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Data collection

NSW Midwives Data Collection	Margy Pym NSW hospitals' midwives and independent midwives
NSW Birth Defects Register	Susan Travis, Clare Banks, Christine Erratt NSW Birth Defects Register Advisory Committee NSW hospitals' midwives, doctors, and cytogenetic laboratories Medical record departments, particularly at The Children's Hospital at Westmead, The Sydney Children's Hospital and The John Hunter Hospital
Neonatal Intensive Care Units (NICUS) Data Collection	Barbara Bajuk Directors and Clinical Audit Officers of the 10 neonatal intensive care units and the four level four (non-tertiary) hospitals; liaison officers in hospitals in NSW and ACT who have provided maternal and neonatal data.
Maternal death reviews	NSW Maternal and Perinatal Committee
Perinatal death reviews	Hospital morbidity and mortality review committees Perinatal Outcomes Working Party, NSW Maternal and Perinatal Committee
Linkage of NSW Midwives Data Collection and NSW Midwives Data Collection–NSW Inpatient Statistics Collection	Kim Lim

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2. EXECUTIVE SUMMARY

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

From 1 January 1998, the MDC includes data elements necessary for most of the Australian Council on Healthcare Standards–Royal Australian and New Zealand College of Obstetricians and Gynaecologists (ACHS–RANZCOG) clinical indicators for obstetrics. A summary of the indicators for all NSW hospitals combined, and comparative information for participating Australian hospitals, is included in Chapter 10 of this report.

Information on causes of maternal deaths in NSW was obtained through the work of the NSW Maternal and Perinatal Committee. From 1 January 2000, confidential reviews of perinatal deaths among babies of at least 22 weeks gestation or 500 grams birthweight are also carried out by the Committee. Chapter 11 describes the results of the review for deaths occurring in 2002.

Trends in NSW

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

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

The reported number of Aboriginal and Torres Strait Islander mothers giving birth increased slightly from 2,043 in 1998 (2.4 per cent of all mothers) to 2,155 in 2002 (2.5 per cent of all mothers). Part of this increase is likely to be due to an increased willingness of mothers to be identified as Aboriginal or Torres Strait Islander.

The proportion of mothers planning to give birth in a birth centre fell slightly from 4.3 per cent in 1998 to 3.4 per cent in 2002, while the reported number of mothers planning a home birth decreased from 200 to 130 over the five year period.

The rate of normal vaginal birth fell from 69.5 per cent in 1998 to 64.2 per cent in 2002. Over the five years, the caesarean section rate increased from 19.1 to 24.9 per cent and the rate of instrumental delivery remained steady at about 10 to 11 per cent. Caesarean section delivery continues to be more common among privately than publicly insured mothers. The changing pattern in type of delivery is evident in both groups between 1997 and 2001. Among privately insured mothers the rate of normal

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

Since 1998, the rate of low birthweight (less than 2,500 grams) was steady at about six per cent. The rate was 6.4 per cent in 2002. The percentage of babies born prematurely (less than 37 weeks gestation) has remained stable at about 7 per cent.

The perinatal mortality rate varied from 8.7 to 9.3 per 1,000 over the five year period. About two-thirds of all perinatal deaths were stillbirths and one third were neonatal deaths.

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

Aboriginal and Torres Strait Islander Mothers and Babies

In 2002, 67.2 per cent of Aboriginal and Torres Strait Islander mothers commenced antenatal care before 20 weeks gestation compared with 86.4 per cent of non-Aboriginal and Torres Strait Islander mothers. About one in five Aboriginal and Torres Strait Islander mothers were teenagers. Since 1998, the rates of low birthweight (less than 2,500 grams) and prematurity (less than 37 weeks gestation) in Aboriginal and Torres Strait Islander babies have been over 10 per cent. These rates are one and a half times to two times higher than for NSW overall. The perinatal mortality rate in babies born to Aboriginal and Torres Strait Islander mothers was 11.0 per 1,000 in 2002. This is the lowest rate reported in the last 10 years, but continues to be higher than the rate of 8.6 per 1,000 in babies born to non-Aboriginal or Torres Strait Islander mothers.

Neonatal Intensive Care

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

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

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

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

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

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

Seventy-six per cent of infants registered during 2002 were preterm (less than 37 weeks gestation), 44.0 per cent were very preterm (less than 32 weeks gestation) and 13.9 per cent were extremely preterm (less than 28 weeks gestation). Nearly one in five (20.1 per cent) infants had a major or minor congenital anomaly.

Infants with major congenital anomalies were excluded from the analysis of mortality and morbidity. The majority of infants registered in 2002 (91.2 per cent) received assisted ventilation (intermittent mandatory ventilation or continuous positive airways pressure ventilation). The main indication for assisted ventilation varied with gestational age: respiratory distress syndrome, immature lung and transient tachypnoea were more common among preterm groups, whereas meconium aspiration and perinatal asphyxia were more common in term infants.

Proven systemic infection was present in 13.3 per cent of infants, necrotising enterocolitis in 3.1 per cent, intraventricular haemorrhage in 13.8 per cent, treated patent ductus arteriosus in 15.1 per cent, and major surgery in 4.3 per cent. Severe grades (Grade 3 or 4) of retinopathy of prematurity were present in 4.1 per cent of infants less than 32 weeks gestation, of whom 54.8 per cent had either cryo- or laser therapy to prevent retinal detachment. Surfactant was given to 37.3 per cent of infants; the majority (55.7 per cent) of ventilated infants with a diagnosis of Respiratory Distress Syndrome received surfactant.

Overall, 91.4 per cent of infants without a major congenital anomaly survived to six-months of age. Survival improved with gestational age up to 34 weeks after which it decreased slightly. Of the infants who died, most (76.2 per cent) died at less than one week of age and a further 14.0 per cent died at less than 29 days of age. The six-month survival rate for infants born at 22 to 27 weeks gestation was higher for those born in a non-tertiary centre (79.2 per cent) compared with those born

in a tertiary centre (69.4 per cent). Among infants born at higher gestational ages the proportion surviving to six-months of age was similar for those born in a tertiary centre and those born in a non-tertiary centre.

Birth defects

About 2,000 infants are born with birth defects each year in NSW. In 1996–2002, defects of the cardiovascular system were most commonly reported, followed by defects of the musculoskeletal system and defects of the genito-urinary system. This is a similar pattern to previous years.

In 2001, the reported rate of defects in stillborn and liveborn babies was slightly lower than the previous five years combined (34.8 versus 41.0 per 1,000).

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

Perinatal deaths

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

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

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

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

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 birthweight.

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 Patient Data Management Unit of the Information Management and Support Branch of the NSW Department of Health, where they are compiled into the MDC database.

About 65 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 48.5 per cent of all MDC data, followed by: the OIS database (Central Sydney Area Health Service) 5.9 per cent; the Central Coast modified CRS System (2.8 per cent); the Illawarra Shared Care System (2.6 per cent); the Sydney Adventist Hospital database (3.1 per cent); and Medistat (1.2 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 four of the level four 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;
- birthweight less than or equal to 1,500 grams;
- mechanical ventilation for four hours or more;
- continuous positive airways pressure (CPAP) for four hours or more;
- major surgery (opening of a body cavity).

In 2002 the 10 neonatal intensive care units in NSW and ACT were situated at the following perinatal centres: John Hunter Children's Hospital (Newcastle), Royal Prince Alfred Mothers and Babies Hospital, Liverpool Health Service, Nepean Hospital, Royal Hospital for Women, Royal North Shore Hospital, The Canberra Hospital (Canberra), Westmead Hospital, and at the two paediatric hospitals: Sydney Children's Hospital and The Children's

Hospital at Westmead. The four level four neonatal nurseries that joined NICUS in 2002 are 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 four 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 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 two 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 World Wide Web site 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 NSW Department of Health's Information Management and Clinical Systems Branch.

NSW Maternal and Perinatal Committee

The NSW Maternal and Perinatal Committee is a quality assurance committee established under the *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 birthweight. 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.

Aboriginal or Torres Strait Islander mothers were counted as one group in the MDC up to 1997 and as two separate groups thereafter. We were therefore unable to examine long term trends in the quality of reporting for both these groups. For ease of reference, in this report 'Aboriginal' will be used to refer to both groups combined.

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 8-year period 1994–2001. Records from the two 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 96.0 per cent of MDC records and 98.3 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, Kwok CK, LaPorte RE. Ascertainment corrected rates: Applications of Capture–Recapture Methods. *Int J Epidemiol* 1993; 22(3): 559–565.

Definitions

Aboriginal and Torres Strait Islander

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

Apgar score

A numerical scoring system routinely administered one and five minutes after birth to evaluate the condition of the baby. The score ranges from 0–10 (10 being perfect). It takes account of five 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.

Birthweight

The newborn infant's first bare weight in grams.

Low birthweight: birthweight less than 2,500 grams.

Very low birthweight: birthweight less than 1,500 grams.

Extremely low birthweight: birthweight 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.

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.

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 four 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 birthweight.

Stillbirth

The complete expulsion or extraction from its mother of a product of conception of at least 20 weeks gestation or 400 grams birthweight 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.

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 which can give high-level oxygen, can start mechanical ventilation if necessary and has paediatric house staff.

Level 2b: Neonatal Care—a unit which 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, seven 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 86,005 births to 84,587 women reported in 2002 (Table 1). Over the last five years the number of births has ranged from about 86,000 to 88,000.

Between 1998 and 2002, the number of multiple births (twins, triplets, etc.) ranged from 2,436 (2.8 per cent) in 1998 to 2,932 (3.4 per cent) in 2001, and 2,815 (3.4 per cent) in 2002.

TABLE 1

BIRTHS AND CONFINEMENTS BY PLURALITY, NSW 1998–2002

Plurality	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Confinements										
Singleton	83869	98.6	84676	98.5	85027	98.3	82926	98.3	83190	98.3
Twins	1174	1.4	1261	1.5	1404	1.6	1428	1.7	1375	1.6
Triplets	28	0.0	30	0.0	29	0.0	24	0.0	22	0.0
Quadruplets	1	0.0	0	0.0	0	0.0	1	0.0	0	0.0
Total	85072	100.0	85967	100.0	86460	100.0	84379	100.0	84587	100.0
Births										
Singleton	83869	97.2	84676	97.0	85027	96.7	82926	96.6	83190	96.7
Twins	2348	2.7	2523	2.9	2808	3.2	2856	3.3	2749	3.2
Triplets	84	0.1	90	0.1	87	0.1	72	0.1	66	0.1
Quadruplets	4	0.0	0	0.0	0	0.0	4	0.0	0	0.0
Total	86305	100.0	87289	100.0	87922	100.0	85858	100.0	86005	100.0

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

Health area of residence

In 2002, 80.5 per cent of confinements were among residents of urban areas and 18.7 per cent were among residents of rural health areas. The number of confinements in rural health areas fell from 17,488 in 1998 to 15,859 in 2002, while confinements in urban areas rose from

66,910 in 1998 to 68,130 in 2002 (Table 2). Falls in births were observed in all rural health areas, while the main increases were seen in Western Sydney and South Western Sydney.

TABLE 2

CONFINEMENTS BY HEALTH AREA OF RESIDENCE, NSW 1998–2002

Health Area	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney	6574	7.7	6625	7.7	6775	7.8	6602	7.8	6579	7.8
Northern Sydney	8824	10.4	9242	10.8	9432	10.9	9226	10.9	9258	10.9
Western Sydney	10541	12.4	10712	12.5	10794	12.5	10818	12.8	11051	13.1
Wentworth	4825	5.7	4851	5.6	4921	5.7	4683	5.5	4606	5.4
South Western Sydney	12050	14.2	12219	14.2	12541	14.5	12161	14.4	12526	14.8
Central Coast	3736	4.4	3665	4.3	3772	4.4	3628	4.3	3560	4.2
Hunter	6875	8.1	6965	8.1	6981	8.1	6725	8.0	6918	8.2
Illawarra	4350	5.1	4413	5.1	4407	5.1	4250	5.0	4329	5.1
South Eastern Sydney	9135	10.7	9428	11.0	9697	11.2	9347	11.1	9370	11.1
Northern Rivers	2941	3.5	2903	3.4	2766	3.2	2755	3.3	2725	3.2
Mid North Coast	2954	3.5	2906	3.4	2802	3.2	2806	3.3	2752	3.3
New England	2381	2.8	2348	2.7	2265	2.6	2228	2.6	2265	2.7
Macquarie	1589	1.9	1596	1.9	1590	1.8	1552	1.8	1486	1.8
Mid Western	2339	2.7	2297	2.7	2264	2.6	2249	2.7	2098	2.5
Far West	556	0.7	533	0.6	533	0.6	564	0.7	497	0.6
Greater Murray	2946	3.5	2603	3.0	2517	2.9	2550	3.0	2484	2.9
Southern	1782	2.1	1845	2.1	1766	2.0	1673	2.0	1485	1.8
Other/Not stated	674	0.8	816	0.9	637	0.7	562	0.7	598	0.7
TOTAL	85072	100.0	85967	100.0	86460	100.0	84379	100.0	84587	100.0

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

Maternal age

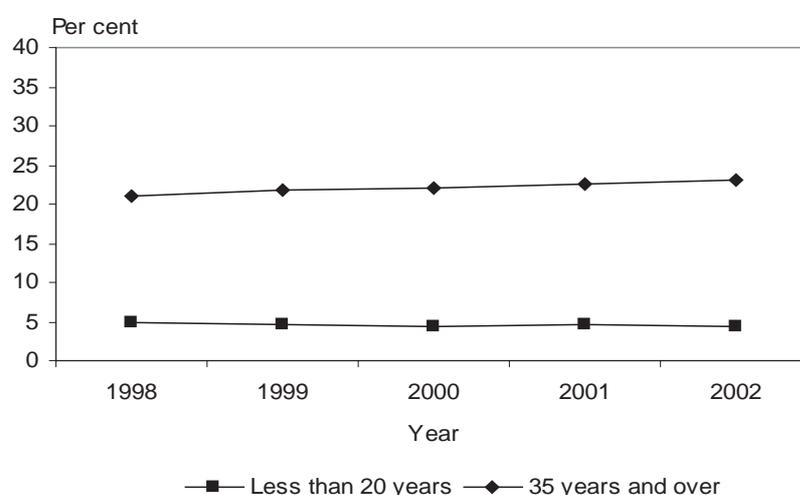
The number of teenage mothers decreased from 4,118 in 1998 to 3,652 in 2002 (Figure 1, Table 3). The mean maternal age rose slightly from 29.5 to 30.1 years over the same period.

The number of mothers 35 years of age or over giving birth increased from 13,839 in 1998 to 15,872 in 2002, an increase from 16.3 to 18.8 per cent of all confinements.

The trend towards later childbirth is evident among both primiparous and multiparous mothers: the proportion of mothers aged 35 years or more who gave birth for the first time increased from 9.7 to 11.8 per cent over the 5-year period, and the proportion of multiparous mothers increased from 20.7 to 23.7 per cent.

FIGURE 1

CONFINEMENTS AMONG MOTHERS AGED LESS THAN 20 YEARS AND 35 YEARS AND OVER, NSW 1998–2002



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

TABLE 3

CONFINEMENTS BY MATERNAL AGE, NSW1998–2002

Maternal age (years)	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Under 15	27	0.0	27	0.0	31	0.0	19	0.0	28	0.0
15–19	4091	4.8	4072	4.7	3822	4.4	3778	4.5	3624	4.3
20–24	14261	16.8	13790	16.0	13316	15.4	13036	15.4	12674	15.0
25–29	27759	32.6	27678	32.2	27293	31.6	25528	30.3	24523	29.0
30–34	25014	29.4	25703	29.9	26640	30.8	26707	31.7	27810	32.9
35–39	11745	13.8	12372	14.4	12894	14.9	12640	15.0	13107	15.5
40–44	2026	2.4	2199	2.6	2342	2.7	2488	2.9	2645	3.1
45+	68	0.1	97	0.1	98	0.1	122	0.1	120	0.1
Not stated	81	0.1	29	0.0	24	0.0	61	0.1	56	0.1
TOTAL	85072	100.0	85967	100.0	86460	100.0	84379	100.0	84587	100.0

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

Maternal country of birth

In the period 1998–2002, about 73 per cent of confinements were to mothers who were born in Australia. In 2002, mothers born in the United Kingdom, New Zealand, China, Vietnam and Lebanon together accounted for 12.7 per cent of all confinements (Table 4). Further information on maternal country of birth is shown in Chapter 7.

TABLE 4

CONFINEMENTS BY MATERNAL COUNTRY OF BIRTH, NSW 1998–2002[#]

Country of birth	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Australia	62606	73.6	62555	72.8	62368	72.1	61655	73.1	61631	72.9
United Kingdom	2471	2.9	2627	3.1	2557	3.0	2331	2.8	2344	2.8
New Zealand	1762	2.1	1966	2.3	1962	2.3	2009	2.4	1998	2.4
China	1892	2.2	2015	2.3	2163	2.5	1791	2.1	1830	2.2
Vietnam	1462	1.7	1804	2.1	2053	2.4	1691	2.0	1773	2.1
Lebanon	1942	2.3	1788	2.1	1766	2.0	1667	2.0	1663	2.0
Philippines	1308	1.5	1319	1.5	1315	1.5	1243	1.5	1156	1.4
India	634	0.7	635	0.7	643	0.7	612	0.7	747	0.9
Fiji	640	0.8	604	0.7	688	0.8	652	0.8	655	0.8
Iraq	360	0.4	414	0.5	455	0.5	577	0.7	545	0.6
Former Yugoslavia	659	0.8	662	0.8	627	0.7	607	0.7	531	0.6
Indonesia	424	0.5	460	0.5	566	0.7	494	0.6	494	0.6
South Africa	329	0.4	386	0.4	387	0.4	450	0.5	486	0.6
United States of America	340	0.4	372	0.4	377	0.4	332	0.4	346	0.4
Sri Lanka	276	0.3	295	0.3	304	0.4	291	0.3	324	0.4
Western Samoa	349	0.4	318	0.4	320	0.4	319	0.4	310	0.4
Hong Kong	433	0.5	409	0.5	357	0.4	332	0.4	307	0.4
South Korea	370	0.4	370	0.4	426	0.5	358	0.4	301	0.4
Japan	239	0.3	264	0.3	252	0.3	293	0.3	283	0.3
Cambodia	238	0.3	303	0.4	326	0.4	285	0.3	279	0.3
Tonga	312	0.4	308	0.4	296	0.3	278	0.3	271	0.3
Thailand	194	0.2	207	0.2	199	0.2	221	0.3	268	0.3
Ireland	280	0.3	287	0.3	273	0.3	291	0.3	267	0.3
Turkey	340	0.4	314	0.4	335	0.4	317	0.4	266	0.3
Pakistan	200	0.2	192	0.2	224	0.3	276	0.3	266	0.3
Malaysia	259	0.3	286	0.3	319	0.4	251	0.3	262	0.3
Chile	214	0.3	224	0.3	202	0.2	206	0.2	250	0.3
Bangladesh	140	0.2	134	0.2	179	0.2	183	0.2	212	0.3
Canada	177	0.2	185	0.2	177	0.2	203	0.2	192	0.2
Germany	187	0.2	226	0.3	204	0.2	192	0.2	188	0.2
Egypt	202	0.2	218	0.3	196	0.2	176	0.2	160	0.2
Syria	143	0.2	145	0.2	138	0.2	150	0.2	151	0.2
North Korea	71	0.1	90	0.1	140	0.2	102	0.1	151	0.2
Iran	139	0.2	140	0.2	153	0.2	169	0.2	137	0.2
Papua New Guinea	131	0.2	136	0.2	132	0.2	133	0.2	135	0.2
Afghanistan	85	0.1	120	0.1	96	0.1	147	0.2	133	0.2
Laos	126	0.1	118	0.1	136	0.2	118	0.1	128	0.2
Singapore	102	0.1	101	0.1	104	0.1	119	0.1	117	0.1
Malta	55	0.1	72	0.1	53	0.1	58	0.1	113	0.1
France	114	0.1	108	0.1	113	0.1	99	0.1	109	0.1
Netherlands	92	0.1	102	0.1	109	0.1	95	0.1	106	0.1
Poland	100	0.1	123	0.1	104	0.1	92	0.1	106	0.1
Portugal	136	0.2	120	0.1	101	0.1	101	0.1	105	0.1
Russian Federation	38	0.0	33	0.0	56	0.1	63	0.1	105	0.1
Other/Not stated	2501	2.9	2412	2.8	2509	2.9	2350	2.8	2386	2.8
TOTAL	85072	100.0	85967	100.0	86460	100.0	84379	100.0	84587	100.0

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

[#] Countries of birth for which there were 100 or more confinements in 2002.

Maternal Aboriginality

The reported number of Aboriginal or Torres Strait Islander mothers giving birth increased marginally from 2,043 in 1998 (2.4 per cent of all mothers) to 2,155 in 2002 (2.5 per cent of all mothers) (Table 5). Further information on maternal Aboriginality and reporting of Aboriginality is shown in Chapter 6.

TABLE 5

CONFINEMENTS BY MATERNAL ABORIGINALITY, NSW 1998–2002

Aboriginality	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Aboriginal or Torres Strait Islander	2043	2.4	2059	2.4	2105	2.4	2110	2.5	2155	2.5
Non-Aboriginal or Torres Strait Islander	82787	97.3	83899	97.6	84306	97.5	82223	97.4	82383	97.4
Not stated	242	0.3	9	0.0	49	0.1	46	0.1	49	0.1
TOTAL	85072	100.0	85967	100.0	86460	100.0	84379	100.0	84587	100.0

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

Number of 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 about 41 per cent, while the proportion of mothers giving birth to a second to fifth baby has been stable at about 57 per cent. Less than 2 per cent of mothers have previously given birth 5 times or more.

TABLE 6

CONFINEMENTS BY NUMBER OF PREVIOUS PREGNANCIES, NSW 1998–2002

Number of previous pregnancies (>20 weeks gestation)	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
0	34376	40.4	35311	41.1	35953	41.6	35153	41.7	35035	41.4
1–4	49462	58.1	49432	57.5	49146	56.8	47850	56.7	48169	56.9
5+	1184	1.4	1206	1.4	1331	1.5	1329	1.6	1290	1.5
Not stated	50	0.1	18	0.0	30	0.0	47	0.1	93	0.1
TOTAL	85072	100.0	85967	100.0	86460	100.0	84379	100.0	84587	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 1998, the proportion of mothers starting antenatal care at 20-plus weeks gestation has been stable at 12–13 per cent (Table 7).

TABLE 7

CONFINEMENTS BY DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT, NSW 1998–2002

Duration of pregnancy (weeks)	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
0–19	72257	84.9	74077	86.2	74803	86.5	72704	86.2	73116	86.4
20-plus	11410	13.4	10979	12.8	10748	12.4	10878	12.9	10614	12.5
Not stated	1405	1.7	911	1.1	909	1.1	797	0.9	857	1.0
TOTAL	85072	100.0	85967	100.0	86460	100.0	84379	100.0	84587	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 1998 and 2002: in 1998, 16,859 (19.8 per cent) mothers reported smoking in pregnancy, compared to 16,302 (19.0 per cent) in 1999, 15,001 (17.4 per cent) in 2000, 14,424 (17.1 per cent) in 2001 and 13,829 (16.3 per cent) in 2002.

Of mothers who smoked during pregnancy in 2002, four per cent stopped smoking before the second half of pregnancy.

Over the five 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 1998–2002

Cigarettes smoked in the second half of pregnancy	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
None	690	4.1	739	4.5	622	4.1	576	4.0	556	4.0
1–10 per day	7634	45.3	7303	44.8	7092	47.3	6834	47.4	6639	48.0
More than ten per day	8171	48.5	7966	48.9	7005	46.7	6725	46.6	6347	45.9
Smoked, amount not stated	358	2.1	294	1.8	282	1.9	289	2.0	279	2.0
Not stated	6	0.0	0	0.0	0	0.0	0	0.0	8	0.1
TOTAL	16859	100.0	16302	100.0	15001	100.0	14424	100.0	13829	100.0

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

Place of birth

In 2002, the majority of mothers planned to give birth in a hospital labour ward, and 3.4 per cent of mothers planned to give birth in a birth centre (Table 9). About two-thirds of mothers who planned to give birth in a birth centre actually did so. The number of reported planned homebirths declined from 202 in 1998 to 130 in 2002.

TABLE 9

CONFINEMENTS BY PLACE OF BIRTH, NSW 1998–2002

Place of birth	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Hospital	80835	95.0	82103	95.5	82782	95.7	80984	96.0	81230	96.0
Birth centre	2514	3.0	2249	2.6	2205	2.6	2038	2.4	2030	2.4
Planned birth centre/ hospital admission	1154	1.4	1070	1.2	959	1.1	822	1.0	881	1.0
Planned homebirth	147	0.2	139	0.2	108	0.1	144	0.2	99	0.1
Planned homebirth/ hospital admission	55	0.1	43	0.1	38	0.0	38	0.0	31	0.0
Born before arrival	366	0.4	363	0.4	366	0.4	353	0.4	316	0.4
Not stated	1	0.0	0	0.0	2	0.0	0	0.0	0	0.0
TOTAL	85072	100.0	85967	100.0	86460	100.0	84379	100.0	84587	100.0

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

Hypertension and diabetes

Pre-eclampsia was reported in about 6 per cent of mothers and essential hypertension in about 1 per cent. These rates have not changed substantially over the last five years (Table 10).

In 2002, gestational diabetes was reported in 4.4 per cent of mothers, rising from 3.7 per cent reported in 1998. Diabetes mellitus was reported in about 0.5 per cent of mothers.

TABLE 10

CONFINEMENTS BY PRESENCE OF HYPERTENSION OR DIABETES, NSW 1998–2002

Condition	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Diabetes mellitus	323	0.4	363	0.4	392	0.5	404	0.5	462	0.5
Gestational diabetes	3118	3.7	3254	3.8	3386	3.9	3213	3.8	3693	4.4
Essential hypertension	779	0.9	816	0.9	858	1.0	823	1.0	940	1.1
Pre-eclampsia	5393	6.3	6194	7.2	6082	7.0	5360	6.4	4839	5.7
TOTAL CONFINEMENTS	85072	100.0	85967	100.0	86460	100.0	84379	100.0	84587	100.0

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

Labour and delivery

The rate of spontaneous onset of labour fell from 65.5 per cent in 1998 to 61.1 per cent in 2002 (Table 11). Nine per cent of labours were augmented with oxytocics or prostaglandins in 2002.

The rate of induction of labour rose slightly from 24.2 per cent in 1998 to 25.0 per cent in 2002. The most common reported reason for induction of labour in 2002 was prolonged pregnancy (41 or more weeks) (34.7 per cent), followed by hypertensive disease (12.0 per cent), prelabour rupture of membranes (10.0 per cent), diabetes (4.0 per cent), suspected intrauterine growth retardation (3.6 per cent) and fetal death (1.0 per cent).

The rate of normal vaginal birth decreased from 69.5 per cent in 1998 to 64.2 per cent in 2002 (Table 12). The caesarean section rate increased from 19.1 to 24.9 per

cent. The rate of instrumental delivery remained steady at about 10 to 11 per cent, accompanied by a change in the pattern of instrumental delivery: the rate of vacuum extraction rose from 5.2 to 6.9 per cent and the rate of forceps delivery declined from 5.3 to 3.6 per cent.

Operative and instrumental deliveries continue to be more common among privately than publicly insured mothers (Table 13). The changing pattern in type of delivery is evident in both groups between 1997 and 2001. Among privately insured mothers the rate of normal vaginal birth decreased from 59.8 to 55.2 per cent and the rate of caesarean section increased from 24.4 to 30.0 per cent. Among publicly insured mothers the rate of normal vaginal birth decreased from 75.1 to 72.6 per cent and the rate of caesarean section increased from 15.4 to 19.4 per cent.

TABLE 11

CONFINEMENTS BY ONSET AND AUGMENTATION OF LABOUR, NSW 1998–2002

Onset of labour	1998		Year 1999		2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Spontaneous	39281	46.2	39706	46.2	40042	46.3	37492	44.4	37615	44.5
Spontaneous augmented with ARM	7997	9.4	7844	9.1	7014	8.1	6684	7.9	6422	7.6
Spontaneous augmented with oxytocics–prostaglandins#	8411	9.9	8657	10.1	9050	10.5	8297	9.8	7644	9.0
No labour	8800	10.3	9147	10.6	9926	11.5	10986	13.0	11720	13.9
Induced—oxytocics–prostaglandins	7893	9.3	7626	8.9	7493	8.7	7422	8.8	7414	8.8
Induced—ARM only	1462	1.7	1305	1.5	1196	1.4	1181	1.4	1193	1.4
Induced—ARM–oxytocics–prostaglandins	11069	13.0	11527	13.4	11516	13.3	12033	14.3	12262	14.5
Induced—other##	138	0.2	154	0.2	215	0.2	277	0.3	305	0.4
Not stated	21	0.0	1	0.0	8	0.0	7	0.0	12	0.0
TOTAL	85072	100.0	85967	100.0	86460	100.0	84379	100.0	84587	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.

TABLE 12

CONFINEMENTS BY TYPE OF DELIVERY, NSW 1998–2002

Type of delivery	1998		Year 1999		2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal vaginal	59097	69.5	58951	68.6	58049	67.1	55206	65.4	54271	64.2
Forceps	4478	5.3	4190	4.9	3904	4.5	3398	4.0	3034	3.6
Vacuum extraction	4453	5.2	5152	6.0	5367	6.2	5499	6.5	5855	6.9
Vaginal breech	805	0.9	762	0.9	669	0.8	383	0.5	353	0.4
Elective caesarean section	8800	10.3	9147	10.6	9926	11.5	10986	13.0	11720	13.9
Emergency caesarean section#	7416	8.7	7765	9.0	8530	9.9	8894	10.5	9335	11.0
Not stated	23	0.0	0	0.0	15	0.0	13	0.0	19	0.0
TOTAL	85072	100.0	85967	100.0	86460	100.0	84379	100.0	84587	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**CONFINEMENTS BY HEALTH INSURANCE STATUS AND TYPE OF DELIVERY, NSW 1997–2001**

Insurance status— type of delivery	Year									
	1997		1998		1999		2000		2001	
	No.	%								
Public										
Normal vaginal	45183	75.1	44007	73.7	44690	72.8	43688	71.8	37610	72.6
Forceps	2643	4.4	2365	4.0	2440	4.0	2202	3.6	1442	2.8
Vacuum extraction	2295	3.8	2645	4.4	3174	5.2	3120	5.1	2482	4.8
Vaginal breech	733	1.2	615	1.0	601	1.0	512	0.8	255	0.5
Elective caesarean section	4684	7.8	5038	8.4	5248	8.5	5683	9.3	5265	10.2
Emergency caesarean section#	4610	7.7	4990	8.4	5263	8.6	5658	9.3	4778	9.2
Not stated	45	0.1	13	0.0	0	0.0	12	0.0	3	0.0
TOTAL	60193	100.0	59673	100.0	61416	100.0	60875	100.0	51835	100.0
Private										
Normal vaginal	15929	59.8	14019	58.5	13444	57.4	13119	55.9	13447	55.2
Forceps	2368	8.9	2048	8.5	1720	7.3	1564	6.7	1395	5.7
Vacuum extraction	1621	6.1	1744	7.3	1940	8.3	2050	8.7	2122	8.7
Vaginal breech	185	0.7	153	0.6	132	0.6	130	0.6	66	0.3
Elective caesarean section	3927	14.7	3649	15.2	3763	16.1	3997	17.0	4555	18.7
Emergency caesarean section#	2581	9.7	2339	9.8	2435	10.4	2619	11.2	2761	11.3
Not stated	34	0.1	10	0.0	0	0.0	3	0.0	8	0.0
TOTAL##	26645	100.0	23962	100.0	23434	100.0	23482	100.0	24354	100.0
TOTAL##										
Normal vaginal	61175	70.4	59097	69.5	58951	68.6	58049	67.1	51057	67.0
Forceps	5014	5.8	4478	5.3	4190	4.9	3904	4.5	2837	3.7
Vacuum extraction	3919	4.5	4453	5.2	5152	6.0	5367	6.2	4605	6.0
Vaginal breech	921	1.1	805	0.9	762	0.9	669	0.8	321	0.4
Elective caesarean section	8616	9.9	8800	10.3	9147	10.6	9926	11.5	9820	12.9
Emergency caesarean section#	7195	8.3	7416	8.7	7765	9.0	8530	9.9	7540	9.9
Not stated	80	0.1	23	0.0	0	0.0	15	0.0	11	0.0
TOTAL	86920	100.0	85072	100.0	85967	100.0	86460	100.0	76191	100.0

Source: 1997: NSW Midwives Data Collection (HOIST). 1998–2001: 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 3.9 per cent in 1998 to 10.3 per cent in 2002. The proportion of mothers having no pain relief during labour or delivery decreased from 14.9 per cent in 1998 to 10.8 per cent in 2002 (Table 14).

In 2002, almost one half (48.2 per cent) of all mothers used nitrous oxide for pain relief, 27.8 per cent had an epidural anaesthetic, and 24.9 per cent received intramuscular narcotics.

TABLE 14**CONFINEMENTS BY TYPE OF PAIN RELIEF, NSW 1998–2002**

Type of pain relief #	Year									
	1998		1999		2000		2001		2002	
	No.	%								
Epidural	22917	26.9	24289	28.3	25728	29.8	24572	29.1	23543	27.8
General anaesthetic	5004	5.9	4735	5.5	4753	5.5	4866	5.8	4811	5.7
IM Narcotics	22274	26.2	22800	26.5	22654	26.2	21451	25.4	21038	24.9
Nitrous Oxide	41273	48.5	42361	49.3	42303	48.9	40964	48.5	40729	48.2
Spinal	3314	3.9	4179	4.9	5248	6.1	6677	7.9	8672	10.3
Nil	12656	14.9	11468	13.3	10518	12.2	9674	11.5	9163	10.8
TOTAL CONFINEMENTS	85072	100.0	85967	100.0	86460	100.0	84379	100.0	84587	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 1998, with slightly more male babies born than females in each year. In 2002, 44,058 (51.2 per cent) of babies were male, 41,858 (48.7 per cent) were female, 15 were of indeterminate sex, and the sex was not reported for 74 babies. This compares with babies born in 1998, when 44,283 (51.3 per cent) were male, 41,960 (48.6 per cent) were female, 14 were of indeterminate sex, and the sex was not reported for 48 babies.

Gestational age

In 2002, 7.1 per cent of babies were born prematurely (less than 37 weeks gestation). This is similar to the rate of 6.9 per cent in 1998 (Table 15). Over the five 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 1998-2002

Gestational age (weeks)	1998		Year 1999		2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
20-27	588	0.7	585	0.7	623	0.7	628	0.7	594	0.7
28-31	607	0.7	625	0.7	663	0.8	667	0.8	612	0.7
32-36	4758	5.5	5026	5.8	5114	5.8	4890	5.7	4865	5.7
37-41	78463	90.9	79114	90.6	79368	90.3	77566	90.3	77865	90.5
42 +	1871	2.2	1932	2.2	2148	2.4	2093	2.4	2047	2.4
Not stated	18	0.0	7	0.0	6	0.0	14	0.0	22	0.0
TOTAL	86305	100.0	87289	100.0	87922	100.0	85858	100.0	86005	100.0

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

Birthweight

Since 1998, the rate of low birthweight (less than 2,500 grams) has been about six per cent (Table 16). The rate was 6.4 per cent in 2002.

TABLE 16

BIRTHS BY BIRTHWEIGHT, NSW 1998-2002

Birthweight (grams)	1998		Year 1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 500	190	0.2	212	0.2	228	0.3	243	0.3	212	0.2
500-999	398	0.5	391	0.4	425	0.5	416	0.5	399	0.5
1000-1499	481	0.6	509	0.6	546	0.6	526	0.6	469	0.5
1500-1999	1017	1.2	1076	1.2	1079	1.2	1043	1.2	1083	1.3
2000-2499	3147	3.6	3353	3.8	3383	3.8	3283	3.8	3344	3.9
2500-2999	12810	14.8	12942	14.8	12819	14.6	12783	14.9	12838	14.9
3000-3499	30974	35.9	30978	35.5	30647	34.9	30312	35.3	30504	35.5
3500-3999	26818	31.1	27173	31.1	27483	31.3	26542	30.9	26676	31.0
4000-4499	8807	10.2	9002	10.3	9454	10.8	9060	10.6	8921	10.4
4500+	1597	1.9	1629	1.9	1811	2.1	1607	1.9	1509	1.8
Not stated	66	0.1	24	0.0	47	0.1	43	0.1	50	0.1
TOTAL	86305	100.0	87289	100.0	87922	100.0	85858	100.0	86005	100.0

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

Apgar score

In 2002, 2.1 per cent of babies were born with an Apgar score of less than seven at five minutes and 1.0 per cent were born with a score less than four (Table 17). These rates are similar to those of previous years.

