 12.1 | 15.2 | 19.3 | 20.6 | 23.0 |
| Royal Prince Alfred | 18.2 | 21.9 | 23.6 | 27.8 | 25.6 |
| Camden | – | – | – | 21.3 | 23.3 |
| Fairfield | 18.7 | 12.9 | 16.9 | 20.6 | 22.6 |
| Liverpool | 26.2 | 27.9 | 31.5 | 27.6 | 25.8 |
| Campbelltown | 22.2 | 23.5 | 22.3 | 19.9 | 25.3 |
| Bankstown–Lidcombe | 13.0 | 18.3 | 19.4 | 20.2 | 19.5 |
| Sydney Southwest Private | 43.5 | 45.1 | 47.9 | 50.2 | 50.6 |
| Bowral | 22.7 | 26.3 | 44.1 | 39.5 | 42.5 |
| Other area hospitals | 55.3 | – | – | – | – |
| ALL HOSPITALS | 23.1 | 23.8 | 27.0 | 27.8 | 27.9 |
| **South Eastern Sydney & Illawarra** | | | | | |
| Royal Hospital for Women | 18.2 | 21.2 | 24.2 | 25.2 | 28.6 |
| St. George | 27.8 | 18.6 | 20.9 | 21.2 | 16.9 |
| Sutherland | 17.4 | 20.6 | 24.2 | 17.9 | 26.3 |
| Hurstville Community | 63.4 | 61.3 | 55.5 | 63.2 | 60.9 |
| Kareena Private | 59.4 | 60.4 | 62.6 | 64.7 | 71.7 |
| St. George Private | 48.5 | 44.6 | 41.4 | 40.2 | 53.6 |
| Prince of Wales Private | 55.8 | 49.0 | 40.4 | 40.6 | 48.1 |
| Shoalhaven | 35.5 | 31.2 | 30.4 | 30.5 | 34.5 |
| Wollongong | 17.1 | 20.6 | 26.0 | 23.3 | 29.8 |
| Illawarra Private | 39.0 | 38.9 | 40.5 | 35.8 | 45.6 |
| Other area hospitals | 18.5 | 19.0 | 22.7 | 19.5 | 50.0 |
| ALL HOSPITALS | 32.9 | 34.1 | 34.3 | 34.2 | 39.4 |
| **Sydney West** | | | | | |
| Auburn | 16.1 | 20.0 | 14.5 | 10.9 | 12.0 |
| Blacktown | 25.1 | 24.8 | 34.3 | 30.6 | 25.6 |
| Blue Mountains | 19.5 | 26.0 | 17.9 | 26.6 | 20.4 |
| Nepean | 26.1 | 25.3 | 29.8 | 30.4 | 32.5 |
| Westmead | 24.4 | 21.9 | 24.2 | 22.2 | 21.5 |
| The Hills Private | 51.6 | 53.3 | 55.0 | 58.7 | 67.2 |
| Hawkesbury | 24.5 | 22.5 | 26.1 | 18.6 | 19.2 |
| Nepean Private | 30.8 | 30.7 | 35.2 | 31.6 | 39.9 |
| Westmead Private | 43.6 | 33.3 | 37.3 | 50.9 | 50.4 |
| Other area hospitals | 29.8 | 28.6 | 25.0 | 28.1 | 25.5 |
| ALL HOSPITALS | 28.3 | 28.5 | 32.5 | 33.4 | 34.3 |
| **Northern Sydney & Central Coast** | | | | | |
| Gosford | 26.5 | 22.5 | 25.2 | 21.3 | 23.9 |
| Wyong | – | 11.1 | 12.5 | 25.0 | 33.3 |
| Hornsby | 31.4 | 25.9 | 29.7 | 32.5 | 34.1 |
| Manly | 28.2 | 31.0 | 24.9 | 19.7 | 22.2 |
| Mona Vale | 45.3 | 36.8 | 26.3 | 25.3 | 28.7 |
| Royal North Shore | 23.4 | 26.3 | 24.1 | 25.8 | 22.1 |
| Ryde | 15.8 | 27.0 | 30.7 | 14.3 | 21.4 |
| Mater, North Sydney | 48.8 | 42.5 | 47.5 | 45.9 | 50.8 |
| North Shore Private | 42.2 | 48.8 | 47.5 | 48.4 | 51.8 |
| Sydney Adventist | 60.0 | 65.9 | 57.2 | 61.3 | 67.8 |
| North Gosford Private | 55.6 | 51.5 | 52.6 | 60.8 | 60.2 |
| ALL HOSPITALS | 40.2 | 42.1 | 41.3 | 41.0 | 43.6 |
| **Hunter & New England** | | | | | |
| Armidale | 40.3 | 36.6 | 35.7 | 51.5 | 38.9 |
| Inverell | 48.4 | 42.0 | 38.5 | 52.2 | 52.5 |
| Moree | 29.7 | 34.9 | 36.6 | 49.0 | 32.3 |
| Tamworth Base | 26.3 | 24.9 | 27.2 | 18.4 | 15.3 |
| Manning Base | 37.3 | 43.3 | 43.9 | 49.0 | 55.2 |
| Maitland | 21.9 | 29.0 | 29.4 | 29.8 | 30.1 |
| Muswellbrook | 38.2 | 27.6 | 27.5 | 16.4 | 28.4 |
| Belmont | 24.6 | 27.7 | 27.0 | 24.5 | 27.5 |
| John Hunter | 25.4 | 24.9 | 27.2 | 24.1 | 27.1 |
| Christo Road Private | 40.7 | 31.8 | 32.1 | 36.1 | 32.1 |
| NIB Private | – | – | – | – | 40.6 |
| Other area hospitals | 35.1 | 33.4 | 41.1 | 44.9 | 40.5 |
| ALL HOSPITALS | 30.4 | 30.1 | 31.7 | 32.7 | 33.6 |
| **North Coast** | | | | | |
| Coffs Harbour | 41.1 | 45.5 | 41.5 | 44.0 | 44.6 |
| Grafton Base | 28.3 | 25.2 | 28.3 | 23.5 | 11.6 |
| Kempsey | 26.7 | 26.8 | 26.9 | 17.2 | 22.5 |
| Lismore Base | 26.4 | 19.9 | 19.0 | 21.2 | 15.2 |
| Murwillumbah | 23.5 | 28.4 | 23.8 | 34.9 | 33.3 |
| Tweed Heads | 35.5 | 21.9 | 32.3 | 31.8 | 27.5 |
| Port Macquarie Base | 29.6 | 24.3 | 24.7 | 24.8 | 26.8 |
| Other area hospitals | 54.4 | 55.0 | 40.5 | 43.1 | 44.1 |
| ALL HOSPITALS | 32.0 | 28.6 | 28.5 | 29.7 | 26.7 |
| **Greater Southern** | | | | | |
| Cooma | 16.1 | 13.8 | 24.2 | 5.7 | 6.5 |
| Goulburn Base | 21.2 | 29.6 | 7.1 | 24.0 | 35.3 |
| Moruya | 32.1 | 35.0 | 28.0 | 18.8 | 44.8 |
| Queanbeyan | 29.9 | 33.9 | 26.7 | 24.2 | 25.5 |
| Griffith Base | 25.0 | 30.9 | 22.4 | 23.9 | 23.8 |
| Wagga Wagga Base | 23.5 | 18.6 | 25.1 | 21.4 | 20.8 |
| Calvary, Wagga Wagga | 61.1 | 56.5 | 62.9 | 60.3 | 49.5 |
| Other area hospitals | 28.8 | 32.9 | 33.8 | 34.2 | 34.2 |
| ALL HOSPITALS | 32.8 | 33.6 | 35.6 | 33.8 | 33.0 |
| **Greater Western** | | | | | |
| Dubbo Base | 39.4 | 31.9 | 39.3 | 39.1 | 47.0 |
| Bathurst Base | 15.8 | 30.0 | 15.0 | 18.4 | 12.1 |
| Cowra | 51.4 | 26.5 | 29.7 | 35.1 | 17.5 |
| Orange Base | 28.0 | 22.8 | 17.5 | 25.9 | 29.6 |
| Broken Hill Base | 13.0 | 24.4 | 15.9 | 26.7 | 35.7 |
| Other area hospitals | 26.5 | 30.3 | 34.6 | 34.3 | 26.4 |
| ALL HOSPITALS | 30.7 | 29.0 | 29.3 | 32.2 | 33.7 |
| TOTAL NSW | 31.2 | 31.7 | 33.1 | 33.5 | 35.1 |

Source: Linked data of the NSW Midwives Data Collection and NSW Inpatient Statistics Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

# Defined indications include: diabetes, hypertensive disease, fetal distress, fetal death, chorioamnionitis, blood group isoimmunisation, prelabour rupture of membranes, prolonged pregnancy (41 or more weeks), and suspected intrauterine growth retardation.

## Induction of labour for other than defined indications, Indicator 1.2

**Definition:** The number of patients undergoing induction of labour other than for defined indications (excluding augmentation of labour) as a percentage of the total number of patients delivering (excluding augmentation of labour).

Table 134 shows aggregate information for hospitals where the reported confinements exceeded 200 in 2004, totals for hospitals within each health area, and the NSW total.

**TABLE 134**

**INDICATOR 1.2: INDUCTION OF LABOUR FOR OTHER THAN DEFINED INDICATIONS# BY HOSPITAL, NSW 2000–2004**

| Health Area/ Hospital | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| **Sydney South West** | | | | | |
| Canterbury | 2.2 | 3.2 | 4.3 | 4.5 | 4.8 |
| Royal Prince Alfred | 3.6 | 4.6 | 5.2 | 5.9 | 5.3 |
| Camden | - | - | - | 3.6 | 4.4 |
| Fairfield | 3.8 | 2.6 | 3.2 | 3.9 | 4.4 |
| Liverpool | 5.5 | 6.8 | 7.5 | 7.0 | 5.7 |
| Campbelltown | 5.7 | 5.9 | 5.3 | 5.3 | 7.5 |
| Bankstown–Lidcombe | 2.6 | 3.5 | 4.1 | 4.0 | 4.4 |
| Sydney Southwest Private | 17.2 | 17.3 | 19.1 | 20.1 | 19.1 |
| Bowral | 6.3 | 6.5 | 11.6 | 10.7 | 11.6 |
| Other area hospitals | 18.9 | - | - | 0.0 | - |
| ALL HOSPITALS | 5.2 | 5.5 | 6.4 | 6.6 | 6.6 |
| **South Eastern Sydney & Illawarra** | | | | | |
| Royal Hospital for Women | 3.8 | 4.4 | 5.5 | 5.6 | 5.8 |
| St. George | 5.7 | 3.5 | 4.2 | 4.2 | 3.2 |
| Sutherland | 4.8 | 5.4 | 6.3 | 4.1 | 6.7 |
| Hurstville Community | 18.0 | 20.0 | 16.0 | 18.9 | 17.3 |
| Kareena Private | 23.0 | 22.8 | 23.6 | 22.5 | 26.7 |
| St. George Private | 11.6 | 12.8 | 10.0 | 10.4 | 14.9 |
| Prince of Wales Private | 13.2 | 11.2 | 10.1 | 9.1 | 11.7 |
| Shoalhaven | 7.3 | 6.3 | 6.1 | 5.6 | 5.8 |
| Wollongong | 4.5 | 5.8 | 7.1 | 5.5 | 7.2 |
| Illawarra Private | 13.2 | 13.1 | 14.1 | 13.9 | 17.7 |
| Other area hospitals | 4.1 | 4.3 | 4.3 | 4.4 | 10.4 |
| ALL HOSPITALS | 8.0 | 8.5 | 8.6 | 8.4 | 9.6 |
| **Sydney West** | | | | | |
| Auburn | 2.8 | 3.6 | 2.6 | 1.9 | 2.1 |
| Blacktown | 5.6 | 6.4 | 8.4 | 6.7 | 5.7 |
| Blue Mountains | 3.6 | 5.0 | 5.0 | 6.7 | 4.0 |
| Nepean | 6.3 | 6.7 | 7.8 | 8.7 | 8.6 |
| Westmead | 4.7 | 4.2 | 4.7 | 4.2 | 4.5 |
| The Hills Private | 16.5 | 19.7 | 20.6 | 22.6 | 25.6 |
| Hawkesbury | 5.6 | 5.5 | 5.7 | 3.7 | 4.2 |
| Nepean Private | 8.8 | 10.5 | 10.3 | 10.0 | 12.6 |
| Westmead Private | 13.8 | 9.1 | 10.4 | 15.3 | 14.8 |
| Other area hospitals | 7.6 | 6.0 | 6.0 | 7.6 | 6.9 |
| ALL HOSPITALS | 6.4 | 7.1 | 8.0 | 8.3 | 8.6 |
| **Northern Sydney & Central Coast** | | | | | |
| Gosford | 6.5 | 5.7 | 6.6 | 5.2 | 5.2 |
| Wyong | 0.0 | 0.3 | 0.3 | 0.8 | 1.8 |
| Hornsby | 8.2 | 7.3 | 7.3 | 7.5 | 7.6 |
| Manly | 7.5 | 9.0 | 6.5 | 4.9 | 6.0 |
| Mona Vale | 10.2 | 10.1 | 7.2 | 6.3 | 5.7 |
| Royal North Shore | 4.8 | 6.0 | 5.1 | 5.8 | 4.9 |
| Ryde | 3.3 | 6.6 | 6.5 | 2.7 | 2.3 |
| Mater, North Sydney | 12.6 | 11.4 | 13.1 | 11.3 | 13.6 |
| North Shore Private | 12.4 | 14.1 | 13.2 | 12.7 | 12.9 |
| Sydney Adventist | 19.0 | 23.1 | 18.3 | 19.1 | 20.7 |
| North Gosford Private | 18.7 | 15.9 | 15.8 | 18.2 | 16.8 |
| ALL HOSPITALS | 10.3 | 11.6 | 11.0 | 10.3 | 10.6 |

| Health Area and Hospital | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| **Hunter & New England** | | | | | |
| Armidale | 11.5 | 11.1 | 13.9 | 15.7 | 12.0 |
| Inverell | 13.0 | 11.2 | 11.5 | 17.1 | 18.1 |
| Moree | 7.8 | 9.4 | 10.3 | 13.0 | 10.3 |
| Tamworth Base | 7.2 | 6.9 | 8.3 | 5.4 | 4.3 |
| Manning Base | 9.3 | 10.2 | 11.4 | 14.8 | 17.0 |
| Maitland | 4.9 | 6.5 | 8.5 | 6.5 | 6.9 |
| Muswellbrook | 9.7 | 7.8 | 6.3 | 4.4 | 8.5 |
| Belmont | 6.5 | 7.3 | 7.3 | 6.2 | 6.5 |
| John Hunter | 5.6 | 5.6 | 6.8 | 5.8 | 6.3 |
| Christo Road Private | 11.5 | 9.4 | 10.4 | 11.7 | 9.1 |
| NIB Private | 0.0 | 0.0 | 0.0 | 0.0 | 12.4 |
| Other area hospitals | 9.1 | 8.8 | 10.5 | 12.0 | 10.9 |
| ALL HOSPITALS | 7.4 | 7.5 | 8.7 | 8.6 | 8.9 |
| **North Coast** | | | | | |
| Coffs Harbour | 11.9 | 12.5 | 10.4 | 12.0 | 10.0 |
| Grafton Base | 7.6 | 6.4 | 6.8 | 6.0 | 2.8 |
| Kempsey | 5.5 | 6.7 | 5.8 | 4.0 | 5.0 |
| Lismore Base | 6.0 | 4.3 | 4.6 | 4.8 | 3.6 |
| Murwillumbah | 6.1 | 6.7 | 5.9 | 8.1 | 7.5 |
| Tweed Heads | 6.7 | 5.2 | 7.3 | 7.5 | 6.8 |
| Port Macquarie Base | 7.9 | 6.5 | 7.0 | 5.5 | 5.7 |
| Other area hospitals | 6.4 | 5.6 | 6.1 | 5.1 | 6.6 |
| ALL HOSPITALS | 7.4 | 6.5 | 6.7 | 6.7 | 6.0 |
| **Greater Southern** | | | | | |
| Cooma | 2.8 | 2.6 | 4.8 | 1.3 | 1.5 |
| Goulburn Base | 2.2 | 2.5 | 0.7 | 2.0 | 2.1 |
| Moruya | 4.9 | 4.2 | 4.5 | 3.3 | 10.4 |
| Queanbeyan | 6.0 | 5.9 | 4.7 | 5.9 | 5.3 |
| Griffith Base | 6.7 | 6.0 | 4.9 | 4.7 | 4.4 |
| Wagga Wagga Base | 5.9 | 4.6 | 6.0 | 4.7 | 4.9 |
| Calvary, Wagga Wagga | 27.4 | 20.8 | 22.5 | 19.6 | 16.1 |
| Other area hospitals | 6.8 | 9.6 | 9.9 | 9.8 | 10.2 |
| ALL HOSPITALS | 8.0 | 8.2 | 9.0 | 8.2 | 8.2 |
| **Greater Western** | | | | | |
| Dubbo Base | 9.9 | 10.4 | 10.8 | 10.9 | 13.7 |
| Bathurst Base | 3.0 | 5.2 | 2.8 | 3.3 | 2.1 |
| Cowra | 10.2 | 5.6 | 6.5 | 10.6 | 4.8 |
| Orange Base | 7.6 | 5.6 | 4.1 | 6.5 | 8.0 |
| Broken Hill Base | 2.2 | 3.7 | 2.7 | 2.9 | 3.9 |
| Other area hospitals | 4.0 | 6.1 | 6.2 | 5.5 | 4.7 |
| ALL HOSPITALS | 6.6 | 7.0 | 6.6 | 7.3 | 7.9 |
| TOTAL NSW | 7.4 | 7.9 | 8.3 | 8.2 | 8.6 |

# Defined indications include: diabetes, hypertensive disease, fetal distress, fetal death, chorioamnionitis, blood group isoimmunisation, prelabour rupture of membranes, prolonged pregnancy (41 or more weeks), and suspected intrauterine growth retardation.

## Vaginal delivery following primary caesarean section, Indicator 2.1

**Definition:** The number of patients delivering vaginally following previous primary caesarean section as a percentage of the total number of patients delivering who have had a previous primary caesarean section with no intervening pregnancies greater than 20 weeks gestation.

Table 135 shows aggregate information for hospitals where the reported confinements exceeded 200 in 2004, totals for hospitals within each health area, and the NSW total.

**TABLE 135**

**INDICATOR 2.1: VAGINAL DELIVERY AFTER CAESAREAN SECTION BY HOSPITAL, NSW 2000–2004**

| Health Area and Hospital | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| **Sydney South West** | | | | | |
| Canterbury | 29.8 | 34.3 | 24.8 | 22.1 | 27.5 |
| Royal Prince Alfred | 27.7 | 26.6 | 23.5 | 22.5 | 22.5 |
| Camden | – | – | – | 50.0 | – |
| Fairfield | 32.4 | 17.4 | 34.1 | 18.6 | 20.2 |
| Liverpool | 29.5 | 22.6 | 20.8 | 13.4 | 15.5 |
| Campbelltown | 36.8 | 18.8 | 16.7 | 24.7 | 18.1 |
| Bankstown–Lidcombe | 27.1 | 20.6 | 25.6 | 20.5 | 18.9 |
| Sydney Southwest Private | 14.3 | 10.8 | 11.6 | 12.6 | 9.8 |
| Bowral | 14.0 | 22.4 | 25.0 | 10.4 | 24.5 |
| Other area hospitals | 12.1 | – | – | – | – |
| ALL HOSPITALS | 27.9 | 22.8 | 22.1 | 19.2 | 19.6 |
| **South Eastern Sydney & Illawarra** | | | | | |
| Royal Hospital for Women | 14.2 | 11.9 | 13.1 | 13.3 | 10.6 |
| St. George | 23.6 | 12.9 | 19.7 | 22.2 | 15.2 |
| Sutherland | 22.2 | 22.4 | 14.3 | 15.7 | 16.2 |
| Hurstville Community | 2.3 | 9.6 | 7.1 | 6.7 | 6.1 |
| Kareena Private | 6.7 | 4.1 | 4.1 | 2.8 | 3.0 |
| St. George Private | 9.1 | 11.4 | 11.6 | 6.8 | 4.4 |
| Prince of Wales Private | 5.5 | 6.7 | 7.9 | 4.6 | 3.5 |
| Shoalhaven | 20.9 | 18.4 | 19.1 | 23.4 | 15.2 |
| Wollongong | 30.7 | 26.7 | 25.2 | 21.6 | 31.0 |
| Illawarra Private | 16.7 | 11.5 | 12.8 | 7.5 | 11.6 |
| Other area hospitals | 0.0 | 13.6 | 12.5 | 18.8 | 100.0 |
| ALL HOSPITALS | 14.8 | 12.4 | 12.9 | 11.7 | 11.0 |
| **Sydney West** | | | | | |
| Auburn | 36.0 | 31.7 | 26.5 | 30.0 | 6.8 |
| Blacktown | 31.1 | 29.3 | 23.2 | 21.8 | 18.0 |
| Blue Mountains | 40.7 | 39.1 | 12.5 | 33.3 | 33.3 |
| Nepean | 29.3 | 22.8 | 18.6 | 16.9 | 16.6 |
| Westmead | 30.1 | 28.5 | 28.2 | 20.9 | 17.5 |
| The Hills Private | 12.1 | 15.1 | 14.6 | 11.2 | 11.4 |
| Hawkesbury | 31.6 | 28.6 | 26.3 | 14.8 | 14.5 |
| Nepean Private | 37.0 | 19.8 | 16.7 | 8.4 | 11.5 |
| Westmead Private | 25.0 | 18.5 | 22.5 | 17.9 | 16.6 |
| Other area hospitals | 21.7 | 14.3 | 5.3 | 20.8 | 23.1 |
| ALL HOSPITALS | 28.3 | 24.7 | 22.1 | 18.4 | 15.8 |
| **Northern Sydney & Central Coast** | | | | | |
| Gosford | 22.3 | 23.4 | 22.7 | 16.9 | 10.5 |
| Wyong | 100.0 | 100.0 | – | – | – |
| Hornsby | 13.6 | 9.6 | 6.2 | 12.7 | 11.0 |
| Manly | 20.3 | 14.3 | 4.4 | 7.0 | 12.1 |
| Mona Vale | 22.9 | 6.8 | 11.5 | 12.9 | 11.4 |
| Royal North Shore | 9.9 | 13.8 | 7.5 | 11.2 | 16.1 |
| Ryde | 14.3 | 12.1 | 23.3 | 5.3 | 5.3 |
| Mater, North Sydney | 10.7 | 7.8 | 5.8 | 6.4 | 5.5 |
| North Shore Private | 6.5 | 8.5 | 6.6 | 6.8 | 5.4 |
| Sydney Adventist | 11.5 | 9.9 | 7.0 | 3.6 | 7.1 |
| North Gosford Private | 8.9 | 9.1 | 6.2 | 3.8 | 8.0 |
| ALL HOSPITALS | 13.1 | 11.4 | 9.1 | 7.8 | 8.3 |
| **Hunter & New England** | | | | | |
| Armidale | 47.6 | 19.0 | 46.4 | 33.3 | 25.6 |
| Inverell | 10.5 | 8.3 | 8.3 | 9.5 | 11.1 |
| Moree | 5.3 | 35.7 | 33.3 | 34.6 | 13.6 |
| Tamworth Base | 11.9 | 13.3 | 24.3 | 8.3 | 14.8 |
| Manning Base | 34.0 | 18.4 | 40.8 | 35.7 | 21.7 |
| Maitland | 17.0 | 14.0 | 11.0 | 16.4 | 10.9 |
| Muswellbrook | 66.7 | 33.3 | 27.8 | 25.0 | 46.2 |
| Belmont | 36.1 | 26.2 | 14.5 | 11.8 | 19.6 |
| John Hunter | 29.4 | 25.2 | 28.0 | 25.9 | 21.9 |
| Christo Road Private | 11.2 | 9.4 | 12.9 | 14.4 | 17.9 |
| NIB Private | 0.0 | 0.0 | 0.0 | 0.0 | 7.6 |
| Other area hospitals | 17.5 | 14.9 | 8.4 | 6.1 | 5.1 |
| ALL HOSPITALS | 22.8 | 17.7 | 20.1 | 19.5 | 16.1 |
| **North Coast** | | | | | |
| Coffs Harbour | 8.3 | 13.8 | 13.5 | 9.5 | 13.1 |
| Grafton Base | 7.3 | 22.2 | 17.5 | 9.1 | 16.7 |
| Kempsey | 29.2 | 33.3 | 55.0 | 40.7 | 15.4 |
| Lismore Base | 18.8 | 31.3 | 28.4 | 17.6 | 24.8 |
| Murwillumbah | 31.3 | 13.8 | 22.4 | 11.5 | 9.3 |
| Tweed Heads | 29.8 | 38.3 | 26.3 | 16.0 | 21.1 |
| Port Macquarie Base | 22.6 | 20.0 | 14.5 | 14.3 | 21.5 |
| Other area hospitals | 8.0 | 5.6 | 13.9 | 11.8 | 14.7 |
| ALL HOSPITALS | 18.6 | 24.0 | 21.7 | 15.1 | 18.6 |
| **Greater Southern** | | | | | |
| Cooma | 21.4 | 20.0 | 10.0 | 28.6 | 33.3 |
| Goulburn Base | 31.8 | 36.4 | 36.7 | 13.0 | 28.9 |
| Moruya | 20.0 | 18.2 | 20.0 | 0.0 | 16.7 |
| Queanbeyan | 16.7 | 26.9 | 30.0 | 21.7 | 52.4 |
| Griffith Base | 27.7 | 32.1 | 9.8 | 24.3 | 25.6 |
| Wagga Wagga Base | 23.1 | 26.8 | 16.0 | 17.5 | 17.8 |
| Calvary, Wagga Wagga | 3.6 | 16.3 | 18.2 | 15.6 | 19.7 |
| Other area hospitals | 19.1 | 15.8 | 22.0 | 9.4 | 17.0 |
| ALL HOSPITALS | 20.8 | 22.5 | 19.8 | 15.0 | 22.6 |
| **Greater Western** | | | | | |
| Dubbo Base | 25.0 | 37.3 | 29.5 | 34.4 | 31.1 |
| Bathurst Base | 13.0 | 15.0 | 7.7 | 14.8 | 17.8 |
| Cowra | 18.8 | 38.5 | 15.0 | 20.0 | 27.8 |
| Orange Base | 11.1 | 18.8 | 18.5 | 20.8 | 16.3 |
| Broken Hill Base | 30.8 | 12.5 | 22.2 | 26.3 | 32.0 |
| Other area hospitals | 11.0 | 9.7 | 17.9 | 6.8 | 17.6 |
| ALL HOSPITALS | 16.2 | 21.4 | 18.8 | 20.4 | 22.2 |
| TOTAL NSW | 20.4 | 18.3 | 17.2 | 14.8 | 14.6 |

# Defined indications include: diabetes, hypertensive disease, fetal distress, fetal death, chorioamnionitis, blood group isoimmunisation, prelabour rupture of membranes, prolonged pregnancy (41 or more weeks), and suspected intrauterine growth retardation.

## Primary caesarean section for failure to progress, Indicator 3.1

Definition: The number of patients undergoing primary Caesarean section for failure to progress after a period of labour with cervical dilation of 3 cm or less as a percentage of the total number of patients undergoing primary non-elective Caesarean section.

Table 136 shows aggregate information for hospitals where the reported confinements exceeded 200 in 2004, totals for hospitals within each health area, and the NSW total.

**TABLE 136**

**INDICATOR 3.1: PRIMARY CAESAREAN SECTION FOR FAILURE TO PROGRESS BY HOSPITAL, NSW 2000–2004**

| Health Area and Hospital | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| **Sydney South West** | | | | | |
| Canterbury | 8.1 | 13.7 | 9.1 | 9.1 | 10.1 |
| Royal Prince Alfred | 3.2 | 5.7 | 6.5 | 8.5 | 5.5 |
| Camden | – | – | – | 16.7 | 14.3 |
| Fairfield | 7.1 | 10.0 | 13.0 | 11.5 | 10.3 |
| Liverpool | 14.2 | 9.2 | 12.4 | 5.0 | 9.1 |
| Campbelltown | 7.6 | 7.8 | 7.0 | 11.5 | 8.6 |
| Bankstown–Lidcombe | 6.0 | 8.0 | 3.4 | 6.2 | 16.1 |
| Sydney Southwest Private | 7.3 | 13.2 | 18.1 | 6.3 | 11.4 |
| Bowral | 16.0 | 7.7 | 8.1 | 18.2 | 4.8 |
| Other area hospitals | 22.4 | – | – | 0.0 | – |
| ALL HOSPITALS | 8.2 | 8.4 | 8.8 | 8.8 | 8.8 |
| **South Eastern Sydney & Illawarra** | | | | | |
| Royal Hospital for Women | 6.1 | 4.0 | 5.4 | 6.3 | 6.7 |
| St. George | 8.1 | 9.3 | 6.6 | 9.8 | 4.6 |
| Sutherland | 9.4 | 12.9 | 16.1 | 9.4 | 8.2 |
| Hurstville Community | 17.2 | 20.5 | 17.1 | 16.4 | 10.9 |
| Kareena Private | 21.3 | 14.5 | 18.5 | 11.1 | 8.9 |
| St. George Private | 13.5 | 13.5 | 19.9 | 13.3 | 13.5 |
| Prince of Wales Private | 9.5 | 11.0 | 9.4 | 7.7 | 11.3 |
| Shoalhaven | 12.9 | 8.8 | 9.2 | 9.7 | 13.5 |
| Wollongong | 9.9 | 7.1 | 6.9 | 7.3 | 5.3 |
| Illawarra Private | 18.0 | 15.8 | 11.5 | 19.2 | 9.1 |
| Other area hospitals | 0.0 | 11.8 | 2.4 | 3.8 | 0.0 |
| ALL HOSPITALS | 9.9 | 9.8 | 10.1 | 9.8 | 8.2 |
| **Sydney West** | | | | | |
| Auburn | 4.2 | 6.3 | 4.9 | 4.1 | 7.6 |
| Blacktown | 7.3 | 9.9 | 14.2 | 4.3 | 8.7 |
| Blue Mountains | 2.9 | 6.3 | 11.1 | 12.0 | 8.7 |
| Nepean | 9.8 | 6.9 | 5.9 | 10.4 | 9.2 |
| Westmead | 9.3 | 11.2 | 8.9 | 8.0 | 8.3 |
| The Hills Private | 14.4 | 9.8 | 19.6 | 21.7 | 16.3 |
| Hawkesbury | 8.5 | 11.4 | 12.5 | 16.5 | 10.0 |
| Nepean Private | 0.0 | 9.1 | 13.2 | 12.7 | 14.1 |
| Westmead Private | 12.5 | 11.3 | 9.0 | 17.5 | 14.8 |
| Other area hospitals | 9.1 | 14.3 | 12.5 | 16.7 | 10.0 |
| ALL HOSPITALS | 8.8 | 9.5 | 10.2 | 10.8 | 10.3 |
| **Northern Sydney & Central Coast** | | | | | |
| Gosford | 8.0 | 9.5 | 9.9 | 6.2 | 7.2 |
| Wyong | 0.0 | 7.1 | 0.0 | 0.0 | 0.0 |
| Hornsby | 11.6 | 8.2 | 14.8 | 15.2 | 1.9 |
| Manly | 18.0 | 9.1 | 12.5 | 4.3 | 8.6 |
| Mona Vale | 16.7 | 14.5 | 2.0 | 5.5 | 9.4 |
| Royal North Shore | 6.8 | 6.6 | 12.7 | 6.4 | 8.4 |
| Ryde | 6.5 | 0.0 | 0.0 | 12.5 | 0.0 |
| Mater, North Sydney | 12.4 | 9.9 | 11.3 | 10.3 | 12.6 |
| North Shore Private | 17.1 | 15.5 | 13.5 | 9.6 | 11.1 |
| Sydney Adventist | 13.7 | 10.6 | 11.4 | 5.6 | 5.0 |
| North Gosford Private | 11.0 | 18.2 | 19.6 | 22.5 | 18.8 |
| ALL HOSPITALS | 11.7 | 10.7 | 11.8 | 8.5 | 8.8 |
| **Hunter & New England** | | | | | |
| Armidale | 0.0 | 2.9 | 5.4 | 0.0 | 6.7 |
| Inverell | 15.4 | 0.0 | 12.5 | 0.0 | 12.5 |
| Moree | 3.8 | 0.0 | 12.0 | 12.5 | 26.7 |
| Tamworth Base | 6.7 | 15.4 | 9.5 | 7.1 | 3.4 |
| Manning Base | 10.9 | 17.1 | 14.0 | 15.7 | 15.8 |
| Maitland | 5.6 | 8.7 | 8.0 | 10.0 | 9.8 |
| Muswellbrook | 13.3 | 14.3 | 4.8 | 0.0 | 0.0 |
| Belmont | 15.6 | 8.3 | 11.9 | 18.5 | 4.5 |
| John Hunter | 9.7 | 8.7 | 13.1 | 9.2 | 10.3 |
| Christo Road Private | 5.4 | 11.8 | 2.7 | 3.6 | 3.7 |
| NIB Private | 0.0 | 0.0 | – | – | 1.1 |
| Other area hospitals | 11.7 | 16.7 | 16.9 | 10.6 | 12.5 |
| ALL HOSPITALS | 8.8 | 10.2 | 10.4 | 8.8 | 8.4 |
| **North Coast** | | | | | |
| Coffs Harbour | 16.1 | 13.6 | 16.4 | 15.4 | 7.5 |
| Grafton Base | 17.3 | 16.3 | 10.4 | 5.8 | 21.4 |
| Kempsey | 5.9 | 11.8 | 0.0 | 11.5 | 6.3 |
| Lismore Base | 3.9 | 10.1 | 7.8 | 9.4 | 12.0 |
| Murwillumbah | 17.0 | 7.9 | 19.1 | 19.1 | 20.0 |
| Tweed Heads | 3.9 | 16.7 | 10.7 | 14.5 | 7.7 |
| Port Macquarie Base | 8.8 | 6.8 | 5.8 | 2.3 | 5.1 |
| Other area hospitals | 0.0 | 20.0 | 0.0 | 0.0 | 50.0 |
| ALL HOSPITALS | 9.9 | 11.4 | 10.2 | 10.0 | 11.9 |
| **Greater Southern** | | | | | |
| Cooma | 26.3 | 0.0 | 20.0 | 0.0 | 8.3 |
| Goulburn Base | 16.7 | 8.7 | 10.5 | 0.0 | 0.0 |
| Moruya | 36.4 | 9.5 | 15.0 | 17.6 | 20.0 |
| Queanbeyan | 33.3 | 0.0 | 11.8 | 0.0 | 25.0 |
| Griffith Base | 6.5 | 24.4 | 12.5 | 14.3 | 9.5 |
| Wagga Wagga Base | 7.1 | 5.7 | 9.2 | 5.9 | 10.0 |
| Calvary, Wagga Wagga | 16.1 | 8.6 | 16.4 | 22.0 | 12.3 |
| Other area hospitals | 17.8 | 24.8 | 13.4 | 11.0 | 15.1 |
| ALL HOSPITALS | 16.5 | 14.4 | 13.1 | 10.9 | 12.4 |
| **Greater Western** | | | | | |
| Dubbo Base | 11.7 | 9.9 | 11.2 | 8.7 | 14.1 |
| Bathurst Base | 18.2 | 17.5 | 14.8 | 12.1 | 6.9 |
| Cowra | 21.4 | 30.8 | 25.0 | 9.1 | 15.4 |
| Orange Base | 18.1 | 18.6 | 17.1 | 9.5 | 7.7 |
| Broken Hill Base | 25.0 | 5.7 | 21.7 | 13.6 | 12.9 |
| Other area hospitals | 11.8 | 11.3 | 4.4 | 11.9 | 13.3 |
| ALL HOSPITALS | 15.8 | 13.9 | 13.9 | 10.4 | 11.3 |
| TOTAL NSW | 10.2 | 10.2 | 10.6 | 9.6 | 9.3 |

# Defined indications include: diabetes, hypertensive disease, fetal distress, fetal death, chorioamnionitis, blood group isoimmunisation, prelabour rupture of membranes, prolonged pregnancy (41 or more weeks), and suspected intrauterine growth retardation.

## Primary caesarean section for failure to progress, Indicator 3.2

**Definition:** The number of patients undergoing primary caesarean section for failure to progress after a period of labour with cervical dilation of more than 3 cm as a percentage of the total number of patients undergoing primary non-elective Caesarean section.

Table 137 shows aggregate information for hospitals where the reported confinements exceeded 200 in 2004, totals for hospitals within each health area, and the NSW total.

**TABLE 137**

**INDICATOR 3.2: PRIMARY CAESAREAN SECTION FOR FAILURE TO PROGRESS BY HOSPITAL, NSW 2000–2004**

| Health Area and Hospital | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| **Sydney South West** | | | | | |
| Canterbury | 31.5 | 27.5 | 33.3 | 41.4 | 30.3 |
| Royal Prince Alfred | 34.1 | 32.3 | 38.2 | 37.1 | 37.9 |
| Camden | – | – | – | 54.8 | 47.6 |
| Fairfield | 42.9 | 16.3 | 30.4 | 24.0 | 39.7 |
| Liverpool | 31.6 | 33.9 | 30.3 | 28.2 | 36.9 |
| Campbelltown | 32.3 | 37.2 | 40.3 | 32.8 | 47.1 |
| Bankstown–Lidcombe | 28.2 | 25.7 | 28.4 | 30.9 | 38.7 |
| Sydney Southwest Private | 29.3 | 19.1 | 31.3 | 24.2 | 29.5 |
| Bowral | 56.0 | 43.6 | 32.4 | 29.5 | 40.5 |
| Other area hospitals | 37.9 | – | – | 0.0 | – |
| ALL HOSPITALS | 33.5 | 30.8 | 34.9 | 33.1 | 38.1 |
| **South Eastern Sydney & Illawarra** | | | | | |
| Royal Hospital for Women | 41.4 | 40.9 | 41.4 | 49.4 | 56.6 |
| St. George | 37.6 | 37.1 | 43.1 | 37.9 | 43.3 |
| Sutherland | 22.4 | 44.3 | 30.6 | 34.0 | 36.5 |
| Hurstville Community | 17.2 | 26.5 | 31.1 | 34.3 | 38.0 |
| Kareena Private | 16.4 | 10.1 | 13.6 | 22.2 | 19.6 |
| St. George Private | 26.9 | 29.4 | 26.5 | 25.0 | 25.5 |
| Prince of Wales Private | 39.5 | 26.7 | 20.6 | 22.5 | 30.5 |
| Shoalhaven | 38.7 | 41.2 | 28.9 | 33.3 | 43.2 |
| Wollongong | 30.2 | 26.2 | 23.7 | 25.4 | 28.9 |
| Illawarra Private | 38.0 | 38.2 | 33.3 | 20.2 | 20.5 |
| Other area hospitals | 50.0 | 47.1 | 39.0 | 42.3 | 100.0 |
| ALL HOSPITALS | 34.4 | 33.9 | 32.6 | 34.0 | 39.2 |
| **Sydney West** | | | | | |
| Auburn | 22.2 | 20.6 | 37.0 | 20.3 | 30.3 |
| Blacktown | 23.4 | 16.5 | 28.4 | 26.1 | 38.6 |
| Blue Mountains | 48.6 | 37.5 | 38.9 | 44.0 | 39.1 |
| Nepean | 32.2 | 43.4 | 38.9 | 48.0 | 46.4 |
| Westmead | 32.2 | 36.9 | 35.3 | 35.4 | 39.6 |
| The Hills Private | 29.8 | 33.0 | 12.7 | 24.3 | 25.0 |
| Hawkesbury | 46.3 | 45.7 | 36.1 | 40.2 | 41.3 |
| Nepean Private | 38.5 | 34.1 | 33.3 | 37.3 | 46.5 |
| Westmead Private | 50.0 | 16.3 | 21.5 | 25.7 | 31.4 |
| Other area hospitals | 34.8 | 10.7 | 33.3 | 20.8 | 40.0 |
| ALL HOSPITALS | 31.8 | 31.6 | 32.2 | 34.3 | 39.2 |
| **Northern Sydney & Central Coast** | | | | | |
| Gosford | 46.2 | 45.2 | 36.8 | 45.0 | 36.5 |
| Wyong | 53.3 | 64.3 | 45.5 | 87.5 | 72.7 |
| Hornsby | 39.5 | 42.5 | 51.9 | 27.3 | 36.9 |
| Manly | 40.4 | 50.0 | 33.3 | 43.0 | 37.1 |
| Mona Vale | 37.5 | 36.4 | 38.8 | 41.8 | 43.8 |
| Royal North Shore | 27.9 | 34.2 | 26.9 | 37.0 | 37.3 |
| Ryde | 35.5 | 31.0 | 23.1 | 29.2 | 44.4 |
| Mater, North Sydney | 31.6 | 22.8 | 26.8 | 25.7 | 31.8 |
| North Shore Private | 34.2 | 26.8 | 24.3 | 33.2 | 31.1 |
| Sydney Adventist | 17.6 | 18.2 | 16.5 | 12.6 | 6.9 |
| North Gosford Private | 53.7 | 37.5 | 37.4 | 33.8 | 45.0 |
| ALL HOSPITALS | 35.3 | 31.7 | 29.1 | 32.5 | 32.3 |
| **Hunter & New England** | | | | | |
| Armidale | 13.3 | 23.5 | 24.3 | 28.6 | 26.7 |
| Inverell | 15.4 | 25.0 | 25.0 | 12.5 | 25.0 |
| Moree | 19.2 | 37.5 | 24.0 | 12.5 | 20.0 |
| Tamworth Base | 31.1 | 11.5 | 28.6 | 16.7 | 28.8 |
| Manning Base | 37.0 | 31.7 | 31.6 | 29.4 | 40.4 |
| Maitland | 42.6 | 30.1 | 33.3 | 30.8 | 34.1 |
| Muswellbrook | 60.0 | 42.9 | 66.7 | 60.0 | 58.8 |
| Belmont | 24.4 | 36.1 | 22.0 | 18.5 | 38.6 |
| John Hunter | 37.6 | 36.6 | 34.7 | 42.3 | 41.4 |
| Christo Road Private | 32.3 | 27.5 | 17.3 | 4.3 | 5.6 |
| NIB Private | 0.0 | 0.0 | – | – | 4.3 |
| Other area hospitals | 46.7 | 27.3 | 38.5 | 27.7 | 42.9 |
| ALL HOSPITALS | 36.1 | 30.9 | 31.1 | 28.0 | 31.9 |
| **North Coast** | | | | | |
| Coffs Harbour | 24.2 | 47.0 | 40.0 | 38.5 | 43.4 |
| Grafton Base | 34.6 | 37.2 | 12.5 | 15.4 | 33.9 |
| Kempsey | 35.3 | 41.2 | 20.0 | 30.8 | 25.0 |
| Lismore Base | 36.9 | 42.6 | 43.1 | 45.6 | 46.4 |
| Murwillumbah | 29.8 | 31.6 | 34.0 | 42.6 | 25.0 |
| Tweed Heads | 31.4 | 23.8 | 37.5 | 30.4 | 21.8 |
| Port Macquarie Base | 40.4 | 30.1 | 21.2 | 31.4 | 32.9 |
| Other area hospitals | 33.3 | 20.0 | 33.3 | 62.5 | 0.0 |
| ALL HOSPITALS | 33.4 | 37.3 | 34.5 | 36.2 | 34.4 |
| **Greater Southern** | | | | | |
| Cooma | 36.8 | 57.1 | 33.3 | 50.0 | 41.7 |
| Goulburn Base | 26.7 | 30.4 | 36.8 | 13.3 | 15.0 |
| Moruya | 18.2 | 33.3 | 25.0 | 17.6 | 48.0 |
| Queanbeyan | 44.4 | 40.0 | 17.6 | 44.4 | 31.3 |
| Griffith Base | 35.5 | 17.8 | 15.0 | 16.3 | 23.8 |
| Wagga Wagga Base | 26.8 | 18.6 | 23.1 | 26.5 | 22.9 |
| Calvary, Wagga Wagga | 19.4 | 22.9 | 30.9 | 32.2 | 20.0 |
| Other area hospitals | 29.7 | 30.5 | 25.8 | 45.1 | 31.2 |
| ALL HOSPITALS | 29.3 | 27.3 | 25.3 | 31.0 | 27.6 |
| **Greater Western** | | | | | |
| Dubbo Base | 26.0 | 24.7 | 23.5 | 26.9 | 24.2 |
| Bathurst Base | 25.5 | 32.5 | 37.0 | 24.1 | 37.9 |
| Cowra | 42.9 | 38.5 | 50.0 | 27.3 | 15.4 |
| Orange Base | 20.8 | 25.4 | 35.5 | 20.6 | 23.1 |
| Broken Hill Base | 43.8 | 14.3 | 47.8 | 36.4 | 29.0 |
| Other area hospitals | 52.9 | 38.7 | 33.3 | 49.2 | 53.3 |
| ALL HOSPITALS | 31.2 | 28.8 | 33.6 | 30.0 | 30.9 |
| TOTAL NSW | 33.8 | 31.9 | 31.9 | 32.9 | 35.8 |