TABLE 17

BIRTHS BY APGAR SCORE AT FIVE MINUTES, NSW 1998–2002 #

Apgar score	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
0–4	1001	1.2	996	1.1	1043	1.2	922	1.1	902	1.0
5–6	990	1.1	1098	1.3	956	1.1	938	1.1	893	1.0
7+	84114	97.5	85028	97.4	85756	97.5	83797	97.6	84033	97.7
Not stated	200	0.2	167	0.2	167	0.2	201	0.2	177	0.2
TOTAL	86305	100.0	87289	100.0	87922	100.0	85858	100.0	86005	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 2002, 14.8 per cent of babies were admitted to special care units and 2.6 per cent were admitted to neonatal intensive care units (Table 18). These rates are similar to previous years.

TABLE 18

BIRTHS BY ADMISSION TO SPECIAL CARE OR NEONATAL INTENSIVE CARE UNITS, NSW 1998–2002

Unit of admission	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Special care unit	13585	15.7	14430	16.5	13842	15.7	12900	15.0	12740	14.8
Neonatal intensive care unit	2254	2.6	2306	2.6	2147	2.4	2190	2.6	2196	2.6
TOTAL	86305	100.0	87289	100.0	87922	100.0	85858	100.0	86005	100.0

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

Perinatal outcome

In the period 1998–2002 the perinatal mortality rate varied from 8.7 to 9.6 per 1,000 (Table 19). In 2002, about two-thirds of all perinatal deaths were stillbirths and one third were neonatal deaths.

In 2002, of the 748 perinatal deaths in NSW, 734 (98.1 per cent) were reported among planned hospital births, 8 (1.1 per cent) among planned birth centre births, none among planned home births, and 6 were among babies born before arrival at hospital.

TABLE 19

BIRTHS BY PERINATAL OUTCOME, NSW 1998–2002#

Year	Liveborn surviving		Stillborn		Perinatal Outcome Neonatal death		Not stated		Total births		Perinatal mortality rate/1,000 births
	No.	%	No.	%	No.	%	No.	%	No.	%	
1998	85384	98.9	595	0.7	208	0.2	118	0.1	86305	100.0	9.3
1999	86473	99.1	533	0.6	266	0.3	17	0.0	87289	100.0	9.2
2000	87076	99.0	595	0.7	247	0.3	4	0.0	87922	100.0	9.6
2001	85063	99.1	538	0.6	251	0.3	6	0.0	85858	100.0	9.2
2002	85222	99.1	515	0.6	233	0.3	35	0.0	86005	100.0	8.7

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 1990–2000, 128 deaths were reported among pregnant women or women who gave birth less than six weeks previously. Of these, 43 (33.6 per cent) died of incidental causes not related to the pregnancy or its management; 59 (46.1 per cent) deaths were found to be directly due to pregnancy or its management; 25 (19.5 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 2000.

TABLE 20

MATERNAL DEATHS BY YEAR, NSW 1990–2001[#]

Year	Direct		Indirect		Classification Total Direct & Indirect		Incidental		TOTAL	
	No.	Rate/ 100,000	No.	Rate/ 100,000	No.	Rate/ 100,000	No.	Rate/ 100,000	No.	Rate/ 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 ^{###}									13	15.4

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

Classification incomplete for 2001.

TABLE 21

MATERNAL DEATHS BY CAUSE, NSW 2000

Classification	Cause	No.
Direct	Streptococcal septicaemia	1
Direct	Intracranial haemorrhage associated with pre-eclampsia	1
Direct	Amniotic fluid embolism and haemorrhage following uterine tear	1
Direct	Ruptured ectopic pregnancy	1
Indirect	Pulmonary thromboembolism	1
Indirect	Adult respiratory distress syndrome	1
Indirect	Multiple organ failure following pneumonia	1
Indirect	Rupture of splenic artery aneurysm	1
Indirect	Churg Strauss vasculitis	1
Incidental	Asthma	1
TOTAL		10

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.¹

Incidental deaths are those where the pregnancy is unlikely to have contributed significantly to the death.

Reference

1. National Health and Medical Research Council. *Report on Maternal Deaths in Australia 1994–96*. Canberra: NHMRC and AIHW National Perinatal Statistics Unit, 2001.

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

Continuing the pattern of recent years, the largest numbers of confinements in 2002 were among mothers resident in the South Western Sydney (12,526, 14.8 per cent) and Western Sydney Health Areas (11,051, 13.1 per cent). These two health areas contributed over one quarter of the State's births. Eighty-one per cent of confinements were to mothers resident in the metropolitan health areas (including the Central Coast, Hunter and Illawarra Health Areas), and 18.7 per cent were to mothers resident in rural health areas (Table 22).

Maternal age

The proportion of women giving birth at less than 20 years of age varied from 0.6 per cent in the Northern Sydney Health Area to 14.1 per cent in the Far West Health Area, while the proportion of mothers giving birth at 35 years of age or more ranged from 10.7 per cent in the Far West Health Area to 32.2 per cent in the Northern Sydney Health Area.

Maternal country of birth

Eighty per cent of women who gave birth in NSW in 2002 were born in English speaking countries, 10.9 per cent were born in Asian countries, and 4.3 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 South Western Sydney and Central Sydney Health Areas. In Central Sydney, the majority of mothers born in non-English speaking countries were born in North East Asia (10.0 per cent) and South East Asia (9.2 per cent). In South Western Sydney, the majority of mothers born in non-English speaking countries were born in South East Asia (14.9 per cent).

Maternal Aboriginality

In 2002, 2.5 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 0.2 per cent in the Northern Sydney Area to 31.8 per cent in the Far West Area.

Duration of pregnancy at first antenatal visit

In 2002, 86.4 per cent of mothers commenced antenatal care prior to 20 weeks gestation. This percentage varied from 74.4 per cent in the Far West Health Area to 95.2 in the Central Coast Health Area (Table 25).

Smoking in pregnancy

In 2002, 15.7 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 Health Area (4.1 per cent) and the highest rate among residents of the Far West Health Area (37.4 per cent).

Place of birth

Ninety-six per cent of mothers chose to deliver in a hospital delivery suite in 2002, compared to 3.4 per cent who planned a birth centre birth and 0.2 per cent who planned a home birth (Table 27). Planned birth centre births were most common in the Hunter and South Eastern Sydney Health Areas, and planned home births were most common in the Northern Sydney Health Area.

Labour and delivery

In 2002, the onset of labour was spontaneous in 61.1 per cent of confinements (Table 28). Labour was induced in 25.0 per cent of confinements and no labour (elective caesarean section) was reported in 13.9 per cent of confinements.

The rate of spontaneous onset of labour was highest among residents of the Far West Health Area (69.0 per cent). The highest rate of induction of labour was among residents of the New England Health Area (31.4 per cent).

Sixty-four per cent of confinements were by normal vaginal birth, 10.5 per cent were instrumental and 24.9 per cent were by caesarean section (Table 29). The highest rate of normal vaginal birth was among residents of Far West Health Area (75.3 per cent), while the highest rates of instrumental delivery were among residents of Northern Sydney and South Eastern Sydney Health Areas (13.7 and 13.2 per cent respectively). The caesarean section rate varied from 19.2 per cent among mothers resident in the South Western Sydney Health Area to 30.7 per cent in the Northern Sydney Health Area.

TABLE 22

CONFINEMENTS BY MATERNAL AGE AND HEALTH AREA OF RESIDENCE, NSW 2002

Health Area	Maternal age (years)																		TOTAL
	12-19		20-24		25-29		30-34		35-39		40-44		45+		Not stated		No.	%	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Central Sydney	134	2.0	618	9.4	1575	23.9	2493	37.9	1428	21.7	318	4.8	12	0.2	1	0.0	6579	100.0	
Northern Sydney	56	0.6	389	4.2	1851	20.0	3979	43.0	2483	26.8	471	5.1	25	0.3	4	0.0	9258	100.0	
Western Sydney	438	4.0	1794	16.2	3486	31.5	3515	31.8	1469	13.3	325	2.9	16	0.1	8	0.1	11051	100.0	
Wentworth	221	4.8	871	18.9	1565	34.0	1285	27.9	555	12.0	98	2.1	3	0.1	8	0.2	4606	100.0	
South Western Sydney	562	4.5	2240	17.9	4136	33.0	3721	29.7	1547	12.4	309	2.5	7	0.1	4	0.0	12526	100.0	
Central Coast	173	4.9	614	17.2	1090	30.6	1122	31.5	457	12.8	97	2.7	5	0.1	2	0.1	3560	100.0	
Hunter	400	5.8	1243	18.0	2221	32.1	2068	29.9	843	12.2	133	1.9	8	0.1	2	0.0	6918	100.0	
Illawarra	222	5.1	741	17.1	1320	30.5	1347	31.1	579	13.4	110	2.5	8	0.2	2	0.0	4329	100.0	
South Eastern Sydney	129	1.4	756	8.1	2375	25.3	3744	40.0	1940	20.7	412	4.4	12	0.1	2	0.0	9370	100.0	
Northern Rivers	200	7.3	543	19.9	748	27.4	783	28.7	362	13.3	86	3.2	3	0.1	0	0.0	2725	100.0	
Mid North Coast	223	8.1	560	20.3	830	30.2	745	27.1	328	11.9	56	2.0	5	0.2	5	0.2	2752	100.0	
New England	210	9.3	522	23.0	699	30.9	576	25.4	208	9.2	45	2.0	3	0.1	2	0.1	2265	100.0	
Macquarie	145	9.8	334	22.5	411	27.7	421	28.3	145	9.8	24	1.6	1	0.1	5	0.3	1486	100.0	
Mid Western	152	7.2	417	19.9	689	32.8	578	27.6	222	10.6	34	1.6	4	0.2	2	0.1	2098	100.0	
Far West	70	14.1	131	26.4	120	24.1	122	24.5	45	9.1	8	1.6	0	0.0	1	0.2	497	100.0	
Greater Murray	172	6.9	484	19.5	778	31.3	720	29.0	273	11.0	50	2.0	4	0.2	3	0.1	2484	100.0	
Southern	119	8.0	301	20.3	449	30.2	404	27.2	163	11.0	42	2.8	2	0.1	5	0.3	1485	100.0	
Other/Not stated	26	4.3	116	19.4	180	30.1	187	31.3	60	10.0	27	4.5	2	0.3	0	0.0	598	100.0	
TOTAL	3652	4.3	12674	15.0	24523	29.0	27810	32.9	13107	15.5	2645	3.1	120	0.1	56	0.1	84587	100.0	

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

TABLE 23

CONFINEMENTS BY MATERNAL COUNTRY OF BIRTH AND HEALTH AREA OF RESIDENCE, NSW 2002#

Health Area	Country of birth group																		TOTAL			
	English speaking		Central & South America		Melanesia, Micronesia & Polynesia		Southern Europe		Western Europe Northern Europe		Eastern & Russia, Central Asian & Baltic States		Middle East Europe, & Africa		South East Asia		North East Asia			Southern Asia		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.
Central Sydney	4014	61.1	84	1.3	200	3.0	146	2.2	57	0.9	56	0.9	496	7.5	602	9.2	659	10.0	258	3.9	6572	100.0
Northern Sydney	7352	79.5	80	0.9	106	1.1	78	0.8	173	1.9	76	0.8	223	2.4	367	4.0	608	6.6	190	2.1	9253	100.0
Western Sydney	7083	64.1	112	1.0	421	3.8	152	1.4	56	0.5	59	0.5	1054	9.5	803	7.3	625	5.7	680	6.2	1045	100.0
Wentworth	4213	91.5	18	0.4	44	1.0	39	0.8	33	0.7	13	0.3	57	1.2	95	2.1	27	0.6	64	1.4	4603	100.0
South Western Sydney	7568	60.5	254	2.0	504	4.0	303	2.4	57	0.5	79	0.6	1323	10.6	1869	14.9	312	2.5	243	1.9	12512	100.0
Central Coast	3390	95.3	13	0.4	13	0.4	6	0.2	25	0.7	6	0.2	15	0.4	58	1.6	22	0.6	11	0.3	3559	100.0
Hunter	6703	96.9	12	0.2	28	0.4	17	0.2	20	0.3	6	0.1	17	0.2	68	1.0	26	0.4	18	0.3	6915	100.0
Illawarra	3975	91.8	33	0.8	24	0.6	90	2.1	22	0.5	10	0.2	46	1.1	80	1.8	33	0.8	16	0.4	4329	100.0
South Eastern Sydney	7106	76.1	113	1.2	121	1.3	147	1.6	113	1.2	132	1.4	360	3.9	483	5.2	586	6.3	180	1.9	9341	100.0
Northern Rivers	2625	96.4	4	0.1	9	0.3	3	0.1	17	0.6	4	0.1	9	0.3	35	1.3	13	0.5	5	0.2	2724	100.0
Mid North Coast	2660	96.8	2	0.1	3	0.1	4	0.1	14	0.5	3	0.1	5	0.2	28	1.0	16	0.6	14	0.5	2749	100.0
New England	2222	98.1	2	0.1	4	0.2	2	0.1	3	0.1	3	0.1	4	0.2	16	0.7	6	0.3	2	0.1	2264	100.0
Macquarie	1458	98.2	1	0.1	2	0.1	0	0.0	1	0.1	1	0.1	7	0.5	4	0.3	4	0.3	7	0.5	1485	100.0
Mid Western	2048	97.7	2	0.1	7	0.3	4	0.2	6	0.3	5	0.2	7	0.3	7	0.3	6	0.3	5	0.2	2097	100.0
Far West	485	97.8	0	0.0	3	0.6	0	0.0	1	0.2	0	0.0	0	0.0	4	0.8	2	0.4	1	0.2	496	100.0
Greater Murray	2367	95.5	4	0.2	32	1.3	2	0.1	9	0.4	2	0.1	16	0.6	18	0.7	8	0.3	20	0.8	2478	100.0
Southern	1440	97.1	2	0.1	8	0.5	7	0.5	6	0.4	2	0.1	7	0.5	5	0.3	5	0.3	1	0.1	1483	100.0
Other/Not stated	559	93.6	3	0.5	5	0.8	1	0.2	1	0.2	1	0.2	7	1.2	15	2.5	4	0.7	1	0.2	597	100.0
TOTAL	67268	79.6	739	0.9	1534	1.8	1001	1.2	614	0.7	458	0.5	3653	4.3	4557	5.4	2962	3.5	1716	2.0	84502	100.0

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

Excludes 85 mothers for whom country of birth was not stated. Maternal countries of birth and country of birth groups are shown in Appendix 3.

TABLE 24**CONFINEMENTS BY MATERNAL ABORIGINALITY AND HEALTH AREA OF RESIDENCE, NSW 2002**

Health Area	Aboriginal Torres Strait Islander		Aboriginality Non-Aboriginal Torres Strait Islander			Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	
	Central Sydney	73	1.1	6504	98.9	2	0.0	6579	100.0
Northern Sydney	14	0.2	9239	99.8	5	0.1	9258	100.0	
Western Sydney	128	1.2	10921	98.8	2	0.0	11051	100.0	
Wentworth	71	1.5	4535	98.5	0	0.0	4606	100.0	
South Western Sydney	92	0.7	12431	99.2	3	0.0	12526	100.0	
Central Coast	71	2.0	3489	98.0	0	0.0	3560	100.0	
Hunter	165	2.4	6751	97.6	2	0.0	6918	100.0	
Illawarra	131	3.0	4194	96.9	4	0.1	4329	100.0	
South Eastern Sydney	42	0.4	9315	99.4	13	0.1	9370	100.0	
Northern Rivers	155	5.7	2568	94.2	2	0.1	2725	100.0	
Mid North Coast	231	8.4	2513	91.3	8	0.3	2752	100.0	
New England	289	12.8	1975	87.2	1	0.0	2265	100.0	
Macquarie	243	16.4	1240	83.4	3	0.2	1486	100.0	
Mid Western	121	5.8	1977	94.2	0	0.0	2098	100.0	
Far West	158	31.8	339	68.2	0	0.0	497	100.0	
Greater Murray	104	4.2	2379	95.8	1	0.0	2484	100.0	
Southern	54	3.6	1429	96.2	2	0.1	1485	100.0	
Other/Not stated	13	2.2	584	97.7	1	0.2	598	100.0	
TOTAL	2155	2.5	82383	97.4	49	0.1	84587	100.0	

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

TABLE 25**CONFINEMENTS BY DURATION OF PREGNANCY AT FIRST ANTENATAL CHECK AND HEALTH AREA OF RESIDENCE, NSW 2002**

Health Area	Duration of pregnancy at first antenatal visit						TOTAL	
	0-19		20-plus		Not stated		No.	%
	No.	%	No.	%	No.	%		
Central Sydney	5556	84.5	975	14.8	48	0.7	6579	100.0
Northern Sydney	8700	94.0	541	5.8	17	0.2	9258	100.0
Western Sydney	9121	82.5	1830	16.6	100	0.9	11051	100.0
Wentworth	3953	85.8	624	13.5	29	0.6	4606	100.0
South Western Sydney	9790	78.2	2623	20.9	113	0.9	12526	100.0
Central Coast	3390	95.2	163	4.6	7	0.2	3560	100.0
Hunter	5844	84.5	1004	14.5	70	1.0	6918	100.0
Illawarra	3979	91.9	329	7.6	21	0.5	4329	100.0
South Eastern Sydney	8277	88.3	947	10.1	146	1.6	9370	100.0
Northern Rivers	2374	87.1	324	11.9	27	1.0	2725	100.0
Mid North Coast	2410	87.6	276	10.0	66	2.4	2752	100.0
New England	2036	89.9	164	7.2	65	2.9	2265	100.0
Macquarie	1309	88.1	138	9.3	39	2.6	1486	100.0
Mid Western	1917	91.4	160	7.6	21	1.0	2098	100.0
Far West	370	74.4	107	21.5	20	4.0	497	100.0
Greater Murray	2211	89.0	242	9.7	31	1.2	2484	100.0
Southern	1350	90.9	115	7.7	20	1.3	1485	100.0
Other/Not stated	529	88.5	52	8.7	17	2.8	598	100.0
TOTAL	73116	86.4	10614	12.5	857	1.0	84587	100.0

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

TABLE 26

CONFINEMENTS BY NUMBER OF CIGARETTES SMOKED IN THE SECOND HALF OF PREGNANCY, NSW 2002

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.	%	No.	%		
Central Sydney	6106	92.8	318	4.8	152	2.3	2	0.0	1	0.0	6579	100.0				
Northern Sydney	8874	95.9	240	2.6	120	1.3	23	0.2	1	0.0	9258	100.0				
Western Sydney	9523	86.2	733	6.6	750	6.8	45	0.4	0	0.0	11051	100.0				
Wentworth	3729	81.0	373	8.1	472	10.2	32	0.7	0	0.0	4606	100.0				
South Western Sydney	10785	86.1	847	6.8	842	6.7	51	0.4	1	0.0	12526	100.0				
Central Coast	2750	77.2	445	12.5	358	10.1	7	0.2	0	0.0	3560	100.0				
Hunter	5439	78.6	676	9.8	789	11.4	13	0.2	1	0.0	6918	100.0				
Illawarra	3397	78.5	572	13.2	355	8.2	5	0.1	0	0.0	4329	100.0				
South Eastern Sydney	8733	93.2	377	4.0	233	2.5	27	0.3	0	0.0	9370	100.0				
Northern Rivers	2052	75.3	345	12.7	318	11.7	8	0.3	2	0.1	2725	100.0				
Mid North Coast	1968	71.5	365	13.3	398	14.5	20	0.7	1	0.0	2752	100.0				
New England	1657	73.2	309	13.6	277	12.2	16	0.7	6	0.3	2265	100.0				
Macquarie	1055	71.0	168	11.3	254	17.1	7	0.5	2	0.1	1486	100.0				
Mid Western	1528	72.8	259	12.3	307	14.6	4	0.2	0	0.0	2098	100.0				
Far West	310	62.4	55	11.1	121	24.3	10	2.0	1	0.2	497	100.0				
Greater Murray	1894	76.2	278	11.2	303	12.2	7	0.3	2	0.1	2484	100.0				
Southern	1047	70.5	214	14.4	221	14.9	1	0.1	2	0.1	1485	100.0				
Other/Not stated	454	75.9	65	10.9	77	12.9	1	0.2	1	0.2	598	100.0				
TOTAL	71301	84.3	6639	7.8	6347	7.5	279	0.3	21	0.0	84587	100.0				

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

TABLE 27

CONFINEMENTS BY PLACE OF BIRTH AND HEALTH AREA OF RESIDENCE, NSW 2002

Health Area	Place of birth												TOTAL	
	Hospital		Birth centre		Planned birth centre—hospital admission		Planned home birth		Planned home birth—hospital admission		Born before arrival		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney	6035	91.7	390	5.9	128	1.9	5	0.1	0	0.0	21	0.3	6579	100.0
Northern Sydney	9085	98.1	90	1.0	42	0.5	27	0.3	2	0.0	12	0.1	9258	100.0
Western Sydney	10390	94.0	282	2.6	321	2.9	4	0.0	1	0.0	53	0.5	11051	100.0
Wentworth	4527	98.3	24	0.5	27	0.6	12	0.3	3	0.1	13	0.3	4606	100.0
South Western Sydney	12272	98.0	183	1.5	18	0.1	6	0.0	1	0.0	46	0.4	12526	100.0
Central Coast	3526	99.0	13	0.4	1	0.0	5	0.1	1	0.0	14	0.4	3560	100.0
Hunter	6248	90.3	573	8.3	62	0.9	2	0.0	2	0.0	31	0.4	6918	100.0
Illawarra	4290	99.1	14	0.3	2	0.0	8	0.2	0	0.0	15	0.3	4329	100.0
South Eastern Sydney	8670	92.5	434	4.6	228	2.4	9	0.1	2	0.0	27	0.3	9370	100.0
Northern Rivers	2672	98.1	2	0.1	12	0.4	14	0.5	9	0.3	16	0.6	2725	100.0
Mid North Coast	2710	98.5	16	0.6	3	0.1	0	0.0	3	0.1	20	0.7	2752	100.0
New England	2244	99.1	0	0.0	6	0.3	0	0.0	2	0.1	13	0.6	2265	100.0
Macquarie	1469	98.9	2	0.1	9	0.6	0	0.0	0	0.0	6	0.4	1486	100.0
Mid Western	2076	99.0	2	0.1	13	0.6	1	0.0	0	0.0	6	0.3	2098	100.0
Far West	490	98.6	0	0.0	1	0.2	0	0.0	2	0.4	4	0.8	497	100.0
Greater Murray	2470	99.4	0	0.0	2	0.1	0	0.0	0	0.0	12	0.5	2484	100.0
Southern	1469	98.9	4	0.3	2	0.1	3	0.2	3	0.2	4	0.3	1485	100.0
Other/Not stated	587	98.2	1	0.2	4	0.7	3	0.5	0	0.0	3	0.5	598	100.0
TOTAL	81230	96.0	2030	2.4	881	1.0	99	0.1	31	0.0	316	0.4	84587	100.0

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

TABLE 28
CONFINEMENTS BY ONSET AND AUGMENTATION OF LABOUR AND HEALTH AREA OF RESIDENCE, NSW 2002

Health Area	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.	%
	Central Sydney	3188	48.5	170	2.6	808	12.3	933	14.2	1035	15.7	69	1.0	356	5.4	19	0.3	1	0.0	6579
Northern Sydney	3565	38.5	513	5.5	1045	11.3	1708	18.4	646	7.0	146	1.6	1618	17.5	17	0.2	0	0.0	9258	100.0
Western Sydney	5102	46.2	843	7.6	1049	9.5	1340	12.1	641	5.8	82	0.7	1957	17.7	35	0.3	2	0.0	11051	100.0
Wentworth	2118	46.0	340	7.4	265	5.8	623	13.5	345	7.5	78	1.7	814	17.7	23	0.5	0	0.0	4606	100.0
South Western Sydney	6297	50.3	712	5.7	1110	8.9	1370	10.9	934	7.5	138	1.1	1889	15.1	76	0.6	0	0.0	12526	100.0
Central Coast	1235	34.7	388	10.9	477	13.4	552	15.5	275	7.7	49	1.4	576	16.2	7	0.2	1	0.0	3560	100.0
Hunter	3461	50.0	393	5.7	324	4.7	932	13.5	559	8.1	175	2.5	1041	15.0	33	0.5	0	0.0	6918	100.0
Illawarra	1632	37.7	593	13.7	416	9.6	543	12.5	341	7.9	41	0.9	754	17.4	9	0.2	0	0.0	4329	100.0
South Eastern Sydney	4038	43.1	513	5.5	995	10.6	1513	16.1	847	9.0	94	1.0	1331	14.2	39	0.4	0	0.0	9370	100.0
Northern Rivers	1208	44.3	339	12.4	217	8.0	357	13.1	228	8.4	46	1.7	326	12.0	4	0.1	0	0.0	2725	100.0
Mid North Coast	1160	42.2	345	12.5	166	6.0	381	13.8	255	9.3	54	2.0	379	13.8	11	0.4	1	0.0	2752	100.0
New England	739	32.6	347	15.3	191	8.4	276	12.2	284	12.5	49	2.2	371	16.4	7	0.3	1	0.0	2265	100.0
Macquarie	627	42.2	178	12.0	125	8.4	195	13.1	125	8.4	29	2.0	196	13.2	7	0.5	4	0.3	1486	100.0
Mid Western	861	41.0	291	13.9	133	6.3	342	16.3	219	10.4	46	2.2	205	9.8	1	0.0	0	0.0	2098	100.0
Far West	272	54.7	41	8.2	30	6.0	49	9.9	44	8.9	4	0.8	56	11.3	0	0.0	1	0.2	497	100.0
Greater Murray	1089	43.8	217	8.7	121	4.9	346	13.9	441	17.8	65	2.6	191	7.7	13	0.5	1	0.0	2484	100.0
Southern	747	50.3	143	9.6	118	7.9	186	12.5	142	9.6	22	1.5	124	8.4	3	0.2	0	0.0	1485	100.0
Other/Not stated	276	46.2	56	9.4	54	9.0	74	12.4	53	8.9	6	1.0	78	13.0	1	0.2	0	0.0	598	100.0
TOTAL	37615	44.5	6422	7.6	7644	9.0	11720	13.9	7414	8.8	1193	1.4	12262	14.5	305	0.4	12	0.0	84587	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.

TABLE 29
CONFINEMENTS BY TYPE OF DELIVERY AND HEALTH AREA OF RESIDENCE, NSW 2002

Health Area	Normal vaginal		Forceps		Vacuum extraction		Vaginal breech		Elective caesarean section		Emergency caesarean section#		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	Central Sydney	3953	60.1	219	3.3	620	9.4	24	0.4	933	14.2	827	12.6	3	0.0	6579
Northern Sydney	5120	55.3	415	4.5	856	9.2	26	0.3	1708	18.4	1133	12.2	0	0.0	9258	100.0
Western Sydney	7376	66.7	678	6.1	458	4.1	49	0.4	1340	12.1	1146	10.4	4	0.0	11051	100.0
Wentworth	3024	65.7	172	3.7	219	4.8	19	0.4	623	13.5	548	11.9	1	0.0	4606	100.0
South Western Sydney	8821	70.4	261	2.1	973	7.8	70	0.6	1370	10.9	1031	8.2	0	0.0	12526	100.0
Central Coast	2137	60.0	50	1.4	356	10.0	16	0.4	552	15.5	449	12.6	0	0.0	3560	100.0
Hunter	4482	64.8	163	2.4	512	7.4	37	0.5	932	13.5	791	11.4	1	0.0	6918	100.0
Illawarra	2850	65.8	83	1.9	355	8.2	11	0.3	543	12.5	486	11.2	1	0.0	4329	100.0
South Eastern Sydney	5412	57.8	475	5.1	759	8.1	22	0.2	1513	16.1	1187	12.7	2	0.0	9370	100.0
Northern Rivers	1858	68.2	78	2.9	73	2.7	9	0.3	357	13.1	350	12.8	0	0.0	2725	100.0
Mid North Coast	1921	69.8	86	3.1	103	3.7	12	0.4	381	13.8	249	9.0	0	0.0	2752	100.0
New England	1597	70.5	53	2.3	128	5.7	10	0.4	276	12.2	199	8.8	2	0.1	2265	100.0
Macquarie	1035	69.7	53	3.6	50	3.4	9	0.6	195	13.1	140	9.4	4	0.3	1486	100.0
Mid Western	1301	62.0	56	2.7	105	5.0	11	0.5	342	16.3	283	13.5	0	0.0	2098	100.0
Far West	374	75.3	8	1.6	11	2.2	3	0.6	49	9.9	51	10.3	1	0.2	497	100.0
Greater Murray	1573	63.3	117	4.7	162	6.5	13	0.5	346	13.9	273	11.0	0	0.0	2484	100.0
Southern	1021	68.8	59	4.0	79	5.3	7	0.5	186	12.5	133	9.0	0	0.0	1485	100.0
Other/Not stated	416	69.6	8	1.3	36	6.0	5	0.8	74	12.4	59	9.9	0	0.0	598	100.0
TOTAL	54271	64.2	3034	3.6	5855	6.9	353	0.4	11720	13.9	9335	11.0	19	0.0	84587	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.

Birthweight

In 2002, 6.4 per cent of births were low birthweight (less than 2,500 grams). These comprised 0.7 per cent of birthweight less than 1,000 grams, 0.5 per cent in the 1,000 to 1,499 gram range, and 5.1 per cent in the 1,500 to 2,499 gram range (Table 30). Rates of low birthweight ranged from 5.0 per cent in Northern Sydney Health Area to 7.8 per cent in the Far West Health Area.

Gestational age

The majority of births (90.5 per cent) were at term, and 2.4 per cent were post-term (42-plus weeks). The 7.1 per cent of preterm births comprised 0.7 per cent born at 20–27 weeks, 0.7 per cent at 28–31 weeks, and 5.7 per cent at 32–36 weeks. The highest rate of preterm birth was in the Central Coast Health Area (9.7 per cent), while the lowest was 4.7 per cent in the Southern Health Area (Table 31).

TABLE 30

BIRTHS BY BIRTHWEIGHT AND HEALTH AREA OF RESIDENCE, NSW 2002

Health Area	Birthweight (grams)																		TOTAL No. %					
	Less than 500		500–999		1000–1499		1500–1999		2000–2499		2500–2999		3000–3499		3500–3999		4000–4499			4500+		Not stated		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	
Central Sydney	15	0.2	27	0.4	45	0.7	102	1.5	230	3.4	1066	15.9	2453	36.6	2043	30.5	615	9.2	103	1.5	7	0.1	6706	100.0
Northern Sydney	18	0.2	41	0.4	36	0.4	111	1.2	262	2.8	1270	13.4	3459	36.6	3072	32.5	1018	10.8	160	1.7	3	0.0	9450	100.0
Western Sydney	33	0.3	53	0.5	58	0.5	127	1.1	470	4.2	1773	15.8	4118	36.6	3323	29.6	1107	9.8	176	1.6	2	0.0	11240	100.0
Wentworth	10	0.2	19	0.4	30	0.6	49	1.0	168	3.6	700	15.0	1552	33.1	1559	33.3	495	10.6	99	2.1	1	0.0	4682	100.0
South Western Sydney	33	0.3	73	0.6	72	0.6	156	1.2	539	4.2	2064	16.3	4618	36.4	3722	29.3	1217	9.6	203	1.6	10	0.1	2698	100.0
Central Coast	14	0.4	19	0.5	28	0.8	41	1.1	165	4.6	502	13.9	1164	32.2	1161	32.1	420	11.6	102	2.8	2	0.1	3618	100.0
Hunter	21	0.3	41	0.6	51	0.7	104	1.5	306	4.4	949	13.5	2319	33.0	2249	32.0	837	11.9	154	2.2	1	0.0	7032	100.0
Illawarra	11	0.3	20	0.5	28	0.6	55	1.3	164	3.7	609	13.9	1560	35.5	1418	32.3	454	10.3	74	1.7	1	0.0	4394	100.0
South Eastern Sydney	15	0.2	36	0.4	50	0.5	121	1.3	352	3.7	1422	14.9	3499	36.6	2981	31.2	930	9.7	135	1.4	11	0.1	9552	100.0
Northern Rivers	5	0.2	5	0.2	7	0.3	31	1.1	99	3.6	402	14.6	952	34.5	862	31.2	345	12.5	46	1.7	5	0.2	2759	100.0
Mid North Coast	6	0.2	18	0.6	7	0.3	58	2.1	129	4.6	412	14.7	982	35.1	833	29.8	301	10.8	52	1.9	2	0.1	2800	100.0
New England	5	0.2	7	0.3	18	0.8	36	1.6	111	4.8	362	15.8	837	36.4	679	29.5	200	8.7	39	1.7	4	0.2	2298	100.0
Macquarie	8	0.5	6	0.4	8	0.5	21	1.4	61	4.1	253	16.8	512	34.0	462	30.7	143	9.5	29	1.9	3	0.2	1506	100.0
Mid Western	4	0.2	16	0.7	15	0.7	29	1.4	79	3.7	301	14.0	731	34.1	681	31.8	246	11.5	40	1.9	2	0.1	2144	100.0
Far West	1	0.2	1	0.2	4	0.8	6	1.2	27	5.4	98	19.5	163	32.4	146	29.0	45	8.9	12	2.4	0	0.0	503	100.0
Greater Murray	7	0.3	11	0.4	6	0.2	29	1.2	99	3.9	317	12.6	876	34.8	811	32.2	313	12.4	48	1.9	3	0.1	2520	100.0
Southern	2	0.1	2	0.1	1	0.1	4	0.3	55	3.7	250	16.7	502	33.6	487	32.6	164	11.0	28	1.9	1	0.1	1496	100.0
Other/Not stated	4	0.7	4	0.7	5	0.8	3	0.5	28	4.6	88	14.5	207	34.1	187	30.8	71	11.7	9	1.5	1	0.2	607	100.0
TOTAL	212	0.2	399	0.5	469	0.5	1083	1.3	3344	3.9	12838	14.9	30504	35.5	26676	31.0	8921	10.4	1509	1.8	50	0.1	86005	100.0

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

TABLE 31

BIRTHS BY GESTATIONAL AGE AND HEALTH AREA OF RESIDENCE, NSW 2002

Health Area	Gestational age (weeks)												TOTAL No. %	
	20–27		28–31		32–36		37–41		42+		Not stated			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Central Sydney	47	0.7	56	0.8	375	5.6	6118	91.2	108	1.6	2	0.0	6706	100.0
Northern Sydney	60	0.6	46	0.5	499	5.3	8632	91.3	213	2.3	0	0.0	9450	100.0
Western Sydney	75	0.7	75	0.7	610	5.4	10153	90.3	327	2.9	0	0.0	11240	100.0
Wentworth	26	0.6	30	0.6	260	5.6	4274	91.3	92	2.0	0	0.0	4682	100.0
South Western Sydney	106	0.8	93	0.7	649	5.1	11440	90.1	409	3.2	1	0.0	12698	100.0
Central Coast	32	0.9	34	0.9	286	7.9	3236	89.4	30	0.8	0	0.0	3618	100.0
Hunter	58	0.8	70	1.0	474	6.7	6119	87.0	311	4.4	0	0.0	7032	100.0
Illawarra	31	0.7	29	0.7	264	6.0	3995	90.9	75	1.7	0	0.0	4394	100.0
South Eastern Sydney	48	0.5	69	0.7	529	5.5	8703	91.1	195	2.0	8	0.1	9552	100.0
Northern Rivers	9	0.3	12	0.4	137	5.0	2528	91.6	73	2.6	0	0.0	2759	100.0
Mid North Coast	23	0.8	18	0.6	182	6.5	2530	90.4	44	1.6	3	0.1	2800	100.0
New England	11	0.5	26	1.1	144	6.3	2090	90.9	26	1.1	1	0.0	2298	100.0
Macquarie	14	0.9	9	0.6	90	6.0	1377	91.4	13	0.9	3	0.2	1506	100.0
Mid Western	20	0.9	22	1.0	138	6.4	1933	90.2	31	1.4	0	0.0	2144	100.0
Far West	2	0.4	4	0.8	30	6.0	461	91.7	6	1.2	0	0.0	503	100.0
Greater Murray	18	0.7	12	0.5	109	4.3	2344	93.0	35	1.4	2	0.1	2520	100.0
Southern	4	0.3	1	0.1	65	4.3	1381	92.3	44	2.9	1	0.1	1496	100.0
Other/Not stated	10	1.6	6	1.0	24	4.0	551	90.8	15	2.5	1	0.2	607	100.0
TOTAL	594	0.7	612	0.7	4865	5.7	77865	90.5	2047	2.4	22	0.0	86005	100.0

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

Perinatal outcomes

The perinatal mortality rate in 2002 was 8.7 per 1,000 births. This rate includes all births and deaths of babies of at least 400 grams birthweight or at least 20 weeks gestation (Table 32). The rate varied from 6.4 per 1,000 in the Wentworth Health Area to 11.3 per 1,000 in Macquarie Health Area.