# Defined indications include: diabetes, hypertensive disease, fetal distress, fetal death, chorioamnionitis, blood group isoimmunisation, prelabour rupture of membranes, prolonged pregnancy (41 or more weeks), and suspected intrauterine growth retardation.

## Primary caesarean section for fetal distress, Indicator 4.1

**Definition:** The number of patients undergoing primary Caesarean section for fetal distress as a percentage of the total number of patients delivering.

Table 138 shows aggregate information for hospitals where the reported confinements exceeded 200 in 2004, totals for hospitals within each health area, and the NSW total.

**TABLE 138**

**INDICATOR 4.1: PRIMARY CAESAREAN SECTION FOR FETAL DISTRESS BY HOSPITAL, NSW 2000–20004**

| Health Area and Hospital | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| **Sydney South West** | | | | | |
| Canterbury | 3.5 | 2.9 | 3.1 | 2.7 | 3.2 |
| Royal Prince Alfred | 3.6 | 4.4 | 4.3 | 3.5 | 4.0 |
| Camden | – | – | – | 1.1 | 1.5 |
| Fairfield | 1.3 | 2.7 | 1.7 | 3.2 | 1.5 |
| Liverpool | 3.6 | 3.7 | 3.7 | 4.9 | 4.0 |
| Campbelltown | 2.3 | 2.1 | 3.2 | 3.0 | 3.0 |
| Bankstown–Lidcombe | 2.6 | 3.7 | 2.5 | 2.5 | 2.5 |
| Sydney Southwest Private | 3.9 | 3.5 | 3.4 | 3.7 | 3.3 |
| Bowral | 1.4 | 0.6 | 2.0 | 1.2 | 1.7 |
| Other area hospitals | 2.6 | – | – | 0.0 | – |
| ALL HOSPITALSl | 2.9 | 3.3 | 3.2 | 3.3 | 3.2 |
| **South Eastern Sydney & Illawarra** | | | | | |
| Royal Hospital for Women | 3.4 | 3.3 | 3.5 | 3.9 | 4.1 |
| St. George | 3.6 | 4.1 | 4.0 | 3.9 | 4.2 |
| Sutherland | 4.2 | 2.3 | 2.9 | 3.2 | 3.3 |
| Hurstville Community | 3.2 | 2.7 | 3.6 | 2.8 | 3.5 |
| Kareena Private | 4.4 | 5.3 | 3.6 | 4.1 | 3.2 |
| St. George Private | 5.0 | 3.4 | 3.0 | 4.1 | 3.3 |
| Prince of Wales Private | 2.3 | 3.5 | 3.7 | 2.6 | 2.7 |
| Shoalhaven | 2.9 | 3.5 | 2.9 | 4.3 | 1.6 |
| Wollongong | 3.3 | 4.6 | 4.7 | 3.6 | 3.2 |
| Illawarra Private | 2.0 | 2.9 | 4.7 | 5.7 | 4.9 |
| Other area hospitals | 0.0 | 1.8 | 2.1 | 1.9 | 0.0 |
| ALL HOSPITALS | 3.4 | 3.5 | 3.7 | 3.7 | 3.5 |
| **Sydney West** | | | | | |
| Auburn | 2.2 | 3.1 | 3.1 | 3.9 | 2.2 |
| Blacktown | 3.4 | 5.7 | 4.7 | 5.9 | 4.5 |
| Blue Mountains | 2.0 | 3.7 | 3.5 | 2.2 | 2.4 |
| Nepean | 4.3 | 3.9 | 4.6 | 4.6 | 4.8 |
| Westmead | 5.1 | 5.7 | 5.0 | 5.9 | 6.8 |
| The Hills Private | 1.9 | 3.0 | 2.9 | 3.3 | 2.3 |
| Hawkesbury | 1.8 | 1.6 | 2.1 | 3.7 | 3.4 |
| Nepean Private | 2.2 | 2.1 | 2.5 | 3.6 | 2.0 |
| Westmead Private | 0.8 | 3.3 | 2.7 | 3.1 | 4.6 |
| Other area hospitals | 2.8 | 6.5 | 2.8 | 6.7 | 3.4 |
| ALL HOSPITALS | 3.6 | 4.2 | 4.0 | 4.7 | 4.6 |
| **Northern Sydney & Central Coast** | | | | | |
| Gosford | 2.7 | 2.8 | 3.5 | 3.6 | 5.9 |
| Wyong | 0.4 | 0.8 | 1.5 | 0.6 | 0.0 |
| Hornsby | 1.9 | 3.1 | 3.0 | 3.7 | 4.4 |
| Manly | 2.0 | 2.0 | 2.7 | 2.7 | 3.8 |
| Mona Vale | 2.1 | 2.2 | 2.2 | 3.3 | 2.6 |
| Royal North Shore | 5.6 | 3.4 | 3.8 | 6.6 | 4.7 |
| Ryde | 2.6 | 3.0 | 4.2 | 2.3 | 0.8 |
| Mater, North Sydney | 3.5 | 4.5 | 4.1 | 4.2 | 3.6 |
| North Shore Private | 2.7 | 2.6 | 3.7 | 3.7 | 3.7 |
| Sydney Adventist | 2.5 | 3.2 | 3.0 | 2.3 | 2.3 |
| North Gosford Private | 2.7 | 2.4 | 2.0 | 1.3 | 1.8 |
| ALL HOSPITALS | 2.9 | 3.0 | 3.3 | 3.5 | 3.7 |
| **Hunter & New England** | | | | | |
| Armidale | 0.7 | 2.8 | 2.6 | 0.9 | 3.8 |
| Inverell | 0.9 | 1.9 | 2.3 | 2.4 | 2.2 |
| Moree | 4.5 | 3.4 | 3.6 | 0.5 | 2.0 |
| Tamworth Base | 2.5 | 2.5 | 2.4 | 3.1 | 2.4 |
| Manning Base | 1.1 | 1.5 | 2.5 | 1.9 | 1.9 |
| Maitland | 2.8 | 4.1 | 5.4 | 4.6 | 3.5 |
| Muswellbrook | 0.9 | 1.5 | 2.2 | 0.9 | 1.8 |
| Belmont | 1.7 | 1.3 | 4.1 | 3.2 | 2.1 |
| John Hunter | 3.6 | 3.6 | 3.9 | 3.0 | 3.4 |
| Christo Road Private | 2.8 | 3.7 | 2.7 | 2.6 | 3.9 |
| NIB Private | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 |
| Other area hospitals | 1.3 | 1.3 | 1.6 | 1.5 | 1.8 |
| ALL HOSPITALS | 2.5 | 2.9 | 3.4 | 2.8 | 3.0 |
| **North Coast** | | | | | |
| Coffs Harbour | 2.3 | 0.6 | 0.9 | 1.6 | 2.1 |
| Grafton Base | 3.8 | 1.4 | 8.5 | 5.0 | 4.4 |
| Kempsey | 2.0 | 0.7 | 1.6 | 2.2 | 2.8 |
| Lismore Base | 3.9 | 2.4 | 3.9 | 3.5 | 2.5 |
| Murwillumbah | 4.3 | 4.0 | 3.8 | 2.2 | 7.0 |
| Tweed Heads | 2.5 | 2.5 | 2.6 | 3.3 | 3.5 |
| Port Macquarie Base | 2.8 | 3.9 | 3.1 | 3.9 | 3.8 |
| Other area hospitals | 0.0 | 0.3 | 0.2 | 0.2 | 0.2 |
| ALL HOSPITALS | 2.8 | 2.1 | 3.0 | 2.9 | 3.1 |
| **Greater Southern** | | | | | |
| Cooma | 2.8 | 2.0 | 3.0 | 3.2 | 1.5 |
| Goulburn Base | 1.9 | 0.9 | 2.3 | 3.3 | 1.1 |
| Moruya | 1.1 | 1.8 | 3.9 | 3.3 | 1.2 |
| Queanbeyan | 0.3 | 4.0 | 1.6 | 1.6 | 0.8 |
| Griffith Base | 2.1 | 3.3 | 3.3 | 4.7 | 4.0 |
| Wagga Wagga Base | 3.5 | 4.0 | 3.0 | 4.0 | 4.4 |
| Calvary, Wagga Wagga | 1.4 | 1.8 | 3.6 | 1.2 | 3.5 |
| Other area hospitals | 1.3 | 1.5 | 1.6 | 1.6 | 2.2 |
| ALL HOSPITALS | 1.9 | 2.4 | 2.5 | 2.6 | 2.7 |
| **Greater Western** | | | | | |
| Dubbo Base | 2.4 | 2.7 | 2.1 | 2.5 | 3.5 |
| Bathurst Base | 3.2 | 2.3 | 4.1 | 3.5 | 2.5 |
| Cowra | 2.8 | 1.9 | 0.0 | 2.1 | 1.9 |
| Orange Base | 3.8 | 2.9 | 2.5 | 2.1 | 3.3 |
| Broken Hill Base | 0.7 | 3.0 | 0.8 | 1.5 | 3.5 |
| Other area hospitals | 1.3 | 1.8 | 1.8 | 1.6 | 1.8 |
| ALL HOSPITALS | 2.4 | 2.5 | 2.2 | 2.3 | 2.9 |
| TOTAL NSW | 3.0 | 3.3 | 3.4 | 3.5 | 3.5 |

# Defined indications include: diabetes, hypertensive disease, fetal distress, fetal death, chorioamnionitis, blood group isoimmunisation, prelabour rupture of membranes, prolonged pregnancy (41 or more weeks), and suspected intrauterine growth retardation.

## Primary caesarean section for fetal distress, Indicator 4.2

**Definition:** The number of patients undergoing primary caesarean section for fetal distress as a percentage of the total number of patients delivering by primary caesarean section.

Table 139 shows aggregate information for hospitals where the reported confinements exceeded 200 in 2004, totals for hospitals within each health area, and the NSW total.

**TABLE 139**

**INDICATOR 4.2: PRIMARY CAESAREAN SECTION FOR FETAL DISTRESS BY HOSPITAL, NSW 2000–2004**

| Health Area and Hospital | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| **Sydney South West** | | | | | |
| Canterbury | 27.8 | 26.0 | 25.3 | 19.3 | 23.8 |
| Royal Prince Alfred | 20.6 | 23.7 | 21.0 | 17.6 | 20.0 |
| Camden | – | – | – | 12.5 | 25.9 |
| Fairfield | 18.0 | 25.1 | 17.8 | 30.8 | 17.2 |
| Liverpool | 28.2 | 24.2 | 29.1 | 32.2 | 21.6 |
| Campbelltown | 24.0 | 15.9 | 23.8 | 19.4 | 16.1 |
| Bankstown–Lidcombe | 23.4 | 28.9 | 23.1 | 20.7 | 18.6 |
| Sydney Southwest Private | 25.0 | 18.4 | 19.7 | 20.0 | 18.8 |
| Bowral | 20.0 | 4.7 | 18.2 | 9.7 | 16.2 |
| Other area hospitals | 13.2 | – | – | 0.0 | – |
| ALL HOSPITALS | 22.9 | 22.5 | 22.8 | 21.6 | 19.7 |
| **South Eastern Sydney & Illawarra** | | | | | |
| Royal Hospital for Women | 16.9 | 16.1 | 16.9 | 17.7 | 17.2 |
| St. George | 22.3 | 26.0 | 25.7 | 21.8 | 24.8 |
| Sutherland | 30.6 | 13.6 | 16.9 | 20.5 | 18.0 |
| Hurstville Community | 16.8 | 13.1 | 14.7 | 12.3 | 14.5 |
| Kareena Private | 20.7 | 17.4 | 13.4 | 14.3 | 13.2 |
| St. George Private | 21.4 | 14.3 | 13.7 | 17.6 | 13.4 |
| Prince of Wales Private | 12.1 | 15.8 | 15.6 | 10.2 | 11.3 |
| Shoalhaven | 18.0 | 19.0 | 16.9 | 18.8 | 9.1 |
| Wollongong | 22.4 | 27.4 | 29.6 | 21.1 | 18.3 |
| Illawarra Private | 12.9 | 16.2 | 25.6 | 28.3 | 28.6 |
| Other area hospitals | 0.0 | 13.0 | 15.1 | 12.5 | 0.0 |
| ALL HOSPITALS | 18.8 | 18.0 | 18.4 | 17.5 | 17.0 |
| **Sydney West** | | | | | |
| Auburn | 23.3 | 31.1 | 27.9 | 38.6 | 22.0 |
| Blacktown | 27.8 | 38.6 | 31.5 | 35.9 | 27.3 |
| Blue Mountains | 16.3 | 19.6 | 21.2 | 12.5 | 17.1 |
| Nepean | 25.4 | 20.0 | 24.3 | 21.4 | 20.3 |
| Westmead | 33.0 | 31.7 | 26.9 | 27.1 | 30.5 |
| The Hills Private | 12.5 | 17.3 | 20.7 | 20.6 | 14.8 |
| Hawkesbury | 12.2 | 13.5 | 14.4 | 19.3 | 15.8 |
| Nepean Private | 13.9 | 11.9 | 11.0 | 12.7 | 9.8 |
| Westmead Private | 0.0 | 15.5 | 13.2 | 14.1 | 20.8 |
| Other area hospitals | 17.6 | 31.9 | 12.8 | 39.4 | 29.2 |
| ALL HOSPITALS | 24.7 | 25.0 | 22.9 | 24.1 | 23.0 |
| **Northern Sydney & Central Coast** | | | | | |
| Gosford | 18.6 | 16.2 | 19.4 | 19.5 | 27.0 |
| Wyong | 11.8 | 18.8 | 35.7 | 16.7 | 0.0 |
| Hornsby | 14.1 | 20.0 | 17.5 | 24.0 | 24.1 |
| Manly | 12.9 | 12.6 | 16.4 | 14.7 | 22.9 |
| Mona Vale | 14.5 | 15.7 | 14.8 | 20.2 | 17.0 |
| Royal North Shore | 26.5 | 16.2 | 16.7 | 24.5 | 18.6 |
| Ryde | 16.8 | 30.9 | 30.8 | 20.4 | 11.8 |
| Mater, North Sydney | 15.9 | 16.8 | 14.0 | 14.9 | 13.9 |
| North Shore Private | 11.4 | 10.0 | 12.9 | 14.2 | 13.5 |
| Sydney Adventist | 17.3 | 17.7 | 15.7 | 12.7 | 11.8 |
| North Gosford Private | 14.4 | 10.1 | 8.5 | 5.5 | 8.3 |
| ALL HOSPITALS | 16.7 | 15.4 | 15.4 | 16.3 | 16.8 |
| **Hunter & New England** | | | | | |
| Armidale | 10.7 | 16.5 | 21.4 | 9.5 | 20.0 |
| Inverell | 6.3 | 11.5 | 18.5 | 14.7 | 12.1 |
| Moree | 28.1 | 25.0 | 22.2 | 5.9 | 21.1 |
| Tamworth Base | 17.1 | 15.8 | 19.4 | 21.2 | 16.5 |
| Manning Base | 11.1 | 11.9 | 17.7 | 13.9 | 12.8 |
| Maitland | 18.1 | 26.7 | 25.8 | 21.9 | 18.2 |
| Muswellbrook | 10.5 | 16.7 | 14.7 | 8.7 | 13.6 |
| Belmont | 13.8 | 12.5 | 22.6 | 23.2 | 13.4 |
| John Hunter | 21.1 | 22.2 | 21.7 | 16.9 | 18.0 |
| Christo Road Private | 15.5 | 16.2 | 12.4 | 11.4 | 17.0 |
| NIB Private | 0.0 | 0.0 | 0.0 | 0.0 | 13.3 |
| Other area hospitals | 13.5 | 13.4 | 14.8 | 12.4 | 15.0 |
| ALL HOSPITALS | 17.3 | 18.7 | 19.7 | 16.3 | 16.4 |
| **North Coast** | | | | | |
| Coffs Harbour | 12.6 | 3.6 | 5.4 | 8.1 | 13.6 |
| Grafton Base | 19.8 | 6.4 | 41.9 | 25.7 | 20.7 |
| Kempsey | 16.7 | 9.1 | 19.0 | 18.2 | 31.8 |
| Lismore Base | 25.8 | 15.2 | 19.0 | 17.4 | 13.2 |
| Murwillumbah | 25.8 | 27.1 | 18.6 | 10.8 | 28.9 |
| Tweed Heads | 16.9 | 20.8 | 17.5 | 19.5 | 21.9 |
| Port Macquarie Base | 18.1 | 20.8 | 18.0 | 19.5 | 20.9 |
| Other area hospitals | 0.0 | 4.0 | 2.9 | 4.5 | 7.1 |
| ALL HOSPITALS | 18.5 | 14.4 | 18.1 | 16.8 | 19.0 |
| **Greater Southern** | | | | | |
| Cooma | 20.8 | 15.0 | 20.0 | 26.3 | 10.7 |
| Goulburn Base | 6.7 | 3.8 | 12.0 | 13.3 | 4.8 |
| Moruya | 10.5 | 7.7 | 16.7 | 20.8 | 5.4 |
| Queanbeyan | 3.4 | 31.0 | 14.3 | 15.8 | 7.7 |
| Griffith Base | 16.1 | 20.0 | 15.9 | 27.3 | 22.7 |
| Wagga Wagga Base | 24.5 | 25.4 | 20.2 | 26.4 | 25.2 |
| Calvary, Wagga Wagga | 8.3 | 10.7 | 18.0 | 5.9 | 13.4 |
| Other area hospitals | 11.3 | 13.2 | 13.6 | 12.9 | 16.1 |
| ALL HOSPITALS | 13.5 | 16.5 | 16.2 | 16.8 | 15.8 |
| **Greater Western** | | | | | |
| Dubbo Base | 20.6 | 19.7 | 13.9 | 19.7 | 23.7 |
| Bathurst Base | 17.0 | 10.9 | 17.4 | 21.1 | 13.3 |
| Cowra | 26.3 | 14.3 | 0.0 | 23.5 | 12.0 |
| Orange Base | 19.4 | 17.0 | 12.1 | 13.8 | 22.0 |
| Broken Hill Base | 9.1 | 17.4 | 3.3 | 8.9 | 13.3 |
| Other area hospitals | 9.1 | 14.6 | 16.2 | 10.0 | 14.3 |
| ALL HOSPITALS | 16.9 | 15.9 | 13.4 | 16.1 | 18.8 |
| TOTAL NSW | 19.6 | 19.2 | 19.1 | 18.9 | 18.6 |

# Defined indications include: diabetes, hypertensive disease, fetal distress, fetal death, chorioamnionitis, blood group isoimmunisation, prelabour rupture of membranes, prolonged pregnancy (41 or more weeks), and suspected intrauterine growth retardation.