TABLE 32

PERINATAL OUTCOMES BY HEALTH AREA OF RESIDENCE, NSW 2002*

Health Area	Liveborn surviving		Stillborn		Perinatal outcome Neonatal death		Not stated		Total births		Perinatal mortality rate/1,000 births
	No.	%	No.	%	No.	%	No.	%	No.	%	
	Central Sydney	6634	98.9	44	0.7	27	0.4	1	0.0	6706	
Northern Sydney	9386	99.3	44	0.5	18	0.2	2	0.0	9450	100.0	6.6
Western Sydney	11146	99.2	68	0.6	26	0.2	0	0.0	11240	100.0	8.4
Wentworth	4652	99.4	18	0.4	12	0.3	0	0.0	4682	100.0	6.4
South Western Sydney	12573	99.0	86	0.7	35	0.3	4	0.0	12698	100.0	9.5
Central Coast	3581	99.0	28	0.8	9	0.2	0	0.0	3618	100.0	10.2
Hunter	6963	99.0	48	0.7	21	0.3	0	0.0	7032	100.0	9.8
Illawarra	4363	99.3	23	0.5	8	0.2	0	0.0	4394	100.0	7.1
South Eastern Sydney	9461	99.0	56	0.6	27	0.3	8	0.1	9552	100.0	8.7
Northern Rivers	2738	99.2	16	0.6	5	0.2	0	0.0	2759	100.0	7.6
Mid North Coast	2773	99.0	14	0.5	8	0.3	5	0.2	2800	100.0	7.9
New England	2276	99.0	16	0.7	6	0.3	0	0.0	2298	100.0	9.6
Macquarie	1482	98.4	11	0.7	6	0.4	7	0.5	1506	100.0	11.3
Mid Western	2120	98.9	15	0.7	7	0.3	2	0.1	2144	100.0	10.3
Far West	498	99.0	2	0.4	3	0.6	0	0.0	503	100.0	9.9
Greater Murray	2494	99.0	18	0.7	5	0.2	3	0.1	2520	100.0	9.1
Southern	1483	99.1	3	0.2	7	0.5	3	0.2	1496	100.0	6.7
Other/Not stated	599	98.7	5	0.8	3	0.5	0	0.0	607	100.0	13.2
TOTAL	85222	99.1	515	0.6	233	0.3	35	0.0	86005	100.0	8.7

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 in statistical local areas

TABLE 33
LIVEBIRTHS BY HEALTH AREA AND STATISTICAL LOCAL AREA OF RESIDENCE, NSW 2002

Health Area–Statistical Local Area	No.	%	Health Area–Statistical Local Area	No.	%
Central Sydney			South Eastern Sydney		
Ashfield	503	7.6	Botany	502	5.3
Burwood	367	5.5	Hurstville	966	10.2
Canterbury	2127	31.9	Kogarah	623	6.6
Concord	354	5.3	Randwick	1484	15.6
Drummoyne	464	7.0	Rockdale	1338	14.1
Leichhardt	997	15.0	Sth Sydney (SESAHS)	395	4.2
Marrickville	1025	15.4	Sutherland Shire - East	1254	13.2
Sth Sydney (CSAHS)	412	6.2	Sutherland Shire - West	1455	15.3
Strathfield	277	4.2	Sydney - Inner	68	0.7
Sydney (CSAHS)	135	2.0	Sydney (SESAHS)	72	0.5
TOTAL	6661	100.0	Waverley	592	8.3
Northern Sydney			Woollahra	559	5.9
Hornsby	1821	19.4	TOTAL	9488	100.0
Hunters Hill	145	1.5	Northern Rivers		
Ku-ring-gai	879	9.3	Ballina	381	13.9
Lane Cove	381	4.1	Byron	302	11.0
Manly	528	5.6	Copmanhurst	49	1.8
Mosman	340	3.6	Grafton	199	7.3
North Sydney	753	8.0	Kyogle	81	3.0
Pittwater	677	7.2	Lismore - Pt A	370	13.5
Ryde	1229	13.1	Lismore - Pt B	149	5.4
Warringah	1842	19.6	Maclean	149	5.4
Willoughby	809	8.6	Pristine Waters - Nymboida	91	3.3
TOTAL	9404	100.0	Pristine Waters - Ulmarra	72	2.6
Western Sydney			Richmond Valley - Casino	142	5.2
Auburn	1051	9.4	Richmond Valley Bal	122	4.4
Baulkham Hills	1825	16.3	Tweed - Pt A	345	12.6
Blacktown - North	1465	13.1	Tweed - Pt B	291	10.6
Blacktown - South-East	1421	12.7	TOTAL	2743	100.0
Blacktown - South-West	1815	16.2	Mid North Coast		
Holroyd	1415	12.7	Bellingen	125	4.5
Parramatta	2180	19.5	Coffs Harbour - Pt A	546	19.6
TOTAL	11172	100.0	Coffs Harbour - Pt B	163	5.9
Wentworth			Gloucester	38	1.4
Blue Mountains	914	19.6	Greater Taree	504	18.1
Hawkesbury	933	20.0	Great Lakes	287	10.3
Penrith	2817	60.4	Hastings - Pt A	341	12.3
TOTAL	4664	100.0	Hastings - Pt B	246	8.8
South Western Sydney			Kempsey	354	12.7
Bankstown	2685	21.3	Nambucca	177	6.4
Camden	861	6.8	TOTAL	2781	100.0
Campbelltown	2263	17.9	New England		
Fairfield	2699	21.4	Armidale Dumaresq - City	236	10.3
Liverpool	2997	23.8	Armidale Dumaresq Bal	96	4.2
Wingecarribee	494	3.9	Barraba	15	0.7
Wollondilly	609	4.8	Bingara	12	0.5
TOTAL	12608	100.0	Glen Innes	99	4.3
Central Coast			Gunnedah	158	6.9
Gosford	1895	52.8	Guyra	47	2.1
Wyong	1695	47.2	Inverell - Pt A	71	3.1
TOTAL	3590	100.0	Inverell - Pt B	128	5.6
Hunter			Manilla	46	2.0
Cessnock	610	8.7	Moree Plains	250	11.0
Dungog	105	1.5	Narrabri	194	8.5
Lake Macquarie	2161	30.9	Nundle	8	0.4
Maitland	807	11.6	Parry - Pt A	56	2.5
Merriwa	24	0.3	Parry - Pt B	138	6.0
Murrurundi	26	0.4	Quirindi	79	3.5
Muswellbrook	236	3.4	Severn	32	1.4
Newcastle - Inner	47	0.7	Tamworth	418	18.3
Newcastle - Remainder	1768	25.3	Tenterfield	52	2.3
Port Stephens	715	10.2	Uralla	66	2.9
Scone	141	2.0	Walcha	46	2.0
Singleton	344	4.9	Yallaroi	35	1.5
TOTAL	6984	100.0	TOTAL	2282	100.0
Illawarra					
Kiama	196	4.5			
Shellharbour	851	19.5			
Shoalhaven - Pt A	446	10.2			
Shoalhaven - Pt B	460	10.5			
Wollongong	2418	55.3			
TOTAL	4371	100.0			

TABLE 33 continued

LIVEBIRTHS BY HEALTH AREA AND STATISTICAL LOCAL AREA OF RESIDENCE, NSW 2002

Health Area—Statistical Local Area	No.	%	Health Area—Statistical Local Area	No.	%
Macquarie			Greater Murray		
Bogan	55	3.7	Albury	6	0.2
Cobar	80	5.4	Berrigan	25	1.0
Coolah	46	3.1	Bland	81	3.2
Coonabarabran	64	4.3	Carrathool	77	3.1
Coonamble	83	5.6	Conargo	8	0.3
Dubbo - Pt A	548	36.8	Coolamon	52	2.1
Dubbo - Pt B	47	3.2	Cootamundra	79	3.2
Gilgandra	56	3.8	Corowa	36	1.4
Mudgee	219	14.7	Culcairn	32	1.3
Narromine	125	8.4	Deniliquin	77	3.1
Warren	54	3.6	Griffith	404	16.2
Wellington	111	7.5	Gundagai	65	2.6
TOTAL	1488	100.0	Hay	59	2.4
Mid Western			Holbrook	8	0.3
Bathurst	364	17.1	Jerilderie	5	0.2
Blayney - Pt A	69	3.2	Junee	65	2.6
Blayney - Pt B	16	0.8	Leeton	152	6.1
Cabonne - Pt A	12	0.6	Lockhart	36	1.4
Cabonne - Pt C	107	5.0	Murray	6	0.2
Cowra	154	7.2	Murrumbidgee	37	1.5
Evans - Pt A	12	0.6	Narrandera	102	4.1
Evans - Pt B	30	1.4	Temora	79	3.2
Forbes	119	5.6	Tumbarumba	20	0.8
Greater Lithgow	233	11.0	Tumut	132	5.3
Lachlan	94	4.4	Urana	6	0.2
Oberon	111	5.2	Wagga Wagga - Pt A	740	29.6
Orange	531	25.0	Wagga Wagga - Pt B	87	3.5
Parkes	189	8.9	Wakool	7	0.3
Rylstone	48	2.3	Windouran	12	0.5
Weddin	35	1.6	Other	4	0.2
Other	3	0.1	TOTAL	2499	100.0
TOTAL	2127	100.0	Southern		
Far West			Bega Valley	278	18.7
Bourke	86	17.2	Bombala	17	1.1
Brewarrina	41	8.2	Boorowa	14	0.9
Broken Hill	218	43.5	Cooma-Monaro	81	5.4
Central Darling	31	6.2	Crookwell	23	1.5
Walgett	115	23.0	Eurobodalla	261	17.5
Unincorp. Far West	9	1.8	Goulburn	236	15.8
Other	1	0.2	Gunning	9	0.6
TOTAL	501	100.0	Harden	34	2.3
			Mulwaree	65	4.4
			Queanbeyan	203	13.6
			Snowy River	58	3.9
			Tallaganda	11	0.7
			Yarrowlunla - Pt A	22	1.5
			Yass	29	1.9
			Young	149	10.0
			TOTAL	1490	100.0
			Other/ Not Stated	602	100.0
			TOTAL NSW	85455	100.0

Source: NSW Midwives Data Collection. 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 14).

The percentage of births to Aboriginal and Torres Strait Islander mothers reported to the MDC rose from 58.7 to 65.7 per cent in the period 1994 to 1999, and has remained at about 65.0 per cent in 2000 and 2001. Reporting was

better in rural hospitals than urban hospitals: it is estimated that in 2001 51.8 per cent of births to Aboriginal mothers in urban hospitals were correctly reported as Aboriginal compared to 81.9 per cent in rural hospitals (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 2001 is estimated to be 3256, about one and a half times higher than the number reported to the MDC. For urban area health services the true number of babies born to Aboriginal mothers is estimated to be 1,574, about twice that reported to the MDC. For rural area health services the true number is estimated to be 1,612, about 1.2 times higher than reported to the MDC.

TABLE 34

BIRTHS TO ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY SOURCE OF BIRTH REPORT, YEAR OF BIRTH AND URBAN–RURAL HEALTH AREA OF HOSPITAL, NSW 1994–2001

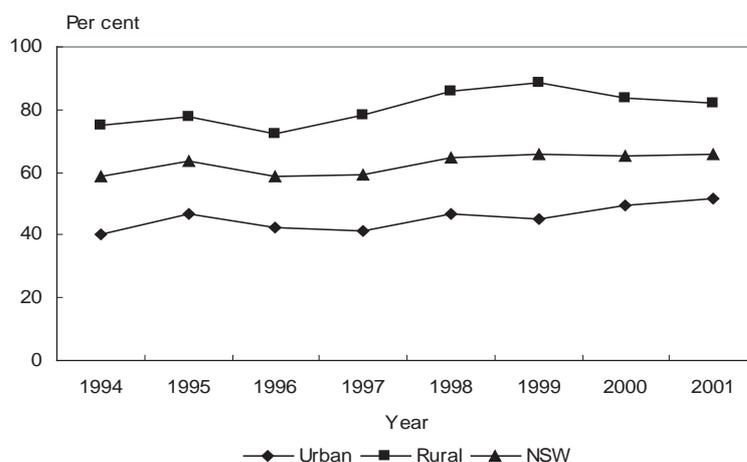
Urban–Rural locality of hospital–Year [#]	MDC births	RBDM births	Births reported to both MDC–RBDM	Total estimated Aboriginal births	Estimated Aboriginal births reported to MDC	95% confidence interval of estimated births reported
	No.	No.	No.	No.	%	
Urban						
1994	553	665	268	1371	40.3	37.7–42.9
1995	642	742	345	1380	46.5	43.9–49.2
1996	593	794	338	1392	42.6	40.0–45.2
1997	658	1066	441	1590	41.4	39.0–43.8
1998	785	1053	495	1669	47.0	44.6–49.4
1999	706	995	447	1571	44.9	42.5–47.4
2000	823	1093	541	1662	49.5	47.1–51.9
2001	816	1046	542	1574	51.8	49.4–54.3
Rural						
1994	990	747	561	1318	75.1	72.8–77.4
1995	1117	887	689	1438	77.7	75.5–79.8
1996	1131	941	679	1567	72.2	70.0–74.4
1997	1196	1011	789	1532	78.0	76.0–80.1
1998	1280	901	771	1496	85.6	83.8–87.4
1999	1372	906	802	1550	88.5	86.9–90.1
2000	1299	902	756	1550	83.8	82.0–85.7
2001	1320	884	724	1612	81.9	80.0–83.8
NSW						
1994	1543	1412	829	2628	58.7	56.8–60.6
1995	1759	1629	1034	2771	63.5	61.7–65.3
1996	1724	1735	1017	2941	58.6	56.8–60.4
1997	1854	2077	1230	3130	59.2	57.5–60.9
1998	2065	1954	1266	3187	64.8	63.1–66.5
1999	2078	1901	1249	3162	65.7	64.1–67.4
2000	2122	1995	1297	3264	65.0	63.4–66.7
2001	2136	1930	1266	3256	65.6	64.0–67.2

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

'Urban' and 'Rural' refer to urban or rural Health Area of Hospital as reported to the MDC. Urban hospitals include those in the following health areas: Central Sydney, Northern Sydney, Western Sydney, Wentworth, South Western Sydney, Central Coast, Hunter and Illawarra. NSW totals exclude homebirths, and births for which the hospital of birth is not stated.

FIGURE 2

LEVEL OF REPORTING OF ABORIGINALITY TO THE NSW MIDWIVES DATA COLLECTION BY YEAR OF BIRTH AND URBAN-RURAL HEALTH AREA OF HOSPITAL, NSW 1994–2001*



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

* 'Urban' and 'Rural' refer to urban or rural Health Area of Hospital as reported to the MDC. Urban hospitals include those in the following health areas: Central Sydney, Northern Sydney, Western Sydney, Wentworth, South Western Sydney, Central Coast, Hunter and Illawarra. NSW totals exclude homebirths and births for which area health service of hospital is not stated.

Information on paternal Aboriginality is not collected by the MDC, but is reported to the Registry of Births, Deaths and Marriages. Of the 84,247 births registered for residents of NSW in 2001, 3,111 (3.7 per cent) were reported to have an Aboriginal or Torres Strait Islander mother or father (Table 35). For 1,102 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 2001*

Mother#	Father	No.	%
Aboriginal or Torres Strait Islander	Aboriginal or Torres Strait Islander	629	0.8
Aboriginal or Torres Strait Islander	Non-Aboriginal or Torres Strait Islander	1380	1.6
Non-Aboriginal or Torres Strait Islander	Aboriginal or Torres Strait Islander	1102	1.3
Non-Aboriginal or Torres Strait Islander	Non-Aboriginal or Torres Strait Islander	81136	96.3
TOTAL	TOTAL	84247	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 2002, 2,069 babies were born to Aboriginal mothers, 25 babies were born to Torres Strait Islander mothers and 89 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 1998–2002[#]

Plurality	Year									
	1998		1999		2000		2001		2002	
	No.	%								
Confinements										
Aboriginal	1951	95.5	1984	96.4	1990	94.5	1988	94.2	2041	94.7
Torres Strait Islander	35	1.7	38	1.8	25	1.2	40	1.9	25	1.2
Aboriginal and Torres Strait Islander	57	2.8	37	1.8	90	4.3	82	3.9	89	4.1
TOTAL	2043	100.0	2059	100.0	2105	100.0	2110	100.0	2155	100.0
Births										
Aboriginal	1975	95.5	2003	96.4	2006	94.5	2014	94.2	2069	94.8
Torres Strait Islander	36	1.7	38	1.8	25	1.2	42	2.0	25	1.1
Aboriginal and Torres Strait Islander	57	2.8	37	1.8	91	4.3	82	3.8	89	4.1
TOTAL	2068	100.0	2078	100.0	2122	100.0	2138	100.0	2183	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 1998 and 2002, the reported number of babies born to Aboriginal and Torres Strait Islander mothers increased from 2,068 to 2,183 (Table 37), representing 2.4 and 2.5 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 1998–2002[#]

Plurality	Year									
	1998		1999		2000		2001		2002	
	No.	%								
Confinements										
Singleton	2017	98.7	2040	99.1	2089	99.2	2082	98.7	2127	98.7
Multiple	26	1.3	18	0.9	16	0.8	28	1.3	28	1.3
TOTAL	2043	100.0	2059	100.0	2105	100.0	2110	100.0	2155	100.0
Births										
Singleton	2017	97.5	2040	98.2	2089	98.4	2082	97.4	2127	97.4
Multiple	51	2.5	35	1.8	33	1.6	56	2.6	56	2.6
TOTAL	2068	100.0	2078	100.0	2122	100.0	2138	100.0	2183	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 2002, 31 per cent of Aboriginal and Torres Strait Islander mothers gave birth for the first time, and 69 per cent gave birth to their second to fourth baby (Table 38). About eight per cent of mothers had given birth to five or more babies. This pattern has not changed substantially since 1998.

TABLE 38

NUMBER OF PREVIOUS PREGNANCIES AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1998–2002[#]

No. previous pregnancies (>20 weeks)	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
0	599	29.3	613	29.8	645	30.6	634	30.0	664	30.8
1–4	1280	62.7	1301	63.2	1285	61.0	1309	62.0	1302	60.4
5+	161	7.9	144	7.0	174	8.3	164	7.8	183	8.5
Not stated	3	0.1	1	0.0	1	0.0	3	0.1	6	0.3
TOTAL	2043	100.0	2059	100.0	2105	100.0	2110	100.0	2155	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 five Aboriginal and Torres Strait Islander mothers were teenagers in 2002.

Following statewide trends, the number of mothers giving birth at 35 years of age or more has increased over the last five years. The proportion of mothers aged 35-plus years increased from 5.5 per cent in 1998 to 6.8 per cent in 2002 (Table 39).

TABLE 39

AGE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1998–2002[#]

Maternal age (years)	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
12–19	389	19.0	443	21.5	459	21.8	439	20.8	481	22.3
20–34	1536	75.2	1492	72.5	1491	70.8	1515	71.8	1524	70.7
35+	113	5.5	124	6.0	155	7.4	152	7.2	146	6.8
Not stated	5	0.2	0	0.0	0	0.0	4	0.2	4	0.2
TOTAL	2043	100.0	2059	100.0	2105	100.0	2110	100.0	2155	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 2002 ranged from 14 in the Northern Sydney Area to 289 in the New England Area (Table 40). Over one-third (36.5 per cent) of mothers were resident in urban health areas and about two-thirds were resident in rural health areas (62.9 per cent).

In 2002, over one quarter of Aboriginal and Torres Strait Islander mothers in the Hunter and Far West Areas were teenagers (Table 41).

TABLE 40

HEALTH AREA OF RESIDENCE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1998–2002*

Health Area	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney	71	3.5	61	3.0	69	3.3	62	2.9	73	3.4
Northern Sydney	10	0.5	9	0.4	9	0.4	8	0.4	14	0.6
Western Sydney	172	8.4	139	6.8	134	6.4	141	6.7	128	5.9
Wentworth	77	3.8	74	3.6	64	3.0	64	3.0	71	3.3
South Western Sydney	108	5.3	91	4.4	99	4.7	112	5.3	92	4.3
Central Coast	42	2.1	50	2.4	72	3.4	66	3.1	71	3.3
Hunter	103	5.0	98	4.8	156	7.4	165	7.8	165	7.7
Illawarra	119	5.8	104	5.1	138	6.6	117	5.5	131	6.1
South Eastern Sydney	47	2.3	45	2.2	35	1.7	36	1.7	42	1.9
Northern Rivers	161	7.9	162	7.9	175	8.3	183	8.7	155	7.2
Mid North Coast	167	8.2	230	11.2	218	10.4	200	9.5	231	10.7
New England	267	13.1	273	13.3	255	12.1	259	12.3	289	13.4
Macquarie	212	10.4	230	11.2	222	10.5	216	10.2	243	11.3
Mid Western	113	5.5	123	6.0	124	5.9	136	6.4	121	5.6
Far West	169	8.3	162	7.9	143	6.8	166	7.9	158	7.3
Greater Murray	120	5.9	116	5.6	107	5.1	107	5.1	104	4.8
Southern	64	3.1	68	3.3	69	3.3	55	2.6	54	2.5
Other/Not stated	21	1.0	24	1.2	16	0.8	17	0.8	13	0.6
TOTAL	2043	100.0	2059	100.0	2105	100.0	2110	100.0	2155	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. For urban area health services the true number is about twice the number shown, and for rural area health services is about 1.2 times higher than the number shown.

TABLE 41

HEALTH AREA OF RESIDENCE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY AGE, NSW 2002*

Health Area	Maternal age (years)				Not stated		TOTAL	
	Less than 20		20+		No.	%	No.	%
	No.	%	No.	%				
Central Sydney	17	23.3	56	76.7	0	0.0	73	100.0
Northern Sydney##	—	—	—	—	0	0.0	14	100.0
Western Sydney	31	24.2	97	75.8	0	0.0	128	100.0
Wentworth	17	23.9	54	76.1	0	0.0	71	100.0
South Western Sydney	15	16.3	77	83.7	0	0.0	92	100.0
Central Coast	11	15.5	60	84.5	0	0.0	71	100.0
Hunter	43	26.1	122	73.9	0	0.0	165	100.0
Illawarra	21	16.0	110	84.0	0	0.0	131	100.0
South Eastern Sydney	7	16.7	35	83.3	0	0.0	42	100.0
Northern Rivers	38	24.5	117	75.5	0	0.0	155	100.0
Mid North Coast	52	22.5	178	77.1	1	0.4	231	100.0
New England	66	22.8	223	77.2	0	0.0	289	100.0
Macquarie	59	24.3	182	74.9	2	0.8	243	100.0
Mid Western	24	19.8	97	80.2	0	0.0	121	100.0
Far West	41	25.9	116	73.4	1	0.6	158	100.0
Greater Murray	25	24.0	79	76.0	0	0.0	104	100.0
Southern	11	20.4	43	79.6	0	0.0	54	100.0
Other/Not stated	2	15.4	11	84.6	0	0.0	13	100.0
TOTAL	481	22.3	1670	77.5	4	0.2	2155	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. For urban area health services the true number is about twice the number shown, and for rural area health services is about 1.2 times higher than the number shown.

Information not shown for Health Areas where the number of mothers is less than five in a group where age was reported.

Booking status

In 2002, 87.3 per cent of Aboriginal and Torres Strait Islander mothers were booked into the hospital of birth, compared with 97.6 per cent of non-Aboriginal or Torres Strait Islander mothers.

Duration of pregnancy at first antenatal visit

Between 1998 and 2002, the proportion of mothers who commenced antenatal care at less than 20 weeks gestation was stable at about 65–67 per cent (Table 42). This compares with 87 per cent of non-Aboriginal or Torres Strait Islander mothers who commenced antenatal care at less than 20 weeks gestation in 2002.

In 2002, the proportion of Aboriginal and Torres Strait Islander mothers who commenced antenatal care at less than 20 weeks gestation varied from 53.8 per cent in the Far West Area to 88.7 per cent in the Central Coast Area (Table 43).

TABLE 42

DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1998–2002[#]

Duration of pregnancy at first antenatal visit (weeks)	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
0–19	1354	66.3	1348	65.5	1422	67.6	1365	64.7	1448	67.2
20–plus	555	27.2	599	29.1	546	25.9	615	29.1	560	26.0
Not stated	134	6.6	112	5.4	137	6.5	130	6.2	147	6.8
TOTAL	2043	100.0	2059	100.0	2105	100.0	2110	100.0	2155	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 2002[#]

Health Area	Duration of pregnancy at first antenatal visit (weeks)						TOTAL	
	0–19		20+		Not stated		No.	%
	No.	%	No.	%	No.	%	No.	%
Central Sydney	42	57.5	28	38.4	3	4.1	73	100.0
Northern Sydney ^{##}	–	–	–	–	–	–	14	100.0
Western Sydney	68	53.1	46	35.9	14	10.9	128	100.0
Wentworth	51	71.8	15	21.1	5	7.0	71	100.0
South Western Sydney	54	58.7	31	33.7	7	7.6	92	100.0
Central Coast	63	88.7	7	9.9	1	1.4	71	100.0
Hunter	107	64.8	51	30.9	7	4.2	165	100.0
Illawarra	98	74.8	31	23.7	2	1.5	131	100.0
South Eastern Sydney	27	64.3	13	31.0	2	4.8	42	100.0
Northern Rivers	92	59.4	57	36.8	6	3.9	155	100.0
Mid North Coast	152	65.8	51	22.1	28	12.1	231	100.0
New England	212	73.4	52	18.0	25	8.7	289	100.0
Macquarie	175	72.0	50	20.6	18	7.4	243	100.0
Mid Western	90	74.4	25	20.7	6	5.0	121	100.0
Far West	85	53.8	57	36.1	16	10.1	158	100.0
Greater Murray	75	72.1	26	25.0	3	2.9	104	100.0
Southern	38	70.4	14	25.9	2	3.7	54	100.0
Other/Not stated	7	53.8	4	30.8	2	15.4	13	100.0
TOTAL	1448	67.2	560	26.0	147	6.8	2155	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. For urban area health services the true number is about twice the number shown, and for rural area health services is about 1.2 times higher than the number shown.

^{##} Information not shown for Health Areas where the number of mothers is less than five in a group where duration of pregnancy at first antenatal visit was reported.

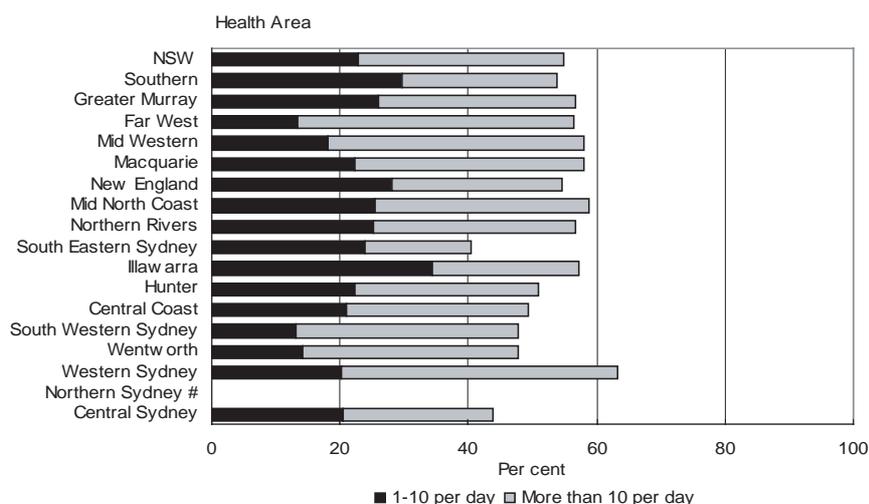
Smoking in pregnancy

In 2002, 58.0 per cent of Aboriginal and Torres Strait Islander mothers reported smoking at some time during pregnancy, compared to 58.2 per cent in 1998. This compares with 15.3 per cent of non-Aboriginal or Torres Strait Islander mothers who reported smoking at some time during pregnancy in 2002.

Smoking in the second half of pregnancy poses the greatest risk to the health of both mother and baby. In 2002, 57.0 per cent of Aboriginal and Torres Strait Islander mothers reported smoking in the second half of pregnancy. This percentage varied from 42.9 per cent in the South Eastern Sydney Area to 65.6 per cent in the Western Sydney 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 2002*



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 2002, there were slightly lower rates of gestational diabetes and pre-eclampsia 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 very 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 2002*

Condition	Aboriginal and Torres Strait Islander		Aboriginality Non-Aboriginal or Torres Strait Islander		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Diabetes mellitus	17	0.8	444	0.5	1	2.0	462	0.5
Gestational diabetes	67	3.1	3626	4.4	0	0.0	3693	4.4
Essential hypertension	24	1.1	915	1.1	1	2.0	940	1.1
Pre-eclampsia	112	5.2	4726	5.7	1	2.0	4839	5.7
TOTAL CONFINEMENTS	2155	100.0	82383	100.0	49	100.0	84587	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 induction of labour among Aboriginal and Torres Strait Islander mothers varied from about 18 to 20 per cent between 1998 and 2002, while the rate of spontaneous onset of labour varied from about 70 to 73 per cent (Table 45). The rate of induction of labour among Aboriginal and Torres Strait Islander mothers was lower than the rate of 25.2 per cent reported among non-Aboriginal and Torres Strait Islander mothers in 2002.

Between 1998 and 2002, the rate of normal vaginal birth fell slightly from 76.5 to 74.2 per cent. The caesarean section rate rose from 17.3 to 20.6 per cent (Table 46). Following statewide trends the percentage of deliveries by vacuum extraction increased from 2.1 to 3.2 per cent.

TABLE 45

LABOUR ONSET FOR ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1998–2002[#]

Labour onset	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Spontaneous	1467	71.8	1512	73.4	1527	72.5	1486	70.4	1507	69.9
No labour ^{##}	176	8.6	172	8.4	206	9.8	207	9.8	223	10.3
Induced	400	19.6	375	18.2	372	17.7	417	19.8	423	19.6
Not stated	0	0.0	0	0.0	0	0.0	0	0.0	2	0.1
TOTAL	2043	100.0	2059	100.0	2105	100.0	2110	100.0	2155	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 1998–2002[#]

Type of delivery	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal vaginal	1563	76.5	1586	77.0	1573	74.7	1562	74.0	1598	74.2
Forceps	56	2.7	64	3.1	51	2.4	39	1.8	30	1.4
Vacuum extraction	43	2.1	54	2.6	67	3.2	66	3.1	68	3.2
Vaginal breech	27	1.3	25	1.2	31	1.5	16	0.8	14	0.6
Elective caesarean section	176	8.6	172	8.4	206	9.8	207	9.8	223	10.3
Emergency caesarean section ^{##}	177	8.7	158	7.7	177	8.4	220	10.4	222	10.3
Not stated	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL	2043	100.0	2059	100.0	2105	100.0	2110	100.0	2155	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.

Birthweight

Since 1998, the rate of low birthweight (less than 2,500 grams) in Aboriginal and Torres Strait Islander babies has been over 10 per cent and was 12.8 per cent in 2002 (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 2002. In 2002, the largest number of low birthweight babies were born in the New England Area (Table 48).

TABLE 47

WEIGHT OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 1998–2002*

Birthweight (grams)	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 1,000	24	1.2	20	1.0	33	1.6	27	1.3	21	1.0
1,000–1,499	19	0.9	24	1.2	20	0.9	33	1.5	28	1.3
1,500–2,499	174	8.4	217	10.4	199	9.4	228	10.7	230	10.5
2,500+	1850	89.5	1816	87.4	1866	87.9	1848	86.4	1900	87.0
Not stated	1	0.0	1	0.0	4	0.2	2	0.1	4	0.2
TOTAL	2068	100.0	2078	100.0	2122	100.0	2138	100.0	2183	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 2002*

Health Area	Less than 2,500		Birthweight (grams) 2,500+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Central Sydney	11	14.9	63	85.1	0	0.0	74	100.0
Northern Sydney ^{##}	–	–	–	–	–	–	15	100.0
Western Sydney	15	11.5	116	88.5	0	0.0	131	100.0
Wentworth	14	19.7	57	80.3	0	0.0	71	100.0
South Western Sydney	8	8.7	84	91.3	0	0.0	92	100.0
Central Coast	5	6.9	67	93.1	0	0.0	72	100.0
Hunter	16	9.6	150	90.4	0	0.0	166	100.0
Illawarra	11	8.4	120	91.6	0	0.0	131	100.0
South Eastern Sydney	8	18.2	36	81.8	0	0.0	44	100.0
Northern Rivers	17	11.0	138	89.0	0	0.0	155	100.0
Mid North Coast	31	13.2	203	86.8	0	0.0	234	100.0
New England	41	13.9	251	85.1	3	1.0	295	100.0
Macquarie	37	15.0	208	84.6	1	0.4	246	100.0
Mid Western	20	16.1	104	83.9	0	0.0	124	100.0
Far West	24	15.0	136	85.0	0	0.0	160	100.0
Greater Murray	10	9.5	95	90.5	0	0.0	105	100.0
Southern	6	10.9	49	89.1	0	0.0	55	100.0
Other/Not stated	2	15.4	11	84.6	0	0.0	13	100.0
TOTAL	279	12.8	1900	87.0	4	0.2	2183	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. For urban area health services the true number is about twice the number shown, and for rural area health services is about 1.2 times higher than the number shown.

Information not shown for Health Areas where the number of mothers is less than five in a group where birthweight was reported.

Gestational age

Since 1998, the rate of prematurity (less than 37 weeks gestation) in Aboriginal and Torres Strait Islander babies has been over 10 per cent. The rate was 12.2 per cent in 2002 (Table 49)—compared with a rate of 6.9 per cent for babies born to non-Aboriginal or Torres Strait Islander mothers. In 2002, the largest number of premature babies were born in the New England and Macquarie Areas (Table 50).

TABLE 49

GESTATIONAL AGE OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 1998–2002#

Gestational age (weeks)	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
20–27	26	1.3	18	0.9	33	1.6	26	1.2	21	1.0
28–31	26	1.3	29	1.4	29	1.4	38	1.8	34	1.6
32–36	167	8.1	209	10.1	185	8.7	201	9.4	212	9.7
37–41	1822	88.1	1780	85.7	1839	86.7	1824	85.3	1868	85.6
42 +	27	1.3	42	2.0	36	1.7	48	2.2	45	2.1
Not stated	0	0.0	0	0.0	0	0.0	1	0.0	3	0.1
TOTAL	2068	100.0	2078	100.0	2122	100.0	2138	100.0	2183	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 2002#

Health Area	Less than 37		Gestational age (weeks) 37+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Central Sydney	9	12.2	65	87.8	0	0.0	74	100.0
Northern Sydney##	–	–	–	–	–	–	15	100.0
Western Sydney	19	14.5	112	85.5	0	0.0	131	100.0
Wentworth	13	18.3	58	81.7	0	0.0	71	100.0
South Western Sydney	7	7.6	85	92.4	0	0.0	92	100.0
Central Coast	14	19.4	58	80.6	0	0.0	72	100.0
Hunter	15	9.0	151	91.0	0	0.0	166	100.0
Illawarra	12	9.2	119	90.8	0	0.0	131	100.0
South Eastern Sydney	6	13.6	38	86.4	0	0.0	44	100.0
Northern Rivers	18	11.6	137	88.4	0	0.0	155	100.0
Mid North Coast	25	10.7	209	89.3	0	0.0	234	100.0
New England	36	12.2	259	87.8	0	0.0	295	100.0
Macquarie	34	13.8	209	85.0	3	1.2	246	100.0
Mid Western	20	16.1	104	83.9	0	0.0	124	100.0
Far West	20	12.5	140	87.5	0	0.0	160	100.0
Greater Murray	8	7.6	97	92.4	0	0.0	105	100.0
Southern	7	12.7	48	87.3	0	0.0	55	100.0
Other/Not stated	1	7.7	12	92.3	0	0.0	13	100.0
TOTAL	267	12.2	1913	87.6	3	0.1	2183	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. For urban area health services the true number is about twice the number shown, and for rural area health services is about 1.2 times higher than the number shown.

Information not shown for Health Areas where the number of babies is less than five in a group where gestational age was reported.

Apgar score

In 2002, 3.2 per cent of Aboriginal and Torres Strait Islander babies had an Apgar score less than seven (Table 51), higher than the rate of 2.1 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 1998–2002[#]

Apgar score at 5 minutes	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
0–4	38	1.8	36	1.7	41	1.9	49	2.3	38	1.7
5–6	28	1.4	24	1.2	26	1.2	29	1.4	31	1.4
7+	1989	96.2	2003	96.4	2045	96.4	2048	95.8	2104	96.4
Not stated	13	0.6	15	0.7	10	0.5	12	0.6	10	0.5
TOTAL	2068	100.0	2078	100.0	2122	100.0	2138	100.0	2183	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 2002, 19.7 per cent of Aboriginal and Torres Strait Islander babies were admitted to special care units and 3.3 per cent were admitted to neonatal intensive care units

(Table 52). This compares with babies born to non-Aboriginal or Torres Strait Islander mothers, of whom 14.7 per cent were admitted to special care units and 2.5 per cent were admitted to neonatal intensive care units in 2002.

TABLE 52

ABORIGINAL AND TORRES STRAIT ISLANDER BABIES ADMITTED TO SPECIAL CARE AND NEONATAL INTENSIVE CARE UNITS, NSW 1998–2002[#]

Unit of admission	1998		1999		Year 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Special care unit	417	20.2	438	21.1	405	19.1	442	20.7	431	19.7
Neonatal intensive care unit	78	3.8	69	3.3	86	4.1	82	3.8	71	3.3
TOTAL BIRTHS	2068	100.0	2078	100.0	2122	100.0	2138	100.0	2183	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 1998, 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 11.0 per 1,000 in 2002 is the lowest reported in the last 10 years,

but continues to be higher than the rate of 8.6 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 1998–2002[#]

Perinatal deaths	1998		1999		Year 2000		2001		2002	
	No.	Rate/1,000	No.	Rate/1,000	No.	Rate/1,000	No.	Rate/1,000	No.	Rate/1,000
Stillbirth	21	10.2	21	10.1	24	11.3	29	13.6	18	8.2
Neonatal death	11	5.3	8	3.8	13	6.1	10	4.7	6	2.7
TOTAL PERINATAL DEATHS	32	15.5	29	14.0	37	17.4	39	18.2	24	11.0

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. 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 1998 and 2002, about 20 per cent of mothers were born in non-English speaking countries (Table 54). The proportion of mothers born in Southern European countries continued to slowly decline, while the proportion of mothers in other groups remained fairly stable.

TABLE 54

CONFINEMENTS AND BIRTHS BY COUNTRY OF BIRTH GROUP, NSW 1998–2002

	1998		1999		Year 2000		2001		2002	
	No.	%								
Confinements										
English speaking	67971	79.9	68381	79.5	68105	78.8	67275	79.7	67268	79.5
Central & South America	683	0.8	725	0.8	708	0.8	697	0.8	739	0.9
Melanesia, Micronesia & Polynesia	1590	1.9	1540	1.8	1606	1.9	1544	1.8	1534	1.8
Southern Europe	1380	1.6	1337	1.6	1217	1.4	1129	1.3	1001	1.2
Western & Northern Europe	646	0.8	690	0.8	671	0.8	631	0.7	614	0.7
Eastern Europe, Russia, Central Asian & Baltic States	362	0.4	421	0.5	428	0.5	412	0.5	458	0.5
Middle East & Africa	3670	4.3	3579	4.2	3685	4.3	3688	4.4	3653	4.3
South East Asia	4157	4.9	4659	5.4	5085	5.9	4478	5.3	4557	5.4
North East Asia	3097	3.6	3225	3.8	3449	4.0	2965	3.5	2962	3.5
Southern Asia	1349	1.6	1398	1.6	1476	1.7	1535	1.8	1716	2.0
Other/Not stated	167	0.2	12	0.0	30	0.0	25	0.0	85	0.1
TOTAL	85072	100.0	85967	100.0	86460	100.0	84379	100.0	84587	100.0
Births										
English speaking	69008	80.0	69460	79.6	69300	78.8	68524	79.8	68449	79.6
Central & South America	689	0.8	730	0.8	716	0.8	707	0.8	755	0.9
Melanesia, Micronesia & Polynesia	1610	1.9	1555	1.8	1636	1.9	1567	1.8	1555	1.8
Southern Europe	1412	1.6	1361	1.6	1256	1.4	1153	1.3	1022	1.2
Western & Northern Europe	652	0.8	710	0.8	688	0.8	643	0.7	627	0.7
Eastern Europe, Russia, Central Asian & Baltic States	365	0.4	423	0.5	439	0.5	418	0.5	468	0.5
Middle East & Africa	3731	4.3	3644	4.2	3747	4.3	3758	4.4	3711	4.3
South East Asia	4181	4.8	4707	5.4	5127	5.8	4527	5.3	4595	5.3
North East Asia	3118	3.6	3266	3.7	3483	4.0	2982	3.5	3000	3.5
Southern Asia	1360	1.6	1420	1.6	1499	1.7	1554	1.8	1738	2.0
Other/Not stated	179	0.2	13	0.0	31	0.0	25	0.0	85	0.1
TOTAL	86305	100.0	87289	100.0	87922	100.0	85858	100.0	86005	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 born in Western and Northern Europe (33.9 per cent), and North East Asia (33.5 per cent).

TABLE 55

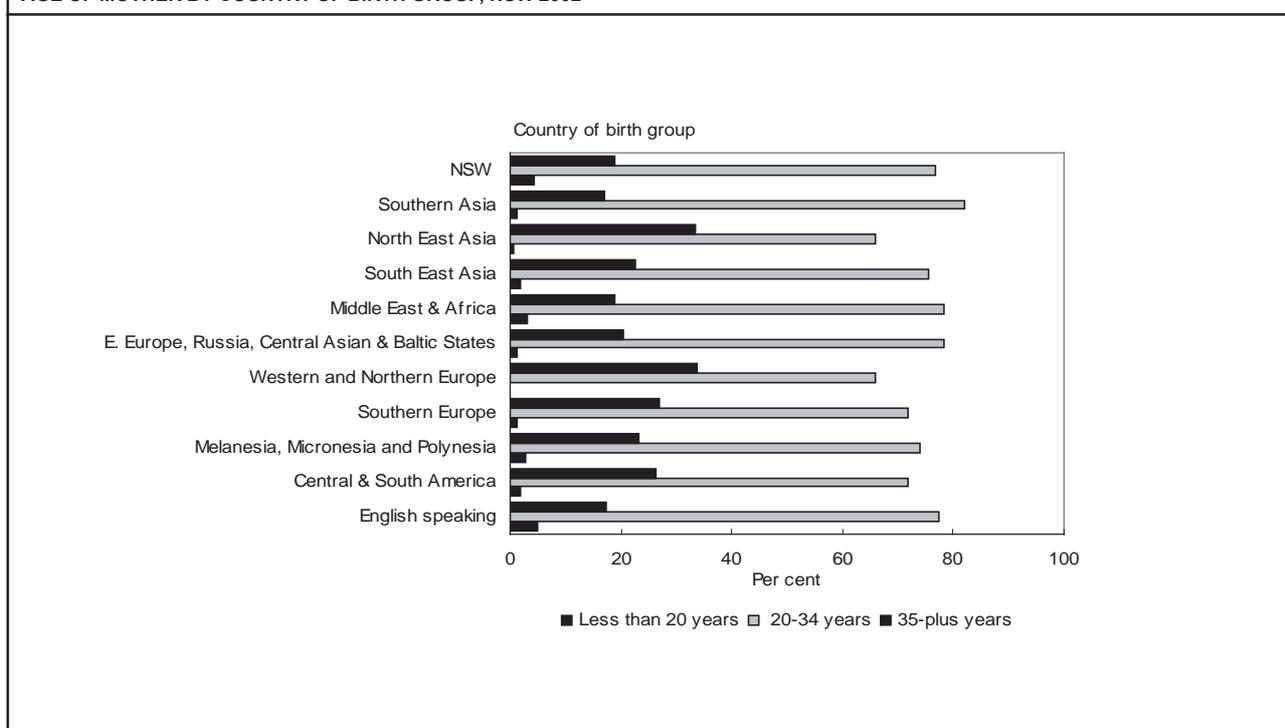
AGE OF MOTHER BY COUNTRY OF BIRTH GROUP, NSW 2002

Country of birth group	12-19		Maternal age (years)				Not stated		TOTAL	
	No.	%	No.	20-34 %	No.	35+ %	No.	%	No.	%
English speaking	3340	5.0	52149	77.5	11731	17.4	48	0.1	67268	100.0
Central & South America	14	1.9	530	71.7	195	26.4	0	0.0	739	100.0
Melanesia, Micronesia & Polynesia	44	2.9	1133	73.9	356	23.2	1	0.1	1534	100.0
Southern Europe	13	1.3	718	71.7	270	27.0	0	0.0	1001	100.0
Western & Northern Europe	2	0.3	404	65.8	208	33.9	0	0.0	614	100.0
Eastern Europe, Russia, Central Asian & Baltic States	6	1.3	358	78.2	94	20.5	0	0.0	458	100.0
Middle East & Africa	108	3.0	2858	78.2	686	18.8	1	0.0	3653	100.0
South East Asia	84	1.8	3441	75.5	1029	22.6	3	0.1	4557	100.0
North East Asia	18	0.6	1950	65.8	993	33.5	1	0.0	2962	100.0
Southern Asia	19	1.1	1405	81.9	290	16.9	2	0.1	1716	100.0
Other/Not stated	4	4.7	61	71.8	20	23.5	0	0.0	85	100.0
TOTAL	3652	4.3	65007	76.9	15872	18.8	56	0.1	84587	100.0

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

FIGURE 4

AGE OF MOTHER BY COUNTRY OF BIRTH GROUP, NSW 2002



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

Health area of residence

In 2002, the proportion of mothers born in non-English speaking countries was highest in the South Western Sydney Area (39.5 per cent), followed by Central Sydney and Western Sydney Areas (38.8 and 36.0 per cent respectively). Five per cent of mothers were born in South East Asian countries, 41.0 per cent of whom were resident in the South Western Sydney Area. Four per

cent of mothers were born in Middle Eastern or African countries and 65.1 per cent of these mothers were resident in the South Western or Western Sydney Areas. A further 3.5 per cent of mothers were born in North East Asian countries, the majority living in the Central Sydney, South Eastern Sydney, Northern Sydney or Western Sydney Areas (Table 56).

TABLE 56

HEALTH AREA OF RESIDENCE BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2002[#]

Health Area	Country of birth group																				TOTAL			
	English speaking		Central & South America		Melanesia & Micronesia & Polynesia		Southern Europe		Western & Northern Europe		Eastern Europe, Russia, Central Asian & Baltic States		Middle East & Africa		South East Asia		North East Asia		Southern Asia		Other- Not stated		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney	4014	61.0	84	1.3	200	3.0	146	2.2	57	0.9	56	0.9	496	7.5	602	9.2	659	10.0	258	3.9	7	0.1	6579	100.0
Northern Sydney	7352	79.4	80	0.9	106	1.1	78	0.8	173	1.9	76	0.8	223	2.4	367	4.0	608	6.6	190	2.1	5	0.1	9258	100.0
Western Sydney	7083	64.1	112	1.0	421	3.8	152	1.4	56	0.5	59	0.5	1054	9.5	803	7.3	625	5.7	680	6.2	6	0.1	11051	100.0
Wentworth South	4213	91.5	18	0.4	44	1.0	39	0.8	33	0.7	13	0.3	57	1.2	95	2.1	27	0.6	64	1.4	3	0.1	4606	100.0
Western Sydney	7568	60.4	254	2.0	504	4.0	303	2.4	57	0.5	79	0.6	1323	10.6	1869	14.9	312	2.5	243	1.9	14	0.1	12526	100.0
Central Coast	3390	95.2	13	0.4	13	0.4	6	0.2	25	0.7	6	0.2	15	0.4	58	1.6	22	0.6	11	0.3	1	0.0	3560	100.0
Hunter	6703	96.9	12	0.2	28	0.4	17	0.2	20	0.3	6	0.1	17	0.2	68	1.0	26	0.4	18	0.3	3	0.0	6918	100.0
Illawarra South	3975	91.8	33	0.8	24	0.6	90	2.1	22	0.5	10	0.2	46	1.1	80	1.8	33	0.8	16	0.4	0	0.0	4329	100.0
Eastern Sydney	7106	75.8	113	1.2	121	1.3	147	1.6	113	1.2	132	1.4	360	3.8	483	5.2	586	6.3	180	1.9	29	0.3	9370	100.0
Northern Rivers	2625	96.3	-	-	9	0.3	-	-	17	0.6	-	-	9	0.3	35	1.3	13	0.5	5	0.2	1	0.0	2725	100.0
Mid North Coast	2660	96.7	-	-	-	-	-	-	14	0.5	-	-	5	0.2	28	1.0	16	0.6	14	0.5	3	0.1	2752	100.0
New England	2222	98.1	-	-	-	-	-	-	-	-	-	-	0.2	16	0.7	6	0.3	-	-	1	0.0	0.0	2265	100.0
Macquarie	1458	98.1	-	-	-	-	-	-	-	-	-	-	7	0.5	-	-	-	-	7	0.5	1	0.1	1486	100.0
Mid Western	2048	97.6	-	-	-	-	-	-	6	-	5	0.2	7	0.3	7	0.3	6	0.3	5	0.2	1	0.0	2098	100.0
Far West	485	97.6	0	0.0	-	-	-	-	-	-	0	0.0	0	0.0	-	-	-	-	-	-	1	0.2	497	100.0
Greater Murray	2367	95.3	-	-	32	1.3	-	-	9	0.4	-	-	16	0.6	18	0.7	8	0.3	20	0.8	6	0.2	2484	100.0
Southern Other/	1440	97.0	-	-	8	0.5	7	0.5	6	0.4	-	-	7	0.5	5	0.3	5	0.3	-	-	2	0.1	1485	100.0
Not stated	559	93.5	3	0.5	5	0.8	1	0.2	1	0.2	1	0.2	7	1.2	15	2.5	4	0.7	1	0.2	1	0.2	598	100.0
TOTAL	67268	79.5	739	0.9	1534	1.8	1001	1.2	614	0.7	458	0.5	3653	4.3	4557	5.4	2962	3.5	1716	2.0	85	0.1	84587	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 five in a group where country of birth was reported.

Booking status

In 2002, 97.4 per cent of all mothers were booked at the hospital of birth. The lowest rate (94.0 per cent) was in mothers born in Melanesia, Micronesia and Polynesia. This compared with 97.2 per cent of mothers born in English speaking countries and over 98 per cent of mothers in other country of birth groups.

Duration of pregnancy at first antenatal visit

In 2002, 86.4 per cent of all mothers commenced antenatal care before 20 weeks gestation. There was some variation between country of birth groups, with 88.5 per cent of mothers born in English speaking countries commencing antenatal care before 20 weeks gestation, compared with 58.1 per cent of mothers born in Melanesia, Micronesia, and Polynesia, and 70.0 per cent of mothers born in the Middle East and Africa (Table 57).

TABLE 57

CONFINEMENTS BY COUNTRY OF BIRTH AND DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT, NSW 2002

Country of birth group	0-19		Duration of pregnancy at first antenatal visit (weeks)				TOTAL	
	No.	%	No.	%	No.	%	No.	%
English speaking	59499	88.5	7050	10.5	719	1.1	67268	100.0
Central & South America	625	84.6	112	15.2	2	0.3	739	100.0
Melanesia, Micronesia & Polynesia	892	58.1	602	39.2	40	2.6	1534	100.0
Southern Europe	890	88.9	106	10.6	5	0.5	1001	100.0
Western & Northern Europe	545	88.8	67	10.9	2	0.3	614	100.0
Eastern Europe, Russia,								
Central Asian & Baltic States	381	83.2	74	16.2	3	0.7	458	100.0
Middle East & Africa	2557	70.0	1078	29.5	18	0.5	3653	100.0
South East Asia	3774	82.8	745	16.3	38	0.8	4557	100.0
North East Asia	2443	82.5	507	17.1	12	0.4	2962	100.0
Southern Asia	1444	84.1	261	15.2	11	0.6	1716	100.0
Other/Not stated	66	77.6	12	14.1	7	8.2	85	100.0
TOTAL	73116	86.4	10614	12.5	857	1.0	84587	100.0

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

Smoking in pregnancy

In 2002, smoking at any time during pregnancy was far more common among mothers born in English speaking countries than mothers born in non-English speaking countries (Table 58). About one in five mothers born in English speaking countries smoked at some time during pregnancy, compared to less than one in 8 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

CONFINEMENTS BY COUNTRY OF BIRTH GROUP AND SMOKING IN PREGNANCY, NSW 2002

Country of birth group	No		Smoking in pregnancy				TOTAL	
	No.	%	No.	%	No.	%	No.	%
English speaking	54199	80.6	13059	19.4	10	0.0	67268	100.0
Central & South America	713	96.5	26	3.5	0	0.0	739	100.0
Melanesia, Micronesia & Polynesia	1390	90.6	143	9.3	1	0.1	1534	100.0
Southern Europe	886	88.5	115	11.5	0	0.0	1001	100.0
Western & Northern Europe	571	93.0	43	7.0	0	0.0	614	100.0
Eastern Europe, Russia,								
Central Asian & Baltic States	423	92.4	35	7.6	0	0.0	458	100.0
Middle East & Africa	3409	93.3	243	6.7	1	0.0	3653	100.0
South East Asia	4444	97.5	112	2.5	1	0.0	4557	100.0
North East Asia	2936	99.1	26	0.9	0	0.0	2962	100.0
Southern Asia	1702	99.2	14	0.8	0	0.0	1716	100.0
Other/Not stated	72	84.7	13	15.3	0	0.0	85	100.0
TOTAL	70745	83.6	13829	16.3	13	0.0	84587	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 2002

Country of birth group	Cigarettes smoked in the second half of pregnancy								TOTAL	
	None		More than ten per day		1–10 per day		Amount not stated			
	No.	%	No.	%	No.	%	No.	%	No.	%
English speaking	521	4.0	6111	46.8	6155	47.1	272	2.1	13059	100.0
Central & South America	1	3.8	9	34.6	16	61.5	0	0.0	26	100.0
Melanesia, Micronesia & Polynesia	4	2.8	41	28.7	97	67.8	1	0.7	143	100.0
Southern Europe	4	3.5	40	34.8	68	59.1	3	2.6	115	100.0
Western & Northern Europe	2	4.7	17	39.5	22	51.2	2	4.7	43	100.0
Eastern Europe, Russia, Central Asian & Baltic States	3	8.6	9	25.7	22	62.9	1	2.9	35	100.0
Middle East & Africa	3	1.2	88	36.2	148	60.9	4	1.6	243	100.0
South East Asia	9	8.0	24	21.4	76	67.9	3	2.7	112	100.0
North East Asia	4	15.4	3	11.5	19	73.1	0	0.0	26	100.0
Southern Asia	4	28.6	1	7.1	8	57.1	1	7.1	14	100.0
Other/Not stated	1	7.7	4	30.8	8	61.5	0	0.0	13	100.0
TOTAL	556	4.0	6347	45.9	6639	48.0	287	2.1	13829	100.0

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

Medical conditions and obstetric complications

In 2002, 1.5 per cent of mothers born in Melanesia, Micronesia, and Polynesia were reported to have diabetes mellitus, about three times 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 over nine per cent, and were more than twice the rate for all mothers in NSW.

Overall, 1.1 per cent of mothers were reported to have essential hypertension, and 5.7 per cent were reported to have pre-eclampsia. Rates of reported pre-eclampsia were lower among mothers born in Asian countries than other country of birth groups.

TABLE 60
CONFINEMENTS BY MATERNAL MEDICAL CONDITIONS AND OBSTETRIC COMPLICATIONS AND COUNTRY OF BIRTH GROUP, NSW 2002

Condition	Country of birth group																								TOTAL
	English speaking		Central & South America		Melanesia & Micronesia & Polynesia		Southern Europe		Western & Northern Europe		Eastern Europe, Russia, Central Asian & Baltic States		Middle East & Africa		South East		North East Asia		Southern Asia		Other/Not stated				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Diabetes mellitus	336	0.5	1	0.1	23	1.5	5	0.5	5	0.8	0	0.0	25	0.7	29	0.6	17	0.6	21	1.2	0	0.0	462	0.5	
Gestational diabetes	2088	3.1	47	6.4	149	9.7	74	7.4	12	2.0	22	4.8	279	7.6	447	9.8	372	12.6	202	11.8	1	1.2	3693	4.4	
Essential hypertension	804	1.2	4	0.5	25	1.6	8	0.8	5	0.8	5	1.1	27	0.7	25	0.5	21	0.7	14	0.8	2	2.4	940	1.1	
Pre-eclampsia	4087	6.1	47	6.4	101	6.6	50	5.0	32	5.2	30	6.6	149	4.1	172	3.8	97	3.3	68	4.0	6	7.1	4839	5.7	
TOTAL#	67268	100.0	739	100.0	1534	100.0	1001	100.0	614	100.0	458	100.0	3653	100.0	4557	100.0	2962	100.0	1716	100.0	85	100.0	84587	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 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 Central and South America (31.4 per cent) and Southern Asia (27.9 per cent).

TABLE 61

LABOUR ONSET BY COUNTRY OF BIRTH GROUP, NSW 2002

Country of birth group	Spontaneous		No labour [#]		Onset of labour Induced		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
English speaking	39761	59.1	9575	14.2	7921	26.6	11	0.0	67268	100.0
Central & South America	463	62.7	127	17.2	149	20.2	0	0.0	739	100.0
Melanesia, Micronesia & Polynesia	1040	67.8	190	12.4	304	19.8	0	0.0	1534	100.0
Southern Europe	640	63.9	137	13.7	224	22.4	0	0.0	1001	100.0
Western & Northern Europe	408	66.4	72	11.7	134	21.8	0	0.0	614	100.0
Eastern Europe, Russia, Central Asian & Baltic States	305	66.6	45	9.8	108	23.6	0	0.0	458	100.0
Middle East & Africa	2503	68.5	390	10.7	760	20.8	0	0.0	3653	100.0
South East Asia	3389	74.4	480	10.5	687	15.1	1	0.0	4557	100.0
North East Asia	1991	67.2	439	14.8	532	18.0	0	0.0	2962	100.0
Southern Asia	1127	65.7	250	14.6	339	19.8	0	0.0	1716	100.0
Other/Not stated	54	63.5	15	17.6	16	18.8	0	0.0	85	100.0
TOTAL	51681	61.1	11720	13.9	21174	25.0	12	0.0	84587	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 2002

Country of birth group	Normal vaginal		Forceps		Vacuum extraction		Type of delivery				Emergency caesarean section [#]		Not stated		TOTAL	
	No.	%	No.	%	No.	%	Vaginal breech	Elective caesarean section	Emergency caesarean section [#]	No.	%	No.	%	No.	%	
English speaking	42879	63.7	2391	3.6	4626	6.9	265	0.4	9575	14.2	7515	11.2	17	0.0	67268	100.0
Central & South America	432	58.5	13	1.8	60	8.1	2	0.3	127	17.2	105	14.2	0	0.0	739	100.0
Melanesia, Micronesia & Polynesia	1106	72.1	26	1.7	66	4.3	5	0.3	190	12.4	141	9.2	0	0.0	1534	100.0
Southern Europe	668	66.7	29	2.9	72	7.2	4	0.4	137	13.7	90	9.0	1	0.1	1001	100.0
Western & Northern Europe	379	61.7	24	3.9	65	10.6	3	0.5	72	11.7	71	11.6	0	0.0	614	100.0
Eastern Europe, Russia, Central Asian & Baltic States	303	66.2	26	5.7	33	7.2	4	0.9	45	9.8	47	10.3	0	0.0	458	100.0
Middle East & Africa	2691	73.7	99	2.7	176	4.8	18	0.5	390	10.7	279	7.6	0	0.0	3653	100.0
South East Asia	3009	66.0	166	3.6	375	8.2	26	0.6	480	10.5	500	11.0	1	0.0	4557	100.0
North East Asia	1756	59.3	150	5.1	254	8.6	15	0.5	439	14.8	348	11.7	0	0.0	2962	100.0
Southern Asia	998	58.2	107	6.2	122	7.1	11	0.6	250	14.6	228	13.3	0	0.0	1716	100.0
Other/Not stated	50	58.8	3	3.5	6	7.1	0	0.0	15	17.6	11	12.9	0	0.0	85	100.0
TOTAL	54271	64.2	3034	3.6	5855	6.9	353	0.4	11720	13.9	9335	11.0	19	0.0	84587	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.

Birthweight

The rate of low birthweight (less than 2,500 grams) in 2002 was 6.4 per cent in NSW. The highest rates of low birthweight were in babies of mothers born in Southern Asian countries (7.3 per cent) (Table 63). Babies of mothers born in Western and Northern Europe were least likely to be low birthweight.

TABLE 63

BIRTHWEIGHT BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2002

Country of birth group	Birthweight (grams)							
	Less than 2,500		2,500+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
English speaking	4436	6.5	63969	93.5	44	0.1	68449	100.0
Central & South America	48	6.4	706	93.5	1	0.1	755	100.0
Melanesia, Micronesia & Polynesia	125	8.0	1428	91.8	2	0.1	1555	100.0
Southern Europe	62	6.1	960	93.9	0	0.0	1022	100.0
Western & Northern Europe	30	4.8	597	95.2	0	0.0	627	100.0
Eastern Europe, Russia, Central Asian & Baltic States	26	5.6	441	94.2	1	0.2	468	100.0
Middle East & Africa	206	5.6	3504	94.4	1	0.0	3711	100.0
South East Asia	286	6.2	4308	93.8	1	0.0	4595	100.0
North East Asia	154	5.1	2846	94.9	0	0.0	3000	100.0
Southern Asia	127	7.3	1611	92.7	0	0.0	1738	100.0
Other/Not stated	7	8.2	78	91.8	0	0.0	85	100.0
TOTAL	5507	6.4	80448	93.5	50	0.1	86005	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 2002 was 7.1 per cent in NSW. The highest rates of prematurity were in babies of mothers born in Melanesia, Micronesia and Polynesia (8.4 per cent). Babies of mothers born in North East and Southern Asia were least likely to be premature (Table 64).

TABLE 64

GESTATIONAL AGE BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2002

Country of birth group	Gestational age (weeks)							
	Less than 37		37+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
English speaking	4992	7.3	63435	92.7	22	0.0	68449	100.0
Central & South America	44	5.8	711	94.2	0	0.0	755	100.0
Melanesia, Micronesia & Polynesia	130	8.4	1425	91.6	0	0.0	1555	100.0
Southern Europe	68	6.7	954	93.3	0	0.0	1022	100.0
Western & Northern Europe	41	6.5	586	93.5	0	0.0	627	100.0
Eastern Europe, Russia, Central Asian & Baltic States	33	7.1	435	92.9	0	0.0	468	100.0
Middle East & Africa	209	5.6	3502	94.4	0	0.0	3711	100.0
South East Asia	298	6.5	4297	93.5	0	0.0	4595	100.0
North East Asia	149	5.0	2851	95.0	0	0.0	3000	100.0
Southern Asia	97	5.6	1641	94.4	0	0.0	1738	100.0
Other/Not stated	10	11.8	75	88.2	0	0.0	85	100.0
TOTAL	6071	7.1	79912	92.9	22	0.0	86005	100.0

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

Apgar score

In 2002, 2.1 per cent of all babies (including stillborn babies) had an Apgar score of 7 or less at five minutes and 1.0 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 (2.8 per cent).

TABLE 65

BIRTHS BY COUNTRY OF BIRTH GROUP AND APGAR SCORE AT FIVE MINUTES, NSW 2002[#]

Country of birth group	0-4		Apgar score				Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
English speaking	711	1.0	724	1.1	66870	97.7	144	0.2	68449	100.0
Central & South America	7	0.9	5	0.7	742	98.3	1	0.1	755	100.0
Melanesia, Micronesia & Polynesia	23	1.5	20	1.3	1503	96.7	9	0.6	1555	100.0
Southern Europe	11	1.1	10	1.0	999	97.7	2	0.2	1022	100.0
Western & Northern Europe	1	0.2	2	0.3	622	99.2	2	0.3	627	100.0
Eastern Europe, Russia, Central Asian & Baltic States	8	1.7	4	0.9	456	97.4	0	0.0	468	100.0
Middle East & Africa	53	1.4	29	0.8	3622	97.6	7	0.2	3711	100.0
South East Asia	49	1.1	56	1.2	4483	97.6	7	0.2	4595	100.0
North East Asia	26	0.9	27	0.9	2944	98.1	3	0.1	3000	100.0
Southern Asia	12	0.7	13	0.7	1712	98.5	1	0.1	1738	100.0
Other/Not stated	1	1.2	3	3.5	80	94.1	1	1.2	85	100.0
TOTAL	902	1.0	893	1.0	84033	97.7	177	0.2	86005	100.0

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

Perinatal outcomes

In 2002, 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 ($n=597$, 79.8 per cent).

There were a further 45 deaths among babies of mothers born in the Middle East and Africa, and 35 deaths among babies of mothers born in South East Asia—comprising 6.0 and 4.7 per cent respectively of all perinatal deaths reported to the MDC.

TABLE 66

PERINATAL OUTCOMES BY COUNTRY OF BIRTH GROUP, NSW 2002[#]

Country of birth group	Liveborn surviving		Stillborn		Perinatal outcome Neonatal death		Not stated		Total births		Perinatal mortality rate/1,000 births
	No.	%	No.	%	No.	%	No.	%	No.	%	
English speaking	67820	99.1	410	0.6	187	0.3	32	0.0	68449	100.0	8.7
Central & South America	747	98.9	5	0.7	3	0.4	0	0.0	755	100.0	10.6
Melanesia, Micronesia & Polynesia	1540	99.0	13	0.8	2	0.1	0	0.0	1555	100.0	9.6
Southern Europe	1012	99.0	6	0.6	4	0.4	0	0.0	1022	100.0	9.8
Western & Northern Europe ^{##}	625	99.7	1	0.2	1	0.2	0	0.0	627	100.0	—
Eastern Europe, Russia, Central Asian & Baltic States	461	98.5	3	0.6	4	0.9	0	0.0	468	100.0	15.0
Middle East & Africa	3665	98.8	29	0.8	16	0.4	1	0.0	3711	100.0	12.1
South East Asia	4559	99.2	24	0.5	11	0.2	1	0.0	4595	100.0	7.6
North East Asia	2979	99.3	15	0.5	5	0.2	1	0.0	3000	100.0	6.7
Southern Asia	1729	99.5	9	0.5	0	0.0	0	0.0	1738	100.0	5.2
Other/Not stated	85	100.0	0	0.0	0	0.0	0	0.0	85	100.0	—
TOTAL	85222	99.1	515	0.6	233	0.3	35	0.0	86005	100.0	8.7

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.

^{##} Perinatal mortality rate not calculated for country of birth groups with less than five perinatal deaths.

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 2,003 infants registered in NICUS in 2002. The most common reasons for registration of an infant were assisted ventilation for four hours or more (66.2 per cent) and gestational age less than 29 weeks (18.5 per cent). Infants generally met more than one of the registration criteria.

The NICUS registration rate in 2002 was 22.2 per 1,000 livebirths, which has increased slightly each year since 1992 (17.9 per 1,000 live births). 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. The proportion of mothers in each health area has remained relatively constant since 1992.

Seventy-four of the 2,003 infants (3.7 per cent) registered in NICUS were born to Aboriginal or Torres Strait Islander mothers. There were 2,219 livebirths to Aboriginal or Torres Strait Islander women recorded by the NSW and ACT Midwives Data Collections for 2002. The registration rate for these infants was 33.3 per 1,000 livebirths and has increased since 1992. Seventy-two of the 1,851 mothers (3.9 per cent) were Aboriginal or Torres Strait Islander, of whom 31 (43.1 per cent) were residents of the Far West, Macquarie, Mid North Coast, Mid Western, New England and Northern Rivers Health Areas (Table 62). Fifteen of the 359 mothers (4.2 per cent) of infants less than 29 weeks and/or less than 1,000 grams were Aboriginal or Torres Strait Islander.

TABLE 67

NICUS REGISTRATIONS BY HEALTH AREA OF RESIDENCE, NSW & ACT 2002

Health Area	Total NICUS registrants		Total NSW & ACT live births No.	Registrants per 1,000 live births
	No.	%		
Central Sydney	134	6.7	6727	19.9
Northern Sydney	160	8.0	9462	16.9
South Eastern Sydney	195	9.7	9524	20.5
South Western Sydney	274	13.7	12916	21.2
Wentworth	90	4.5	4177	21.5
Western Sydney	229	11.4	11221	20.4
Central Coast	97	4.8	3621	26.8
Hunter	258	12.9	6994	36.9
Illawarra	95	4.7	4361	21.8
Far West	9	0.5	498	18.1
Greater Murray	58	2.9	2515	23.1
Macquarie	27	1.4	1472	18.3
Mid North Coast	70	3.5	2822	24.8
Mid Western	62	3.1	2159	28.7
New England	59	3.0	2289	25.8
Northern Rivers	8	0.4	2688	3.0
Southern	56	2.8	2041	27.4
ACT	104	5.2	4182	24.9
Interstate	12	0.6	510	23.5
Overseas	6	0.3	0	0.0
Not stated	0	0.0	47	0.0
TOTAL	2003	100.0	90226	22.2

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research. NSW Midwives Data Collection 2002. Centre for Epidemiology and Research, NSW Department of Health. ACT Maternal-Perinatal Data Collection, 2000.

Maternal characteristics

There were 1,851 mothers of the 2,003 infants registered in NICUS during 2002. Nearly 80 per cent of the mothers were residents of the Sydney, Central Coast, Hunter and Illawarra Health Areas (Table 68). 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 359 mothers of infants in this group just over half (58.5 per cent) were residents of the South Western Sydney, Western Sydney, Hunter, Northern Sydney or Central Sydney Health Areas.

The age of mothers of NICUS infants ranged from 14 to 48 years, with a mean age of 29.6 years. The mean maternal age was similar across all gestational age groups and has remained constant since 1992. In 2002, 21.1 per cent of mothers were aged 35 years or more (range 13.7 per cent in 1992 to 21.1 per cent in 2002). In 2002, 5.0 per cent of mothers were aged less than 20 years (range 5.0 per cent in 1999 to 6.8 per cent in 2000) (Table 69). The health areas of residence with the highest proportion

of teenage mothers were Far West, Macquarie, Mid North Coast, New England and Northern Rivers.

There were 1,662 mothers (89.8 per cent) who had an antenatal complication. The most common antenatal complications were preterm labour (49.4 per cent), antepartum haemorrhage (19.2 per cent), fetal distress (20.5 per cent) and pregnancy induced hypertension (16.2 per cent). Antenatal complications were more frequent in mothers delivering at less than 37 weeks compared with at term. Even so, 61.4 per cent of mothers giving birth at term had an antenatal complication (Table 70).

Administration of corticosteroids to the mother prior to preterm birth improves the outcome for the infant. In 2002, 89.1 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.