## Intact lower genital tract in primiparous patients delivering vaginally, Indicator 5.1

**Definition:** The number of primiparous patients not requiring surgical repair of the lower genital tract as a percentage of the total number of primiparous patients delivering vaginally.

Table 140 shows aggregate information for hospitals where the reported confinements exceeded 200 in 2004, totals for hospitals within each health area, and the NSW total.

**TABLE 140**

**INDICATOR 5.1: INTACT LOWER GENITAL TRACT IN PRIMIPAROUS PATIENTS DELIVERING VAGINALLY BY HOSPITAL, NSW 2000–2004**

| Health Area and Hospital | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| **Sydney South West** | | | | | |
| Canterbury | 31.4 | 28.4 | 28.9 | 31.2 | 24.4 |
| Royal Prince Alfred | 31.4 | 29.3 | 28.0 | 31.0 | 31.8 |
| Camden | – | – | – | 56.3 | 58.4 |
| Fairfield | 28.3 | 31.2 | 31.1 | 33.9 | 31.3 |
| Liverpool | 30.0 | 28.1 | 27.0 | 23.7 | 27.0 |
| Campbelltown | 29.6 | 28.6 | 30.5 | 28.8 | 29.5 |
| Bankstown–Lidcombe | 21.4 | 25.1 | 26.7 | 24.7 | 22.6 |
| Sydney Southwest Private | 25.9 | 25.4 | 17.4 | 26.7 | 20.9 |
| Bowral | 32.5 | 40.1 | 44.5 | 27.2 | 40.5 |
| Other area hospitals | 18.6 | – | – | – | – |
| ALL HOSPITALS | 28.9 | 28.9 | 28.5 | 29.7 | 29.7 |
| **South Eastern Sydney & Illawarra** | | | | | |
| Royal Hospital for Women | 25.2 | 23.9 | 24.4 | 25.9 | 28.8 |
| St. George | 27.1 | 30.7 | 34.4 | 38.5 | 28.8 |
| Sutherland | 22.8 | 27.8 | 28.7 | 27.6 | 24.9 |
| Hurstville Community | 9.2 | 15.4 | 14.4 | 12.0 | 10.4 |
| Kareena Private | 10.4 | 20.7 | 23.2 | 23.2 | 23.8 |
| St. George Private | 17.6 | 17.3 | 17.7 | 23.9 | 17.9 |
| Prince of Wales Private | 14.1 | 13.5 | 13.3 | 12.5 | 14.5 |
| Shoalhaven | 46.7 | 34.2 | 33.8 | 32.5 | 33.9 |
| Wollongong | 44.0 | 35.5 | 29.6 | 27.4 | 21.9 |
| Illawarra Private | 22.6 | 19.7 | 14.1 | 10.6 | 13.8 |
| Other area hospitals | 32.0 | 29.5 | 32.2 | 25.0 | 57.1 |
| ALL HOSPITALS | 27.6 | 25.2 | 25.1 | 25.8 | 24.1 |
| **Sydney West** | | | | | |
| Auburn | 26.2 | 28.9 | 29.7 | 35.8 | 36.5 |
| Blacktown | 23.7 | 22.5 | 31.2 | 25.3 | 25.9 |
| Blue Mountains | 41.3 | 43.0 | 46.9 | 51.5 | 35.3 |
| Nepean | 40.3 | 38.6 | 42.1 | 34.3 | 35.2 |
| Westmead | 25.3 | 27.2 | 27.7 | 23.4 | 18.5 |
| The Hills Private | 19.9 | 18.8 | 24.6 | 23.5 | 14.8 |
| Hawkesbury | 48.7 | 46.8 | 47.6 | 55.3 | 47.3 |
| Nepean Private | 22.2 | 19.7 | 18.5 | 14.7 | 12.7 |
| Westmead Private | 33.3 | 26.5 | 18.9 | 17.1 | 15.5 |
| Other area hospitals | 18.0 | 13.5 | 25.0 | 26.3 | 30.0 |
| ALL HOSPITALS | 29.7 | 29.5 | 31.2 | 28.3 | 25.5 |
| **Northern Sydney & Central Coast** | | | | | |
| Gosford | 33.6 | 25.9 | 30.4 | 33.3 | 29.4 |
| Wyong | 45.8 | 50.0 | 45.3 | 42.0 | 34.0 |
| Hornsby | 14.5 | 15.1 | 14.0 | 18.6 | 20.5 |
| Manly | 16.7 | 27.2 | 22.1 | 21.4 | 18.9 |
| Mona Vale | 33.6 | 26.3 | 41.4 | 30.9 | 36.8 |
| Royal North Shore | 20.9 | 20.7 | 15.6 | 20.0 | 21.3 |
| Ryde | 25.8 | 21.5 | 19.3 | 20.0 | 34.2 |
| Mater, North Sydney | 13.2 | 11.0 | 9.7 | 11.6 | 14.3 |
| North Shore Private | 9.9 | 12.3 | 7.5 | 10.7 | 13.0 |
| Sydney Adventist | 12.1 | 12.5 | 11.5 | 12.9 | 12.5 |
| North Gosford Private | 17.0 | 14.6 | 19.2 | 21.5 | 14.2 |
| ALL HOSPITALS | 20.4 | 19.0 | 17.9 | 20.2 | 20.1 |
| **Hunter & New England** | | | | | |
| Armidale | 16.8 | 16.5 | 21.2 | 22.6 | 14.3 |
| Inverell | 42.9 | 39.2 | 48.9 | 23.3 | 19.4 |
| Moree | 50.0 | 55.8 | 53.4 | 50.0 | 51.0 |
| Tamworth Base | 25.2 | 23.6 | 46.5 | 42.9 | 34.6 |
| Manning Base | 38.2 | 31.8 | 36.7 | 42.0 | 32.8 |
| Maitland | 46.1 | 43.0 | 39.2 | 35.7 | 39.3 |
| Muswellbrook | 45.7 | 42.0 | 53.2 | 36.0 | 42.0 |
| Belmont | 43.5 | 43.4 | 38.7 | 45.6 | 47.2 |
| John Hunter | 41.6 | 41.4 | 38.3 | 38.5 | 27.8 |
| Christo Road Private | 28.3 | 41.8 | 37.6 | 34.0 | 51.4 |
| NIB Private | – | – | – | – | 30.1 |
| Other area hospitals | 33.5 | 32.1 | 33.2 | 38.2 | 30.8 |
| ALL HOSPITALS | 38.3 | 38.3 | 38.4 | 37.7 | 33.3 |
| **North Coast** | | | | | |
| Coffs Harbour | 43.5 | 31.6 | 41.3 | 42.7 | 31.2 |
| Grafton Base | 21.3 | 29.6 | 46.8 | 45.0 | 36.7 |
| Kempsey | 44.9 | 44.8 | 55.2 | 58.6 | 54.3 |
| Lismore Base | 43.7 | 38.9 | 35.1 | 35.0 | 22.5 |
| Murwillumbah | 13.5 | 22.1 | 25.9 | 18.3 | 29.6 |
| Tweed Heads | 33.5 | 34.5 | 47.4 | 40.0 | 34.1 |
| Port Macquarie Base | 26.1 | 26.4 | 23.0 | 36.4 | 36.9 |
| Other area hospitals | 38.8 | 48.2 | 32.8 | 34.4 | 41.2 |
| ALL HOSPITALS | 34.5 | 35.1 | 37.9 | 38.3 | 33.1 |
| **Greater Southern** | | | | | |
| Cooma | 45.3 | 54.1 | 47.8 | 64.3 | 69.1 |
| Goulburn Base | 17.6 | 30.2 | 27.8 | 17.9 | 11.4 |
| Moruya | 60.4 | 52.0 | 66.7 | 54.5 | 46.2 |
| Queanbeyan | 64.4 | 66.7 | 67.8 | 67.3 | 66.1 |
| Griffith Base | 63.1 | 66.0 | 63.4 | 64.7 | 49.4 |
| Wagga Wagga Base | 58.2 | 47.1 | 43.3 | 44.6 | 42.3 |
| Calvary, Wagga Wagga | 25.5 | 32.3 | 27.3 | 27.0 | 22.2 |
| Other area hospitals | 37.2 | 41.0 | 45.2 | 37.0 | 45.0 |
| ALL HOSPITALS | 46.9 | 47.3 | 46.5 | 44.2 | 45.3 |
| **Greater Western** | | | | | |
| Dubbo Base | 36.4 | 34.5 | 39.0 | 34.4 | 29.7 |
| Bathurst Base | 42.7 | 43.4 | 42.4 | 36.9 | 36.0 |
| Cowra | 66.7 | 50.0 | 30.3 | 53.8 | 39.2 |
| Orange Base | 38.9 | 28.8 | 31.4 | 33.3 | 37.0 |
| Broken Hill Base | 60.0 | 65.1 | 63.2 | 58.3 | 51.7 |
| Other area hospitals | 47.4 | 46.9 | 38.2 | 40.6 | 34.0 |
| ALL HOSPITALS | 42.9 | 40.5 | 39.2 | 38.6 | 35.2 |
| TOTAL NSW | 30.3 | 29.7 | 29.8 | 29.6 | 27.9 |

# Defined indications include: diabetes, hypertensive disease, fetal distress, fetal death, chorioamnionitis, blood group isoimmunisation, prelabour rupture of membranes, prolonged pregnancy (41 or more weeks), and suspected intrauterine growth retardation.

## Apgar scores, Indicator 6.1

**Definition:** The number of babies born with an Apgar score of four or below at five minutes post delivery as a percentage of the total number of babies born.

Table 141 shows aggregate information for hospitals where the reported confinements exceeded 200 in 2004, totals for hospitals within each health area, and the NSW total.

**TABLE 141**

**INDICATOR 6.1: APGAR SCORE OF 4 OR LESS BY HOSPITAL, NSW 2000–2004**

| Health Area/ Hospital | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| **Sydney South West** | | | | | |
| Canterbury | 1.1 | 0.9 | 1.2 | 1.1 | 0.8 |
| Royal Prince Alfred | 2.0 | 1.5 | 1.6 | 1.4 | 1.6 |
| Camden | – | – | – | 0.8 | 0.0 |
| Fairfield | 1.1 | 0.9 | 1.3 | 1.0 | 1.8 |
| Liverpool | 1.5 | 1.6 | 1.4 | 1.5 | 2.1 |
| Campbelltown | 1.2 | 1.3 | 1.3 | 1.4 | 1.0 |
| Bankstown–Lidcombe | 1.4 | 1.4 | 1.1 | 1.0 | 1.1 |
| Sydney Southwest Private | 0.6 | 0.7 | 0.4 | 0.3 | 0.7 |
| Bowral | 1.1 | 1.0 | 0.8 | 0.8 | 0.9 |
| Other area hospitals | 0.4 | – | – | 50.0 | – |
| ALL HOSPITALS | 1.4 | 1.3 | 1.3 | 1.2 | 1.4 |
| **South Eastern Sydney & Illawarra** | | | | | |
| Royal Hospital for Women | 1.4 | 1.3 | 1.8 | 1.4 | 1.6 |
| St. George | 1.0 | 1.2 | 1.2 | 1.2 | 1.2 |
| Sutherland | 0.5 | 0.7 | 0.1 | 0.6 | 0.2 |
| Hurstville Community | 0.7 | 0.7 | 0.0 | 0.3 | 0.6 |
| Kareena Private | 0.6 | 0.7 | 0.1 | 0.4 | 0.5 |
| St. George Private | 0.7 | 0.3 | 0.6 | 0.5 | 0.4 |
| Prince of Wales Private | 0.5 | 0.5 | 0.6 | 0.2 | 0.4 |
| Shoalhaven | 1.2 | 0.7 | 0.6 | 1.4 | 1.8 |
| Wollongong | 0.8 | 1.1 | 1.0 | 0.7 | 0.5 |
| Illawarra Private | 0.7 | 0.4 | 0.6 | 0.2 | 0.4 |
| Other area hospitals | 0.0 | 0.4 | 0.0 | 0.8 | 2.1 |
| ALL HOSPITALS | 0.9 | 0.9 | 0.9 | 0.8 | 0.9 |
| **Sydney West** | | | | | |
| Auburn | 0.8 | 1.3 | 0.7 | 1.3 | 1.2 |
| Blacktown | 1.2 | 1.2 | 1.2 | 1.1 | 0.7 |
| Blue Mountains | 0.9 | 1.3 | 0.0 | 0.9 | 0.0 |
| Nepean | 1.9 | 1.3 | 1.2 | 1.0 | 0.9 |
| Westmead | 1.9 | 2.2 | 1.8 | 1.8 | 2.1 |
| The Hills Private | 0.7 | 0.3 | 0.6 | 0.3 | 0.7 |
| Hawkesbury | 0.7 | 1.1 | 0.4 | 0.9 | 0.5 |
| Nepean Private | 0.0 | 0.4 | 0.4 | 0.7 | 0.3 |
| Westmead Private | 1.6 | 0.7 | 0.9 | 0.6 | 0.9 |
| Other area hospitals | 0.3 | 0.0 | 0.5 | 0.5 | 2.5 |
| ALL HOSPITALS | 1.4 | 1.3 | 1.1 | 1.1 | 1.1 |
| **Northern Sydney & Central Coast** | | | | | |
| Gosford | 1.4 | 0.8 | 1.1 | 0.5 | 0.9 |
| Wyong | 0.9 | 0.3 | 0.3 | 0.0 | 0.4 |
| Hornsby | 1.3 | 0.6 | 0.9 | 0.8 | 1.0 |
| Manly | 1.1 | 1.0 | 1.1 | 0.8 | 0.6 |
| Mona Vale | 1.0 | 0.8 | 0.7 | 0.3 | 0.5 |
| Royal North Shore | 1.3 | 1.5 | 1.0 | 1.3 | 1.5 |
| Ryde | 1.7 | 0.7 | 1.0 | 1.4 | 0.0 |
| Mater, North Sydney | 0.7 | 0.4 | 0.7 | 0.4 | 0.4 |
| North Shore Private | 0.7 | 0.8 | 0.7 | 1.0 | 0.6 |
| Sydney Adventist | 0.7 | 0.3 | 0.7 | 0.8 | 0.6 |
| North Gosford Private | 1.1 | 0.8 | 0.4 | 0.2 | 0.4 |
| ALL HOSPITALS | 1.0 | 0.7 | 0.8 | 0.7 | 0.8 |

| Health Area and Hospital | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| **Hunter & New England** | | | | | |
| Armidale | 1.3 | 1.3 | 0.6 | 1.3 | 0.9 |
| Inverell | 0.4 | 0.8 | 0.0 | 0.5 | 0.9 |
| Moree | 1.2 | 2.1 | 1.2 | 2.2 | 2.0 |
| Tamworth Base | 1.2 | 1.8 | 2.0 | 1.8 | 1.7 |
| Manning Base | 1.7 | 1.5 | 1.4 | 2.0 | 1.4 |
| Maitland | 1.3 | 0.9 | 0.8 | 0.8 | 0.9 |
| Muswellbrook | 0.9 | 0.0 | 0.0 | 0.0 | 0.9 |
| Belmont | 1.2 | 0.3 | 0.9 | 0.6 | 0.5 |
| John Hunter | 1.8 | 1.9 | 1.9 | 2.3 | 2.1 |
| Christo Road Private | 1.2 | 0.6 | 1.0 | 0.4 | 0.6 |
| NIB Private | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 |
| Other area hospitals | 0.9 | 0.7 | 0.3 | 0.4 | 0.7 |
| ALL HOSPITALS | 1.4 | 1.3 | 1.2 | 1.4 | 1.3 |
| **North Coast** | | | | | |
| Coffs Harbour | 0.8 | 1.2 | 0.6 | 0.9 | 0.9 |
| Grafton Base | 1.1 | 1.4 | 1.0 | 1.2 | 0.8 |
| Kempsey | 1.0 | 2.5 | 0.0 | 1.8 | 0.3 |
| Lismore Base | 1.5 | 1.2 | 1.4 | 1.7 | 1.3 |
| Murwillumbah | 1.1 | 1.0 | 0.2 | 0.8 | 1.0 |
| Tweed Heads | 1.0 | 1.9 | 1.3 | 1.5 | 1.2 |
| Port Macquarie Base | 1.4 | 1.1 | 1.0 | 1.4 | 0.5 |
| Other area hospitals | 0.9 | 0.0 | 0.7 | 0.8 | 0.4 |
| ALL HOSPITALS | 1.1 | 1.2 | 0.9 | 1.3 | 0.9 |
| **Greater Southern** | | | | | |
| Cooma | 0.6 | 0.7 | 0.0 | 1.3 | 0.5 |
| Goulburn Base | 0.3 | 0.6 | 1.3 | 2.3 | 0.4 |
| Moruya | 0.5 | 2.9 | 0.6 | 1.6 | 1.6 |
| Queanbeyan | 0.6 | 1.5 | 0.4 | 0.4 | 0.4 |
| Griffith Base | 1.5 | 1.8 | 1.4 | 1.3 | 0.7 |
| Wagga Wagga Base | 1.7 | 2.0 | 2.2 | 1.1 | 1.8 |
| Calvary, Wagga Wagga | 1.6 | 0.4 | 1.0 | 0.3 | 1.9 |
| Other area hospitals | 0.8 | 0.3 | 0.4 | 0.4 | 0.2 |
| ALL HOSPITALS | 1.0 | 1.1 | 1.0 | 0.9 | 0.9 |
| **Greater Western** | | | | | |
| Dubbo Base | 1.3 | 1.1 | 1.4 | 2.0 | 1.1 |
| Bathurst Base | 0.4 | 0.3 | 0.6 | 0.5 | 1.7 |
| Cowra | 0.6 | 0.0 | 0.0 | 0.5 | 0.5 |
| Orange Base | 0.6 | 1.1 | 1.2 | 0.7 | 2.1 |
| Broken Hill Base | 1.4 | 1.6 | 0.8 | 1.1 | 0.8 |
| Other area hospitals | 1.3 | 0.9 | 1.2 | 0.6 | 1.2 |
| ALL HOSPITALS | 1.0 | 0.9 | 1.1 | 1.1 | 1.4 |
| TOTAL NSW | 1.2 | 1.1 | 1.0 | 1.0 | 1.1 |

# Defined indications include: diabetes, hypertensive disease, fetal distress, fetal death, chorioamnionitis, blood group isoimmunisation, prelabour rupture of membranes, prolonged pregnancy (41 or more weeks), and suspected intrauterine growth retardation.

## Term infants admitted to NICU for reasons other than congenital abnormalities, Indicator 7.1

**Definition:** The number of term babies transferred/admitted to a neonatal intensive care unit for reasons other than congenital abnormality as a percentage of all term live babies born.

Table 142 shows aggregate information for hospitals where the reported confinements exceeded 200 in 2004, totals for hospitals within each health area, and the NSW total.