Continued on page 61

TABLE 68

MOTHERS OF NICUS REGISTRANTS BY HEALTH AREA OF RESIDENCE AND ABORIGINALITY, NSW & ACT 2002

Health Area	Non-Aboriginal		Aboriginal		TOTAL	
	No.	%	No.	%	No.	%
Central Sydney	119	97.5	3	2.5	122	6.6
Northern Sydney	145	100.0	0	0.0	145	7.8
South Eastern Sydney	176	97.8	4	2.2	180	9.7
South Western Sydney	253	99.2	2	0.8	255	13.8
Wentworth	83	96.5	3	3.5	86	4.6
Western Sydney	208	99.0	2	1.0	210	11.3
Central Coast	86	96.6	3	3.4	89	4.8
Hunter	230	95.8	10	4.2	240	13.0
Illawarra	82	93.2	6	6.8	88	4.8
Far West	4	50.0	4	50.0	8	0.4
Greater Murray	50	94.3	3	5.7	53	2.9
Macquarie	23	88.5	3	11.5	26	1.4
Mid North Coast	60	89.6	7	10.4	67	3.6
Mid Western	50	86.2	8	13.8	58	3.1
New England	45	84.9	8	15.1	53	2.9
Northern Rivers	7	87.5	1	12.5	8	0.4
Southern	48	92.3	4	7.7	52	2.8
ACT	95	100.0	0	0.0	95	5.1
Interstate	9	90.0	1	10.0	10	0.5
Overseas	6	100.0	0	0.0	6	0.3
TOTAL	1779	96.1	72	3.9	1851	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 2002**

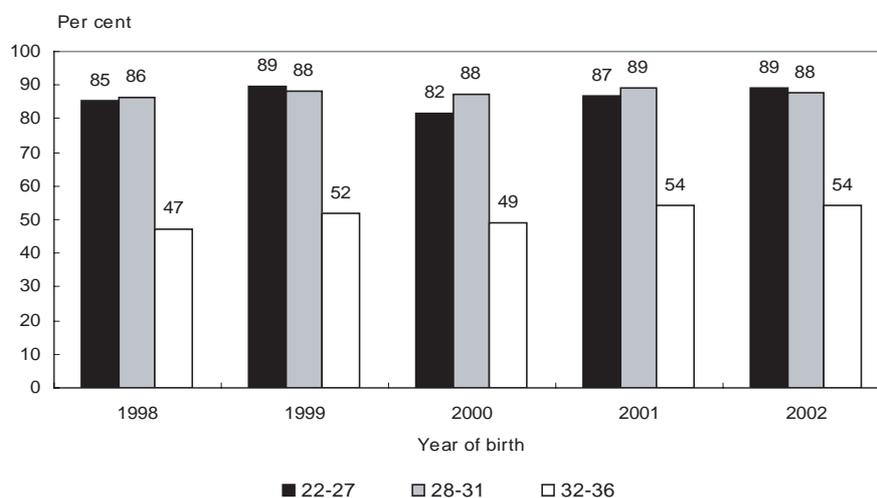
Health Area	Maternal age (years)						TOTAL	
	Less than 20		20-34		35+			
	No.	%	No.	%	No.	%	No.	%
Central Sydney	2	1.6	75	61.5	45	36.9	122	6.6
Northern Sydney	4	2.8	91	62.8	50	34.5	145	7.8
South Eastern Sydney	3	1.7	128	71.1	49	27.2	180	9.7
South Western Sydney	18	7.1	190	74.5	47	18.4	255	13.8
Wentworth	2	2.3	72	83.7	12	14.0	86	4.6
Western Sydney	6	2.9	153	72.9	51	24.3	210	11.3
Central Coast	6	6.7	67	75.3	16	18.0	89	4.8
Hunter	15	6.3	183	76.3	42	17.5	240	13.0
Illawarra	4	4.5	74	84.1	10	11.4	88	4.8
Far West	1	12.5	7	87.5	0	0.0	8	0.4
Greater Murray	1	1.9	43	81.1	9	17.0	53	2.9
Macquarie	4	15.4	18	69.2	4	15.4	26	1.4
Mid North Coast	8	11.9	49	73.1	10	14.9	67	3.6
Mid Western	4	6.9	46	79.3	8	13.8	58	3.1
New England	6	11.3	43	81.1	4	7.5	53	2.9
Northern Rivers	1	12.5	5	62.5	2	25.0	8	0.4
Southern	5	9.6	40	76.9	7	13.5	52	2.8
ACT	1	1.1	73	76.8	21	22.1	95	5.1
Interstate	1	10.0	7	70.0	2	20.0	10	0.5
Overseas	1	16.7	3	50.0	2	33.3	6	0.3
TOTAL	93	5.0	1367	73.9	391	21.1	1851	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 2002**

Antenatal complication	Gestational age (weeks)										TOTAL	
	22-27		28-31		32-36		37-41		42+			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Preterm labour	194	78.2	340	66.4	370	60.8	10	2.1	0	0.0	914	49.4
Antenatal fetal distress	39	15.7	80	15.6	105	17.2	123	25.9	2	25.0	349	18.9
Antepartum haemorrhage	76	30.6	146	28.5	111	18.2	22	4.6	0	0.0	355	19.2
Pregnancy induced hypertension	32	12.9	100	19.5	124	20.4	43	9.1	0	0.0	299	16.2
Intrauterine growth restriction	20	8.1	73	14.3	81	13.3	26	5.5	0	0.0	200	10.8
Chorioamnionitis	55	22.2	62	12.1	22	3.6	4	0.8	0	0.0	143	7.7
Antenatal fetal anomaly diagnosis	2	0.8	11	2.1	37	6.1	69	14.6	1	12.5	120	6.5
Gestational diabetes	7	2.8	23	4.5	39	6.4	23	4.9	0	0.0	92	5.0
Any complication	248	100.0	512	100.0	606	99.5	292	61.6	4	50.0	1662	89.8
TOTAL MOTHERS	248	100.0	512	100.0	609	100.0	474	100.0	8	100.0	1851	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 1998–2002**

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 1998–2002**

Year	Corticosteroid administration	Gestational age (weeks)						TOTAL	
		22–27		28–31		32–36		No.	%
		No.	%	No.	%	No.	%	No.	%
1998	No	37	14.7	70	13.6	274	52.9	381	29.7
	Yes	214	85.3	444	86.4	244	47.1	902	70.3
	TOTAL	251	100.0	514	100.0	518	100.0	1283	100.0
1999	No	27	10.6	57	12.0	273	47.9	357	27.4
	Yes	228	89.4	419	88.0	297	52.1	944	72.6
	TOTAL	255	100.0	476	100.0	570	100.0	1301	100.0
2000	No	45	18.5	64	12.5	287	50.9	396	30.0
	Yes	198	81.5	448	87.5	277	49.1	923	70.0
	TOTAL	243	100.0	512	100.0	564	100.0	1319	100.0
2001	No	33	13.3	57	10.7	260	45.5	350	25.9
	Yes	215	86.7	475	89.3	310	54.5	1000	74.1
	TOTAL	248	100.0	532	100.0	570	100.0	1350	100.0
2002	No	27	10.9	63	12.3	279	45.8	369	27.0
	Yes	221	89.1	449	87.7	330	54.2	1000	73.0
	TOTAL	248	100.0	512	100.0	609	100.0	1369	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-one per cent of all births were booked at a tertiary centre, ranging from 34.4 per cent for the 28–31 week gestational age group to 25.3 per cent for the 37-plus weeks gestational age group (Table 72). Maternal transfer was most common at gestations less than 32 weeks. The rate of maternal transfer was similar for infants born before 28 weeks gestation (63.7 per cent) and for those born at 28–31 weeks gestation (55.3 per cent). The overall rate of maternal transfer was 36.5 per cent.

Thirty-one per cent of infants were transferred to a tertiary centre following birth. There were 4.3 per cent (87/2,003) 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 (68.9 per cent). Forty-seven infants (47/1,121; 4.2 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 74.7 per cent 2000. In 2002, 89.9 per cent of infants less than 32 weeks gestation were born in a tertiary centre

compared with 67.0 per cent of 32–36 week gestation infants and 44.2 per cent of term infants.

The pattern of transfer status (Table 74) and place of birth by birthweight (Table 75) is similar to that of gestational age, with the majority (89.8 per cent) of the very low birthweight 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 just over half (55.2 per cent) of all infants less than 2,500 grams birthweight (Table 77). As expected, augmentation, or induction of labour was most common in mothers of infants with a birthweight of 2,500 grams or more (29.2 per cent).

Prolonged rupture of membranes (greater than 24 hours) was more common at lower gestations, affecting 28.4 per cent of infants less than 28 weeks gestation (Table 78).

The proportion of mothers who gave birth by elective caesarean section (caesarean section without labour) increased from 27.0 per cent in 1992 to 34.4 per cent in 2002 (Table 79). The most common type of delivery was caesarean section (45.8 per cent in 1993 to 54.9 per cent in 2002), followed by normal vaginal delivery (41.9 per cent in 1993 to 36.4 per cent in 2002) and vaginal breech delivery (7.0 per cent in 1998 to 4.2 per cent in 2002) (Table 80). 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 37.8 per cent, compared with 24.2 per cent for all livebirths in NSW in 2002.

Continued on page 64

TABLE 72

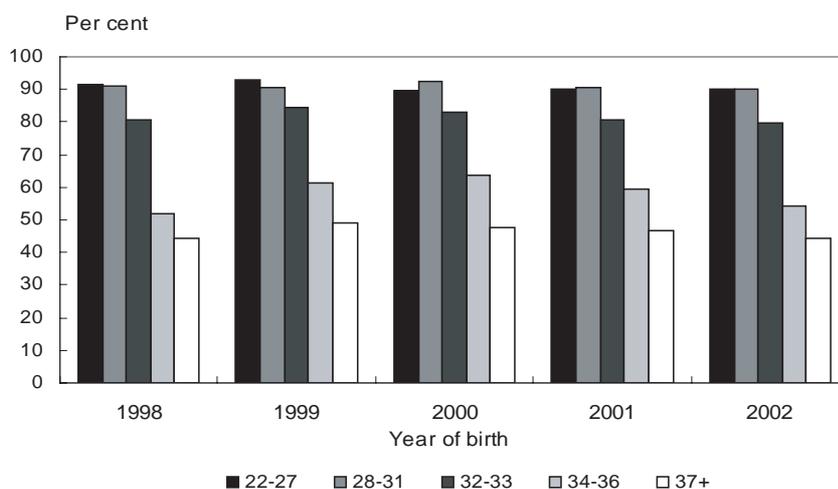
NICUS REGISTRANTS BY BOOKING STATUS, TRANSFER STATUS AND GESTATIONAL AGE, NSW & ACT 2002

Booking status and transfer status	Gestational age (weeks)										TOTAL	
	22–27		28–31		32–36		37–41		42+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Booked at tertiary hospital	73	26.3	208	34.4	214	33.5	120	25.3	2	25.0	617	30.8
Transfer before birth	177	63.7	334	55.3	199	31.1	22	4.6	0	0.0	732	36.5
Transfer after birth	27	9.7	59	9.8	198	31.0	326	68.8	6	75.0	616	30.8
Booked at non tertiary hosp.	1	0.4	3	0.5	28	4.4	6	1.3	0	0.0	38	1.9
TOTAL	278	100.0	604	100.0	639	100.0	474	100.0	8	100.0	2003	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 1998–2002



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 2002

Place of birth	Gestational age (weeks)										TOTAL	
	22–27		28–31		32–33		34–36		37+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Level 1–4	19	6.8	37#	6.1	41	12.9	109	34.1	215	44.6	421	21.0
Level 5	6	2.2	23#	3.8	22	6.9	34	10.6	50	10.4	135	6.7
Level 6	250	89.9	543#	89.9	254	79.6	174	54.4	213	44.2	1434	71.6
Planned home birth	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	1	0.1
Born before arrival	3	1.1	1#	0.2	2	0.6	3	0.9	3	0.6	12	0.6
TOTAL	278	100.0	604	100.0	319	100.0	320	100.0	482	100.0	2003	100.0

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

44/61 (72.1%) babies not born in a level six hospital were 30–31 weeks gestation.
354/543 (65.2%) babies born in a level six hospital were 30–31 weeks gestation.

TABLE 74

NICUS REGISTRANTS BY BOOKING STATUS, TRANSFER STATUS AND BIRTHWEIGHT, NSW & ACT 2002

Booking status and transfer status	Birthweight (grams)								TOTAL	
	Less than 1,000		1,000–1,499		1,500–2,499		2,500+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
Booked at tertiary hospital	79	28.1	159	35.8	210	31.7	169	27.4	617	30.8
Transfer before birth	183	65.1	229	51.6	275	41.5	45	7.3	732	36.5
Transfer after birth	18	6.4	49	11.0	159	24.0	390	63.3	616	30.8
Booked at non tertiary hospital	1	0.4	7	1.6	18	2.7	12	1.9	38	1.9
TOTAL	281	100.0	444	100.0	662	100.0	616	100.0	2003	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 BIRTHWEIGHT, NSW & ACT 2002**

Place of birth	Birthweight (grams)									
	Less than 1,000		1,000–1,499		1,500–2,499		2,500+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Level 1–4	12	4.3	28	6.4	111	16.8	270	43.8	421	21.0
Level 5	6	2.1	22	5.0	44	6.6	63	10.2	135	6.7
Level 6	262	93.2	389	87.6	504	76.1	279	45.3	1434	71.6
Planned home birth	0	0.0	0	0.0	0	0.0	1	0.2	1	0.1
Born before arrival	1	0.4	5	1.1	3	0.5	3	0.5	12	0.6
TOTAL	281	100.0	444	100.0	662	100.0	616	100.0	2003	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 2002**

Onset of labour	Gestational age (weeks)											
	22–27		28–31		32–36		37–41		42+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Spontaneous	172	69.4	291	56.8	287	47.1	215	45.4	1	12.5	966	52.2
Augmented	6	2.4	14	2.7	25	4.1	41	8.6	1	12.5	87	4.7
Induced	5	2.0	7	1.4	41	6.7	121	25.5	6	75.0	180	9.7
No labour	65	26.2	200	39.1	256	42.0	97	20.5	0	0.0	618	33.4
TOTAL	248	100.0	512	100.0	609	100.0	474	100.0	8	100.0	1851	100.0

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

TABLE 77**MOTHERS OF NICUS REGISTRANTS BY ONSET OF LABOUR AND BIRTHWEIGHT, NSW & ACT 2002**

Onset of labour	Birthweight (grams)									
	Less than 1,000		1,000–1,499		1,500–2,499		2,500+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Spontaneous	135	54.7	204	53.0	345	56.8	282	46.1	966	52.2
Augmented	5	2.0	9	2.3	24	4.0	49	8.0	87	4.7
Induced	3	1.2	12	3.1	35	5.8	130	21.2	180	9.7
No labour	104	42.1	160	41.6	203	33.4	151	24.7	618	33.4
TOTAL	247	100.0	385	100.0	607	100.0	612	100.0	1851	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 2002**

Duration of rupture of membranes	Gestational age (weeks)											
	22–27		28–31		32–36		37–41		42+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 24 hours	199	71.6	465	77.0	562	87.9	449	94.7	8	100.0	1683	84.0
24 hours–7 days	34	12.2	82	13.6	56	8.8	22	4.6	0	0.0	194	9.7
8+ days	45	16.2	57	9.4	21	3.3	3	0.6	0	0.0	126	6.3
TOTAL	278	100.0	604	100.0	639	100.0	474	100.0	8	100.0	2003	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 2002**

Type of delivery	Gestational age (weeks)											
	22–27		28–31		32–36		37–41		42+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Normal vaginal	100	36.0	197	32.6	190	29.7	241	50.8	2	25.0	730	36.4
Forceps	6	2.2	10	1.7	7	1.1	19	4.0	1	12.5	43	2.1
Forceps rotation	0	0.0	1	0.2	0	0.0	2	0.4	0	0.0	3	0.1
Vacuum extraction	0	0.0	3	0.5	7	1.1	31	6.5	1	12.5	42	2.1
Vaginal breech	32	11.5	23	3.8	26	4.1	3	0.6	0	0.0	84	4.2
Elective Caesarean	74	26.6	238	39.4	273	42.7	104	21.9	1	12.5	690	34.4
Emergency Caesarean	66	23.7	132	21.9	136	21.3	74	15.6	3	37.5	411	20.5
TOTAL	278	100.0	604	100.0	639	100.0	474	100.0	8	100.0	2003	100.0

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

TABLE 80**NICUS REGISTRANTS BY TYPE OF DELIVERY AND BIRTHWEIGHT, NSW & ACT 2002**

Type of delivery	Birthweight (grams)								TOTAL	
	Less than 1,000		1,000–1,499		1,500–2,499		2,500+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal vaginal	76	27.0	127	28.6	242	36.6	285	46.3	730	36.4
Forceps	5	1.8	5	1.1	15	2.3	18	2.9	43	2.1
Forceps rotation	0	0.0	0	0.0	1	0.2	2	0.3	3	0.1
Vacuum extraction	0	0.0	0	0.0	7	1.1	35	5.7	42	2.1
Vaginal breech	29	10.3	20	4.5	28	4.2	7	1.1	84	4.2
Elective Caesarean	118	42.0	188	42.3	224	33.8	160	26.0	690	34.4
Emergency Caesarean	53	18.9	104	23.4	145	21.9	109	17.7	411	20.5
TOTAL	281	100.0	444	100.0	662	100.0	616	100.0	2003	100.0

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

(Continued from page 61)

Infant characteristics

Nearly three quarters of the infants (75.9 per cent) were preterm (less than 37 weeks gestation), 44.0 per cent were very preterm (less than 32 weeks gestation) and 13.9 per cent were extremely preterm (less than 28 weeks gestation) (Figure 7). The proportion of infants in each gestational age group has remained constant (Table 81). Almost all liveborn infants at 24–31 weeks gestation were admitted to a NICU, about two-thirds at 31–32 weeks gestation, and one-fifth at 33–34 weeks gestation (Table 82).

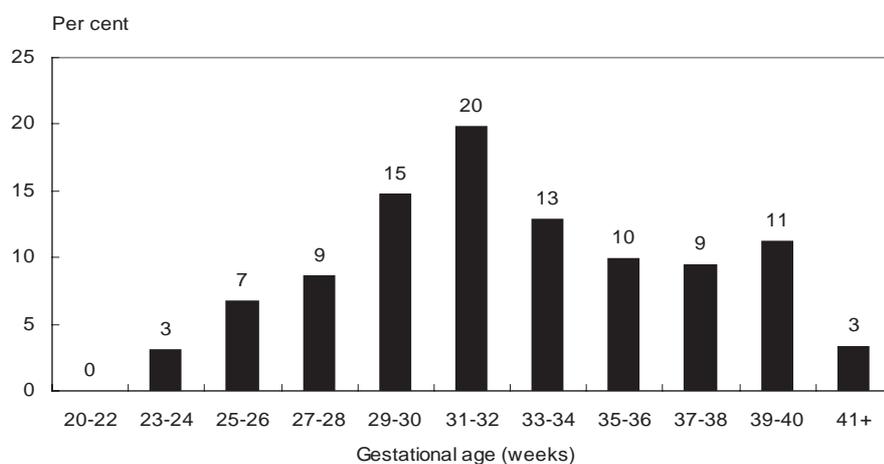
Seventy per cent of infants had a low birthweight (less than 2,500 grams), 36.2 per cent had a very low birthweight (less than 1,500 grams) and 14.0 per cent had an extremely low birthweight (less than 1,000 grams).

The proportion of infants in each birthweight group has remained constant (Table 83). Almost all liveborn infants 600–1500 grams birthweight were admitted to a NICU (Table 84).

Overall, 56.9 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 20.9 per cent in 1992 to 16.5 per cent in 2002. Congenital anomalies were more common among term infants (37-plus weeks gestational age), of whom 40.7 per cent had a major congenital anomaly and 4.6 per cent had a minor congenital anomaly (Table 86).

Continued on page 68

FIGURE 7**NICUS REGISTRANTS BY GESTATIONAL AGE, NSW & ACT 2002**

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

TABLE 81**NICUS REGISTRANTS BY GESTATIONAL AGE, NSW & ACT 1998-2002**

Gestational age (weeks)	1998		1999		Year of birth 2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
22-27	287	15.1	290	14.6	275	13.7	275	13.7	278	13.9
28-31	589	31.0	551	27.7	605	30.2	643	32.0	604	30.2
32-36	536	28.2	623	31.3	601	30.0	611	30.4	639	31.9
37-41	479	25.2	512	25.7	512	25.6	472	23.5	474	23.7
42+	8	0.4	16	0.8	10	0.5	9	0.4	8	0.4
TOTAL	1899	100.0	1992	100.0	2003	100.0	2010	100.0	2003	100.0

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

TABLE 82**BIRTHS BY NICUS REGISTRATION AND GESTATIONAL AGE, NSW & ACT 2002**

Gestational age (weeks)	NSW & ACT			NICUS Rate per 1,000 live births	% of cohort
	Stillbirths No.	Live births No.	Registrations No.		
Less than 21	46	6	0	0.0	0.0
21	59	18	0	0.0	0.0
22	49	26	1	38.5	0.1
23	42	25	14	560.0	0.7
24	30	59	48	813.6	2.4
25	17	61	59	967.2	3.0
26	27	72	76	1055.6	3.8
27	17	91	80	879.1	4.0
28	20	93	93	1000.0	4.6
29	10	105	113	1076.2	5.6
30	8	185	183	989.2	9.1
31	16	226	215	951.3	10.7
32	14	317	183	577.3	9.1
33	11	480	136	283.3	6.8
34	20	798	121	151.6	6.0
35	17	1195	111	92.9	5.5
36	20	2323	88	37.9	4.4
37	22	4875	89	18.3	4.4
38	29	13810	101	7.3	5.0
39	26	20547	91	4.4	4.5
40	31	27546	134	4.9	6.7
41	20	15183	59	3.9	3.0
42	2	2003	8	4.0	0.4
43	0	157	0	0.0	0.0
44	0	1	0	0.0	0.0
Not stated	0	24	0	0.0	0.0
TOTAL	553	90226	2003	22.2	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research, 2002. NSW Midwives Data Collection 2002. Centre for Epidemiology and Research, NSW Department of Health. ACT Maternal-Perinatal Data Collection, 2000.

TABLE 83**NICUS REGISTRANTS BY BIRTHWEIGHT, NSW & ACT 1998-2002**

Birthweight (grams)	Year of birth									
	1998		1999		2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 400	0	0.0	3	0.2	1	0.1	2	0.1	1	0.1
400-499	6	0.3	9	0.5	6	0.3	5	0.2	7	0.3
500-599	23	1.2	25	1.3	21	1.0	30	1.5	21	1.0
600-699	43	2.3	51	2.6	56	2.8	49	2.4	51	2.5
700-799	62	3.3	62	3.1	62	3.1	49	2.4	63	3.1
800-899	65	3.4	75	3.8	53	2.6	72	3.6	57	2.8
900-999	85	4.5	58	2.9	84	4.2	63	3.1	81	4.0
1,000-1,249	207	10.9	210	10.5	211	10.5	219	10.9	181	9.0
1,250-1,499	238	12.5	247	12.4	280	14.0	274	13.6	263	13.1
1,500-1,749	205	10.8	207	10.4	203	10.1	231	11.5	228	11.4
1,750-1,999	143	7.5	151	7.6	144	7.2	160	8.0	163	8.1
2,000-2,499	221	11.6	242	12.1	253	12.6	251	12.5	271	13.5
2,500-2,999	198	10.4	211	10.6	201	10.0	215	10.7	204	10.2
3,000-3,499	214	11.3	205	10.3	200	10.0	195	9.7	195	9.7
3,500-3,999	128	6.7	153	7.7	149	7.4	132	6.6	155	7.7
4,000+	61	3.2	83	4.2	79	3.9	63	3.1	62	3.1
TOTAL	1899	100.0	1992	100.0	2003	100.0	2010	100.0	2003	100.0

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

TABLE 84**BIRTHS BY NICUS REGISTRATION AND BIRTHWEIGHT, NSW & ACT 2002**

Birthweight (grams)	NSW & ACT		Registrations No.	NICUS Rate per 1,000 live births	% of cohort
	Stillbirths No.	Live births No.			
Less than 400	125	56	1	17.9	0.1
400-499	71	28	7	250.0	0.4
500-599	47	45	21	466.7	1.1
600-699	30	62	51	822.6	2.6
700-799	13	66	63	954.5	3.2
800-899	21	62	57	919.4	2.9
900-999	10	79	81	1025.3	4.0
1,000-1,249	20	189	181	957.7	9.0
1,250-1,499	14	284	263	926.1	13.1
1,500-1,749	20	441	228	517.0	11.4
1,750-1,999	23	685	163	238.0	8.1
2,000-2,499	36	3494	271	77.6	13.5
2,500-2,999	52	13389	204	15.2	10.2
3,000-3,499	34	32092	195	6.1	9.7
3,500-3,999	27	28182	155	5.5	7.7
4,000+	10	11072	62	5.6	3.1
TOTAL	553	90226	2003	22.2	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research, 2002. NSW Midwives Data Collection 2002. Centre for Epidemiology and Research, NSW Department of Health. ACT Maternal-Perinatal Data Collection, 2000.

TABLE 85**NICUS REGISTRANTS BY GENDER AND GESTATIONAL AGE, NSW & ACT 2002**

Sex	Gestational age (weeks)										TOTAL	
	22-27		28-31		32-36		37-41		42+			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Male	157	56.5	310	51.3	389	60.9	277	58.4	6	75.0	1139	56.9
Female	121	43.5	294	48.7	250	39.1	197	41.6	2	25.0	864	43.1
TOTAL	278	100.0	604	100.0	639	100.0	474	100.0	8	100.0	2003	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 2002**

Congenital anomaly	Gestational age (weeks)										TOTAL	
	22-27		28-31		32-36		37-41		42+			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
None	256	92.1	540	89.4	540	84.5	260	54.9	4	50.0	1600	79.9
Minor	12	4.3	17	2.8	21	3.3	22	4.6	0	0.0	72	3.6
Major	10	3.6	47	7.8	78	12.2	192	40.5	4	50.0	331	16.5
TOTAL	278	100.0	604	100.0	639	100.0	474	100.0	8	100.0	2003	100.0

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

(Continued from page 64)

The overall proportion of infants born following a multiple pregnancy was 20.4 per cent in 2002 (range 14.5 per cent in 1993 to 22.4 per cent in 2001). In 2002, most of the infants (79.6 per cent) were from a singleton pregnancy, 18.9 per cent were from a twin pregnancy and 1.5 per cent were from a triplet pregnancy. Infants born as a result of a multiple gestation were more likely to be preterm, with 26.0 per cent of infants less than 37 weeks gestation being from a multiple gestation pregnancy (Table 87). Multiple births represented 3.2 per cent of all NSW livebirths in 2002. The higher than expected rate of multiple births among the 2002 NICUS cohort reflects the high proportion of multiple pregnancies resulting in preterm birth.

Table 88 shows the median, 25th and 75th percentiles for one- and five-minute Apgar scores according to gestational age groups. For infants 28–36 weeks gestational age, the median one-minute Apgar score was eight. The median five-minute score was nine for all gestational age groups. The proportion of infants with a one-minute Apgar score of 0–4 has decreased from 38.7 per cent in 1992 to 23.6 per cent in 2002. Similarly the proportion of infants with a five-minute Apgar score of 0–4 has decreased from 10.8 per cent in 1992 to 6.9 per cent in 2002 (Table 89).

Infants with major congenital anomalies ($n=331$) were excluded from the analysis of morbidity and mortality.

The majority of infants without a major congenital anomaly (1,525/1,672; 91.2 per cent) in the 2002 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 9). 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 (Table 91).

Proven systemic infection has decreased from 22.0 per cent in 1992 to 13.3 per cent of infants in 2002. Infection was most common among infants less than 28 weeks gestation (41.0 per cent) (Table 92).

The overall proportion of ventilated infants who received surfactant was 37.3 in 2002 (range 33.8 per cent in 1992 to 51.8 per cent in 1998) (Table 93). In 2002, 52.9 per cent of the infants who received surfactant were less than 32 weeks gestational age. The majority (55.7 per cent) of ventilated infants with a diagnosis of respiratory distress syndrome received surfactant.

Overall, the incidence of treated patent ductus arteriosus (PDA) was 15.1 per cent in 2002 (range 10.9 in 1994 to 15.4 per cent in 2000). In 2002, 95.2 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 (13.7 per cent). Surgical treatment of PDA was predominantly performed on infants less than 28 weeks gestation (5.2 per cent).

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TABLE 87

NICUS REGISTRANTS BY PLURALITY AND GESTATIONAL AGE, NSW & ACT 2002

Plurality	Gestational age (weeks)										TOTAL	
	22–27		28–31		32–36		37–41		42+			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Singleton	206	74.1	422	69.9	497	77.8	462	97.5	8	100.0	1595	79.6
Twins	72	25.9	158	26.2	136	21.3	12	2.5	0	0.0	378	18.9
Triplets	0	0.0	24	4.0	6	0.9	0	0.0	0	0.0	30	1.5
TOTAL	278	100.0	604	100.0	639	100.0	474	100.0	8	100.0	2003	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 2002**

Apgar Score	Gestational age (weeks)							
	22-27 Median (25%,75%)		28-31 Median (25%,75%)		32-36 Median (25%,75%)		37+ Median (25%,75%)	
One-minute Apgar	5	(3,7)	7	(5,8)	7	(5,9)	7	(4,9)
Five-minute Apgar	8	(7,9)	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 FIVE MINUTES, NSW & ACT 1998-2002**

Apgar Score	Year of birth									
	1998		1999		2000		2001		2002	
	No.	%	No.	%	No.	%	No.	%	No.	%
One minute										
0-4	533	28.1	531	26.7	509	25.4	516	25.7	472	23.6
5-7	693	36.5	689	34.6	743	37.1	745	37.1	686	34.2
8+	657	34.6	766	38.5	737	36.8	734	36.5	828	41.3
Not stated	16	0.8	6	0.3	14	0.7	15	0.7	17	0.8
TOTAL	1899	100.0	1992	100.0	2003	100.0	2010	100.0	2003	100.0
Five minutes										
0-4	142	7.5	132	6.6	154	7.7	143	7.1	139	6.9
5-7	412	21.7	437	21.9	399	19.9	425	21.1	391	19.5
8+	1329	70.0	1417	71.1	1437	71.7	1429	71.1	1461	72.9
Not stated	16	0.8	6	0.3	13	0.6	13	0.6	12	0.6
TOTAL	1899	100.0	1992	100.0	2003	100.0	2010	100.0	2003	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 1998-2002#**

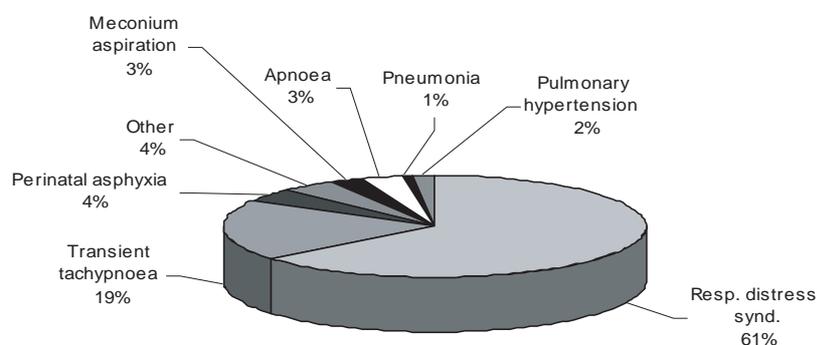
Year	Assisted ventilation	Gestational age (weeks)									
		22-27		28-31		32-36		37+		TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	%
1998	No	2	0.7	99	17.6	48	10.4	7	2.6	156	9.9
	Yes	278	99.3	465	82.4	415	89.6	264	97.4	1422	90.1
	TOTAL	280	100.0	564	100.0	463	100.0	271	100.0	1578	100.0
1999	No	1	0.4	119	22.7	60	11.5	9	3.0	189	11.6
	Yes	280	99.6	405	77.3	464	88.5	291	97.0	1440	88.4
	TOTAL	281	100.0	524	100.0	524	100.0	300	100.0	1629	100.0
2000	No	1	0.4	116	20.4	65	12.4	6	1.9	188	11.3
	Yes	261	99.6	454	79.6	461	87.6	305	98.1	1481	88.7
	TOTAL	262	100.0	570	100.0	526	100.0	311	100.0	1669	100.0
2001	No	2	0.8	127	20.8	61	11.6	3	1.1	193	11.5
	Yes	264	99.2	485	79.2	466	88.4	276	98.9	1491	88.5
	TOTAL	266	100.0	612	100.0	527	100.0	279	100.0	1684	100.0
2002	No	1	0.4	91	16.3	51	9.1	4	1.4	147	8.8
	Yes	267	99.6	466	83.7	510	90.9	282	98.6	1525	91.2
	TOTAL	268	100.0	557	100.0	561	100.0	286	100.0	1672	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 2002#



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 2002#

Indication	Gestational age (weeks)								TOTAL	
	22-27		28-31		32-36		37+			
	No.	%	No.	%	No.	%	No.	%	No.	%
Hyaline membrane disease	231	86.5	332	71.2	317	62.2	52	18.4	932	61.1
Respiratory distress syndrome	6	2.2	79	17.0	138	27.1	61	21.6	284	18.6
Newborn encephalopathy	0	0.0	3	0.6	7	1.4	47	16.7	57	3.7
Immature lung	22	8.2	17	3.6	4	0.8	1	0.4	44	2.9
Apnoea	2	0.7	15	3.2	12	2.4	13	4.6	42	2.8
Meconium aspiration	0	0.0	1	0.2	2	0.4	33	11.7	36	2.4
Pulmonary hypertension	0	0.0	3	0.6	1	0.2	22	7.8	26	1.7
Surgery	0	0.0	2	0.4	6	1.2	10	3.5	18	1.2
Pneumonia	1	0.4	0	0.0	4	0.8	7	2.5	12	0.8
Congenital anomaly	2	0.7	5	1.1	1	0.2	1	0.4	9	0.6
Other	3	1.1	9	1.9	18	3.5	35	12.4	65	4.3
TOTAL	267	100.0	466	100.0	510	100.0	282	100.0	1525	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 PROVEN SYSTEMIC INFECTION AND GESTATIONAL AGE, NSW & ACT 2002[#]**

Infection	22-27		28-31		Gestational age (weeks)				TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
No	158	59.0	503	90.3	537	95.7	252	88.1	1450	86.7
Yes	110	41.0	54	9.7	24	4.3	34	11.9	222	13.3
TOTAL	268	100.0	557	100.0	561	100.0	286	100.0	1672	100.0

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

TABLE 93**NICUS REGISTRANTS BY SURFACTANT ADMINISTRATION AND GESTATIONAL AGE, NSW & ACT 1998-2002[#]**

Year	Surfactant administration	22-27		28-31		Gestational age (weeks)				TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	%
1998	No	53	19.1	212	45.6	213	51.3	207	78.4	685	48.2
	Yes	225	80.9	253	54.4	202	48.7	57	21.6	737	51.8
	TOTAL	278	100.0	465	100.0	415	100.0	264	100.0	1422	100.0
1999	No	57	20.4	218	53.8	282	60.8	217	74.6	774	53.8
	Yes	223	79.6	187	46.2	182	39.2	74	25.4	666	46.3
	TOTAL	280	100.0	405	100.0	464	100.0	291	100.0	1440	100.0
2000	No	59	22.6	254	55.9	282	61.2	255	83.6	850	57.4
	Yes	202	77.4	200	44.1	179	38.8	50	16.4	631	42.6
	TOTAL	261	100.0	454	100.0	461	100.0	305	100.0	1481	100.0
2001	No	56	21.2	275	56.7	327	70.2	221	80.1	879	59.0
	Yes	208	78.8	210	43.3	139	29.8	55	19.9	612	41.0
	TOTAL	264	100.0	485	100.0	466	100.0	276	100.0	1491	100.0
2002	No	67	25.1	278	59.7	372	72.9	239	84.8	956	62.7
	Yes	200	74.9	188	40.3	138	27.1	43	15.2	569	37.3
	TOTAL	267	100.0	466	100.0	510	100.0	282	100.0	1525	100.0

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

Babies with major congenital anomalies or not ventilated excluded.

TABLE 94**NICUS REGISTRANTS BY TREATED PATENT DUCTUS ARTERIOSUS (PDA) AND GESTATIONAL AGE, NSW & ACT 2002[#]**

PDA-Treatment for PDA	22-27		28-31		Gestational age (weeks)				TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
No treated PDA	132	49.3	493	88.5	551	98.2	1176	84.8		
Indomethacin only	122	45.5	60	10.8	8	1.4	190	13.7		
Surgery only	0	0.0	1	0.2	2	0.4	3	0.2		
Indomethacin & surgery	14	5.2	3	0.5	0	0.0	17	1.2		
TOTAL	268	100.0	557	100.0	561	100.0	1386	100.0		

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

Babies with major congenital anomalies excluded.