**TABLE 142**

**INDICATOR 7.1: TERM INFANTS ADMITTED TO NICU FOR REASONS OTHER THAN CONGENITAL ABNORMALITIES BY HOSPITAL, NSW 2000–2004**

| Health Area and Hospital | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| **Sydney South West** | | | | | |
| Canterbury | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Royal Prince Alfred | 0.9 | 0.9 | 1.2 | 1.1 | 0.9 |
| Camden | – | – | – | 0.4 | 0.2 |
| Fairfield | 0.1 | 0.2 | 0.2 | 0.1 | 0.0 |
| Liverpool | 0.8 | 0.5 | 0.4 | 0.6 | 0.7 |
| Campbelltown | 0.2 | 0.1 | 0.1 | 0.4 | 0.3 |
| Bankstown/Lidcombe | 0.3 | 0.5 | 0.3 | 0.6 | 0.3 |
| Sydney Southwest Private | 0.2 | 0.1 | 0.3 | 0.4 | 0.4 |
| Bowral | 0.2 | 0.3 | 0.2 | 0.3 | 0.7 |
| Other area hospitals | 0.2 | – | – | 0.0 | – |
| ALL HOSPITALS | 0.5 | 0.4 | 0.4 | 0.5 | 0.5 |
| **South Eastern Sydney & Illawarra** | | | | | |
| Royal Hospital for Women | 0.6 | 0.4 | 1.3 | 2.3 | 1.3 |
| St. George | 0.0 | 0.1 | 0.2 | 0.2 | 0.1 |
| Sutherland | 0.4 | 0.2 | 0.3 | 0.0 | 0.2 |
| Hurstville Community | 0.4 | 0.4 | 0.2 | 0.0 | 0.6 |
| Kareena Private | 0.0 | 0.4 | 0.0 | 0.5 | 0.4 |
| St. George Private | 0.3 | 0.1 | 0.0 | 0.1 | 0.5 |
| Prince of Wales Private | 0.5 | 0.6 | 0.5 | 0.1 | 0.3 |
| Shoalhaven | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Wollongong | 0.0 | 0.0 | 0.0 | 0.5 | 0.2 |
| Illawarra Private | 0.0 | 0.0 | 0.1 | 0.3 | 0.0 |
| Other area hospitals | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ALL HOSPITALS | 0.3 | 0.2 | 0.4 | 0.7 | 0.5 |
| **Sydney West** | | | | | |
| Auburn | 0.2 | 0.3 | 0.1 | 0.1 | 0.2 |
| Blacktown | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 |
| Blue Mountains | 1.0 | 0.6 | 0.0 | 0.0 | 0.9 |
| Nepean | 3.5 | 4.4 | 4.9 | 5.4 | 6.0 |
| Westmead | 5.2 | 3.1 | 2.9 | 3.7 | 3.2 |
| The Hills Private | 0.4 | 0.3 | 0.2 | 0.2 | 0.3 |
| Hawkesbury | 0.0 | 0.5 | 0.2 | 0.0 | 0.4 |
| Nepean Private | 0.0 | 0.3 | 0.2 | 0.4 | 0.2 |
| Westmead Private | 0.9 | 0.3 | 0.4 | 0.1 | 0.1 |
| Other area hospitals | 0.3 | 0.0 | 0.0 | 0.5 | 2.9 |
| ALL HOSPITALS | 2.2 | 1.8 | 1.8 | 2.0 | 2.1 |
| **Northern Sydney & Central Coast** | | | | | |
| Gosford | 0.2 | 0.4 | 0.7 | 0.3 | 0.4 |
| Wyong | 0.5 | 0.0 | 0.0 | 0.3 | 0.4 |
| Hornsby | 1.3 | 0.0 | 0.0 | 0.1 | 0.0 |
| Manly | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| Mona Vale | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| Royal North Shore | 3.4 | 6.1 | 5.4 | 2.3 | 1.6 |
| Ryde | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| Mater, North Sydney | 0.2 | 0.4 | 0.2 | 0.2 | 0.2 |
| North Shore Private | 0.2 | 0.1 | 0.4 | 0.2 | 0.3 |
| Sydney Adventist | 0.4 | 0.1 | 0.2 | 0.1 | 0.1 |
| North Gosford Private | 0.3 | 0.1 | 0.2 | 0.4 | 0.5 |
| ALL HOSPITALS | 0.7 | 0.7 | 0.7 | 0.4 | 0.4 |
| **Hunter & New England** | | | | | |
| Armidale | 0.7 | 0.5 | 0.0 | 0.0 | 0.6 |
| Inverell | 0.0 | 0.8 | 0.0 | 0.5 | 0.0 |
| Moree | 0.9 | 0.5 | 0.9 | 1.3 | 0.0 |
| Tamworth Base | 0.6 | 0.4 | 0.0 | 0.2 | 0.5 |
| Manning Base | 0.8 | 0.5 | 0.9 | 0.2 | 0.5 |
| Maitland | 0.0 | 0.1 | 0.2 | 0.2 | 0.1 |
| Muswellbrook | 0.0 | 0.0 | 0.5 | 0.5 | 0.0 |
| Belmont | 0.7 | 0.5 | 0.0 | 0.2 | 0.2 |
| John Hunter | 1.4 | 1.5 | 1.3 | 1.3 | 2.0 |
| Christo Road Private | 0.2 | 0.4 | 0.1 | 0.1 | 0.0 |
| NIB Private | 0.0 | 0.0 | 1.1 | 0.0 | 0.8 |
| Other area hospitals | 0.1 | 0.3 | 0.1 | 0.2 | 0.2 |
| ALL HOSPITALS | 0.7 | 0.7 | 0.5 | 0.5 | 0.8 |
| **North Coast** | | | | | |
| Coffs Harbour | 0.2 | 0.3 | 0.3 | 0.2 | 0.0 |
| Grafton Base | 0.2 | 0.5 | 0.8 | 1.4 | 0.3 |
| Kempsey | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 |
| Lismore Base | 0.5 | 0.3 | 0.6 | 0.1 | 0.3 |
| Murwillumbah | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 |
| Tweed Heads | 0.0 | 0.4 | 0.0 | 0.0 | 0.3 |
| Port Macquarie Base | 0.2 | 0.5 | 0.0 | 0.5 | 0.2 |
| Other area hospitals | 0.4 | 0.0 | 0.6 | 0.2 | 0.0 |
| ALL HOSPITALS | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 |
| **Greater Southern** | | | | | |
| Cooma | 0.6 | 2.2 | 1.4 | 1.4 | 0.0 |
| Goulburn Base | 0.7 | 0.4 | 0.4 | 1.1 | 0.0 |
| Moruya | 0.6 | 0.0 | 0.0 | 2.5 | 0.9 |
| Queanbeyan | 0.7 | 2.3 | 1.8 | 2.1 | 0.8 |
| Griffith Base | 0.2 | 0.2 | 0.7 | 0.2 | 0.0 |
| Wagga Wagga Base | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| Calvary, Wagga Wagga | 0.0 | 0.2 | 0.4 | 0.2 | 0.8 |
| Other area hospitals | 0.4 | 0.2 | 0.7 | 0.4 | 0.5 |
| ALL HOSPITALS | 0.4 | 0.5 | 0.6 | 0.6 | 0.4 |
| **Greater Western** | | | | | |
| Dubbo Base | 0.3 | 0.0 | 0.5 | 0.5 | 0.7 |
| Bathurst Base | 0.2 | 0.2 | 0.9 | 0.2 | 0.6 |
| Cowra | 0.0 | 0.0 | 0.6 | 0.0 | 0.5 |
| Orange Base | 0.8 | 0.3 | 0.5 | 0.4 | 0.5 |
| Broken Hill Base | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 |
| Other area hospitals | 0.7 | 0.4 | 0.4 | 0.5 | 0.4 |
| ALL HOSPITALS | 0.4 | 0.2 | 0.5 | 0.4 | 0.5 |
| TOTAL NSW | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 |

# Defined indications include: diabetes, hypertensive disease, fetal distress, fetal death, chorioamnionitis, blood group isoimmunisation, prelabour rupture of membranes, prolonged pregnancy (41 or more weeks), and suspected intrauterine growth retardation.

# 12. PERINATAL DEATHS

## Review of perinatal deaths 2004

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. 2005_228 describes hospital procedures for review and reporting of perinatal deaths. The circular is available on the Department's website at www.health.nsw.gov.au/policies/PD/2005/PD2005_228.html. The Maternal and Perinatal Committee carries out reviews of perinatal deaths occurring among fetuses or infants of at least 22 weeks gestation or at least 500 grams birth weight. The criteria used by the NSW Midwives Data Collection (MDC) for reporting of births is at least 400 grams birth weight or at least 20 weeks gestation. The Maternal and Perinatal Committee reviews deaths that have a slightly higher threshold to focus attention on deaths that are more likely to be preventable.

Perinatal deaths 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).

There were 649 perinatal deaths of at least 22 weeks gestation or at least 500 grams birth weight reported to the MDC in 2004. Confidential reports on 643 deaths were reviewed. Of the 471 stillbirths reported to the MDC, reviews were carried out on 449 (95.3 per cent). The MDC was notified of 178 neonatal deaths. However, reviews were carried out on 194 neonatal deaths, reflecting under-enumeration of neonatal deaths on the MDC. Comparative information is also presented for 2001, 2002 and 2003.

## Trends in obstetric antecedents of perinatal death

Between 2001 and 2004, the pattern of antecedent causes of death remained fairly stable (Table 143). Unexplained antepartum deaths comprised the largest category in 2004 (Figure 18), as for previous years. The next most common categories were fetal abnormalities followed by spontaneous preterm birth.

## Obstetric antecedents of perinatal death 2004

### 1. Congenital abnormality

In 2004, congenital abnormalities were the underlying cause for 125 deaths (Table 144). The most common abnormalities were chromosomal (n=35, 28.0 per cent). Of these, 14 were trisomy 18, 8 were trisomy 21, 5 were trisomy 13, 1 was Turner syndrome, and there were 7 other abnormalities.

Nineteen deaths were associated with abnormalities of the central nervous system (15.2 per cent), of which 8 were neural tube defects and a further 6 deaths were among babies with congenital hydrocephalus.

Twenty-four deaths were due to multiple abnormalities not associated with a chromosomal abnormality.

Twelve deaths were associated with abnormalities of the cardiovascular system, of which 4 were cases of hypoplastic left heart syndrome. Four deaths were associated with congenital diaphragmatic hernia.

### 2. Perinatal infection

Fourteen deaths were found to be due to infection, of which 6 were stillbirths and 8 were neonatal deaths. In 25 deaths there was an associated chorioamnionitis.

The most common infective organism identified was group B streptococcus, which was considered responsible for 3 stillbirths and 2 neonatal deaths. Two neonatal deaths were caused by *Escherichia coli* infection, one neonatal death following a *Staphylococcus aureus* infection, and one stillbirth following congenital cytomegalovirus infection. The causative organism was not specified for 5 deaths.

### 3. Hypertension

Thirty (23.4 per cent) deaths were considered to be due to maternal hypertension. There were 26 stillbirths and 4 neonatal deaths. The majority (n=19, 63.3 per cent) occurred in mothers with pre-eclampsia. Only one death in this group was associated with placental abruption, and one was associated with maternal diabetes.

### 4. Antepartum haemorrhage

Fifty-nine deaths were due to antepartum haemorrhage, of which 50 were due to placental abruption, one was due to placenta praevia, and 2 due to vasa praevia.

### 5. Maternal disease

Twenty-one deaths were attributed to other maternal conditions including: diabetes (8), maternal injury (2), termination of pregnancy (2), cholestasis (1), systemic lupus erythematosis (1), antiphospholipid syndrome (1), and maternal death (1).

**TABLE 143**

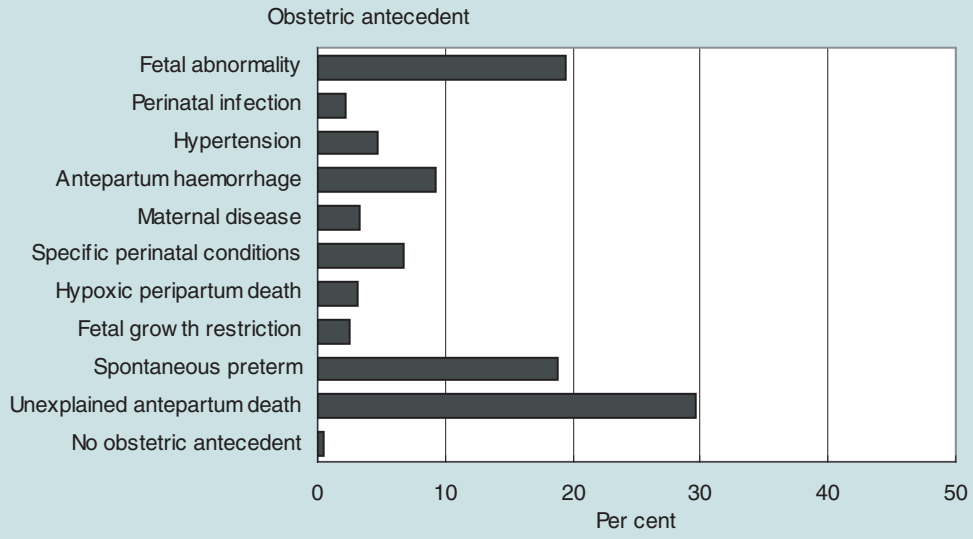
**PERINATAL DEATHS BY OBSTETRIC ANTECEDENT AND YEAR, NSW 2001–2004**

| Obstetric antecedent | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % |
| 1. Fetal abnormality | 90 | 14.6 | 103 | 16.8 | 95 | 16.0 | 125 | 19.4 |
| 2. Perinatal infection | 28 | 4.5 | 27 | 4.4 | 30 | 5.0 | 14 | 2.2 |
| 3. Hypertension | 41 | 6.7 | 34 | 5.5 | 32 | 5.4 | 30 | 4.7 |
| 4. Antepartum haemorrhage | 48 | 7.8 | 52 | 8.5 | 44 | 7.4 | 59 | 9.2 |
| 5. Maternal disease | 14 | 2.3 | 27 | 4.4 | 28 | 4.7 | 21 | 3.3 |
| 6. Specific perinatal conditions | 52 | 8.4 | 45 | 7.3 | 51 | 8.6 | 43 | 6.7 |
| 7. Hypoxic peripartum death | 22 | 3.6 | 23 | 3.8 | 21 | 3.5 | 20 | 3.1 |
| 8. Fetal growth restriction | 5 | 0.8 | 13 | 2.1 | 10 | 1.7 | 16 | 2.5 |
| 9. Spontaneous preterm | 120 | 19.5 | 126 | 20.6 | 94 | 15.8 | 121 | 18.8 |
| 10. Unexplained antepartum death | 191 | 31.0 | 161 | 26.3 | 184 | 30.9 | 191 | 29.7 |
| 11. No obstetric antecedent | 5 | 0.8 | 2 | 0.3 | 6 | 1.0 | 3 | 0.5 |
| TOTAL | 616 | 100.0 | 613 | 100.0 | 595 | 100.0 | 643 | 100.0 |

Source: NSW Maternal and Perinatal Committee, NSW Department of Health.

**FIGURE 18**

**PERINATAL DEATHS BY OBSTETRIC ANTECEDENT AND YEAR, NSW 2004**




Source: NSW Maternal and Perinatal Committee, NSW Department of Health.

**TABLE 144**

**PERINATAL DEATHS BY OBSTETRIC ANTECEDENT AND PERINATAL OUTCOME, NSW 2004**

| Obstetric antecedent | Perinatal outcome | | | | | |
|---|---|---|---|---|---|---|
| | Stillbirth | | Neonatal death | | TOTAL | |
| | No. | % | No. | % | No. | % |
| **1. Fetal abnormality** | | | | | | |
| Central nervous system | 10 | 2.2 | 9 | 4.6 | 19 | 3.0 |
| Cardiovascular system | 6 | 1.3 | 6 | 3.1 | 12 | 1.9 |
| Urinary tract | 3 | 0.7 | 4 | 2.1 | 7 | 1.1 |
| Gastrointestinal system | 1 | 0.2 | 1 | 0.5 | 2 | 0.3 |
| Chromosomal | 21 | 4.7 | 14 | 7.2 | 35 | 5.4 |
| Metabolic | 1 | 0.2 | 3 | 1.5 | 4 | 0.6 |
| Multiple | 7 | 1.6 | 17 | 8.8 | 24 | 3.7 |
| Other | 10 | 2.2 | 11 | 5.7 | 21 | 3.3 |
| Unspecified | 1 | 0.2 | 0 | 0.0 | 1 | 0.2 |
| Total | 60 | 13.4 | 65 | 33.5 | 125 | 19.4 |
| **2. Perinatal infection** | | | | | | |
| Group B Streptococcus | 3 | 0.7 | 2 | 1.0 | 5 | 0.8 |
| *E. coli* | 0 | 0.0 | 2 | 1.0 | 2 | 0.3 |
| Other bacterial | 0 | 0.0 | 1 | 0.5 | 1 | 0.2 |
| Unspecified bacterial | 2 | 0.4 | 1 | 0.5 | 3 | 0.5 |
| Cytomegalovirus | 1 | 0.2 | 0 | 0.0 | 1 | 0.2 |
| Unspecified organism | 0 | 0.0 | 2 | 1.0 | 2 | 0.3 |
| Total | 6 | 1.3 | 8 | 4.1 | 14 | 2.2 |
| **3. Hypertension** | | | | | | |
| Chronic: Essential | 2 | 0.4 | 0 | 0.0 | 2 | 0.3 |
| Chronic: Secondary (for example, renal) | 2 | 0.4 | 0 | 0.0 | 2 | 0.3 |
| Gestational | 3 | 0.7 | 0 | 0.0 | 3 | 0.5 |
| Pre-eclampsia | 14 | 3.1 | 3 | 1.5 | 17 | 2.6 |
| Pre-eclampsia superimposed on pre-existing hypertension | 1 | 0.2 | 1 | 0.5 | 2 | 0.3 |
| Unspecified | 4 | 0.9 | 0 | 0.0 | 4 | 0.6 |
| Total | 26 | 5.8 | 4 | 2.1 | 30 | 4.7 |
| **4. Antepartum haemorrhage** | | | | | | |
| Placental abruption | 36 | 8.0 | 14 | 7.2 | 50 | 7.8 |
| Placenta praevia | 1 | 0.2 | 0 | 0.0 | 1 | 0.2 |
| Vasa praevia | 2 | 0.4 | 0 | 0.0 | 2 | 0.3 |
| Undetermined origin | 5 | 1.1 | 1 | 0.5 | 6 | 0.9 |
| Total | 44 | 9.8 | 15 | 7.7 | 59 | 9.2 |
| **5. Maternal disease** | | | | | | |
| Termination of pregnancy other than for fetal abnormality | 1 | 0.2 | 1 | 0.5 | 2 | 0.3 |
| Diabetes–gestational diabetes | 8 | 1.8 | 0 | 0.0 | 8 | 1.2 |
| Maternal injury: Accidental | 1 | 0.2 | 1 | 0.5 | 2 | 0.3 |
| Other | 8 | 1.8 | 1 | 0.5 | 9 | 1.4 |
| Total | 18 | 4.0 | 3 | 1.5 | 21 | 3.3 |
| **6. Specific perinatal conditions** | | | | | | |
| Twin-to-twin transfusion | 14 | 3.1 | 7 | 3.6 | 21 | 3.3 |
| Fetomaternal haemorrhage | 4 | 0.9 | 0 | 0.0 | 4 | 0.6 |
| Antepartum cord complications | 6 | 1.3 | 0 | 0.0 | 6 | 0.9 |
| Uterine abnormality | 0 | 0.0 | 1 | 0.5 | 1 | 0.2 |
| Haemolytic disease | 1 | 0.2 | 0 | 0.0 | 1 | 0.2 |
| Idiopathic hydrops | 5 | 1.1 | 4 | 2.1 | 9 | 1.4 |
| Other | 1 | 0.2 | 0 | 0.0 | 1 | 0.2 |
| Total | 31 | 6.9 | 12 | 6.2 | 43 | 6.7 |
| **7. Hypoxic peripartum death** | | | | | | |
| Uterine rupture | 1 | 0.2 | 2 | 1.0 | 3 | 0.5 |
| Cord prolapse | 2 | 0.4 | 0 | 0.0 | 2 | 0.3 |
| Shoulder dystocia | 0 | 0.0 | 1 | 0.5 | 1 | 0.2 |
| Other intrapartum complication | 3 | 0.7 | 6 | 3.1 | 9 | 1.4 |
| No intrapartum complication | 1 | 0.2 | 1 | 0.5 | 2 | 0.3 |
| Unspecified | 2 | 0.4 | 1 | 0.5 | 3 | 0.5 |
| Total | 9 | 2.0 | 11 | 5.7 | 20 | 3.1 |
| **8. Fetal growth restriction** | | | | | | |
| With evidence of uteroplacental insufficiency | 6 | 1.3 | 2 | 1.0 | 8 | 1.2 |
| With chronic villitis | 0 | 0.0 | 2 | 1.0 | 2 | 0.3 |
| Without the above placental pathology | 2 | 0.4 | 2 | 1.0 | 4 | 0.6 |
| No placental examination | 0 | 0.0 | 2 | 1.0 | 2 | 0.3 |
| Total | 8 | 1.8 | 8 | 4.1 | 16 | 2.5 |

**TABLE 144 *(continued)***

**PERINATAL DEATHS BY OBSTETRIC ANTECEDENT AND PERINATAL OUTCOME, NSW 2004**

| Obstetric antecedent | Perinatal outcome: Stillbirth No. | Stillbirth % | Neonatal death No. | Neonatal death % | TOTAL No. | TOTAL % |
|---|---|---|---|---|---|---|
| **9. Spontaneous preterm** | | | | | | |
| Intact membranes or membrane rupture less than 24 hours: | | | | | | |
| with chorioamnionitis | 12 | 2.7 | 21 | 10.8 | 33 | 5.1 |
| without chorioamnionitis | 9 | 2.0 | 16 | 8.2 | 25 | 3.9 |
| no placental examination | 2 | 0.4 | 4 | 2.1 | 6 | 0.9 |
| unspecified placental examination | 3 | 0.7 | 0 | 0.0 | 3 | 0.5 |
| Membrane rupture 24 hours or more: | | | | | | |
| with chorioamnionitis | 18 | 4.0 | 15 | 7.7 | 33 | 5.1 |
| without chorioamnionitis | 3 | 0.7 | 5 | 2.6 | 8 | 1.2 |
| no placental examination | 0 | 0.0 | 1 | 0.5 | 1 | 0.2 |
| Membrane rupture unknown duration: | | | | | | |
| with chorioamnionitis | 4 | 0.9 | 0 | 0.0 | 4 | 0.6 |
| without chorioamnionitis | 2 | 0.4 | 2 | 1.0 | 4 | 0.6 |
| no placental examination | 3 | 0.7 | 1 | 0.5 | 4 | 0.6 |
| Total | 56 | 12.5 | 65 | 33.5 | 121 | 18.8 |
| **10. Unexplained antepartum death** | | | | | | |
| With evidence of uteroplacental insufficiency | 40 | 8.9 | 0 | 0.0 | 40 | 6.2 |
| With chronic villitis | 5 | 1.1 | 0 | 0.0 | 5 | 0.8 |
| Without the above placental pathology | 127 | 28.3 | 0 | 0.0 | 127 | 19.8 |
| No placental examination | 14 | 3.1 | 0 | 0.0 | 14 | 2.2 |
| Unspecified placental examination | 5 | 1.1 | 0 | 0.0 | 5 | 0.8 |
| Total | 191 | 42.5 | 0 | 0.0 | 191 | 29.7 |
| **11. No obstetric antecedent** | **0** | **0.0** | **3** | **1.5** | **3** | **0.5** |
| TOTAL 449 | 100.0 | | 194 | 100.0 | 643 | 100.0 |

Source: NSW Maternal and Perinatal Committee, NSW Department of Health.

### 6. Specific perinatal conditions

Of the 43 deaths in this group, twin-to-twin transfusion accounted for 21 deaths, followed by idiopathic hydrops (9), antepartum cord complications (6) and fetomaternal haemorrhage (4). Other causes were: uterine abormality (1), haemolytic disease (1), and maternal autoimmune disease (1).

### 7. Hypoxic peripartum death

There were 20 deaths associated with peripartum hypoxia. Three deaths followed uterine rupture. Two deaths followed cord prolapse and one death followed shoulder dystocia.

One death occurred before the onset of labour, 4 during labour and 4 at an unspecified time prior to birth. The remaining 11 deaths occurred in the neonatal period.

### 8. Fetal growth restriction

In 16 cases, the main obstetric cause of death was considered to be fetal growth restriction (FGR). Of these, 8 were stillbirths and 8 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 121 perinatal deaths associated with spontaneous preterm birth, which comprises normally formed and appropriately grown babies born before 37 weeks gestation. Of these, 56 (46.3 per cent) were stillbirths and 65 (53.7 per cent) were neonatal deaths.

Forty-four deaths (36.4 per cent) were at less than 23 weeks gestation, 59 (48.8 per cent) were at 23–25 weeks gestation, and 18 (14.9 per cent) occurred between 26 and 36 weeks gestation. Thirty-six deaths (29.8 per cent) were associated with membrane rupture of 24 hours or more.

### 10. Unexplained antepartum death

Of the 191 unexplained stillbirths, 122 (63.9 per cent) were low birth weight babies and 114 (59.7 per cent) were premature. A variety of associated maternal conditions were reported in this group including: multiple pregnancy (9 deaths), maternal hypertension (11), diabetes (5), epilepsy (2), asthma (2), systemic lupus erythematosis (2), drug abuse (1) and cholestasis of pregnancy (1). Placental histopathology results were provided for 176 unexplained antepartum deaths (92.1 per cent) and evidence of uteroplacental insufficiency was found in 40.

### 11. No obstetric antecedent

No obstetric cause of death could be identified for 3 neonatal deaths. Two of these babies had a post-mortem examination. Placental histopathology examination had been carried out in 2 cases.

## Obstetric cause of perinatal death by hospital service level 2004

Obstetric service levels are described in the Explanatory Notes of the Methods section (page 16). The majority of perinatal deaths occurred in level 6 hospitals (52.7 per cent, Table 145). 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 2004

Of the 643 perinatal deaths in 2004, 292 (45.4 per cent) occurred before the onset of labour, 46 (7.2 per cent) occurred during labour, 111 (17.3 per cent) occurred at an unknown time before birth, and 194 (30.3 per cent) were neonatal deaths.

## Trends in neonatal causes of death

Between 2001 and 2004 extreme prematurity was the most common cause of neonatal death, accounting for over one-third of all neonatal deaths in 2004 (Table 146). Congenital abnormalities were the next most common cause of neonatal death for the 4 years. There were slightly more deaths attributed to congenital abnormalities in 2004 compared with previous years.

## Neonatal causes of death 2004

Of the 194 neonatal deaths reviewed for 2004, 154 (79.4 per cent) were less than 37 weeks gestation (Table 147). The most common neonatal cause of death was extreme prematurity (n=67, 34.5 per cent). Fifty-six infants died from a congenital abnormality. There were 20 deaths due to hypoxic ischaemic encephalopathy and 12 deaths due to intracranial haemorrhage.

## Perinatal deaths associated with maternal drug dependency–abuse 2004

No perinatal deaths were directly attributed to maternal drug dependency or drug abuse. Eleven 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 2004

Postmortem 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. Postmortem examinations were carried out for 212 (33.0 per cent) deaths: 166 stillborn infants (37.0 per cent of all reported stillbirths) and 46 neonatal deaths (23.7 per cent of all reported neonatal deaths). Placental histopathology was carried out in 543 perinatal deaths (84.5 per cent).

**TABLE 145**

**PERINATAL DEATHS BY OBSTETRIC ANTECEDENT AND HOSPITAL SERVICE LEVEL, NSW 2004**

| Obstetric antecedent | Hospital service level | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Level 2 | | Level 3 | | Level 4 | | Level 5 | | Level 6 | | Private | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| 1. Fetal abnoramality | 0 | 0.0 | 6 | 14.6 | 9 | 9.2 | 11 | 12.6 | 93 | 27.4 | 6 | 8.7 | 125 | 19.4 |
| 2. Perinatal infection | 0 | 0.0 | 0 | 0.0 | 2 | 2.0 | 1 | 1.1 | 9 | 2.7 | 2 | 2.9 | 14 | 2.2 |
| 3. Hypertension | 0 | 0.0 | 1 | 2.4 | 6 | 6.1 | 6 | 6.9 | 13 | 3.8 | 4 | 5.8 | 30 | 4.7 |
| 4. Antepartum haemorrhage | 2 | 28.6 | 4 | 9.8 | 11 | 11.2 | 9 | 10.3 | 29 | 8.6 | 4 | 5.8 | 59 | 9.2 |
| 5. Maternal disease | 0 | 0.0 | 2 | 4.9 | 5 | 5.1 | 2 | 2.3 | 10 | 2.9 | 2 | 2.9 | 21 | 3.3 |
| 6. Specific perinatal conditions | 0 | 0.0 | 2 | 4.9 | 3 | 3.1 | 7 | 8.0 | 24 | 7.1 | 7 | 10.1 | 43 | 6.7 |
| 7. Hypoxic peripartum death | 2 | 28.6 | 2 | 4.9 | 0 | 0.0 | 2 | 2.3 | 13 | 3.8 | 1 | 1.4 | 20 | 3.1 |
| 8. Fetal growth restriction# | 0.0 | 0 | 0.0 | 3 | 3.1 | 1 | 1.1 | 12 | 3.5 | 0 | 0.0 | 16 | 2.5 | |
| 9. Spontaneous preterm | 0 | 0.0 | 8 | 19.5 | 13 | 13.3 | 13 | 14.9 | 74 | 21.8 | 12 | 17.4 | 121 | 18.8 |
| 10. Unexplained antepartum death | 3 | 42.9 | 15 | 36.6 | 46 | 46.9 | 35 | 40.2 | 61 | 18.0 | 31 | 44.9 | 191 | 29.7 |
| 11. No obstetric antecedent | 0 | 0.0 | 1 | 2.4 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 3 | 0.5 |
| TOTAL | 7 | 100.0 | 41 | 100.0 | 98 | 100.0 | 87 | 100.0 | 339 | 100.0 | 69 | 100.0 | 643 | 100.0 |

Source: NSW Maternal and Perinatal Committee, NSW Department of Health.
# The *spontaneous preterm* and *no obstetric antecedent* categories each include one perinatal death that occurred in a level 1 hospital.

**TABLE 146**

**NEONATAL DEATHS BY CAUSE AND YEAR, NSW 2001–2004**

| Neonatal cause | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2001 | | 2002 | | 2003 | | 2004 | |
| | No. | % | No. | % | No. | % | No. | % |
| **1. Congenital abnormality** | | | | | | | | |
| Central nervous system | 6 | 3.2 | 6 | 3.0 | 9 | 4.7 | 12 | 6.2 |
| Cardiovascular system | 8 | 4.2 | 2 | 1.0 | 11 | 5.7 | 6 | 3.1 |
| Urinary tract | 5 | 2.6 | 2 | 1.0 | 3 | 1.6 | 3 | 1.5 |
| Gastrointestinal tract | 2 | 1.1 | 2 | 1.0 | 2 | 1.0 | 4 | 2.1 |
| Chromosomal | 3 | 1.6 | 8 | 4.0 | 3 | 1.6 | 11 | 5.7 |
| Metabolic | 0 | 0.0 | 1 | 0.5 | 0 | 0.0 | 2 | 1.0 |
| Multiple | 5 | 2.6 | 5 | 2.5 | 2 | 1.0 | 9 | 4.6 |
| Unspecified | 0 | 0.0 | 1 | 0.5 | 0 | 0.0 | 7 | 3.6 |
| Other | 14 | 7.4 | 12 | 5.9 | 7 | 3.6 | 2 | 1.0 |
| Total | 43 | 22.8 | 39 | 19.3 | 37 | 19.3 | 56 | 28.9 |
| **2. Extreme prematurity** | | | | | | | | |
| Not resuscitated | 34 | 18.0 | 39 | 19.3 | 45 | 23.4 | 36 | 18.6 |
| Unsuccessful resuscitation | 34 | 18.0 | 31 | 15.3 | 22 | 11.5 | 23 | 11.9 |
| Resuscitation unspecified or unknown | 16 | 8.5 | 10 | 5.0 | 19 | 9.9 | 8 | 4.1 |
| Total | 84 | 44.4 | 80 | 39.6 | 86 | 44.8 | 67 | 34.5 |
| **3. Cardio-respiratory disorders** | | | | | | | | |
| Hyaline membrane disease–Respiratory distress syndrome | 8 | 4.2 | 5 | 2.5 | 6 | 3.1 | 3 | 1.5 |
| Meconium aspiration syndrome | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 |
| Primary persistent pulmonary hypertension | 2 | 1.1 | 2 | 1.0 | 1 | 0.5 | 3 | 1.5 |
| Pulmonary hypoplasia | 6 | 3.2 | 8 | 4.0 | 5 | 2.6 | 5 | 2.6 |
| Chronic neonatal lung disease | 0 | 0.0 | 0 | 0.0 | 2 | 1.0 | 0 | 0.0 |
| Other | 6 | 3.2 | 8 | 4.0 | 6 | 3.1 | 4 | 2.1 |
| Total | 23 | 12.2 | 24 | 11.9 | 21 | 10.9 | 16 | 8.2 |
| **4. Infection** | | | | | | | | |
| Congenital bacterial | 2 | 1.1 | 7 | 3.5 | 3 | 1.6 | 6 | 3.1 |
| Acquired bacterial | 4 | 2.1 | 8 | 4.0 | 6 | 3.1 | 3 | 1.5 |
| Fungal | 0 | 0.0 | 1 | 0.5 | 1 | 0.5 | 0 | 0.0 |
| Unspecified organism | 2 | 1.1 | 0 | 0.0 | 0 | 0.0 | 1 | 0.5 |
| Other | 0 | 0.0 | 1 | 0.5 | 1 | 0.5 | 2 | 1.0 |
| Total | 8 | 4.2 | 17 | 8.4 | 11 | 5.7 | 12 | 6.2 |
| **5. Neurological** | | | | | | | | |
| Hypoxic ischaemic encephalopathy–perinatal asphyxia | 8 | 4.2 | 16 | 7.9 | 13 | 6.8 | 20 | 10.3 |
| Intracranial haemorrhage | 10 | 5.3 | 11 | 5.4 | 10 | 5.2 | 12 | 6.2 |
| Other | 0 | 0.0 | 0 | 0.0 | 1 | 0.5 | 0 | 0.0 |
| Total | 18 | 9.5 | 27 | 13.4 | 24 | 12.5 | 32 | 16.5 |
| **6. Gastrointestinal** | | | | | | | | |
| Necrotising enterocolitis | 2 | 1.1 | 5 | 2.5 | 5 | 2.6 | 2 | 1.0 |
| Other | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 |
| Total | 3 | 1.6 | 6 | 3.0 | 6 | 3.1 | 3 | 1.5 |
| **7. Other** | | | | | | | | |
| SIDS | 0 | 0.0 | 0 | 0.0 | 1 | 0.5 | 0 | 0.0 |
| Trauma | 0 | 0.0 | 1 | 0.5 | 0 | 0.0 | 0 | 0.0 |
| Other | 7 | 3.7 | 3 | 1.5 | 5 | 2.6 | 7 | 3.6 |
| Undetermined–not stated | 3 | 1.6 | 5 | 2.5 | 1 | 0.5 | 1 | 0.5 |
| Total | 10 | 5.3 | 9 | 4.5 | 7 | 3.6 | 8 | 4.1 |
| TOTAL | 189 | 100.0 | 202 | 100.0 | 192 | 100.0 | 194 | 100.0 |

Source: NSW Maternal and Perinatal Committee, NSW Department of Health.

**TABLE 147**

**NEONATAL DEATHS BY CAUSE AND GESTATIONAL AGE, NSW 2004**

| Neonatal cause | Gestational age (weeks) | | | | | |
|---|---|---|---|---|---|---|
| | Less than 37 | | 37+ | | TOTAL | |
| | No. | % | No. | % | No. | % |
| **1. Congenital abnormality** | | | | | | |
| Central nervous system | 9 | 5.8 | 3 | 7.5 | 12 | 6.2 |
| Cardiovascular system | 2 | 1.3 | 4 | 10.0 | 6 | 3.1 |
| Urinary tract | 3 | 1.9 | 0 | 0.0 | 3 | 1.5 |
| Gastrointestinal tract | 3 | 1.9 | 1 | 2.5 | 4 | 2.1 |
| Chromosomal | 9 | 5.8 | 2 | 5.0 | 11 | 5.7 |
| Metabolic | 0 | 0.0 | 2 | 5.0 | 2 | 1.0 |
| Multiple | 7 | 4.5 | 2 | 5.0 | 9 | 4.6 |
| Other | 5 | 3.2 | 2 | 5.0 | 7 | 3.6 |
| Unspecified | 0 | 0.0 | 2 | 5.0 | 2 | 1.0 |
| Total | 38 | 24.7 | 18 | 45.0 | 56 | 28.9 |
| **2. Extreme prematurity** | | | | | | |
| Not resuscitated | 36 | 23.4 | 0 | 0.0 | 36 | 18.6 |
| Unsuccessful resuscitation | 23 | 14.9 | 0 | 0.0 | 23 | 11.9 |
| Resuscitation unspecified or unknown | 8 | 5.2 | 0 | 0.0 | 8 | 4.1 |
| Total | 67 | 43.5 | 0 | 0.0 | 67 | 34.5 |
| **3. Cardio-respiratory disorders** | | | | | | |
| Hyaline membrane disease Respiratory distress syndrome | 3 | 1.9 | 0 | 0.0 | 3 | 1.5 |
| Meconium aspiration syndrome | 0 | 0.0 | 1 | 2.5 | 1 | 0.5 |
| Primary persistent pulmonary hypertension | 1 | 0.6 | 2 | 5.0 | 3 | 1.5 |
| Pulmonary hypoplasia | 3 | 1.9 | 2 | 5.0 | 5 | 2.6 |
| Other | 4 | 2.6 | 0 | 0.0 | 4 | 2.1 |
| Total | 11 | 7.1 | 5 | 12.5 | 16 | 8.2 |
| **4. Infection** | | | | | | |
| Congenital bacterial | 5 | 3.2 | 1 | 2.5 | 6 | 3.1 |
| Acquired bacterial | 3 | 1.9 | 0 | 0.0 | 3 | 1.5 |
| Unspecified organism | 1 | 0.6 | 0 | 0.0 | 1 | 0.5 |
| Other | 0 | 0.0 | 2 | 5.0 | 2 | 1.0 |
| Total | 9 | 5.8 | 3 | 7.5 | 12 | 6.2 |
| **5. Neurological** | | | | | | |
| Hypoxic ischaemic encephalopathy– perinatal asphyxia | 7 | 4.5 | 13 | 32.5 | 20 | 10.3 |
| Intracranial haemorrhage | 12 | 7.8 | 0 | 0.0 | 12 | 6.2 |
| Total | 19 | 12.3 | 13 | 32.5 | 32 | 16.5 |
| **6. Gastrointestinal** | | | | | | |
| Other | 1 | 0.6 | 0 | 0.0 | 1 | 0.5 |
| Necrotising enterocolitis | 2 | 1.3 | 0 | 0.0 | 2 | 1.0 |
| Total | 3 | 1.9 | 0 | 0.0 | 3 | 1.5 |
| **7. Other** | | | | | | |
| Undetermined–Unknown | 0 | 0.0 | 1 | 2.5 | 1 | 0.5 |
| Other | 7 | 4.5 | 0 | 0.0 | 7 | 3.6 |
| Total | 7 | 4.5 | 1 | 2.5 | 8 | 4.1 |
| TOTAL | 154 | 100.0 | 40 | 100.0 | 194 | 100.0 |

Source: NSW Maternal and Perinatal Committee, NSW Department of Health.

# 13. HOW USEFUL ARE HOSPITAL MORBIDITY DATA FOR MONITORING CONDITIONS OCCURRING IN THE PERINATAL PERIOD?

The results of this study were originally published in the *Australian and New Zealand Journal of Obstetrics and Gynaecology*[1]. This version of the article includes additional and extended tables of results. The results section has been modified accordingly.

**Reference**

1. Taylor L, Travis S, Pym M, Olive E, Henderson-Smart DJ. How useful are hospital morbidity data for monitoring conditions occurring in the perinatal period? *Aust N Z J Obstet Gynaecol* 2005; 45:36–41.

## Introduction

The main source of information on perinatal morbidity in Australia is state and territory perinatal data collections. Some jurisdictions collect information on all maternal and neonatal conditions, others collect information on a limited set of conditions. Thus there is currently no published information on the full range of conditions affecting mothers and newborns in Australia. It is also recognised that there is variable under-enumeration of those conditions that are covered by perinatal data collections.[1,2,3,4,5]

Data that are routinely collected by hospitals for administrative purposes are a possible source of information on the full range of medical conditions and obstetric complications that may affect mothers and newborn babies, and could potentially supplement information available through perinatal data collections. All hospitals in Australia contribute to state and territory hospital morbidity data collections, which are primarily used for resourcing and management of health services. Hospital morbidity data collections contain information on the reason for admission, known as the primary diagnosis, and on comorbidities including other medical conditions present at the time of admission and medical complications that arise during hospital stay.

There has been a reluctance to use hospital morbidity data collections for monitoring maternal and perinatal morbidity because of concerns about accuracy of the data. A study examining the accuracy of reporting of eclampsia to both the hospital morbidity data collection and the perinatal data collection in Victoria supports this view.[6] However there is no published information on the accuracy of the range of conditions reported by hospital morbidity data collections.

The aim of this review was to assess the accuracy and reliability of the NSW Inpatient Statistics Collection (ISC) in identifying perinatal morbidity during the hospital admission at time of birth.

## Methods

The ISC 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. It is maintained by the NSW Department of Health's Information Management and Support Unit. From July 1998, the NSW ISC has contained 21 fields for principal diagnosis and comorbidities, which are coded according to the International Classification of Diseases and Related Health Problems (ICD-10-AM).[7] Conditions reported to the ISC for a sample of records were compared with information obtained through an audit of the corresponding medical records.

A random sample of 1,000 records was selected from computerised records of the ISC: 500 records of mothers who gave birth during the hospital admission and 500 records of liveborn babies born during the admission. Records were selected from NSW public and private hospitals with 50 or more births reported to the ISC in the financial year 1999–00. In 1999–00, 99.2 per cent of deliveries in NSW occurred in hospitals with 50 or more births.

For mothers, records with codes for vaginal or caesarean section deliveries were initially selected (Australian National Diagnosis-Related Group version 4.1 codes O01A, O01B, O01C, O01D, O02Z, O60A, O60B, O60C, or O60D). Records were excluded for hospitals where there were less than 50 mothers giving birth in the financial year (for logistical reasons), for 2 hospitals that had closed, and where the medical record number was not reported. A random number was assigned to each ISC record using a random number generator in SAS version 8.02.[8] Records were sorted by ascending number and the first 500 records were selected as the sample. For liveborn babies, records indicating a livebirth (code Z38) were selected. The remainder of the sampling procedure was repeated as for mother records.

All selected hospitals agreed to participate in the audit. Each medical record was reviewed independently by a health information manager and a clinical nurse consultant in midwifery, both of whom are Department of Health employees. These staff then compared their findings and came to an agreement on conditions that should be coded. Coding was carried out according to the Australian National Coding Standards, Volume 1.[7] Data collection was carried out over a 16 month period between October 2002 and February 2004. Coding of conditions was checked for logical consistency by a second health information manager in consultation with the review team, and any discrepancies were corrected by consensus. Information was entered on to a Microsoft Access 2002 database. Information collected through the audit process is referred to as the validation data.