(Continued on page 68)

Some infants (1.2 per cent) were treated with both indomethacin and surgery.

Overall, the incidence of necrotising enterocolitis (NEC) was 3.1 per cent in 2002 (range 9.7 per cent in 1992 to 2.2 per cent in 2000). The diagnosis of NEC was made radiologically or at surgery in 65.4 per cent of infants and clinically in the remainder. NEC was more common at the lower gestational age groups and 86.5 per cent of the infants with NEC were born at less than 32 weeks gestation (Table 95).

The overall incidence of major surgery was 4.3 per cent in 2002 (range 7.6 per cent in 1992 to 3.1 per cent in 2000). In 2002, 61.1 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 2002, the incidence of intraventricular haemorrhage (IVH) among preterm infants (less than 37 weeks

gestational age) was 13.8 per cent (range 20.5 per cent in 1993 to 13.5 per cent in 2001). In 2002, confirmed IVH was most common among infants less than 28-weeks gestation (34.3 per cent); 46.7 per cent of these infants had severe IVH (grade 3 or 4). Five infants less than 32 weeks gestation with severe IVH required surgical drainage for post haemorrhagic hydrocephalus (5/43, 11.6 per cent). Of the surviving infants born before 32 weeks gestation, 94.9 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 4.1 per cent in 2002 (range 7.5 per cent in 1992 to 3.7 per cent in 1996). In 2002, one infant with Grade 3 ROP was 32 weeks gestation and 54.8 per cent of the infants less than 28 weeks gestation with severe ROP received either cryo- or laser therapy. Importantly, 21.4 per cent of surviving infants of 28–31 weeks gestational age did not have an eye examination recorded (Table 98).

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TABLE 95

NICUS REGISTRANTS BY NECROTISING ENTEROCOLITIS (NEC) AND GESTATIONAL AGE, NSW & ACT 2002[#]

NEC—Treatment for NEC	22–27		28–31		Gestational age (weeks)				TOTAL	
	No.	%	No.	%	32–36		37+		No.	%
No NEC	244	91.0	536	96.2	555	98.9	285	99.7	1620	96.9
Clinical diagnosis	7	2.6	9	1.6	1	0.2	1	0.3	18	1.1
X-ray diagnosis	8	3.0	7	1.3	4	0.7	0	0	19	1.1
Surgery for NEC	9	3.4	5	0.9	1	0.2	0	0	15	0.9
TOTAL	268	100.0	557	100.0	561	100.0	286	100.0	1672	100.0

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

TABLE 96

NICUS REGISTRANTS BY MAJOR SURGERY AND GESTATIONAL AGE, NSW & ACT 2002[#]

Major Surgery	22–27		28–31		Gestational age (weeks)				TOTAL	
	No.	%	No.	%	32–36		37+		No.	%
No	238	88.8	543	97.5	549	97.9	270	94.4	1600	95.7
Yes	30	11.2	14	2.5	12	2.1	16	5.6	72	4.3
TOTAL	268	100.0	557	100.0	561	100.0	286	100.0	1672	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 2002#**

Head ultrasound	Gestational age (weeks)						TOTAL	
	22-27		28-31		32-36		No.	%
	No.	%	No.	%	No.	%	No.	%
No IVH	160	59.7	431	77.4	265	47.2	856	61.8
Grade 1	27	10.1	55	9.9	13	2.3	95	6.9
Grade 2	22	8.2	9	1.6	4	0.7	35	2.5
Grade 3	16	6.0	6	1.1	2	0.4	24	1.7
Grade 4	27	10.1	8	1.4	2	0.4	37	2.7
Hydrocephalus requiring drainage	3	1.1	2	0.4	1	0.2	6	0.4
Not examined & lived	0	0.0	41	7.4	269	48.0	310	22.4
Not examined & died	16	6.0	7	1.3	6	1.1	29	2.1
TOTAL	268	100.0	557	100.0	561	100.0	1386	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 2002#**

Retinopathy of prematurity (ROP)	Gestational age (weeks)						TOTAL	
	22-27		28-31				No.	%
	No.	%	No.	%	No.	%	No.	%
No ROP	73	27.2	383	68.8	456		55.3	
Grade 1	39	14.6	18	3.2	57		6.9	
Grade 2	49	18.3	12	2.2	61		7.4	
Grade 3	30	11.2	2	0.4	32		3.9	
Grade 4	1	0.4	0	0.0	1		0.1	
Grade 5	0	0.0	1	0.2	1		0.1	
Treatment with cryo-laser therapy	17	6.3	1	0.2	18		2.2	
Not examined & lived	3	1.1	119	21.4	122		14.8	
Not examined & died	73	27.2	22	3.9	95		11.5	
TOTAL	268	100.0	557	100.0	825		100.0	

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

Babies with major congenital anomalies excluded.

(Continued from page 72)

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 due to their higher numbers. In 2002, the total cohort used 56,879 bed days in a tertiary centre in NSW and the ACT (range 46,090 in 1993 to 58,529 in 2000); as well as 18,316 in a non-tertiary centre (Level 2

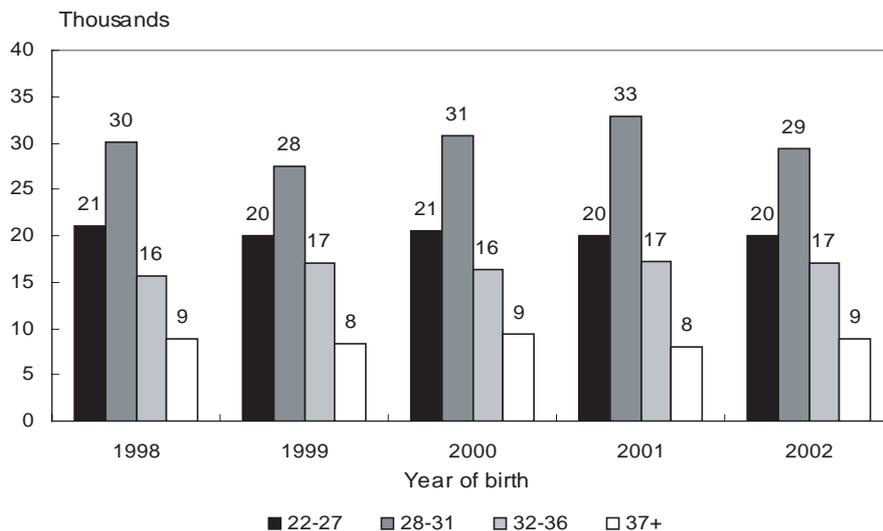
neonatal unit) in NSW and the ACT (14,288 in 1992 to 20,018 in 2001). Even when these infants leave the neonatal intensive care unit, they still require substantial resources.

In 2002, NICUS registrants used 16,431 days of assisted ventilation (range 15,282 in 1993 to 18,909 in 2000) and 27,838 days of oxygen therapy (range 22,526 in 1992 to 30,802 in 2001). In 2002, 78 (4.7 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 21.3 per cent (range 7.5 per cent in 1992 to 21.3 per cent in 2002) (Table 100).

Continued on page 78

FIGURE 9

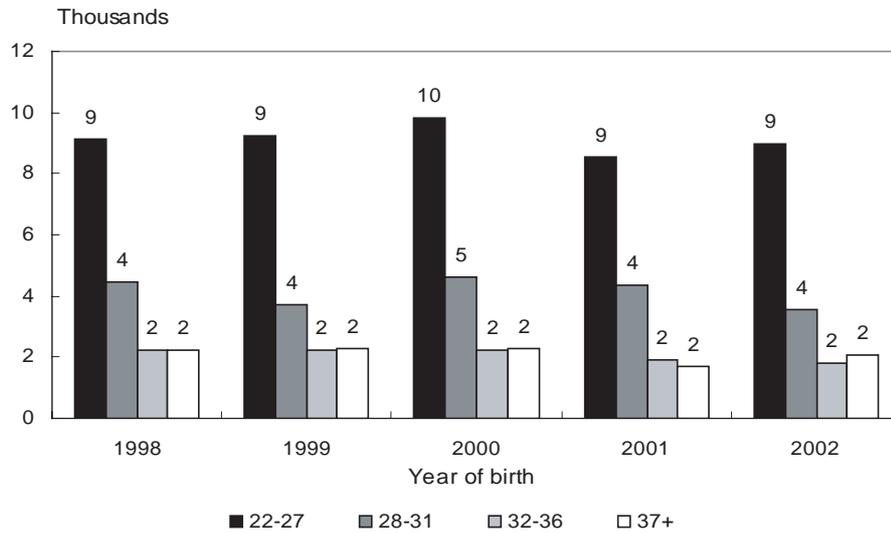
NICUS REGISTRANTS BY TOTAL NUMBER OF DAYS IN HOSPITAL AND GESTATIONAL AGE, NSW & ACT 2002



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

FIGURE 10

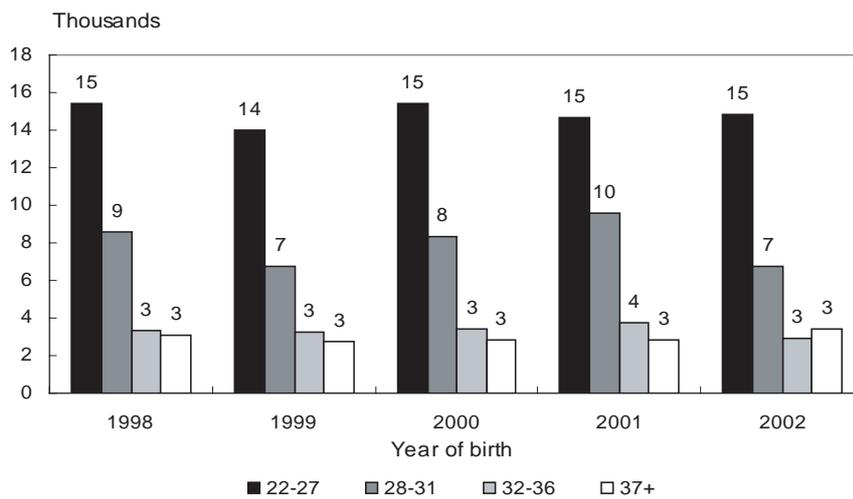
NICUS REGISTRANTS BY TOTAL NUMBER OF DAYS OF ASSISTED VENTILATION AND GESTATIONAL AGE, NSW & ACT 2002



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 1998-2002



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

TABLE 99
NICUS REGISTRANTS BY SERVICE UTILISATION INDICATORS AND GESTATIONAL AGE, NSW & ACT 2002

Indicators	Gestational age (weeks)				TOTAL
	22-27	28-31	32-36	37+	
Non-tertiary hospital stay (days)					
Minimum	0	0	0	0	0
Maximum	80	93	52	42	93
Sum	2291	8774	6024	1227	18316
Median	0	12	6	0	1
25th percentile	0	0	0	0	0
75th percentile	13	28	17	3	16
Tertiary hospital stay (days)					
Minimum	0	0	0	0	0
Maximum	192	149	433	283	433
Sum	17664	20627	10957	7631	56879
Median	72	32	12	10	16
25th percentile	19	15	6	5	7
75th percentile	94	47	23	17	39
Total hospital stay (days)					
Minimum	1	0	1	1	0
Maximum	192	195	433	283	433
Sum	19955	29400	16981	8858	75194
Median	82	46	24	12	30
25th percentile	21	37	15	7	14
75th percentile	106	58	33	20	50
Mechanical ventilation (days)					
Minimum	0	0	0	0	0
Maximum	82	46	83	91	91
Sum	3600	1146	1010	1636	7392
Median	5	0	0	2	1
25th percentile	1	0	0	0	0
75th percentile	19	2	2	3	3
Continuous Positive Airways Pressure (days)					
Minimum	0	0	0	0	0
Maximum	97	46	28	51	97
Sum	5351	2426	806	457	9040
Median	18	1	1	0	1
25th percentile	1	0	0	0	0
75th percentile	31	4	2	1	3
Assisted ventilation (days)					
Minimum	0	0	0	0	0
Maximum	119	70	104	133	133
Sum	8950	3572	1816	2093	16431
Median	29	2	2	2	2
25th percentile	5	0	1	1	1
75th percentile	52	6	3	4	6
Oxygen (days)					
Minimum	0	0	0	0	0
Maximum	192	132	81	200	200
Sum	14808	6736	2914	3380	27838
Median	44	3	2	3	3
25th percentile	4	1	1	1	1
75th percentile	94	9	5	7	9

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

TABLE 100**NICUS REGISTRANTS BY HOME OXYGEN ADMINISTRATION AND GESTATIONAL AGE, NSW & ACT 1998–2002[#]**

Year	Home oxygen	Gestational age (weeks)									
		22–27		28–31		32–36		37+		TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	%
1998	No	224	80.0	550	97.5	459	99.1	265	97.8	1498	94.9
	Yes	56	20.0	14	2.5	4	0.9	6	2.2	80	5.1
	TOTAL	280	100.0	564	100.0	463	100.0	271	100.0	1578	100.0
1999	No	243	86.5	511	97.5	521	99.4	297	99.0	1572	96.5
	Yes	38	13.5	13	2.5	3	0.6	3	1.0	57	3.5
	TOTAL	281	100.0	524	100.0	524	100.0	300	100.0	1629	100.0
2000	No	211	80.5	555	97.4	519	98.7	307	98.7	1592	95.4
	Yes	51	19.5	15	2.6	7	1.3	4	1.3	77	4.6
	TOTAL	262	100.0	570	100.0	526	100.0	311	100.0	1669	100.0
2001	No	216	81.2	583	95.3	526	99.8	276	98.9	1601	95.1
	Yes	50	18.8	29	4.7	1	0.2	3	1.1	83	4.9
	TOTAL	266	100.0	612	100.0	527	100.0	279	100.0	1684	100.0
2002	No	211	78.7	544	97.7	558	99.5	281	98.3	1594	95.3
	Yes	57	21.3	13	2.3	3	0.5	5	1.7	78	4.7
	TOTAL	268	100.0	557	100.0	561	100.0	286	100.0	1672	100.0

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

Babies with major congenital anomalies excluded.

(Continued from page 74)

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 six-month survival rate for all infants without a major congenital anomaly in the 2002 cohort was 91.4 per cent (range 87.8 per cent in 1992 to 92.5 per cent in 2000). Survival of infants born at less than 25 weeks gestation was 44.3 per cent (range 33.9 per cent in 1998 to 54.8 per cent in 1993). There was a trend for survival to improve with gestational age (Figure 12 and Table 101). Term infants (92.0 per cent) were slightly more likely to survive than preterm infants (91.3 per cent). Among infants who died, 76.2 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 14.0 per cent occurring during the first month of life (Table 101).

The six-month survival rate improved with increasing birthweight, ranging from 44.4 per cent for infants in the 500–599 gram group to 85.5 per cent for the 900–999 gram group. Six-month survival continued to improve with increasing birthweight to a maximum of 99.3 per cent for infants of 1,750–1,999 grams birthweight 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 2002, the six-month survival rate for infants born at 22 to 27 weeks was greater for those born in a non-tertiary centre (79.2 per cent) compared with those born in a tertiary centre (69.4 per cent). Of the surviving infants born in a non-tertiary centre, 16/19 were 26–27 weeks gestation. Term infants born in a tertiary centre (93.0 per cent) were more likely to survive than term infants born in a non-tertiary centre (89.7 per cent). Place of birth did not significantly affect survival for infants in the other gestational age groups (Table 103).

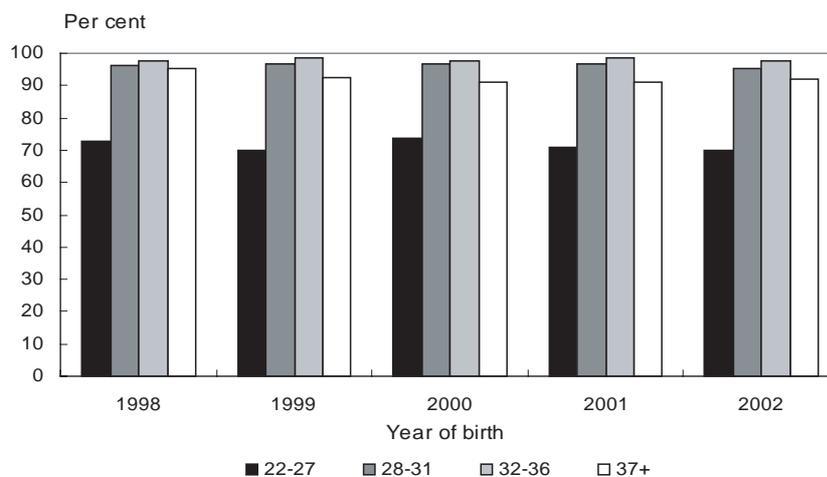
The six-month survival rate was similar for males (90.7 per cent) and females (92.4 per cent) overall, and for all gestational age groups: less than 28 weeks (65.8 per cent versus 75.9 per cent); 28–31 weeks (95.1 per cent versus 95.6 per cent); 32–36 weeks (97.1 per cent versus 98.2 per cent); and 37–41 weeks gestation groups (93.6 per cent versus 90.1 per cent).

The six-month survival rate was 91.5 per cent ($n=1,184$) for singleton infants and 91.3 per cent ($n=345$) for multiple gestation infants. Plurality did not influence survival in infants 22–36 weeks gestational age. In 2002 the survival rate for infants in the less than 28 week gestation group was similar for infants born of a multiple (50/70; 71.4 per cent) and a singleton pregnancy (138/198; 69.7 per cent).

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FIGURE 12

NICUS REGISTRANTS BY 6-MONTHS SURVIVAL AND GESTATIONAL AGE, NSW & ACT 1998–2002#



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

As expected the overall survival rate was generally lower (84.3 per cent) in the presence of a major congenital anomaly (Table 104).

Post-mortem examinations were performed on 24/143 infants (16.8 per cent) who died in the 2002 cohort (Figure 13 and Table 105). Post-mortem examinations were most

commonly not requested for infants 22–27 weeks gestation (40.0 per cent) and term infants (34.8 per cent). The highest rate of refusal was in the 22–27 (50.0 per cent) and 32–36 week group (50.0 per cent) and the highest rate of post-mortems done was in the 28–31 week group (26.9 per cent).

TABLE 101

NICUS REGISTRANTS BY DURATION OF SURVIVAL AND GESTATIONAL AGE, NSW & ACT 2002#

Gestational age (weeks)	Alive at six months		Age at death (days)				TOTAL			
	No.	%	0–7		8–28		28+			
	No.	%	No.	%	No.	%	No.	%	No.	%
22	0	0.0	1	100.0	0	0.0	0	0.0	1	0.1
23	6	46.2	7	53.8	0	0.0	0	0.0	13	0.8
24	20	43.5	21	45.7	3	6.5	2	4.3	46	2.8
25	36	63.2	17	29.8	2	3.5	2	3.5	57	3.4
26	60	82.2	8	11.0	2	2.7	3	4.1	73	4.4
27	66	84.6	7	9.0	2	2.6	3	3.8	78	4.7
28	71	91.0	6	7.7	1	1.3	0	0.0	78	4.7
29	98	92.5	4	3.8	2	1.9	2	1.9	106	6.3
30	167	96.5	2	1.2	3	1.7	1	0.6	173	10.3
31	195	97.5	4	2.0	0	0.0	1	0.5	200	12.0
32	172	98.3	2	1.1	1	0.6	0	0.0	175	10.5
33	120	97.6	2	1.6	1	0.8	0	0.0	123	7.4
34	107	98.2	2	1.8	0	0.0	0	0.0	109	6.5
35	87	95.6	4	4.4	0	0.0	0	0.0	91	5.4
36	61	96.8	1	1.6	1	1.6	0	0.0	63	3.8
37	54	93.1	4	6.9	0	0.0	0	0.0	58	3.5
38	51	91.1	5	8.9	0	0.0	0	0.0	56	3.3
39	40	90.9	4	9.1	0	0.0	0	0.0	44	2.6
40	75	92.6	5	6.2	1	1.2	0	0.0	81	4.8
41	40	93.0	3	7.0	0	0.0	0	0.0	43	2.6
42	3	75.0	0	0.0	1	25.0	0	0.0	4	0.2
TOTAL	1529	91.4	109	6.5	20	1.2	14	0.8	1672	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 BIRTHWEIGHT, NSW & ACT 2002#

Birthweight (grams)	Alive at six months		Age at death (days)				TOTAL			
	No.	%	0–7		8–28		28+			
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 400	0	0.0	1	50.0	1	50.0	0	0.0	2	0.1
400–499	2	33.3	4	66.7	0	0.0	0	0.0	6	0.4
500–599	8	44.4	8	44.4	2	11.1	0	0.0	18	1.1
600–699	27	57.4	16	34.0	1	2.1	3	6.4	47	2.8
700–799	40	67.8	15	25.4	2	3.4	2	3.4	59	3.5
800–899	44	81.5	7	13.0	2	3.7	1	1.9	54	3.2
900–999	65	85.5	9	11.8	1	1.3	1	1.3	76	4.5
1,000–1,249	147	90.7	8	4.9	2	1.2	5	3.1	162	9.7
1,250–1,499	235	95.1	6	2.4	4	1.6	2	0.8	247	14.8
1,500–1,749	204	96.2	7	3.3	1	0.5	0	0.0	212	12.7
1,750–1,999	146	99.3	1	0.7	0	0.0	0	0.0	147	8.8
2,000–2,499	212	97.7	4	1.8	1	0.5	0	0.0	217	13.0
2,500–2,999	140	95.9	4	2.7	2	1.4	0	0.0	146	8.7
3,000–3,499	123	92.5	9	6.8	1	0.8	0	0.0	133	8.0
3,500–3,999	93	90.3	10	9.7	0	0.0	0	0.0	103	6.2
4,000+	43	95.6	1	2.2	1	2.2	0	0.0	45	2.7
TOTAL	1529	91.4	109	6.5	20	1.2	14	0.8	1672	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 2002[#]**

Gestational age (weeks)	Place of birth	Alive at six months		0-7		Age at death (days) 8-28		28+		TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	%
22-27	Non tertiary	19	79.2	4	16.7	1	4.2	0	0.0	24	9.0
	Tertiary	168	69.4	57	23.6	8	3.3	9	3.7	242	91.0
	Sub-total	187	70.3	61	22.9	9	3.4	9	3.4	266	100.0
28-31	Non tertiary	56	96.6	1	1.7	1	1.7	0	0.0	58	10.4
	Tertiary	475	95.2	15	3.0	5	1.0	4	0.8	499	89.6
	Sub-total	531	95.3	16	2.9	6	1.1	4	0.7	557	100.0
32-36	Non tertiary	172	97.2	4	2.3	1	0.6	0	0.0	177	31.8
	Tertiary	371	97.6	7	1.8	2	0.5	0	0.0	380	68.2
	Sub-total	543	97.5	11	2.0	3	0.5	0	0.0	557	100.0
37-41	Non tertiary	151	93.2	10	6.2	1	0.6	0	0.0	162	58.3
	Tertiary	105	90.5	11	9.5	0	0.0	0	0.0	116	41.7
	Sub-total	256	92.1	21	7.6	1	0.4	0	0.0	278	100.0
42+	Non tertiary	3	100.0	0	0.0	0	0.0	0	0.0	3	75.0
	Tertiary	0	0.0	0	0.0	1	100.0	0	0.0	1	25.0
	Sub-total	3	75.0	0	0.0	1	25.0	0	0.0	4	100.0
TOTAL		1520	91.5	109	6.6	20	1.2	13	0.8	1662	100.0

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

Babies with major congenital anomalies excluded. Babies born before arrival excluded.

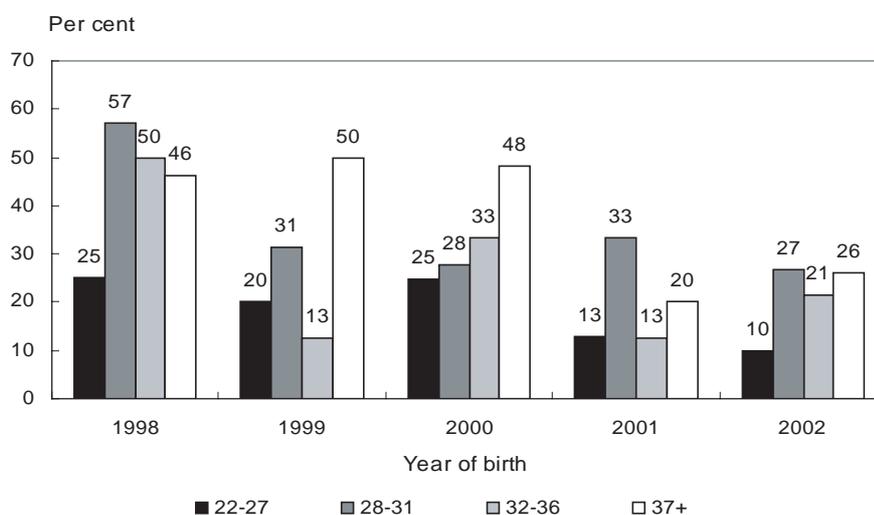
TABLE 104**NICUS REGISTRANTS BY DURATION OF SURVIVAL, MAJOR CONGENITAL ANOMALY AND GESTATIONAL AGE, NSW & ACT 2002**

Gestational age (weeks)	Major congenital anomaly	Alive at six months		0-7		Age at death (days) 8-28		28+		TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	%
22-27	No	188	70.1	61	22.8	9	3.4	10	3.7	268	96.4
	Yes	6	60.0	1	10.0	1	10.0	2	20.0	10	3.6
	Sub-total	194	69.8	62	22.3	10	3.6	12	4.3	278	100.0
28-31	No	531	95.3	16	2.9	6	1.1	4	0.7	557	92.2
	Yes	39	83.0	4	8.5	2	4.3	2	4.3	47	7.8
	Sub-total	570	94.4	20	3.3	8	1.3	6	1.0	604	100.0
32-36	No	547	97.5	11	2.0	3	0.5	0	0.0	561	87.8
	Yes	63	80.8	7	9.0	3	3.8	5	6.4	78	12.2
	Sub-total	610	95.5	18	2.8	6	0.9	5	0.8	639	100.0
37-41	No	260	92.2	21	7.4	1	0.4	0	0.0	282	59.5
	Yes	168	87.5	14	7.3	4	2.1	6	3.1	192	40.5
	Sub-total	428	90.3	35	7.4	5	1.1	6	1.3	474	100.0
42+	No	3	75.0	0	0.0	1	25.0	0	0.0	4	50.0
	Yes	3	75.0	1	25.0	0	0.0	0	0.0	4	50.0
	Sub-total	6	75.0	1	12.5	1	12.5	0	0.0	8	100.0
TOTAL		1808	90.3	136	6.8	30	1.5	29	1.4	2003	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 1998-2002#



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 2002#

Post-mortem	Gestational age (weeks)								TOTAL	
	22-27		28-31		32-36		37+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
Not requested	32	40.0	8	30.8	4	28.6	8	34.8	52	36.4
Refused	40	50.0	11	42.3	7	50.0	9	39.1	67	46.9
Done	8	10.0	7	26.9	3	21.4	6	26.1	24	16.8
TOTAL	80	100.0	26	100.0	14	100.0	23	100.0	143	100.0

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

Babies with major congenital anomalies excluded.

9. 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 1996–2001 and birth defects detected during pregnancy or at birth for 2002.

Trends in reported birth defects

Between 1996 and 2002, the reported number of infants with birth defects has remained stable at just over two per cent (Table 106). In 2002, 926 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 birthweight

TABLE 106

BIRTH DEFECT CASES, NSW 1996–2002[#]

Year	Birth defect cases	Births	Rate/1,000 births
1996	1875	85706	21.9
1997	1991	87416	22.8
1998	1941	85627	22.7
1999	1828	86468	21.1
2000	1858	87279	21.3
2001	1774	85285	20.8
2002	926	85398	10.8

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

[#] For 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, cases reported during pregnancy or at birth are reported.

greater than 400 grams are presented in Table 107. Birth defects are classified using the British Paediatric Association (BPA) Classification of Diseases, which is primarily organised by body system.¹ 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 1996–2002, defects of the cardiovascular system were most commonly reported, followed by defects of the musculoskeletal system and defects of the genito-urinary system (Table 107). This is a similar pattern to previous years. In 2001, the overall rate of defects was lower than the previous five years (34.8 versus 41.0 per 1,000), due to fewer babies being born with multiple defects.

TABLE 107

BIRTH DEFECTS AMONG STILLBIRTHS AND LIVE BIRTHS BY DIAGNOSTIC CATEGORY, NSW 1996–2002

Diagnostic category	No. defects				Rate/1,000 births			
	1996–2000	2001	2002	1996–2002	1996–2000	2001	2002	1996–2002
Defects of nervous system								
Anencephaly	48	9	12	69	0.1	0.1	0.1	0.1
Spina Bifida	147	26	20	193	0.3	0.3	0.2	0.3
Encephalocele	32	5	6	43	0.1	0.1	0.1	0.1
Microcephaly	131	17	12	160	0.3	0.2	0.1	0.3
Congenital hydrocephalus	180	32	25	237	0.4	0.4	0.3	0.4
Other nervous system defects	438	64	28	530	1.0	0.8	0.3	0.9
TOTAL	976	153	103	1232	2.3	1.8	1.2	2.0
Defects of eye								
Anophthalmos–microphthalmos	65	9	1	75	0.2	0.1	0.0	0.1
Buphthalmos–congenital glaucoma	22	6	2	30	0.1	0.1	0.0	0.0
Congenital cataract	89	10	4	103	0.2	0.1	0.0	0.2
Other eye defects	179	38	8	225	0.4	0.4	0.1	0.4
TOTAL	355	63	15	433	0.8	0.7	0.2	0.7
Defects of ear, face and neck								
Absence/ stricture auditory canal	47	12	15	74	0.1	0.1	0.2	0.1
Absent auricle	8	2	1	11	0.0	0.0	0.0	0.0
Defects of face and neck	45	5	4	54	0.1	0.1	0.0	0.1
Other ear defects	92	12	23	127	0.2	0.1	0.3	0.2
TOTAL	192	31	43	266	0.4	0.4	0.5	0.4
Defects of cardiovascular system								
Transposition of great vessels	206	39	31	276	0.5	0.5	0.4	0.5
Tetralogy of Fallot	149	17	20	186	0.3	0.2	0.2	0.3
Ventricular septal defect	978	161	83	1222	2.3	1.9	1.0	2.0
Atrial septal defect	935	144	69	1148	2.2	1.7	0.8	1.9

TABLE 107 (continued)
BIRTH DEFECTS AMONG STILLBIRTHS AND LIVE BIRTHS BY DIAGNOSTIC CATEGORY, NSW 1996–2002[#]

Diagnostic category	No. defects			Rate/1,000 births				
	1996–2000	2001	2002	1996–2002	1996–2000	2001	2002	1996–2002
Defects of cardiovascular system (cont.)								
Heart valve defects	744	114	51	909	1.7	1.3	0.6	1.5
Patent ductus arteriosus > 37 weeks	534	67	50	651	1.2	0.8	0.6	1.1
Coarctation of aorta	186	49	16	251	0.4	0.6	0.2	0.4
Other defects of aorta	110	16	10	136	0.3	0.2	0.1	0.2
Defects of pulmonary artery	155	25	4	184	0.4	0.3	0.0	0.3
Other cardiovascular defects	867	112	68	1047	2.0	1.3	0.8	1.7
TOTAL	4864	744	402	6010	11.2	8.7	4.7	10.0
Defects of respiratory system								
Defects of nose	77	12	9	98	0.2	0.1	0.1	0.2
Defects of larynx, trachea and bronchus	54	6	3	63	0.1	0.1	0.0	0.1
Defects of lung	97	15	13	125	0.2	0.2	0.2	0.2
Other respiratory defects	1	0	0.0	1	0.0	0	0.0	0.0
TOTAL	229	33	25	287	0.5	0.4	0.3	0.5
Defects of gastrointestinal system								
Cleft palate only	381	67	55	503	0.9	0.8	0.6	0.8
Cleft lip only	164	23	28	215	0.4	0.3	0.3	0.4
Cleft palate and cleft lip	233	59	37	329	0.5	0.7	0.4	0.5
Oesophageal atresia only	5	4	1	10	0.0	0.0	0.0	0.0
Oesophageal atresia with TOF	100	11	5	116	0.2	0.1	0.1	0.2
Tracheo-oesophageal fistula (TOF) only	28	4	3	35	0.1	0.0	0.0	0.1
Atresia–stenosis of small intestine	136	31	19	186	0.3	0.4	0.2	0.3
Atresia–stenosis of anus	146	21	12	179	0.3	0.2	0.1	0.3
Other gastrointestinal defects	509	91	22	622	1.2	1.1	0.3	1.0
TOTAL	1702	311	182	2195	3.9	3.6	2.1	3.6
Defects of genitourinary system								
Defects of female genitals	44	16	1	61	0.1	0.2	0.0	0.1
Undescended testis	386	73	16	475	0.9	0.9	0.2	0.8
Hypospadias	929	172	94	1195	2.1	2.0	1.1	2.0
Epispadias	26	3	2	31	0.1	0.0	0.0	0.1
Chordee	147	25	17	189	0.3	0.3	0.2	0.3
Indeterminate sex–ambiguous genitalia	62	12	6	80	0.1	0.1	0.1	0.1
Renal agenesis–dysgenesis	212	41	21	274	0.5	0.5	0.2	0.5
Obstructive defects of renal pelvis and ureter	804	148	35	987	1.9	1.7	0.4	1.6
Other genitourinary system defects	680	139	40	859	1.6	1.6	0.5	1.4
TOTAL	3290	629	232	4151	7.6	7.4	2.7	6.9
Defects of musculoskeletal system								
Congenital dislocation of the hips	726	119	62	907	1.7	1.4	0.7	1.5
Talipes equinovarus	283	58	33	374	0.7	0.7	0.4	0.6
Polydactyly	478	83	93	654	1.1	1.0	1.1	1.1
Syndactyly	121	11	21	153	0.3	0.1	0.2	0.3
Reduction deformities of limbs	311	51	25	387	0.7	0.6	0.3	0.6
Craniosynostosis	398	54	11	463	0.9	0.6	0.1	0.8
Diaphragmatic hernia	136	27	19	182	0.3	0.3	0.2	0.3
Exomphalos	75	16	11	102	0.2	0.2	0.1	0.2
Gastroschisis	87	21	18	126	0.2	0.2	0.2	0.2
Other musculoskeletal defects	1154	150	73	1377	2.7	1.8	0.9	2.3
TOTAL	3769	590	366	4725	8.7	6.9	4.3	7.8
Defects of integumentary system								
Cystic hygroma	384	61	26	471	0.9	0.7	0.3	0.8
TOTAL	54	16	6	76	0.1	0.2	0.1	0.1
Chromosomal defects								
Trisomy 21	546	88	75	709	1.3	1.0	0.9	1.2
Trisomy 13	35	6	3	44	0.1	0.1	0.0	0.1
Trisomy 18	89	11	17	117	0.2	0.1	0.2	0.2
Turner syndrome	56	11	9	76	0.1	0.1	0.1	0.1
Other chromosomal defects	249	51	26	326	0.6	0.6	0.3	0.5
TOTAL	975	167	130	1272	2.3	2.0	1.5	2.1
Situs inversus								
TOTAL	18	5	3	26	0.0	0.1	0.0	0.0
Congenital malformation syndromes								
TOTAL	197	29	17	243	0.5	0.3	0.2	0.4
Congenital rubella syndrome								
TOTAL	2	0	0.0	2	0.0	0	0.0	0.0
Congenital cytomegalovirus infection								
TOTAL	9	0	0.0	9	0.0	0	0.0	0.0
Congenital toxoplasmosis								
TOTAL	1	0	0.0	1	0.0	0	0.0	0.0
Non-immune hydrops foetalis								
TOTAL	131	28	13	172	0.3	0.3	0.2	0.3
Other and unspecified birth defects								
TOTAL	571	111	12	694	1.3	1.3	0.1	1.2
TOTAL	17719	2971	1575	22265	41.0	34.8	18.4	36.9

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

[#] For 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, cases reported during pregnancy or at birth are reported.