Analyses were carried out using SAS version 8.02. A list of all coded conditions in the validation data was reviewed by an obstetrician and a neonatologist. Clinically important conditions or conditions that were otherwise considered

to be potentially useful for monitoring the health of mothers and babies over time were retained. The most common exclusions were: non-specific morbidity codes; symptoms, signs and abnormal clinical and laboratory findings; external causes of injury; and factors influencing the person's health status but which are not current illnesses. In addition, certain conditions were grouped. For example, condition codes for degrees of pre-eclampsia were combined into a single group for pre-eclampsia. Codes for premature rupture of membranes were cross-matched with codes for duration of pregnancy to create separate groups for term- and preterm–premature rupture of membranes.

Records in the ISC and validation datasets were compared. Sensitivity, specificity, positive predictive values (PPV) and negative predictive values (NPV) for single codes and grouped codes were calculated using the validation data as the 'gold standard'. Definitions are shown in Table 148. Percentage agreement and kappa measures of agreement were also calculated. Kappa is a measure of inter-rater reliability that corrects for agreement that could occur by chance. A kappa value of one represents perfect agreement and a value of 0 represents only chance agreement. Values greater than 0.75 may be taken to represent excellent agreement beyond chance, values between 0.40 and 0.75 may be taken to represent fair to good agreement beyond chance and values below 0.40 may be taken to represent poor agreement beyond chance.[9]

Published validation studies of Australian state perinatal data collections were reviewed and measures of accuracy and reliability compared with the results obtained in this review.

As this review is an audit of a data collection and conforms to the standards established by the National Health and Medical Research Council for ethical quality review,[10] ethics committee approval was not sought.

## Results

Of the 1,000 records sampled, 981 were available for review: 490 mother records (98.0 per cent) and 491 baby records (98.2 per cent). In the validation data 64 maternal conditions and 45 neonatal conditions were identified that were considered to be relevant to monitoring the health of mothers and babies. Measures of accuracy and reliability are shown in Tables 149 and 150.

Overall agreement was greater than 93 per cent for all conditions. However, many conditions were uncommon, and much of the agreement is due to conditions being correctly recorded as absent on the ISC. Kappa was at a level of 0.75 or above, indicating excellent agreement beyond chance, for 52 (48 per cent) conditions (maternal: n=26, 41 per cent; neonatal: n=26, 58 per cent); a level of 0.40 to 0.74, indicating fair to good agreement beyond chance, for a further 35 (32 per cent) conditions (maternal: n=26,41 per cent; neonatal: n=9, 20 per cent) neonatal conditions; and a level of less than 0.40, indicating poor agreement beyond chance, for 22 (20 per cent) (maternal: n=12,19 per cent; neonatal: n=10,22 per cent).

There was a wide range in the sensitivities of reported conditions, with only 34 (32 per cent) conditions (maternal: n=12, 19 per cent; neonatal: n=22, 49 per cent) having a sensitivity of 100 per cent, and 51 (47 per cent) conditions (maternal: n=25, 39 per cent; neonatal: n=26, 58 per cent) having a sensitivity of 80 per cent or more. Nine maternal conditions and 9 neonatal conditions that were found in the validation data were not reported at all in the ISC (sensitivity 0 per cent). These conditions were all uncommon, with only one or 2 cases in the validation data.

PPVs were generally higher than the sensitivities, with 46 (42 per cent) conditions (maternal: n=22, 34 per cent; neonatal: n=26, 58 per cent) having a perfect PPV of 100

**TABLE 148**

**MEASURES OF ACCURACY FOR REPORTED CONDITIONS**

| ISC data | Validation data | | |
|---|---|---|---|
| | **Present** | **Absent** | **Total** |
| Present | a | b | a+b |
| Absent | c | d | c+d |
| Total | a+c | b+d | a+b+c+d |

| **Term** | **Formula** | **Definition** |
|---|---|---|
| Sensitivity | a/(a+c) | Proportion of those with the condition who are reported on the NSW ISC as having it |
| Specificity | d/(b+d) | Proportion of those without the condition who are reported on the NSW ISC as not having it |
| Positive predictive value (PPV) | a/(a+b) | Proportion of those reported to have the condition on the NSW ISC who have the condition |
| Negative predictive value (NPV) | d/(c+d) | Proportion of those reported not to have the condition on the NSW ISC who do not have the condition |

Source: Rothman KJ, Greenland S (Eds). *Modern Epidemiology*. Philadelphia: Lippincott Williams & Wilkins; 1998. Adapted to reflect the data sources used in this study.

per cent, and 74 (68 per cent) conditions (maternal: n=41, 64 per cent; neonatal: n=33, 73 per cent having a PPV of 80 per cent or more. Levels of specificity, were generally high, with all but 2 maternal and neonatal conditions having specificity of more than 96 per cent. Similarly, NPVs were generally high.

Some of the more common conditions reported are of particular interest for health monitoring purposes. Gestational diabetes was found to have a sensitivity of 96 per cent and almost perfect specificity. While the specificities for gestational hypertension and pre-eclampsia were high at over 99 per cent, the sensitivities were relatively low at 59 per cent and 50 per cent respectively. If these two groups are combined into a general group of 'pregnancy induced hypertension' then the sensitivity rises to 63 per cent, suggesting some misclassification between these two groups. Only two-thirds of all cases of preterm premature rupture of membranes were correctly reported to the ISC (sensitivity 67 per cent). Placenta praevia was reasonably well reported, with a sensitivity of 88 per cent and a specificity of 100 per cent, while placental abruption was less well reported with a sensitivity of 50 per cent and a specificity of 100 per cent. Post partum haemorrhage was similarly under-reported, with a sensitivity of 59 per cent but a high specificity of 99 per cent.

**TABLE 149**

**COMPARISON OF REPORTING MATERNAL CONDITIONS IN ISC AND VALIDATION DATA: MEASURES OF ACCURACY AND RELIABILITY**

| ICD-10-AM code | Description | ISC data No. | Validation data No. | Sensitivity % | Specificity % | PPV % | NPV % | Percentage agreement % | Kappa |
|---|---|---|---|---|---|---|---|---|---|
| A53.9 | Syphilis | 0 | 1 | 0.0 | 100.0 | 0.0 | 99.8 | 99.8 | 0.00 |
| A60.0 | Herpes virus infection of genitalia and urogenital tract | 1 | 2 | 50.0 | 100.0 | 100.0 | 99.8 | 99.8 | 0.67 |
| B01.9 | Varicella | 2 | 2 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| B18.2 | Chronic viral hepatitis C | 0 | 1 | 0.0 | 100.0 | 0.0 | 99.8 | 99.8 | 0.00 |
| D25.9 | Leiomyoma | 3 | 2 | 100.0 | 99.8 | 66.7 | 100.0 | 99.8 | 0.80 |
| D50 | Iron deficiency anaemia† | 6 | 7 | 57.1 | 99.6 | 66.7 | 99.4 | 99.0 | 0.61 |
| D56 | Thalassemia† | 4 | 4 | 75.0 | 99.8 | 75.0 | 99.8 | 99.6 | 0.75 |
| D50–D64 | Any anaemia† | 5 | 6 | 33.3 | 99.4 | 40.0 | 99.2 | 98.6 | 0.36 |
| D68.0 | Von Willebrand's disease | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| D69 | Platelet disorders† | 2 | 5 | 40.0 | 100.0 | 100.0 | 99.4 | 99.4 | 0.57 |
| E03.9,E89.0 | Hypothyroidism† | 6 | 6 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| E05 | Thyrotoxicosis† | 0 | 3 | 0.0 | 100.0 | 0.0 | 99.4 | 99.4 | 0.00 |
| E06.3 | Autoimmune thyroiditis | 0 | 1 | 0.0 | 100.0 | 0.0 | 99.8 | 99.8 | 0.00 |
| F11.2 | Mental and behavioural disorders due use of opioids–dependence syndrome | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| F12.2 | Mental and behavioural disorders due use of cannabinoids–dependence syndrome | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| G40.9 | Epilepsy | 2 | 2 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| J45.9 | Asthma | 3 | 4 | 50.0 | 99.8 | 66 .7 | 99.6 | 99.4 | 0.57 |
| M32.1 | SLE with organ or system involvement | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| N18.90 | Chronic renal failure | 0 | 1 | 0.0 | 100.0 | 0.0 | 99.8 | 99.8 | 0.00 |
| O09.3 | Duration of pregnancy 20–25 completed weeks | 0 | 1 | 0.0 | 100.0 | 0.0 | 99.8 | 99.8 | 0.00 |
| O09.4 | Duration of pregnancy 26–33 completed weeks | 5 | 6 | 66.7 | 99.8 | 80.0 | 99.6 | 99.4 | 0.72 |
| O09.5 | Duration of pregnancy 34–36 completed weeks | 11 | 21 | 52.4 | 100.0 | 100.0 | 97.9 | 98.0 | 0.68 |
| O10 | Pre-existing hypertension† | 7 | 7 | 85.7 | 99.8 | 85.7 | 99.8 | 99.6 | 0.86 |
| O13 | Gestational hypertension | 21 | 29 | 58.6 | 99.1 | 81.0 | 97.4 | 96.7 | 0.66 |
| O14 | Pre-eclampsia† | 12 | 22 | 50.0 | 99.8 | 91.7 | 97.7 | 97.6 | 0.64 |
| O13,O14 | Pregnancy induced hypertension† | 33 | 51 | 62.7 | 99.8 | 97.0 | 95.8 | 95.9 | 0.74 |
| O23.4 | Urinary tract infection in pregnancy | 4 | 3 | 33.3 | 99.4 | 25.0 | 99.6 | 99.0 | 0.28 |
| O24.0 | Diabetes in pregnancy | 1 | 2 | 50.0 | 100.0 | 100.0 | 99.8 | 99.8 | 0.67 |
| O24.4 | Gestational diabetes | 22 | 22 | 95.5 | 99.8 | 95.5 | 99.8 | 99.6 | 0.95 |
| O30.0 | Twin pregnancy | 4 | 3 | 100.0 | 99.8 | 75.0 | 100.0 | 99.8 | 0.86 |

**TABLE 149 *(continued)***

**COMPARISON OF REPORTING MATERNAL CONDITIONS IN ISC AND VALIDATION DATA: MEASURES OF ACCURACY AND RELIABILITY**

| ICD-10-AM code | Description | ISC data No. | Validation data No. | Sensitivity % | Specificity % | PPV % | NPV % | Percentage agreement % | Kappa |
|---|---|---|---|---|---|---|---|---|---|
| O34.2 | Maternal care due to uterine scar from previous surgery | 40 | 40 | 92.5 | 99.3 | 92.5 | 99.3 | 98.8 | 0.92 |
| O36.0,O36.1 | Maternal care for isoimmunisation† | 7 | 8 | 62.5 | 99.6 | 71.4 | 99.4 | 99.0 | 0.66 |
| O41.1 | Infection of amniotic sac and membranes | 0 | 2 | 0.0 | 100.0 | 0.0 | 99.6 | 99.6 | 0.00 |
| O42.0 | Premature rupture of membranes: onset of labour within 24 hours | 21 | 23 | 47.8 | 97.9 | 52.4 | 97.4 | 95.5 | 0.48 |
| O42.1 | Premature rupture of membranes: onset of labour after 24 hours | 13 | 19 | 57.9 | 99.6 | 84.6 | 98.3 | 98.0 | 0.68 |
| O42.11 | Premature rupture of membranes: onset of labour between 1–7 days later | 11 | 13 | 69.2 | 99.6 | 81.8 | 99.2 | 98.8 | 0.74 |
| O42.12 | Premature rupture of membranes: onset of labour more than 7 days later | 2 | 4 | 25.0 | 99.8 | 50.0 | 99.4 | 99.2 | 0.33 |
| O42.2 | Premature rupture of membranes: labour delayed by therapy | 0 | 1 | 0.0 | 100.0 | 0.0 | 99.8 | 99.8 | 0.00 |
| O42.9 | Premature rupture of membranes: unspecified | 2 | 1 | 100.0 | 99.8 | 50.0 | 100.0 | 99.8 | 0.67 |
| O42 | Any premature rupture of membranes† | 36 | 44 | 61.4 | 98.0 | 75.0 | 96.3 | 94.7 | 0.65 |
| | Preterm premature rupture of membranes (PPROM)‡ | 6 | 9 | 66.7 | 100.0 | 100.0 | 99.4 | 99.4 | 0.80 |
| | Term premature rupture of membranes (TPROM)‡ | 30 | 35 | 54.3 | 97.6 | 63.3 | 96.5 | 94.5 | 0.56 |
| O44 | Placenta praevia† | 7 | 8 | 87.5 | 100.0 | 100.0 | 99.8 | 99.8 | 0.93 |
| O45 | Placental abruption† | 2 | 4 | 50.0 | 100.0 | 100.0 | 99.6 | 99.6 | 0.66 |
| O48 | Prolonged pregnancy | 45 | 47 | 95.7 | 100.0 | 100.0 | 99.6 | 99.6 | 0.98 |
| O64–O66 | Obstructed labour† | 33 | 40 | 75.0 | 99.3 | 90.9 | 97.8 | 97.3 | 0.81 |
| O68 | Labour and delivery complicated by fetal stress (distress)† | 76 | 72 | 87.5 | 96.9 | 82.9 | 97.8 | 95.5 | 0.82 |
| O69.1 | Labour and delivery complicated by cord around neck, with compression | 13 | 15 | 80.0 | 99.8 | 92.3 | 99.4 | 99.2 | 0.85 |
| O69.4 | Labour and delivery complicated by vasa previa | 1 | 2 | 50.0 | 100.0 | 100.0 | 99.8 | 99.8 | 0.67 |
| O70.0 | First degree perineal laceration | 69 | 64 | 92.2 | 97.7 | 85.5 | 98.8 | 96.9 | 0.87 |
| O70.1 | Second degree perineal laceration | 91 | 94 | 94.7 | 99.5 | 97.8 | 98.7 | 98.6 | 0.95 |
| O70.2 | Third degree perineal laceration | 10 | 11 | 90.9 | 100.0 | 100.0 | 99.8 | 99.8 | 0.95 |
| O70.3 | Fourth degree perineal laceration | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| O70 | Any perineal laceration† | 171 | 170 | 95.3 | 97.2 | 94.7 | 97.5 | 96.5 | 0.92 |
| O72 | Post partum haemorrhage† | 18 | 29 | 58.6 | 99.8 | 94.4 | 97.5 | 97.3 | 0.71 |
| O75.7 | Vaginal delivery following previous caesarean section | 4 | 11 | 36.4 | 100.0 | 100.0 | 98.6 | 98.6 | 0.53 |
| O85,O86.0,O86.2 | Postpartum infection† | 7 | 12 | 50.0 | 99.8 | 85.7 | 98.8 | 98.6 | 0.62 |
| O90.1 | Disruption of perineal obstetric wound | 1 | 2 | 50.0 | 100.0 | 100.0 | 99.8 | 99.8 | 0.67 |
| O90.2 | Haematoma of obstetric wound | 2 | 1 | 100.0 | 99.8 | 50.0 | 100.0 | 99.8 | 0.67 |
| Z37.0 | Single live birth § | 474 | 472 | 99.4 | 72.2 | 98.9 | 81.3 | 98.4 | 0.76 |
| Z37.1 | Single stillbirth § | 6 | 8 | 75.0 | 100.0 | 100.0 | 99.6 | 99.6 | 0.86 |
| Z37.2 | Twins, both liveborn § | 5 | 6 | 83.3 | 100.0 | 100.0 | 99.8 | 99.8 | 0.91 |
| Z37.5 | Other multiple births, all liveborn | 0 | 1 | 0.0 | 100.0 | | 99.8 | 99.8 | 0.00 |
| Z72.0 | Tobacco use, current | 57 | 80 | 66.3 | 99.0 | 93.0 | 93.8 | 93.7 | 0.74 |

† Conditions for which ICD-10 codes were grouped
‡ PPROM categorised using any code for premature rupture of membranes (042) with any code for duration of pregnancy less than 37 weeks (O09.0–O09.5). Other cases of premature rupture of membranes classified as TPROM.
§ Number of births do not sum to 490 as 3 mothers gave birth prior to arrival at hospital.

**TABLE 150**

**COMPARISON OF REPORTING OF NEONATAL CONDITIONS IN NSW ISC AND VALIDATION DATA: MEASURES OF ACCURACY AND RELIABILITY**

| ICD-10-AM code | Description | NSW ISC data No. | Validation data No. | Sensitivity % | Specificity % | PPV % | NPV % | Percentage agreement % | Kappa |
|---|---|---|---|---|---|---|---|---|---|
| P07.2 | Extreme immaturity (Less than 28 completed weeks) | 2 | 2 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| P07.3 | Other preterm infants (28 completed weeks to 37 completed weeks) | 24 | 31 | 74.2 | 99.8 | 95.8 | 98.3 | 98.2 | 0.83 |
| E84.1 | Cystic fibrosis with intestinal manifestations | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| E87.1 | Hypo–osmolality and hyponatraemia | 0 | 1 | 0.0 | 100.0 | 0.0 | 99.8 | 99.8 | 0.00 |
| E87.2 | Acidosis | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| K21.9 | Gastro–oesophageal reflux disease without oesophagitis | 1 | 1 | 0.0 | 99.8 | 0.0 | 99.8 | 99.6 | 0.00 |
| K42.9 | Umbilical hernia without obstruction or gangrene | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| P05.0,P05.1 | Small for gestational age | 0 | 0 | 0.0 | 100.0 | 0.0 | 100.0 | 100.0 | 0.00 |
| P07.0 | Extremely low birth weight (999 gms or less) | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| P07.1 | Other low birth weight (1,000–2,499 gms) | 12 | 11 | 100.0 | 99.8 | 91.7 | 100.0 | 99.8 | 0.96 |
| P11.3,P13.1, P13.3,P13.4 | Birth injuries† | 0 | 0 | 0.0 | 100.0 | 0.0 | 100.0 | 100.0 | 0.00 |
| P21.0 | Severe birth asphyxia (Apgar score 0–3 at 1–minute) | 1 | 2 | 50.0 | 100.0 | 100.0 | 99.8 | 99.8 | 0.67 |
| P21.1 | Mild and moderate birth asphyxia (Apgar score 4–7 at one minute) | 3 | 1 | 100.0 | 99.6 | 33.3 | 100.0 | 99.6 | 0.50 |
| P22.0 | Respiratory distress of newborn (hyaline membrane disease) | 7 | 14 | 50.0 | 100.0 | 100.0 | 98.6 | 98.6 | 0.66 |
| P22.1 | Transient tachypnoea of newborn | 9 | 11 | 63.6 | 99.6 | 77.8 | 99.2 | 98.8 | 0.69 |
| P24.0 | Neonatal aspiration of meconium | 1 | 4 | 25.0 | 100.0 | 100.0 | 99.4 | 99.4 | 0.40 |
| P24.2 | Neonatal aspiration of blood | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| P28.2 | Cyanotic attacks of newborn | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| P28.3 | Primary sleep apnoea of newborn | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| P29.2 | Neonatal hypertension | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| P36.0 | Sepsis of newborn due to streptococcus, group B | 0 | 1 | 0.0 | 100.0 | 0.0 | 99.8 | 99.8 | 0.00 |
| P52.0 | Intraventricular (nontraumatic) haemorrhage, grade 1, of fetus and newborn | 2 | 2 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| P52.1 | Intraventricular (nontraumatic) haemorrhage, grade 2, of fetus and newborn | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| P52.5 | Subarachnoid (nontraumatic) haemorrhage of fetus and newborn | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| P55 | Haemolytic disease of fetus and newborn* | 3 | 5 | 60.0 | 100.0 | 100.0 | 99.6 | 99.6 | 0.75 |
| P59.0–P59.9 | Neonatal jaundice† | 22 | 25 | 80.0 | 99.6 | 90.9 | 98.9 | 98.6 | 0.84 |
| P70.0–P70.4 | Neonatal hypoglycaemia† | 18 | 20 | 85.0 | 99.8 | 94.4 | 99.4 | 99.2 | 0.89 |
| P75 | Meconium ileus | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| P90 | Convulsions of newborn | 1 | 1 | 0.0 | 99.8 | 0.0 | 99.8 | 99.6 | 0.00 |
| P92.0–P92.9 | Feeding problems of newborn† | 20 | 35 | 48.6 | 99.3 | 85.0 | 96.2 | 95.7 | 0.60 |
| P96.1 | Neonatal withdrawal symptoms from maternal use of drugs of addiction | 2 | 2 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| Q03.9 | Congenital hydrocephalus | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| Q21.0 | Ventricular septal defect | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| Q33.9 | Congenital malformation of lung, unspecified | 0 | 1 | 0.0 | 100.0 | 0.0 | 99.8 | 99.8 | 0.00 |
| Q53.1 | Undescended testicle, unilateral | 2 | 4 | 50.0 | 100.0 | 100.0 | 99.6 | 99.6 | 0.66 |
| Q53.2 | Undescended testicle, bilateral | 1 | 2 | 50.0 | 100.0 | 100.0 | 99.8 | 99.8 | 0.67 |