Infant characteristics

In the period 1996–2002, a single defect was reported in 63.5 per cent of infants, two defects in 18.0 per cent, three defects in 8.2 per cent, and four or more defects in 10.4 per cent of cases.

The sex was male in 58.3 per cent of infants, female in 41.1 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 108). Birth defects were also more common in infants born of a

multiple pregnancy than a singleton pregnancy: in 1996–2002, 2.0 per cent of singleton babies, 2.6 per cent of twins, and 3.2 per cent of triplets were born with a birth defect.

About 10 per cent of infants born with birth defects died in the perinatal period, with stillbirths contributing over half the perinatal deaths (Table 109). 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 8.7 per 1,000 in 2001 (see Chapter 4).

TABLE 108

BIRTH DEFECT CASES BY GESTATIONAL AGE, NSW 1996–2002[#]

Gestational age (weeks)	1996–2000		Year				1996–2002		Rate/1,000 births
	No.	%	No.	%	No.	%	No.	%	
20–27	519	5.5	110	6.2	82	8.9	711	5.8	175.0
28–31	287	3.0	49	2.8	21	2.3	357	2.9	82.7
32–36	1095	11.5	215	12.1	99	10.7	1409	11.6	41.5
37–41	7088	74.7	1284	72.4	698	75.4	9070	74.4	16.6
42 +	224	2.4	40	2.3	25	2.7	289	2.4	20.3
Not stated	280	2.9	76	4.3	1	0.1	357	2.9	–
TOTAL	9493	100.0	1774	100.0	926	100.0	12193	100.0	20.2

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

For 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, cases reported during pregnancy or at birth are reported.

TABLE 109

BIRTH DEFECT CASES BY PREGNANCY OUTCOME, NSW 1996–2002[#]

Pregnancy outcome	1996–2000		Year				1996–2002	
	No.	%	No.	%	No.	%	No.	%
Stillbirth	554	5.8	98	5.5	96	10.4	748	6.1
Liveborn–neonatal death	418	4.4	88	5.0	43	4.6	549	4.5
Liveborn–postneonatal death	87	0.9	10	0.6	6	0.6	103	0.8
Liveborn surviving	8434	88.8	1578	89.0	781	84.3	10793	88.5
TOTAL	9493	100.0	1774	100.0	926	100.0	12193	100.0

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

For 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, cases reported during pregnancy or at birth are reported.

Maternal characteristics

After 30 years of age, the incidence of birth defects increased with increasing maternal age (Table 110). While the rate of birth defects is higher in older women, the majority of births occur in younger women: in 1996–2002, 77.2 per cent of babies with birth defects were born to women aged less than 35 years.

In 1996–2002, 205 babies of Aboriginal or Torres Strait Islander mothers were reported to have birth defects. The rate of birth defects among these babies was 14.6 per 1,000 compared with 20.4 per 1,000 for non-Aboriginal mothers.

TABLE 110

BIRTH DEFECT CASES BY MATERNAL AGE, NSW 1996–2002[#]

Maternal age (years)	1996–2000		Year				1996–2002		Rate/1,000 births
	No.	%	No.	2001 %	No.	2002 %	No.	%	
Under 20	468	4.9	80	4.5	38	4.1	586	4.8	20.9
20–24	1480	15.6	275	15.5	144	15.6	1899	15.6	19.5
25–29	2790	29.4	514	29.0	259	28.0	3563	29.2	18.8
30–34	2600	27.4	470	26.5	292	31.5	3362	27.6	18.2
35–39	1353	14.3	262	14.8	151	16.3	1766	14.5	20.4
40–44	320	3.4	54	3.0	35	3.8	409	3.4	26.4
45+	17	0.2	3	0.2	5	0.5	25	0.2	38.8
Not stated	465	4.9	116	6.5	2	0.2	583	4.8	–
TOTAL	9493	100.0	1774	100.0	926	100.0	12193	100.0	20.2

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

[#] For 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, 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 1996–2001, about 220 terminations of pregnancy per year were reported to the NSW Birth Defects Register (Table 111). Following the introduction of a requirement to notify birth defects under the *NSW Public Health Act 1991* from 1 January 1998, the number of terminations reported rose to about 250 per year.

Of the total 1,420 terminations of pregnancy reported in 1996–2002, 935 (65.8 per cent) were associated with a chromosomal abnormality, the most common of which was Trisomy 21 (Down syndrome), and 245 (17.3 per cent) were associated with a neural tube defect (Table 112). In 1996–2002, 51.6 per cent of terminations were carried out in women aged less than 35 years (Table 113).

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 111

PREGNANCIES WITH FETUSES AFFECTED BY BIRTH DEFECTS AND RESULTING IN SPONTANEOUS ABORTION, TERMINATION OF PREGNANCY OR UNKNOWN OUTCOME, NSW 1996–2002

Pregnancy outcome	Year			
	1996–2000 No.	2001 No.	2002 [#] No.	1996–2002 No.
Spontaneous abortion	461	170	163	794
Termination of pregnancy less than 20 weeks gestation	1054	257	109	1420
Unknown outcome	378	21	0	399
TOTAL	1893	448	272	2613

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

[#] For 2002, numbers refer only to outcomes for pregnancies with fetuses affected by birth defects where outcomes have been reported to date.

TABLE 112

BIRTH DEFECTS AMONG SPONTANEOUS ABORTIONS, TERMINATIONS OF PREGNANCY AND UNKNOWN OUTCOME OF PREGNANCY BY DIAGNOSTIC CATEGORY, NSW 1996–2002

Diagnostic category	1996–2000			Year 2001			2002			1996–2002		
	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	Unknown outcome	Spont. abortion	Termination of pregnancy less than 20 weeks gestation	Unknown outcome
	No.	No.	No.									
Defects of nervous system												
Neural tube defects	5	195	5	3	33	1	1	17	9	245	6	
Other nervous system defects	4	111	7	1	28	2	0	12	5	151	9	
TOTAL	9	306	12	4	61	3	1	29	14	396	15	
Defects of eye	0	3	0	0	1	0	0	0	0	4	0	
Defects of ear, face and neck	0	11	0	0	2	1	0	1	0	14	1	
Defects of cardiovascular system	7	166	22	1	26	4	0	17	8	209	26	
Defects of respiratory system	0	27	4	0	3	0	0	3	0	33	4	
Defects of gastrointestinal system	4	96	4	0	20	2	0	7	4	123	6	
Defects of genitourinary system	8	167	10	2	19	2	0	12	10	198	12	
Defects of musculoskeletal system	22	326	16	9	45	4	2	22	33	393	20	
Defects of the integumentary system	1	1	0	0	0	0	0	1	1	2	0	
Cystic hygroma	7	77	12	1	13	0	0	8	8	98	12	
Chromosomal defects												
Trisomy 21	39	322	148	8	92	3	9	33	56	447	151	
Trisomy 13	23	41	20	6	17	5	6	9	35	67	25	
Trisomy 18	22	128	54	12	34	2	7	10	41	172	56	
Turner syndrome	46	53	23	10	20	0	14	5	70	78	23	
Other chromosomal defects	314	131	99	129	41	9	126	15	569	187	108	
TOTAL	444	675	344	165	204	19	162	72	771	951	363	
Situs inversus	0	3	0	0	1	0	0	2	0	6	0	
Congenital malformation syndromes	0	17	1	2	3	0	0	0	2	20	1	
Non-immune hydrops foetalis	6	48	7	0	4	0	1	7	7	59	7	
Other and unspecified birth defects	3	30	10	0	5	0	0	1	3	36	10	
TOTAL	511	1953	442	184	407	35	166	182	861	2542	477	

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

TABLE 113

TRENDS IN REPORTED TERMINATIONS OF PREGNANCY ASSOCIATED WITH BIRTH DEFECTS BY MATERNAL AGE, 1996–2002

Year	Maternal age (years)																TOTAL	
	15–19		20–24		25–29		30–34		35–39		40–44		45+		Not stated			
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1996	3	2.9	16	15.2	22	21.0	23	21.9	24	22.9	11	10.5	0	0.0	6	5.7	105	100.0
1997	3	2.4	13	10.4	33	26.4	32	25.6	25	20.0	13	10.4	1	0.8	5	4.0	125	100.0
1998	3	1.2	19	7.5	56	22.0	46	18.1	64	25.2	52	20.5	4	1.6	10	3.9	254	100.0
1999	6	1.9	20	6.5	58	18.7	71	22.9	92	29.7	42	13.5	4	1.3	17	5.5	310	100.0
2000	2	0.8	14	5.4	41	15.8	65	25.0	80	30.8	45	17.3	3	1.2	10	3.8	260	100.0
2001	11	4.3	13	5.1	36	14.0	70	27.2	64	24.9	44	17.1	4	1.6	15	5.8	257	100.0
2002	1	0.9	7	6.4	18	16.5	31	28.4	23	21.1	14	12.8	0	0.0	15	13.8	109	100.0
1996–2002	29	2.0	102	7.2	264	18.6	338	23.8	372	26.2	221	15.6	16	1.1	78	5.5	1420	100.0

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 114 and Figures 14 to 21. For 1996–2001, malformations reported up to one year of age are included; for 2002, malformations reported during pregnancy or at birth are included.

The reported number of liveborn and stillborn infants with neural tube defects was 44 in 1996 and 39 in 2001, and 37 have been reported for 2002 to date. The number of reported terminations of pregnancy was 37 in 1996, 32 in 2001, and 16 in 2002.

Over the period 1996–2002, the number of cases of isolated cleft palate ranged from 48 in 2002 to 79 in 2000, and for total cleft lip (including cases of cleft lip and cleft palate) from 68 in 2002 to 89 in 1999 (Figures 15 and 16). 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 number of reported cases of hypospadias varied from 94 in 2002 to 199 in 1999 (Figure 17), and cases of limb

reduction defects varied from 18 in 2002 to 61 in 1997 and 2000 (Figure 18).

The number of reported terminations of pregnancy for chromosomal abnormalities, including Down syndrome, increased following the introduction of a requirement to notify birth defects under the *NSW Public Health Act 1991* from 1 January 1998 (Figures 19 and 20). The reported number of liveborn and stillborn infants with chromosomal defects was 184 in 1996 and 167 in 2001, and the number of reported terminations of pregnancy associated with chromosomal defects rose from 48 in 1995 to 221 in 1999. The number of infants born with Down syndrome was 112 in 1996 and 88 in 2001, while the number of reported terminations of pregnancy associated with Down syndrome rose from 20 in 1995 to 106 in 1999.

There was a trend towards improved notification of cases of renal agenesis and dysgenesis, which peaked in 1998. The increased reporting is due partly to the introduction of notification requirements in 1998, but also to improved diagnosis of less severe forms of renal dysgenesis in infants (Figure 21).

TABLE 114

SELECTED BIRTH DEFECT CASES BY YEAR, NSW 1996–2002[#]

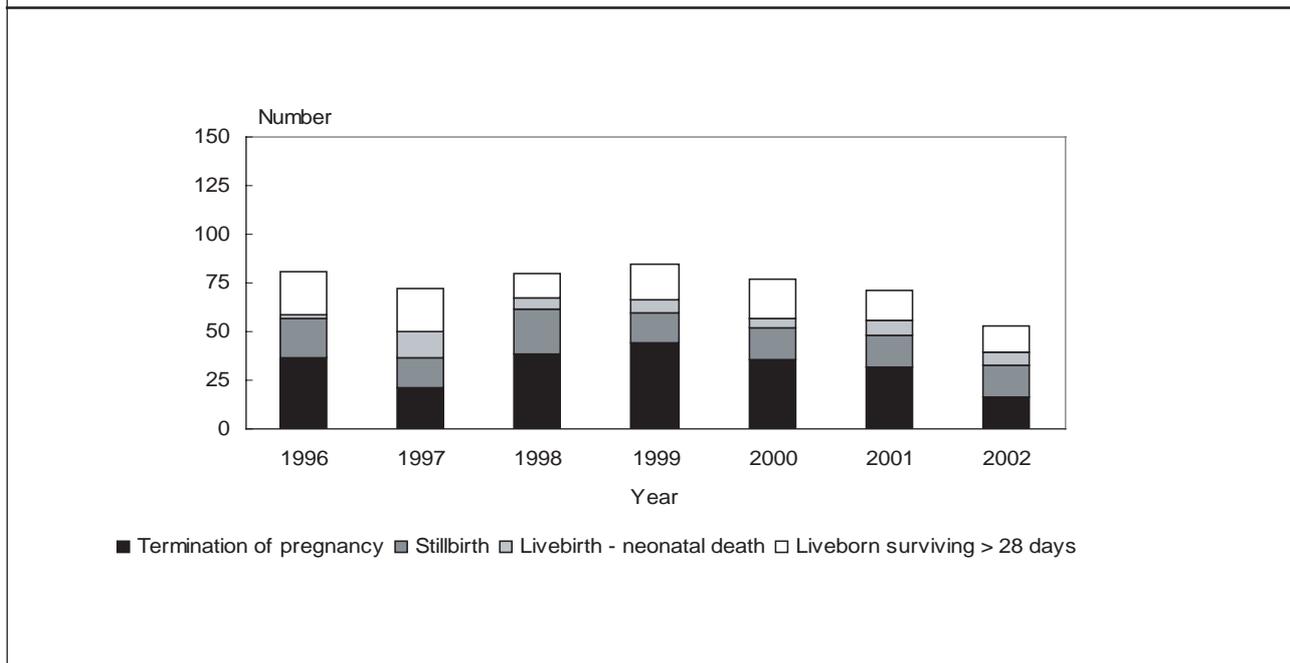
Birth defect	Year													
	1996		1997		1998		1999		2000		2001		2002	
	No.	Rate/ 1,000												
Neural tube defects	81	0.9	72	0.8	80	0.9	85	1.0	77	0.9	71	0.8	53	0.6
Cleft palate	71	0.8	65	0.7	68	0.8	67	0.8	79	0.9	67	0.8	48	0.6
Total cleft lip	87	1.0	86	1.0	89	1.0	84	1.0	71	0.8	88	1.0	68	0.8
Hypospadias	186	2.2	163	1.9	191	2.2	199	2.3	191	2.2	173	2.0	94	1.1
Limb reduction defects	44	0.5	61	0.7	54	0.6	56	0.6	61	0.7	42	0.5	18	0.2
Chromosomal abnormalities	232	2.7	235	2.7	357	4.2	412	4.8	411	4.7	369	4.3	202	2.4
Down syndrome	132	1.5	139	1.6	185	2.2	199	2.3	213	2.4	180	2.1	108	1.3
Renal agenesis and dysgenesis	66	0.8	85	1.0	100	1.2	80	0.9	82	0.9	75	0.9	40	0.5

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 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, cases reported during pregnancy or at birth are reported.

FIGURE 14

NEURAL TUBE DEFECTS: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1996–2002#

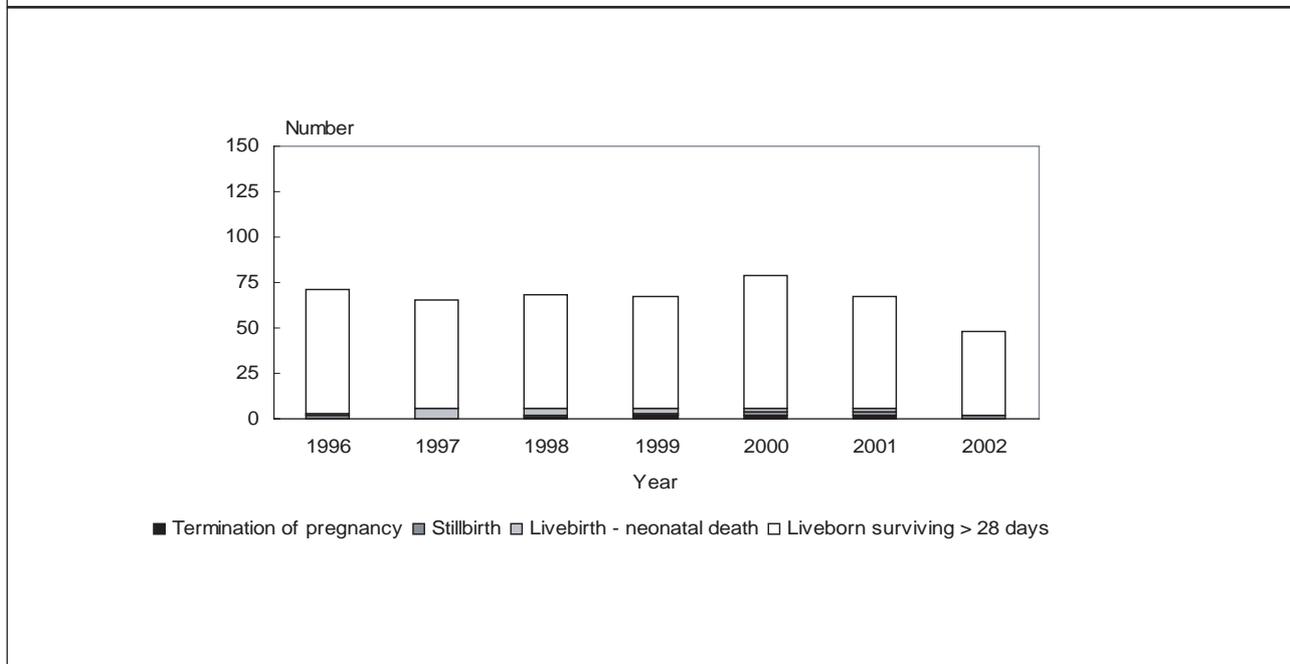


Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.

For 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, cases reported during pregnancy or at birth are reported.

FIGURE 15

CLEFT PALATE: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1996–2002#

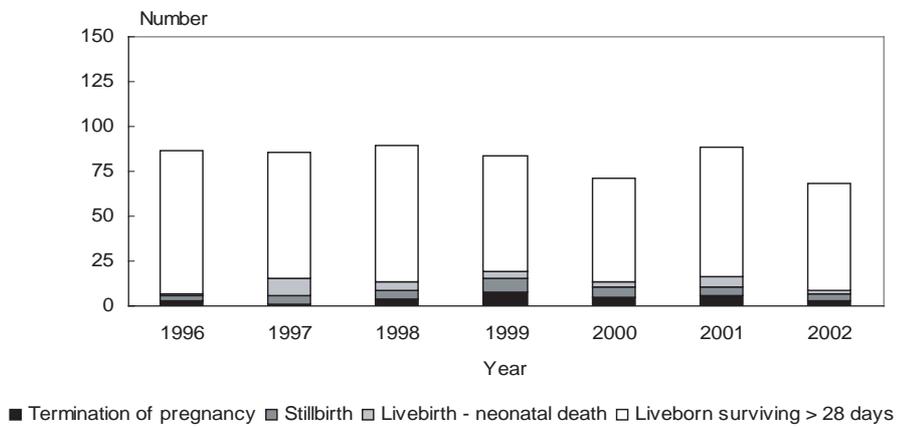


Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.

For 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, cases reported during pregnancy or at birth are reported.

FIGURE 16

TOTAL CLEFT LIP: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1996–2002#



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

For 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, cases reported during pregnancy or at birth are reported.

FIGURE 17

HYPOSPADIAS: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1996–2002#

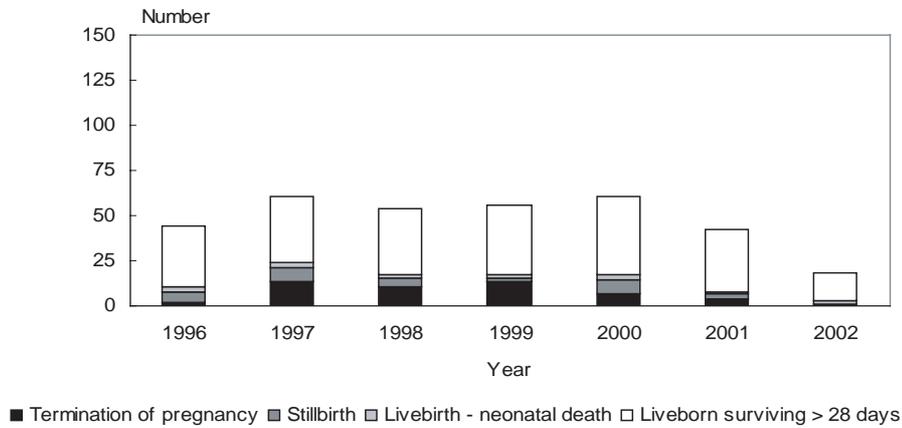


Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.

For 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, cases reported during pregnancy or at birth are reported.

FIGURE 18

LIMB REDUCTION DEFECTS: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1996–2002#

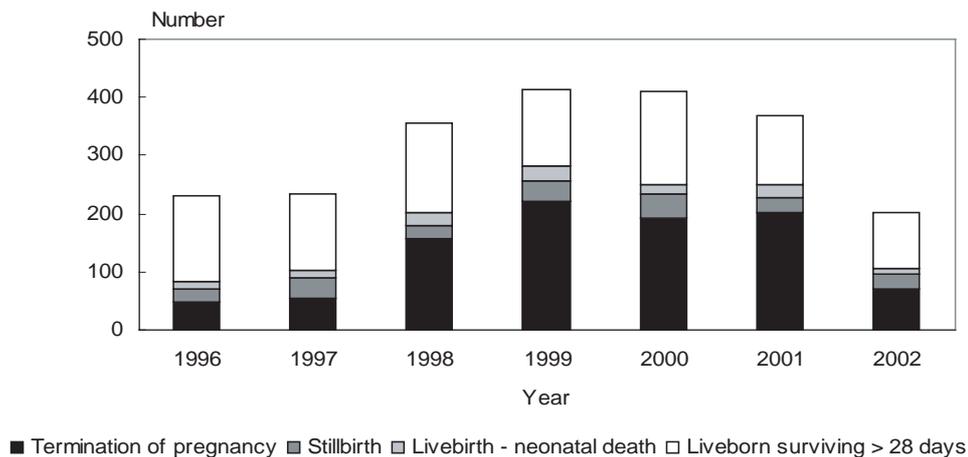


Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.

For 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, cases reported during pregnancy or at birth are reported.

FIGURE 19

CHROMOSOMAL ABNORMALITIES: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1996–2002#

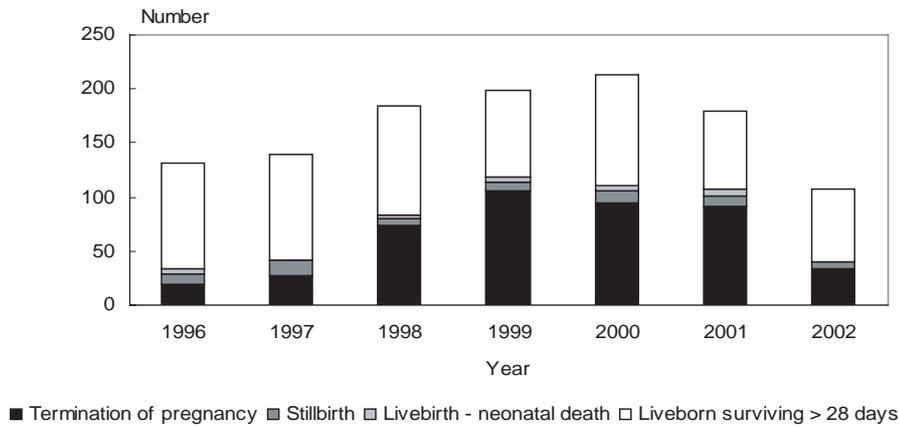


Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.

From 1 January 1998 birth defects are notifiable under the NSW Public Health Act 1991. The increase in reported terminations of pregnancy in 1998 follows the introduction of this notification requirement. For 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, cases reported during pregnancy or at birth are reported.

FIGURE 20

DOWN SYNDROME: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1996–2002#

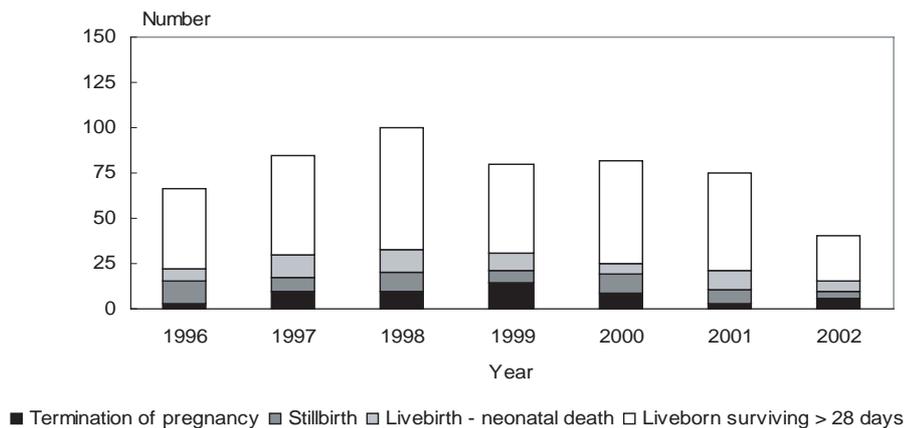


Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.

From 1 January 1998 birth defects are notifiable under the NSW Public Health Act 1991. The increase in reported terminations of pregnancy in 1998 follows the introduction of this notification requirement. For 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, cases reported during pregnancy or at birth are reported.

FIGURE 21

RENAL AGENESIS AND DYSGENESIS: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1996–2002#



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

Includes cystic renal disease and excludes obstructive defects of the renal pelvis, abnormally shaped kidney, double/triple kidney, ectopic kidney and enlarged kidney without dysplasia. For 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, 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 115. 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 110 on page 85). 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 these tables 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 1996–2002, standardised rates of reported birth defects were lowest in the Southern Health Area and highest in the Hunter Health Area. Review of cases showed slightly increased reported rates of a range of birth defects in the Hunter Area compared to NSW overall including: unstable hips (but not dislocated hips), congenital hydronephrosis, isolated atrial septal defect and ventricular septal defect, microcephaly and congenital hydrocephalus. The range and pattern of these defects suggests that enumeration of birth defects, including less severe conditions, is better in the Hunter Health Area compared with NSW as a whole.

Birth defect rates may vary markedly from year to year for some areas, where the numbers of reported birth defects are small. For these areas, small variations in numbers of birth defect cases may result in a marked variation in the birth defect rate. The wide confidence intervals for some areas reflect this variability.

TABLE 115

BIRTH DEFECTS IN NSW HEALTH AREAS, 1996–2002[#]

Health Area	1996–2000			2001			2002			1996–2002			99% confidence intervals	
	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		
Central Sydney	780	22.9	21.3	163	24.3	15.8	75	11.2	12.5	1018	21.5	19.2	17.4	21.1
Northern Sydney	1121	24.5	23.1	207	22.0	16.4	125	13.2	11.6	1453	22.5	20.7	18.6	22.8
Western Sydney	1286	24.0	23.4	258	23.4	15.2	132	11.7	11.7	1676	22.1	20.5	19.1	21.9
Wentworth	636	25.8	25.4	93	19.5	14.7	60	12.8	12.6	789	23.2	22.1	20.1	24.3
South Western Sydney	1447	23.2	22.6	266	21.5	14.3	133	10.5	10.4	1846	21.1	19.6	18.4	20.9
Central Coast	465	24.6	24.3	80	21.7	14.5	30	8.3	8.1	575	21.9	20.7	18.4	23.1
Hunter	977	27.6	27.5	193	28.2	19.0	104	14.8	15.0	1274	25.9	24.5	22.7	26.4
Illawarra	489	22.0	21.4	81	18.7	14.9	57	13.0	13.2	627	20.2	19.3	17.3	21.4
South Eastern Sydney	1224	26.1	24.1	232	24.3	13.5	119	12.5	12.4	1575	23.9	20.9	19.3	22.7
Northern Rivers	318	21.6	22.4	50	17.9	16.0	28	10.1	10.0	396	19.5	19.6	17.1	22.3
Mid North Coast	359	24.0	23.4	78	27.4	19.9	47	16.8	16.9	484	23.5	22.0	19.4	24.8
New England	278	23.0	23.2	65	28.8	22.5	29	12.6	13.2	372	22.3	21.8	18.9	25.0
Macquarie	191	23.2	22.8	31	19.7	16.3	20	13.3	14.4	242	21.4	20.7	17.3	24.5
Mid Western	255	21.5	20.9	48	21.1	15.2	20	9.3	9.3	323	19.8	18.6	15.9	21.6
Far West	67	23.8	23.1	9	15.7	16.3	4	8.0	9.8	80	20.5	20.3	14.6	27.4
Greater Murray	295	19.6	19.0	42	16.3	11.6	19	7.5	7.4	356	17.7	16.6	14.3	19.1
Southern	198	21.9	19.7	26	15.4	10.0	13	8.7	9.2	237	19.4	17.1	14.1	20.4
TOTAL NSW	10386	24.0	23.2	1922	22.5	15.5	1015	11.9	11.8	13323	22.1	20.5	20.0	21.0

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 1996–2001, cases reported during pregnancy and up to one year of age are included. For 2002, cases reported during pregnancy or at birth are reported.

Reference

1. British Paediatric Association. *British Paediatric Association Classification of Diseases*. London: British Paediatric Association, 1979.

10. NSW HOSPITALS

Onset and augmentation of labour in selected hospitals

Table 116 gives onset or augmentation of labour for individual hospitals where the number of reported deliveries exceeded 200 in 2002, totals for all hospitals within each health area and the NSW total.

TABLE 116

CONFINEMENTS BY ONSET AND AUGMENTATION OF LABOUR AND HOSPITAL, NSW 2002[#]

Health Area and Hospital	Onset and augmentation of labour														TOTAL					
	Spontaneous		Spontaneous augmented with ARM		Spontaneous augmented oxytocics-		No labour prostagl.		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.	%
Central Sydney																				
Canterbury*	800	55.6	0	0.0	174	12.1	145	10.1	307	21.3	13	0.9	0	0.0	1	0.1	0	0.0	1440	100.0
Royal Prince Alfred*	1851	52.4	0	0.0	436	12.4	468	13.3	735	20.8	40	1.1	0	0.0	0	0.0	0	0.0	3530	100.0
ALL HOSPITALS	2651	53.3	0	0.0	610	12.3	613	12.3	1042	21.0	53	1.1	0	0.0	1	0.0	0	0.0	4970	100.0
Northern Sydney																				
Hornsby	415	45.7	48	5.3	100	11.0	123	13.5	80	8.8	3	0.3	139	15.3	0	0.0	0	0.0	908	100.0
Manly	400	51.2	21	2.7	69	8.8	86	11.0	71	9.1	23	2.9	111	14.2	0	0.0	0	0.0	781	100.0
Mona Vale	262	47.3	12	2.2	50	9.0	78	14.1	47	8.5	3	0.5	102	18.4	0	0.0	0	0.0	554	100.0
Royal North Shore	616	44.6	47	3.4	183	13.3	241	17.5	90	6.5	9	0.7	195	14.1	0	0.0	0	0.0	1381	100.0
Ryde	264	55.5	7	1.5	50	10.5	54	11.3	17	3.6	2	0.4	82	17.2	0	0.0	0	0.0	476	100.0
Mater, North Sydney	489	25.4	180	9.4	271	14.1	454	23.6	154	8.0	53	2.8	324	16.8	0	0.0	0	0.0	1925	100.0
North Shore Private	714	34.2	58	2.8	192	9.2	542	26.0	126	6.0	41	2.0	397	19.0	15	0.7	0	0.0	2085	100.0
Sydney Adventist	767	28.8	226	8.5	311	11.7	506	19.0	172	6.5	25	0.9	654	24.6	1	0.0	0	0.0	2662	100.0
ALL HOSPITALS	3927	36.5	599	5.6	1226	11.4	2084	19.3	757	7.0	159	1.5	2004	18.6	16	0.1	0	0.0	10772	100.0
Western Sydney																				
Auburn	713	58.7	53	4.4	117	9.6	117	9.6	61	5.0	5	0.4	147	12.1	1	0.1	0	0.0	1214	100.0
Blacktown	1363	54.8	141	5.7	149	6.0	229	9.2	120	4.8	13	0.5	465	18.7	9	0.4	0	0.0	2489	100.0
Westmead	1879	47.9	353	9.0	429	10.9	500	12.7	151	3.8	22	0.6	568	14.5	23	0.6	0	0.0	3925	100.0
The Hills Private	356	26.0	155	11.3	167	12.2	179	13.1	105	7.7	8	0.6	399	29.1	1	0.1	0	0.0	1370	100.0
Westmead Private	442	32.5	154	11.3	175	12.8	211	15.5	128	9.4	17	1.2	224	16.4	9	0.7	2	0.1	1362	100.0
ALL HOSPITALS	4753	45.9	856	8.3	1037	10.0	1236	11.9	565	5.5	65	0.6	1803	17.4	43	0.4	2	0.0	10360	100.0
Wentworth																				
Blue Mountains	102	51.0	7	3.5	8	4.0	27	13.5	23	11.5	9	4.5	24	12.0	0	0.0	0	0.0	200	100.0
Nepean	1787	54.1	73	2.2	150	4.5	433	13.1	171	5.2	47	1.4	629	19.0	15	0.5	0	0.0	3305	100.0
Hawkesbury	426	45.1	147	15.6	51	5.4	114	12.1	85	9.0	17	1.8	105	11.1	0	0.0	0	0.0	945	100.0
Nepean Private	281	31.3	145	16.2	63	7.0	147	16.4	92	10.3	18	2.0	142	15.8	9	1.0	0	0.0	897	100.0
ALL HOSPITALS	2596	48.6	372	7.0	272	5.1	721	13.5	371	6.9	91	1.7	900	16.8	24	0.4	0	0.0	5347	100.0
South Western Sydney																				
Fairfield	1073	58.7	75	4.1	184	10.1	146	8.0	86	4.7	1	0.1	256	14.0	6	0.3	0	0.0	1827	100.0
Liverpool	1489	50.2	188	6.3	308	10.4	273	9.2	228	7.7	41	1.4	400	13.5	38	1.3	0	0.0	2965	100.0
Campbelltown	1329	51.0	198	7.6	180	6.9	276	10.6	124	4.8	32	1.2	451	17.3	17	0.7	0	0.0	2607	100.0
Bankstown-Lidcombe	1078	61.3	46	2.6	109	6.2	151	8.6	139	7.9	24	1.4	205	11.6	8	0.5	0	0.0	1760	100.0
Sydney Southwest Private	270	26.1	77	7.4	117	11.3	159	15.4	144	13.9	17	1.6	250	24.2	0	0.0	0	0.0	1034	100.0
Bowral	357	58.3	6	1.0	29	4.7	59	9.6	50	8.2	10	1.6	96	15.7	5	0.8	0	0.0	612	100.0
ALL HOSPITALS	5596	51.8	590	5.5	927	8.6	1064	9.8	771	7.1	125	1.2	1658	15.3	74	0.7	0	0.0	10805	100.0
Central Coast																				
Gosford	689	33.6	243	11.9	341	16.6	237	11.6	175	8.5	14	0.7	351	17.1	0	0.0	0	0.0	2050	100.0
Wyong	245	71.2	69	20.1	19	5.5	3	0.9	2	0.6	2	0.6	4	1.2	0	0.0	0	0.0	344	100.0
North Gosford Private	226	25.2	79	8.8	107	11.9	214	23.9	65	7.2	31	3.5	172	19.2	2	0.2	1	0.1	897	100.0
ALL HOSPITALS	1160	35.2	391	11.9	467	14.2	454	13.8	242	7.4	47	1.4	527	16.0	2	0.1	1	0.0	3291	100.0
Hunter																				
Maitland	770	51.7	31	2.1	46	3.1	213	14.3	145	9.7	29	1.9	250	16.8	4	0.3	0	0.0	1488	100.0
Muswellbrook	104	46.6	29	13.0	9	4.0	30	13.5	18	8.1	3	1.3	30	13.5	0	0.0	0	0.0	223	100.0
Belmont	340	51.8	20	3.0	23	3.5	96	14.6	44	6.7	10	1.5	121	18.4	3	0.5	0	0.0	657	100.0
John Hunter	1706	53.4	168	5.3	170	5.3	349	10.9	234	7.3	76	2.4	464	14.5	27	0.8	0	0.0	3194	100.0
Christo Road Private	413	39.3	86	8.2	51	4.8	162	15.4	92	8.7	62	5.9	181	17.2	5	0.5	0	0.0	1052	100.0
Other Area hospitals	208	40.9	47	9.3	20	3.9	150	29.5	50	9.8	2	0.4	28	5.5	3	0.6	0	0.0	508	100.0
ALL HOSPITALS	3541	49.7	381	5.3	319	4.5	1000	14.0	583	8.2	182	2.6	1074	15.1	42	0.6	0	0.0	7122	100.0
Illawarra																				
Shoalhaven	474	59.8	18	2.3	37	4.7	105	13.3	66	8.3	8	1.0	82	10.4	2	0.3	0	0.0	792	100.0
Wollongong	585	32.6	348	19.4	226	12.6	147	8.2	135	7.5	16	0.9	331	18.4	7	0.4	0	0.0	1795	100.0
Shellharbour	169	39.9	99	23.3	47	11.1	29	6.8	26	6.1	4	0.9	50	11.8	0	0.0	0	0.0	424	100.0
Illawarra Private	293	29.3	115	11.5	84	8.4	161	16.1	81	8.1	11	1.1	256	25.6	0	0.0	0	0.0	1001	100.0
Other Area hospitals	24	27.0	8	9.0	3	3.4	37	41.6	7	7.9	0	0.0	10	11.2	0	0.0	0	0.0	89	100.0
ALL HOSPITALS	1545	37.7	588	14.3	397	9.7	479	11.7	315	7.7	39	1.0	729	17.8	9	0.2	0	0.0	4101	100.0