**TABLE 150 *(continued)***

**COMPARISON OF REPORTING OF NEONATAL CONDITIONS IN ISC AND VALIDATION DATA: MEASURES OF ACCURACY AND RELIABILITY**

| ICD-10-AM code | Description | ISC data No. | Validation data No. | Sensitivity % | Specificity % | PPV % | NPV % | Percentage agreement % | Kappa |
|---|---|---|---|---|---|---|---|---|---|
| Q54.9 | Hypospadias | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| Q65.0 | Congenital dislocation of hip, unilateral | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| Q66.0 | Talipes equinovarus | 2 | 2 | 50.0 | 99.8 | 50.0 | 99.8 | 99.6 | 0.50 |
| Q66.1 | Talipes calcaneovarus | 0 | 1 | 0.0 | 100.0 | 0.0 | 99.8 | 99.8 | 0.00 |
| Q66.2 | Metatarsus varus | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| Q66.4 | Talipes calcaneovalgus | 1 | 1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.00 |
| Z38.0 | Singleton, born in hospital | 472 | 471 | 99.8 | 90.0 | 99.6 | 94.7 | 99.4 | 0.92 |
| Z38.2 | Singleton, unspecified as to place of birth | 0 | 1 | 0.0 | 100.0 | 0.0 | 99.8 | 99.8 | 0.00 |
| Z38.3 | Twin, born in hospital | 19 | 19 | 94.7 | 99.8 | 94.7 | 99.8 | 99.6 | 0.95 |

† Conditions for which ICD10 codes were grouped

**TABLE 151**

**COMPARISON OF NSW ISC AND OTHER STATE PERINATAL DATA COLLECTIONS FOR SELECTED CONDITIONS**

| Condition | Data collection† | Sensitivity % | Specificity % | PPV % | NPV % | Percentage % | Kappa |
|---|---|---|---|---|---|---|---|
| Premature rupture of membranes | NSW ISC | 61.4 | 98.0 | 75.0 | 96.3 | 94.7 | 0.65 |
| | WA perinatal data collection | 75.0 | 98.6 | 63.2 | 99.2 | 97.8 | – |
| Pre-existing hypertension | NSW ISC | 85.7 | 99.8 | 85.7 | 99.8 | 99.6 | 0.86 |
| | Victorian perinatal data collection | 71.4 | – | – | – | – | – |
| | SA perinatal data collection | – | – | – | – | 99.3 | 0.72 |
| | NSW perinatal data collection | 62.5 | 99.8 | – | – | 99.6 | 0.59 |
| Pre-eclampsia | NSW ISC | 50.0 | 99.8 | 91.7 | 97.7 | 97.6 | 0.64 |
| | Victorian perinatal data collection | 87.0 | – | – | – | – | – |
| | WA perinatal data collection | 65.6 | 98.1 | 70.0 | 97.7 | 96.1 | – |
| | NSW perinatal data collection | 66.7 | 99.3 | – | – | 96.4 | 0.75 |
| Pregnancy induced hypertension | NSW ISC | 62.7 | 99.8 | 97.0 | 95.8 | 95.9 | 0.74 |
| | Victorian perinatal data collection | 60.0 | – | – | – | – | – |
| | SA perinatal data collection | – | – | – | – | 98.3 | 0.87 |
| Gestational diabetes | NSW ISC | 95.5 | 99.8 | 95.5 | 99.8 | 99.6 | 0.95 |
| | WA perinatal data collection | 100.0 | 99.2 | 69.2 | 100.0 | 99.2 | – |
| | NSW perinatal data collection | 86.7 | 99.6 | – | – | 99.1 | 0.87 |
| Postpartum haemorrhage | NSW ISC | 58.6 | 99.8 | 94.4 | 97.5 | 97.3 | 0.71 |
| | Victorian perinatal data collection | 100.0 | – | – | – | – | – |
| | SA perinatal data collection | – | – | – | – | 96.5 | 0.68 |
| | WA perinatal data collection | 80.0 | 99.4 | 88.9 | 98.8 | 98.2 | – |
| Fetal distress | NSW ISC | 87.5 | 96.9 | 82.9 | 97.8 | 95.5 | 0.82 |
| | SA perinatal data collection | – | – | – | – | 95.3 | 0.79 |
| | WA perinatal data collection | 90.5 | 93.3 | 65.5 | 98.6 | 92.9 | – |
| Third degree perineal laceration | NSW ISC | 90.9 | 100.0 | 100.0 | 99.8 | 99.8 | 0.95 |
| | SA perinatal data collection | – | – | – | – | 100.0 | 1.00 |

† Conditions presented where 10 or more cases reported from medical records in the NSW ISC and comparative published information available from perinatal data collections.
Sources: Publications listed in the references as follows: SA perinatal data collection[2], Victorian perinatal data collection[3], WA perinatal data collection[4], NSW perinatal data collection[5]

Table 151 shows a comparison of measures of accuracy and reliability for common conditions reported to both the ISC and other state perinatal data collections, where published information is available. On the limited information available, reporting of pregnancy related conditions to state perinatal data collections has similar characteristics to the ISC: high levels of specificity, high NPVs, generally high levels of overall agreement, and a wide variation in sensitivities. Compared with perinatal data collections the accuracy of reporting to the ISC was better for pre-existing hypertension, worse for premature rupture of membranes, pre-eclampsia and postpartum haemorrhage, and similar for other conditions for which comparative information was available.

## Discussion

Hospital administrative data have the advantage of being routinely collected and are therefore inexpensive as a resource for monitoring perinatal health. However, there has been reluctance on the part of clinicians to use such data due to concerns about data quality. This review provides evidence of the accuracy of ISC data based on a review of large random sample of mother and baby records. Not all conditions that might be of interest to clinicians occurred in our sample. However, results for common conditions of clinical interest are presented, and information on patterns of accuracy of less common conditions helps provide a picture of the value of the ISC as a source of information on perinatal health.

We found that the accuracy and reliability of the ISC is characterised by:

- variable levels of overall agreement, with about half of all conditions reported at a level considered to be excellent agreement beyond chance and a further one third at a level indicating fair to good agreement beyond chance;
- high levels of specificity, indicating that false positive reports are uncommon;
- variable levels of sensitivity, indicating a variable level of under-enumeration;
- generally higher levels of accuracy and reliability for neonatal records than maternal records.

The findings of overseas studies are similar in terms of variable levels of sensitivity and high levels of specificity and in both the perinatal area,[11,12] and for morbidities generally.[13] A population based Canadian study found that the prevalence of a range of pregnancy conditions reported from hospital admission records was within a reasonable range of those reported in the literature.[14] From the limited amount of published information available, it appears that state perinatal data collections have similar characteristics, although we could only make comparisons for a small number of maternal conditions and some of the published studies are several years old and may not reflect current levels of accuracy.

This review assessed the extent to which the ISC records conditions documented in the medical record. The Australian Coding Standards permit clinical coders to code a condition only if the diagnosis is documented in the medical record or otherwise confirmed by a clinician. For example, the Coding Standards state that postpartum haemorrhage (PPH) is a haemorrhage of 500 mls or more in the case of a vaginal delivery and 750 mls or more in the case of a caesarean section. However, if the *diagnosis* of PPH is not documented in the medical record, it should be confirmed by a clinician before it is coded. Thus clinical coders are not permitted to infer a diagnosis. Confirmation of a suspected diagnosis is unlikely to occur in a busy medical record department and, in practice, it is likely that a condition will generally only be coded if the diagnosis is clearly documented in the medical record. The higher levels of accuracy found for neonatal versus maternal conditions in this study may reflect better documentation of diagnoses for babies than mothers. Levels of documentation may also by influenced by screening practices, for example, for gestational diabetes.

Further, the Coding Standards state that, in general, a condition may be coded if it affects patient management. Thus, essential hypertension will not be coded if it did not affect the management of the mother during her hospital stay. In addition, hospitals may sometimes be directed by state health authorities or their own administrators to vary their coding practice from the national standard for local reasons, thus introducing inconsistent practices between states and territories, and between hospitals.

These results have several implications for use of hospital data for the purpose of monitoring patterns in the health of mothers and babies:

1. The less than perfect sensitivities and high specificities found in this review suggest that ISC data could be used to measure the burden of disease in mothers or infants where the condition is common and there is independent evidence that enumeration of cases is reasonable. Our results suggest that ISC data could be used to assess the number of cases of diagnosed gestational diabetes, placenta praevia, prolonged pregnancy, vaginal laceration, and possibly pre-existing hypertension.
2. For rare conditions, even a high specificity can result in a substantial proportion of cases reported to the ISC being false positives. For example, *maternal care for isoimmunisation* has a specificity of 99.8 per cent. However, of the 7 cases reported to the ISC, 5 were true positives (7XPPV=7X71.4 per cent=5) and 2 were false positives. In a hospital setting, it would be advisable to confirm reporting of rare conditions by reference to the medical record.
3. Even where under-enumeration exists, if the condition is common, the specificity is high (that is, there are few false positives), and there is evidence that the level of under-enumeration has not changed over time, then

the data could be used to indicate whether the burden of disease is increasing or decreasing over time.

4. For conditions with high PPVs and NPVs, ISC data could be used as a source of information for certain study types, such as multivariate analyses of factors (for example demographic factors and hospital insurance status) thought to be associated with the condition, or as a sampling frame for nested case–control studies.

5. Conditions examined in this review are more likely to be studied as risk factors for birth outcomes rather than as outcomes themselves. If the degree of misclassification of mothers and babies to not having a condition when they have it, or vice versa, is not dependent on the birth outcome, then this is known as *non-differential bias* and may result in a reduction in the estimate of risk found. Alternatively, the ascertained risk could be viewed as an estimated minimum level of risk, which is nevertheless valuable information. There are no published validation studies that have been carried out using this approach in the area of perinatal health. A Canadian validation study found that multivariate risk models for all-cause mortality from percutaneous coronary intervention that were constructed from a provincial hospitalisation database were almost identical to the same models constructed from data obtained through medical record review, despite a variable level of misclassification (particularly under-enumeration) of comorbidities on the hospital database.[15] The nature and degree of likely bias should be considered separately for individual studies.

6. Recognising the strengths and limitations of hospital administrative data, it has been proposed that such data are useful as a screening tool for identifying problems in quality of health care.[16,17]

Thus, while hospital administrative data such as the NSW ISC have the advantage of being readily available and inexpensive, data quality is a valid concern. The quality of hospital administrative data could be improved by clinicians recognising that clinical coders are not permitted to make diagnoses and ensuring that relevant diagnoses are documented in the medical record; and through improvements in the quality and consistency of coding practice. If the quality of hospital administrative data is viewed critically in terms of the purpose of its use, the data can be a useful resource for monitoring the health of mothers and babies.

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## References

1. Haynes K, Stone C, King J. *Major conditions associated with childbirth in Australia: Obstetric haemorrhage and associated hysterectomy*. Melbourne: Department of Human Services, 2004.
2. McLean A, Scott J, Keane RK, Sage L, Chan A. *Validation of the 1994 South Australian Perinatal Data Collection Form.* Adelaide: Department of Human Services, 2001.
3. Vagg L, Taylor O, Riley M, Palma S, Halliday J. Validation of the Victorian Perinatal Morbidity Statistics form: new items, pre-coded text and free text. *Health Inf Manag.*1999–2000; 29: 118–22.
4. Gee V, Dawes V. *Validation Study of the Western Australian Midwives' Notification System 1992*. Perth: Health Department of Western Australia, 1994.
5. Taylor L, Pym M, Bajuk B, Sutton L, Travis S, Banks C. *New South Wales Mothers and Babies 1998*. Sydney: NSW Department of Health, 2000.
6. Riley M, Halliday J. The accuracy of eclampsia cases reported to the Victorian Inpatient Minimum Database and the Perinatal Data Collection Unit. *Health Inf Manag.* 1998; 28: 13–15.
7. The International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM). Sydney: National Centre for Classification in Health, 1998.
8. The SAS System for Windows version 8.02. Cary, NC: SAS Institute, 1996.
9. Fleiss J. *Statistical Methods for Rates and Proportions*. New York: John Wiley and Sons, 1981.
10. National Health and Medical Research Council. *When does quality assurance in health care require independent ethical review?* Canberra: NHMRC, 2003.
11. Korst LM, Gregory KD, Gornbein JA. Elective primary caesarean delivery: Accuracy of administrative data. *Paediatr Perinat Epidemiol.* 2004; 18: 112–119.
12. Parrish KM, Holt VL, Connell FA, Williams B, LoGerfo JP. Variations in the accuracy of obstetric procedures and diagnoses on birth records in Washington State, 1989. *Am J Epidemiol.* 1993; 138: 119–27.
13. Quan H, Parsons GA, Ghali WA. Validity of information on comorbidity derived from ICD-9-CM administrative data. *Med Care. 2002; 40: 675–85.*
14. Wen SW, Liu S, Marcoux S, Marcoux S, Fowler D. Uses and Limitations of Routine Hospital Admission–Separation Records for Perinatal Surveillance. *Chronic Dis Can* 1997; 18: 113–9.
15. Humphries KH, Rankin JM, Carere RG, Buller CE, Kiely FM, Spinelli JJ. Co-morbidity data in outcomes research: are clinical data derived from administrative databases a reliable alternative to chart review?. *J Clin Epidemiol* 2000;53:343-9.
16. Schwartz RM, Gagnon DE, Muri JH, Zhao QR, Kellogg R. Administrative data for quality improvement. *Pediatrics. 103:291-301.*
17. Iezzoni LI. Assessing quality using administrative data. *Ann Intern Med. 1997;*127:666-74.

# 14. APPENDICES

## APPENDIX 1

### DESCRIPTION OF SELECTED BIRTH DEFECTS

The following include descriptions of some of the birth defects included in this report :

| | |
|---|---|
| *Anencephaly* | Absence of the cranial vault, with the brain tissue completely missing or markedly reduced. |
| *Spina bifida* | Defective closure of the bony encasement of the spinal cord, through which the spinal cord may protrude. |
| *Encephalocele* | Protrusion of brain through a congenital opening in the skull |
| *Hydrocephalus* | Dilatation of the cerebral ventricles accompanied by an accumulation of cerebral fluid within the skull. |
| *Buphthalmos* | Enlargement and distension of the fibrous coats of the eye. |
| *Hypospadias* | The opening of the urethra lies on the underside of the penis or on the perineum. |
| *Epispadias* | 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. |
| *Chordee* | Downward bowing of the penis. |
| *Talipes equinovarus* | A deformity of the foot in which the heel is elevated and turned outward. |
| *Polydactyly* | Presence of additional fingers or toes on hands or feet. |
| *Syndactyly* | Attachment of adjacent fingers or toes on hands or feet. |
| *Craniosynostosis* | Premature closure of the sutures of the skull. |
| *Exomphalos* | Herniation of the abdominal contents into the umbilical cord. |
| *Gastroschisis* | A defect in the abdominal wall not involving the umbilicus and through which the abdominal contents herniate. |
| *Cystic hygroma* | 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

Accessory nipples

Balanced chromosomal translocation (unless occurring with structural defects)

Birthmarks (single, < 4 cms diameter)

Bronchopulmonary dysplasia

Cerebral palsy

Clicky hips

Congenital infections (unless occurring with structural defects)

Congenital neoplasms/tumours (exception: cystic hygroma)

Developmental disability

Deviated nasal septum

Fetal alcohol syndrome

Glucose-6-phosphate dehydrogenase (G6PD) deficiency

Haemophilia

Heart murmurs (functional)

Hernia (epigastric, hiatus, inguinal, umbilical)

Hydrocele (testis)

Hypoplastic lung (less than 37 weeks gestation)

Imperforate hymen

Inborn errors of metabolism other than phenylketonuria, galactosemia and congential hypothyroidism.

Intrauterine growth retardation

Low birth weight

Meconium ileus

Minor ear anomalies

Minor finger/hand anomalies

Minor toe/foot anomalies

Muscular dystrophies & myopathies

Oesophageal reflux

Patent ductus arteriosus (less than 37 weeks gestation)

Pilonidal sinus

Sacral dimples

Single umbilical artery (unless occurring with structural defects)

Skin tag

Strabismus

Talipes (exception: those requiring surgery)

Tongue tie

Undescended testes (exception: those requiring surgery)

Webbing of 2nd & 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 Kingdon
Channel Islands
Isle of Man
Ireland
Bermuda
Canada
United States of America
South Africa

**Central and South America**

Argentina
Bolivia
Brazil
Chile
Colombia
Ecuador
Falkland Islands
French Guiana
Guyana
Paraguay
Peru
Surinam
Uruguay
Venezuela
Belize
Costa Rica
El Salvador
Guatamala
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

**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

**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**

Afganistan
Bangladesh
Bhutan
India
Maldives
Nepal
PakistanSri Lanka

**Southern Europe**

Albania
Andorra
Cyprus
Gibraltar
Greece
Italy
Malta
Portugal
Spain
Former Yugoslavia (not otherwise defined)
Croatia
Slovenia

**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.** | **Hospital** | **Code**

**First Name** | **Family Name**

**Address** | **Postcode**

**Mother's birth date** day month year

**Country of birth** Australia 36 Other

If other, specify

**Indigenous status:** Aboriginal 1; Torres Strait Islander 2; Aboriginal and Torres Strait Islander 3; None of the above 4

## PREVIOUS PREGNANCIES

**Previous pregnancy greater than 20 weeks?** Yes 1 No 0

If no, go to next section.

**If yes:**

Specify the number of previous pregnancies > 20 weeks

Was the last birth by caesarean Yes 1 No 0

Total number of previous caesarean sections?

## THIS PREGNANCY

**Date of LMP** day month year

**Prenatal diagnosis (< 20 weeks gestation)** CVS; Amniocentesis

**Antenatal care**

Duration of pregnancy at first visit (weeks)

Not booked

**Medical conditions**

Diabetes mellitus; Gestational diabetes; Chronic hypertension; Pre-eclampsia

**Smoking**

Did the mother smoke at all during pregnancy? Yes 1 No 0

If yes, how many cigarettes each day on average in the second half of pregnancy?

None 1; > 10 per day 2; ≤ 10 per day 3; Unknown 4

## LABOUR AND DELIVERY

**Onset of labour**

Spontaneous 1; Induced 2; No labour 3

*If labour augmented/ induced (tick 1 or more):*

Oxytocins; ARM; Prostaglandins; Other

## LABOUR AND DELIVERY

*If labour induced, main indication:*

Diabetes 1; Hypertensive disease 2; Fetal distress 3; Fetal death 4; Chorioamnionitis 5; Blood group isoimmunisation 6; Prelabour rupture of membranes 7; Prolonged pregnancy (41+ weeks) 8; Suspected intrauterine growth restriction 9; Other 10

**Pain relief/ anaesthetics** *(tick 1 or more)*

None; Nitrous oxide; IM narcotics; Local to perineum; Epidural/caudal; Pudendal; Spinal; General anaesthetic; Other

**Presentation at birth**

Vertex 1; Breech 2; Face 3; Brow 4; Other 5

**Type of delivery**

Normal vaginal 1; Forceps 2; Vacuum extr. 3; Vaginal breech 4; Caesarean section 5

*If caesarean section, main indication:*

Failure to progress

- Cx dilatation unknown 1
- Cx 3cm dilated or less 2
- Cx dilated more than 3 cm 3

Fetal distress 4; Other 5

**Perineal status**

Intact 1; 1st deg. tear/graze 2; 2nd deg. tear 3; 3rd deg. tear 4; 4th deg. tear 5; Episiotomy 6; Both tear and episiotomy 7; Other 8

**Surgical repair of the vagina or perineum?** Yes 1 No 0

## BABY

**Place of birth**

Hospital theatre/delivery suite 1; Birth centre 2; Planned birth centre/delivery suite birth 3; Planned homebirth 4; Planned homebirth/hospital admission 5; Born before arrival 6

**Unit Record No.**

**Birth date:** day month year

**Sex:** M 1 F 2 Indet. 3

**Plurality:** Single 1 Multiple 2

If multiple, total number

If multiple birth, specify baby number

**Birthweight** (grams)

**Estimated gestational age**

**Apgar** 1 min 5 min

**Resuscitation of baby** *(tick 1 or more)*

None 1; Suction 2; O2 therapy 3; IPPR : bag + mask 4; Intubation + IPPR 5; External cardiac massage + ventilation 6; Other 7

## POSTNATAL CARE - BABY

**Birth defect?** Yes 1 No 0

If yes, specify:

**Admitted to NICU?** Yes 1 No 0

**Admitted to SCN?** Yes 1 No 0

If yes, observation only? Yes 1 No 0

**If admitted to SCN/NICU:**

Was a birth defect the main reason for admission? Yes 1 No 0

## DISCHARGE STATUS - MOTHER AND BABY

**Mother**

Discharged 1; Transferred 2; Died 3

**Baby**

Discharged 1; Transferred 2; Stillbirth 3; Neonatal death 4; Transferred and died 5

Baby's date of discharge or transfer day month year

Hospital transferred to:

If baby died, date of death day month year

Signature of midwife at discharge

Health Department Copy

*Please complete and forward to:* NSW Midwives Data Collection
Patient Data Management Unit, Level 6
Locked Bag 961, North Sydney, NSW 2059