TABLE 116 (continued)
CONFINEMENTS BY ONSET AND AUGMENTATION OF LABOUR AND HOSPITAL, NSW 2002[#]

Health Area and Hospital	Onset and augmentation of labour														TOTAL					
	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		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	
South Eastern Sydney																				
Royal Hospital for Women	2017	52.0	84	2.2	382	9.8	512	13.2	291	7.5	30	0.8	543	14.0	22	0.6	0	0.0	3881	100.0
St. George	1292	58.8	89	4.0	158	7.2	215	9.8	215	9.8	20	0.9	195	8.9	15	0.7	0	0.0	2199	100.0
Sutherland	323	46.2	24	3.4	70	10.0	100	14.3	54	7.7	2	0.3	125	17.9	1	0.1	0	0.0	699	100.0
Hurstville Community	327	25.8	123	9.7	183	14.5	268	21.2	76	6.0	12	0.9	276	21.8	0	0.0	0	0.0	1265	100.0
Kareena Private	120	17.1	41	5.8	88	12.5	189	26.9	95	13.5	11	1.6	159	22.6	0	0.0	0	0.0	703	100.0
St. George Private	465	31.3	134	9.0	206	13.8	323	21.7	163	11.0	18	1.2	179	12.0	0	0.0	0	0.0	1488	100.0
Prince of Wales Private	446	27.7	191	11.8	166	10.3	406	25.2	114	7.1	33	2.0	243	15.1	13	0.8	1	0.1	1613	100.0
ALL HOSPITALS	4990	42.1	686	5.8	1253	10.6	2013	17.0	1008	8.5	126	1.1	1720	14.5	51	0.4	1	0.0	11848	100.0
Northern Rivers																				
Grafton Base	158	38.2	48	11.6	40	9.7	69	16.7	56	13.5	1	0.2	42	10.1	0	0.0	0	0.0	414	100.0
Lismore Base	564	44.4	147	11.6	106	8.3	148	11.6	114	9.0	35	2.8	153	12.0	4	0.3	0	0.0	1271	100.0
Murwillumbah	155	36.7	68	16.1	42	10.0	52	12.3	46	10.9	4	0.9	55	13.0	0	0.0	0	0.0	422	100.0
Tweed Heads	297	43.5	74	10.9	64	9.4	92	13.5	33	4.8	5	0.7	117	17.2	0	0.0	0	0.0	682	100.0
Other Area hospitals	198	66.0	39	13.0	8	2.7	31	10.3	7	2.3	3	1.0	14	4.7	0	0.0	0	0.0	300	100.0
ALL HOSPITALS	1372	44.4	376	12.2	260	8.4	392	12.7	256	8.3	48	1.6	381	12.3	4	0.1	0	0.0	3089	100.0
Mid North Coast																				
Coffs Harbour	331	41.4	86	10.8	43	5.4	139	17.4	62	7.8	20	2.5	117	14.6	1	0.1	0	0.0	799	100.0
Kempsey	152	49.4	51	16.6	13	4.2	24	7.8	40	13.0	5	1.6	22	7.1	0	0.0	1	0.3	308	100.0
Port Macquarie Base	220	33.6	90	13.8	55	8.4	103	15.7	81	12.4	3	0.5	96	14.7	6	0.9	0	0.0	654	100.0
Manning Base	293	46.3	80	12.6	42	6.6	54	8.5	52	8.2	20	3.2	92	14.5	0	0.0	0	0.0	633	100.0
Other Area hospitals	127	45.2	44	15.7	12	4.3	37	13.2	12	4.3	5	1.8	43	15.3	1	0.4	0	0.0	281	100.0
ALL HOSPITALS	1123	42.0	351	13.1	165	6.2	357	13.3	247	9.2	53	2.0	370	13.8	8	0.3	1	0.0	2675	100.0
New England																				
Armidale	123	26.4	83	17.8	44	9.4	34	7.3	73	15.7	10	2.1	99	21.2	0	0.0	0	0.0	466	100.0
Inverell	57	26.1	28	12.8	34	15.6	34	15.6	30	13.8	5	2.3	28	12.8	2	0.9	0	0.0	218	100.0
Moree	103	40.9	37	14.7	20	7.9	21	8.3	19	7.5	1	0.4	51	20.2	0	0.0	0	0.0	252	100.0
Tamworth Base	177	30.1	108	18.4	54	9.2	69	11.7	52	8.8	17	2.9	108	18.4	3	0.5	0	0.0	588	100.0
Other Area hospitals	268	36.5	105	14.3	44	6.0	101	13.8	112	15.3	15	2.0	88	12.0	0	0.0	1	0.1	734	100.0
ALL HOSPITALS	728	32.2	361	16.0	196	8.7	259	11.5	286	12.7	48	2.1	374	16.6	5	0.2	1	0.0	2258	100.0
Macquarie																				
Dubbo Base	478	39.7	155	12.9	106	8.8	128	10.6	107	8.9	24	2.0	192	16.0	8	0.7	5	0.4	1203	100.0
Mudgee	117	53.7	23	10.6	20	9.2	24	11.0	24	11.0	2	0.9	8	3.7	0	0.0	0	0.0	218	100.0
Other Area hospitals	42	46.7	9	10.0	2	2.2	31	34.4	0	0.0	0	0.0	6	6.7	0	0.0	0	0.0	90	100.0
ALL HOSPITALS	637	42.2	187	12.4	128	8.5	183	12.1	131	8.7	26	1.7	206	13.6	8	0.5	5	0.3	1511	100.0
Mid Western																				
Bathurst Base	252	46.9	55	10.2	30	5.6	100	18.6	69	12.8	8	1.5	23	4.3	0	0.0	0	0.0	537	100.0
Orange Base	272	37.1	125	17.1	52	7.1	113	15.4	61	8.3	18	2.5	92	12.6	0	0.0	0	0.0	733	100.0
Other Area hospitals	288	39.5	117	16.0	50	6.9	103	14.1	87	11.9	13	1.8	70	9.6	1	0.1	0	0.0	729	100.0
ALL HOSPITALS	812	40.6	297	14.9	132	6.6	316	15.8	217	10.9	39	2.0	185	9.3	1	0.1	0	0.0	1999	100.0
Far West																				
Broken Hill Base	168	65.6	8	3.1	13	5.1	23	9.0	22	8.6	4	1.6	18	7.0	0	0.0	0	0.0	256	100.0
Other Area hospitals	50	66.7	11	14.7	4	5.3	2	2.7	6	8.0	0	0.0	2	2.7	0	0.0	0	0.0	75	100.0
ALL HOSPITALS	218	65.9	19	5.7	17	5.1	25	7.6	28	8.5	4	1.2	20	6.0	0	0.0	0	0.0	331	100.0
Greater Murray																				
Griffith Base	263	54.0	31	6.4	12	2.5	74	15.2	69	14.2	14	2.9	24	4.9	0	0.0	0	0.0	487	100.0
Wagga Wagga Base	350	48.0	78	10.7	43	5.9	83	11.4	109	15.0	18	2.5	40	5.5	8	1.1	0	0.0	729	100.0
Calvary, Wagga Wagga	206	35.2	26	4.4	40	6.8	104	17.7	150	25.6	13	2.2	47	8.0	0	0.0	0	0.0	586	100.0
Other Area hospitals	300	40.3	89	12.0	26	3.5	96	12.9	122	16.4	24	3.2	80	10.8	6	0.8	1	0.1	744	100.0
ALL HOSPITALS	1119	44.0	224	8.8	121	4.8	357	14.0	450	17.7	69	2.7	191	7.5	14	0.5	1	0.0	2546	100.0
Southern																				
Goulburn Base	139	46.2	38	12.6	46	15.3	50	16.6	17	5.6	1	0.3	8	2.7	2	0.7	0	0.0	301	100.0
Queanbeyan	144	56.0	20	7.8	21	8.2	27	10.5	32	12.5	2	0.8	11	4.3	0	0.0	0	0.0	257	100.0
Other Area hospitals	465	51.4	85	9.4	50	5.5	90	10.0	96	10.6	16	1.8	101	11.2	1	0.1	0	0.0	904	100.0
ALL HOSPITALS	748	51.2	143	9.8	117	8.0	167	11.4	145	9.9	19	1.3	120	8.2	3	0.2	0	0.0	1462	100.0
TOTAL NSW	37615	44.5	6422	7.6	7644	9.0	11720	13.9	7414	8.8	1193	1.4	12262	14.5	305	0.4	12	0.0	84587	100.0

Source: NSW Midwives Data 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.

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

* Royal Prince Alfred and Canterbury Hospitals supply data electronically and report augmentation by oxytocin-prostaglandin only.

Type of delivery in selected hospitals

Table 117 gives type of delivery for individual hospitals where the number of reported confinements exceeded 200 in 2002, totals for all hospitals within each health area and the NSW total.

TABLE 117

CONFINEMENTS BY TYPE OF DELIVERY AND HOSPITAL, NSW 2002[#]

Health Area and Hospital	Normal vaginal		Forceps		Vacuum extraction		Type of delivery				Emergency caesarean		Not stated		TOTAL	
	No.	%	No.	%	No.	%	Vaginal breech	Elective caesarean	No.	%	No.	%	No.	%	No.	%
Central Sydney																
Canterbury	1017	70.6	33	2.3	119	8.3	1	0.1	145	10.1	125	8.7	0	0.0	1440	100.0
Royal Prince Alfred	2198	62.3	63	1.8	325	9.2	24	0.7	468	13.3	452	12.8	0	0.0	3530	100.0
ALL HOSPITALS	3215	64.7	96	1.9	444	8.9	25	0.5	613	12.3	577	11.6	0	0.0	4970	100.0
Northern Sydney																
Hornsby	595	65.5	21	2.3	75	8.3	0	0.0	123	13.5	94	10.4	0	0.0	908	100.0
Manly	539	69.0	22	2.8	49	6.3	4	0.5	86	11.0	81	10.4	0	0.0	781	100.0
Mona Vale	337	60.8	20	3.6	61	11.0	1	0.2	78	14.1	57	10.3	0	0.0	554	100.0
Royal North Shore	799	57.9	108	7.8	55	4.0	11	0.8	241	17.5	167	12.1	0	0.0	1381	100.0
Ryde	349	73.3	16	3.4	13	2.7	0	0.0	54	11.3	44	9.2	0	0.0	476	100.0
Mater, North Sydney	801	41.6	78	4.1	301	15.6	4	0.2	454	23.6	287	14.9	0	0.0	1925	100.0
North Shore Private	920	44.1	72	3.5	237	11.4	4	0.2	542	26.0	310	14.9	0	0.0	2085	100.0
Sydney Adventist	1493	56.1	155	5.8	197	7.4	4	0.2	506	19.0	307	11.5	0	0.0	2662	100.0
ALL HOSPITALS	5833	54.1	492	4.6	988	9.2	28	0.3	2084	19.3	1347	12.5	0	0.0	10772	100.0
Western Sydney																
Auburn	961	79.2	23	1.9	21	1.7	2	0.2	117	9.6	90	7.4	0	0.0	1214	100.0
Blacktown	1753	70.4	138	5.5	103	4.1	8	0.3	229	9.2	258	10.4	0	0.0	2489	100.0
Westmead	2595	66.1	294	7.5	72	1.8	32	0.8	500	12.7	432	11.0	0	0.0	3925	100.0
The Hills Private	852	62.2	120	8.8	83	6.1	6	0.4	179	13.1	130	9.5	0	0.0	1370	100.0
Westmead Private	735	54.0	137	10.1	110	8.1	2	0.1	211	15.5	164	12.0	3	0.2	1362	100.0
ALL HOSPITALS	6896	66.6	712	6.9	389	3.8	50	0.5	1236	11.9	1074	10.4	3	0.0	10360	100.0
Wentworth																
Blue Mountains	143	71.5	2	1.0	6	3.0	0	0.0	27	13.5	22	11.0	0	0.0	200	100.0
Nepean	2224	67.3	61	1.8	177	5.4	20	0.6	433	13.1	390	11.8	0	0.0	3305	100.0
Hawkesbury	651	68.9	38	4.0	53	5.6	5	0.5	114	12.1	84	8.9	0	0.0	945	100.0
Nepean Private	511	57.0	69	7.7	23	2.6	0	0.0	147	16.4	146	16.3	1	0.1	897	100.0
ALL HOSPITALS	3529	66.0	170	3.2	259	4.8	25	0.5	721	13.5	642	12.0	1	0.0	5347	100.0
South Western Sydney																
Fairfield	1422	77.8	18	1.0	145	7.9	6	0.3	146	8.0	90	4.9	0	0.0	1827	100.0
Liverpool	2194	74.0	33	1.1	198	6.7	26	0.9	273	9.2	241	8.1	0	0.0	2965	100.0
Campbelltown	1943	74.5	18	0.7	134	5.1	13	0.5	276	10.6	223	8.6	0	0.0	2607	100.0
Bankstown-Lidcombe	1335	75.9	22	1.3	133	7.6	11	0.6	151	8.6	108	6.1	0	0.0	1760	100.0
Sydney Southwest Private	565	54.6	40	3.9	164	15.9	5	0.5	159	15.4	101	9.8	0	0.0	1034	100.0
Bowral	386	63.1	22	3.6	90	14.7	6	1.0	59	9.6	49	8.0	0	0.0	612	100.0
ALL HOSPITALS	7845	72.6	153	1.4	864	8.0	67	0.6	1064	9.8	812	7.5	0	0.0	10805	100.0
Central Coast																
Gosford	1257	61.3	24	1.2	230	11.2	8	0.4	237	11.6	294	14.3	0	0.0	2050	100.0
Wyong	309	89.8	3	0.9	16	4.7	1	0.3	3	0.9	12	3.5	0	0.0	344	100.0
North Gosford Private	447	49.8	19	2.1	95	10.6	1	0.1	214	23.9	121	13.5	0	0.0	897	100.0
ALL HOSPITALS	2013	61.2	46	1.4	341	10.4	10	0.3	454	13.8	427	13.0	0	0.0	3291	100.0
Hunter																
Maitland	903	60.7	24	1.6	140	9.4	4	0.3	213	14.3	204	13.7	0	0.0	1488	100.0
Muswellbrook	155	69.5	1	0.4	15	6.7	0	0.0	30	13.5	22	9.9	0	0.0	223	100.0
Belmont	446	67.9	10	1.5	37	5.6	0	0.0	96	14.6	68	10.4	0	0.0	657	100.0
John Hunter	2182	68.3	83	2.6	184	5.8	33	1.0	349	10.9	363	11.4	0	0.0	3194	100.0
Christo Road Private	584	55.5	46	4.4	120	11.4	5	0.5	162	15.4	135	12.8	0	0.0	1052	100.0
Other Area hospitals	319	62.8	1	0.2	21	4.1	2	0.4	150	29.5	14	2.8	1	0.2	508	100.0
ALL HOSPITALS	4589	64.4	165	2.3	517	7.3	44	0.6	1000	14.0	806	11.3	1	0.0	7122	100.0
Illawarra																
Shoalhaven	533	67.3	36	4.5	16	2.0	3	0.4	105	13.3	99	12.5	0	0.0	792	100.0
Wollongong	1250	69.6	18	1.0	169	9.4	6	0.3	147	8.2	205	11.4	0	0.0	1795	100.0
Shellharbour	329	77.6	9	2.1	16	3.8	1	0.2	29	6.8	40	9.4	0	0.0	424	100.0
Illawarra Private	581	58.0	12	1.2	140	14.0	0	0.0	161	16.1	106	10.6	1	0.1	1001	100.0
Other Area hospitals	46	51.7	2	2.2	2	2.2	0	0.0	37	41.6	2	2.2	0	0.0	89	100.0
ALL HOSPITALS	2739	66.8	77	1.9	343	8.4	10	0.2	479	11.7	452	11.0	1	0.0	4101	100.0

TABLE 117 (continued)
CONFINEMENTS BY TYPE OF DELIVERY AND HOSPITAL, NSW 2002#

Health Area and Hospital	Normal		Forceps vaginal		Vacuum extraction		Type of delivery Vaginal breech		Elective caesarean		Emergency caesarean		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
South Eastern Sydney																
Royal Hospital for Women	2347	60.5	200	5.2	276	7.1	19	0.5	512	13.2	527	13.6	0	0.0	3881	100.0
St. George	1496	68.0	47	2.1	189	8.6	4	0.2	215	9.8	248	11.3	0	0.0	2199	100.0
Sutherland	479	68.5	25	3.6	23	3.3	0	0.0	100	14.3	72	10.3	0	0.0	699	100.0
Hurstville Community	588	46.5	80	6.3	136	10.8	0	0.0	268	21.2	193	15.3	0	0.0	1265	100.0
Kareena Private	281	40.0	74	10.5	60	8.5	0	0.0	189	26.9	99	14.1	0	0.0	703	100.0
St. George Private	725	48.7	134	9.0	103	6.9	1	0.1	323	21.7	202	13.6	0	0.0	1488	100.0
Prince of Wales																
Private	760	47.1	53	3.3	201	12.5	1	0.1	406	25.2	186	11.5	6	0.4	1613	100.0
ALL HOSPITALS	6676	56.3	613	5.2	988	8.3	25	0.2	2013	17.0	1527	12.9	6	0.1	11848	100.0
Northern Rivers																
Grafton Base	248	59.9	16	3.9	17	4.1	1	0.2	69	16.7	63	15.2	0	0.0	414	100.0
Lismore Base	857	67.4	51	4.0	14	1.1	6	0.5	148	11.6	195	15.3	0	0.0	1271	100.0
Murwillumbah	273	64.7	6	1.4	25	5.9	0	0.0	52	12.3	66	15.6	0	0.0	422	100.0
Tweed Heads	483	70.8	8	1.2	30	4.4	2	0.3	92	13.5	67	9.8	0	0.0	682	100.0
Other Area hospitals	259	86.3	3	1.0	5	1.7	2	0.7	31	10.3	0	0.0	0	0.0	300	100.0
ALL HOSPITALS	2120	68.6	84	2.7	91	2.9	11	0.4	392	12.7	391	12.7	0	0.0	3089	100.0
Mid North Coast																
Coffs Harbour	528	66.1	22	2.8	33	4.1	0	0.0	139	17.4	77	9.6	0	0.0	799	100.0
Kempsey	262	85.1	3	1.0	3	1.0	2	0.6	24	7.8	14	4.5	0	0.0	308	100.0
Port Macquarie Base	417	63.8	40	6.1	25	3.8	1	0.2	103	15.7	68	10.4	0	0.0	654	100.0
Manning Base	471	74.4	15	2.4	22	3.5	3	0.5	54	8.5	68	10.7	0	0.0	633	100.0
Other Area hospitals	210	74.7	4	1.4	20	7.1	1	0.4	37	13.2	9	3.2	0	0.0	281	100.0
ALL HOSPITALS	1888	70.6	84	3.1	103	3.9	7	0.3	357	13.3	236	8.8	0	0.0	2675	100.0
New England																
Armidale	351	75.3	8	1.7	25	5.4	3	0.6	34	7.3	45	9.7	0	0.0	466	100.0
Inverell	164	75.2	9	4.1	0	0.0	0	0.0	34	15.6	10	4.6	1	0.5	218	100.0
Moree	175	69.4	10	4.0	14	5.6	1	0.4	21	8.3	31	12.3	0	0.0	252	100.0
Tamworth Base	409	69.6	6	1.0	52	8.8	3	0.5	69	11.7	49	8.3	0	0.0	588	100.0
Other Area hospitals	505	68.8	20	2.7	41	5.6	4	0.5	101	13.8	62	8.4	1	0.1	734	100.0
ALL HOSPITALS	1604	71.0	53	2.3	132	5.8	11	0.5	259	11.5	197	8.7	2	0.1	2258	100.0
Macquarie																
Dubbo Base	868	72.2	48	4.0	32	2.7	5	0.4	128	10.6	118	9.8	4	0.3	1203	100.0
Mudgee	156	71.6	1	0.5	16	7.3	1	0.5	24	11.0	20	9.2	0	0.0	218	100.0
Other Area hospitals	52	57.8	3	3.3	2	2.2	2	2.2	31	34.4	0	0.0	0	0.0	90	100.0
ALL HOSPITALS	1076	71.2	52	3.4	50	3.3	8	0.5	183	12.1	138	9.1	4	0.3	1511	100.0
Mid Western																
Bathurst Base	285	53.1	18	3.4	27	5.0	2	0.4	100	18.6	105	19.6	0	0.0	537	100.0
Orange Base	460	62.8	27	3.7	45	6.1	4	0.5	113	15.4	84	11.5	0	0.0	733	100.0
Other Area hospitals	510	70.0	7	1.0	30	4.1	3	0.4	103	14.1	76	10.4	0	0.0	729	100.0
ALL HOSPITALS	1255	62.8	52	2.6	102	5.1	9	0.5	316	15.8	265	13.3	0	0.0	1999	100.0
Far West																
Broken Hill Base	197	77.0	4	1.6	1	0.4	1	0.4	23	9.0	30	11.7	0	0.0	256	100.0
Other Area hospitals	67	89.3	0	0.0	2	2.7	1	1.3	2	2.7	2	2.7	1	1.3	75	100.0
ALL HOSPITALS	264	79.8	4	1.2	3	0.9	2	0.6	25	7.6	32	9.7	1	0.3	331	100.0
Greater Murray																
Griffith Base	307	63.0	28	5.7	13	2.7	5	1.0	74	15.2	60	12.3	0	0.0	487	100.0
Wagga Wagga Base	492	67.5	36	4.9	37	5.1	6	0.8	83	11.4	75	10.3	0	0.0	729	100.0
Calvary, Wagga Wagga	285	48.6	40	6.8	81	13.8	1	0.2	104	17.7	75	12.8	0	0.0	586	100.0
Other Area hospitals	529	71.1	15	2.0	35	4.7	1	0.1	96	12.9	68	9.1	0	0.0	744	100.0
ALL HOSPITALS	1613	63.4	119	4.7	166	6.5	13	0.5	357	14.0	278	10.9	0	0.0	2546	100.0
Southern																
Goulburn Base	186	61.8	35	11.6	6	2.0	2	0.7	50	16.6	22	7.3	0	0.0	301	100.0
Queanbeyan	185	72.0	4	1.6	18	7.0	0	0.0	27	10.5	23	8.9	0	0.0	257	100.0
Other Area hospitals	645	71.3	23	2.5	51	5.6	6	0.7	90	10.0	89	9.8	0	0.0	904	100.0
ALL HOSPITALS	1016	69.5	62	4.2	75	5.1	8	0.5	167	11.4	134	9.2	0	0.0	1462	100.0
TOTAL NSW	54271	64.2	3034	3.6	5855	6.9	353	0.4	11720	13.9	9335	11.0	19	0.0	84587	100.0

Source: NSW Midwives Data 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.

Pain relief in selected hospitals

Table 118 gives type of pain relief provided to women for individual hospitals where the number of reported confinements exceeded 200 in 2002, totals for all hospitals within each health area and the NSW total. In addition to

the types of pain relief listed a further 22,657 (26.3 per cent) women were reported to have received local anaesthetic to the perineum, and 920 (1.1 per cent) received a pudendal block.

TABLE 118

CONFINEMENTS BY TYPE OF PAIN RELIEF AND HOSPITAL, NSW 2002[#]

Health Area and Hospital	Epidural		General anaesthetic		Type of pain relief				Spinal		Nil		TOTAL	
	No.	%	No.	%	IM narcotics	%	Nitrous oxide	%	No.	%	No.	%	No.	%
Central Sydney														
Canterbury	233	16.2	108	7.5	476	33.1	649	45.1	113	7.8	205	14.2	1440	100.0
Royal Prince Alfred	1233	34.9	211	6.0	1330	37.7	1233	34.9	189	5.4	430	12.2	3530	100.0
ALL HOSPITALS	1466	29.5	319	6.4	1806	36.3	1882	37.9	302	6.1	635	12.8	4970	100.0
Northern Sydney														
Hornsby	342	37.7	46	5.1	241	26.5	496	54.6	35	3.9	52	5.7	908	100.0
Manly	224	28.7	22	2.8	193	24.7	377	48.3	111	14.2	71	9.1	781	100.0
Mona Vale	179	32.3	13	2.3	229	41.3	199	35.9	89	16.1	56	10.1	554	100.0
Royal North Shore	433	31.4	68	4.9	349	25.3	706	51.1	300	21.7	55	4.0	1381	100.0
Ryde	75	15.8	41	8.6	132	27.7	257	54.0	52	10.9	44	9.2	476	100.0
Mater, North Sydney	1204	62.5	46	2.4	252	13.1	722	37.5	74	3.8	45	2.3	1925	100.0
North Shore Private	1203	57.7	49	2.4	214	10.3	725	34.8	310	14.9	71	3.4	2085	100.0
Sydney Adventist	1490	56.0	112	4.2	348	13.1	969	36.4	158	5.9	75	2.8	2662	100.0
ALL HOSPITALS	5150	47.8	397	3.7	1958	18.2	4451	41.3	1129	10.5	469	4.4	10772	100.0
Western Sydney														
Auburn	118	9.7	114	9.4	308	25.4	577	47.5	63	5.2	259	21.3	1214	100.0
Blacktown	526	21.1	148	5.9	447	18.0	1310	52.6	220	8.8	420	16.9	2489	100.0
Westmead	1347	34.3	246	6.3	695	17.7	1812	46.2	380	9.7	371	9.5	3925	100.0
The Hills Private	681	49.7	73	5.3	262	19.1	552	40.3	32	2.3	68	5.0	1370	100.0
Westmead Private	497	36.5	74	5.4	283	20.8	699	51.3	159	11.7	105	7.7	1362	100.0
ALL HOSPITALS	3169	30.6	655	6.3	1995	19.3	4950	47.8	854	8.2	1223	11.8	10360	100.0
Wentworth														
Blue Mountains	43	21.5	6	3.0	48	24.0	74	37.0	36	18.0	39	19.5	200	100.0
Nepean	689	20.8	299	9.0	1125	34.0	1867	56.5	373	11.3	351	10.6	3305	100.0
Hawkesbury	52	5.5	55	5.8	184	19.5	561	59.4	143	15.1	129	13.7	945	100.0
Nepean Private	231	25.8	64	7.1	293	32.7	488	54.4	143	15.9	53	5.9	897	100.0
ALL HOSPITALS	1015	19.0	424	7.9	1650	30.9	2990	55.9	695	13.0	572	10.7	5347	100.0
South Western Sydney														
Fairfield	63	3.4	195	10.7	473	25.9	1027	56.2	34	1.9	290	15.9	1827	100.0
Liverpool	448	15.1	238	8.0	1143	38.5	1612	54.4	204	6.9	245	8.3	2965	100.0
Campbelltown	273	10.5	222	8.5	1021	39.2	1645	63.1	226	8.7	259	9.9	2607	100.0
Bankstown-Lidcombe	135	7.7	107	6.1	366	20.8	1042	59.2	130	7.4	239	13.6	1760	100.0
Sydney Southwest Private	295	28.5	55	5.3	379	36.7	625	60.4	75	7.3	42	4.1	1034	100.0
Bowral	192	31.4	27	4.4	236	38.6	289	47.2	35	5.7	84	13.7	612	100.0
ALL HOSPITALS	1406	13.0	844	7.8	3618	33.5	6240	57.8	704	6.5	1159	10.7	10805	100.0
Central Coast														
Gosford	489	23.9	129	6.3	739	36.0	990	48.3	328	16.0	118	5.8	2050	100.0
Wyong	0	0.0	15	4.4	81	23.5	154	44.8	3	0.9	74	21.5	344	100.0
North Gosford Private	305	34.0	29	3.2	201	22.4	382	42.6	199	22.2	49	5.5	897	100.0
ALL HOSPITALS	794	24.1	173	5.3	1021	31.0	1526	46.4	530	16.1	241	7.3	3291	100.0
Hunter														
Maitland	147	9.9	95	6.4	498	33.5	882	59.3	300	20.2	145	9.7	1488	100.0
Muswellbrook	5	2.2	1	0.4	62	27.8	103	46.2	52	23.3	55	24.7	223	100.0
Belmont	25	3.8	41	6.2	258	39.3	357	54.3	130	19.8	70	10.7	657	100.0
John Hunter	547	17.1	261	8.2	802	25.1	1525	47.7	418	13.1	446	14.0	3194	100.0
Christo Road Private	298	28.3	39	3.7	205	19.5	461	43.8	171	16.3	107	10.2	1052	100.0
Other Area hospitals	43	8.5	15	3.0	94	18.5	235	46.3	126	24.8	76	15.0	508	100.0
ALL HOSPITALS	1065	15.0	452	6.3	1919	26.9	3563	50.0	1197	16.8	899	12.6	7122	100.0
Illawarra														
Shoalhaven	80	10.1	43	5.4	183	23.1	306	38.6	163	20.6	139	17.6	792	100.0
Wollongong	357	19.9	98	5.5	508	28.3	1198	66.7	157	8.7	156	8.7	1795	100.0
Shellharbour	61	14.4	18	4.2	156	36.8	278	65.6	27	6.4	38	9.0	424	100.0
Illawarra Private	285	28.5	64	6.4	185	18.5	581	58.0	112	11.2	48	4.8	1001	100.0
Other Area hospitals	2	2.2	4	4.5	21	23.6	25	28.1	36	40.4	15	16.9	89	100.0
ALL HOSPITALS	785	19.1	227	5.5	1053	25.7	2388	58.2	495	12.1	396	9.7	4101	100.0

TABLE 118 (continued)
CONFINEMENTS BY TYPE OF PAIN RELIEF AND HOSPITAL, NSW 2002#

Health Area and Hospital	Epidural		General anaesthetic		Type of pain relief				Spinal		Nil		TOTAL	
	No.	%	No.	%	IM		Nitrous oxide		No.	%	No.	%	No.	%
					narcotics	%	No.	%						
South Eastern Sydney														
Royal Hospital for Women	1824	47.0	71	1.8	728	18.8	1418	36.5	461	11.9	333	8.6	3881	100.0
St. George	592	26.9	96	4.4	503	22.9	1136	51.7	212	9.6	312	14.2	2199	100.0
Sutherland	198	28.3	26	3.7	77	11.0	356	50.9	120	17.2	71	10.2	699	100.0
Hurstville Community	785	62.1	45	3.6	107	8.5	376	29.7	50	4.0	76	6.0	1265	100.0
Kareena Private	522	74.3	27	3.8	50	7.1	187	26.6	41	5.8	10	1.4	703	100.0
St. George Private	890	59.8	57	3.8	209	14.0	614	41.3	89	6.0	74	5.0	1488	100.0
Prince of Wales Private	1228	76.1	10	0.6	69	4.3	499	30.9	94	5.8	33	2.0	1613	100.0
ALL HOSPITALS	6039	51.0	332	2.8	1743	14.7	4586	38.7	1067	9.0	909	7.7	11848	100.0
Northern Rivers														
Grafton Base	124	30.0	61	14.7	88	21.3	196	47.3	36	8.7	52	12.6	414	100.0
Lismore Base	414	32.6	45	3.5	347	27.3	519	40.8	127	10.0	186	14.6	1271	100.0
Murwillumbah	75	17.8	55	13.0	126	29.9	221	52.4	21	5.0	68	16.1	422	100.0
Tweed Heads	99	14.5	35	5.1	233	34.2	351	51.5	95	13.9	109	16.0	682	100.0
Other Area hospitals	17	5.7	0	0.0	45	15.0	105	35.0	15	5.0	116	38.7	300	100.0
ALL HOSPITALS	729	23.6	196	6.3	839	27.2	1392	45.1	294	9.5	531	17.2	3089	100.0
Mid North Coast														
Coffs Harbour	120	15.0	70	8.8	196	24.5	359	44.9	95	11.9	157	19.6	799	100.0
Kempsey	32	10.4	12	3.9	105	34.1	165	53.6	17	5.5	76	24.7	308	100.0
Port Macquarie Base	124	19.0	46	7.0	155	23.7	345	52.8	79	12.1	76	11.6	654	100.0
Mid North Coast Manning Base	63	10.0	47	7.4	280	44.2	354	55.9	76	12.0	66	10.4	633	100.0
Other Area hospitals	23	8.2	7	2.5	61	21.7	125	44.5	31	11.0	75	26.7	281	100.0
ALL HOSPITALS	362	13.5	182	6.8	797	29.8	1348	50.4	298	11.1	450	16.8	2675	100.0
New England														
Armidale	12	2.6	41	8.8	144	30.9	234	50.2	35	7.5	40	8.6	466	100.0
Inverell	2	0.9	4	1.8	43	19.7	107	49.1	38	17.4	60	27.5	218	100.0
Moree	24	9.5	8	3.2	54	21.4	111	44.0	41	16.3	56	22.2	252	100.0
Tamworth Base	113	19.2	43	7.3	143	24.3	344	58.5	45	7.7	63	10.7	588	100.0
Other Area hospitals	74	10.1	64	8.7	191	26.0	406	55.3	78	10.6	117	15.9	734	100.0
ALL HOSPITALS	225	10.0	160	7.1	575	25.5	1202	53.2	237	10.5	336	14.9	2258	100.0
Macquarie														
Dubbo Base	220	18.3	93	7.7	389	32.3	727	60.4	107	8.9	154	12.8	1203	100.0
Mudgee	17	7.8	25	11.5	81	37.2	123	56.4	17	7.8	35	16.1	218	100.0
Other Area hospitals	1	1.1	5	5.6	7	7.8	28	31.1	25	27.8	25	27.8	90	100.0
ALL HOSPITALS	238	15.8	123	8.1	477	31.6	878	58.1	149	9.9	214	14.2	1511	100.0
Mid Western														
Bathurst Base	170	31.7	62	11.5	67	12.5	262	48.8	10	1.9	59	11.0	537	100.0
Orange Base	192	26.2	34	4.6	174	23.7	425	58.0	58	7.9	108	14.7	733	100.0
Other Area hospitals	113	15.5	41	5.6	178	24.4	374	51.3	71	9.7	131	18.0	729	100.0
ALL HOSPITALS	475	23.8	137	6.9	419	21.0	1061	53.1	139	7.0	298	14.9	1999	100.0
Far West														
Broken Hill Base	15	5.9	11	4.3	61	23.8	151	59.0	34	13.3	47	18.4	256	100.0
Other Area hospitals	1	1.3	1	1.3	17	22.7	27	36.0	2	2.7	35	46.7	75	100.0
ALL HOSPITALS	16	4.8	12	3.6	78	23.6	178	53.8	36	10.9	82	24.8	331	100.0
Greater Murray														
Griffith Base	45	9.2	18	3.7	175	35.9	259	53.2	98	20.1	64	13.1	487	100.0
Wagga Wagga Base	131	18.0	16	2.2	219	30.0	411	56.4	84	11.5	127	17.4	729	100.0
Calvary, Wagga Wagga	174	29.7	17	2.9	137	23.4	231	39.4	111	18.9	71	12.1	586	100.0
Other Area hospitals	71	9.5	24	3.2	229	30.8	421	56.6	117	15.7	116	15.6	744	100.0
ALL HOSPITALS	421	16.5	75	2.9	760	29.9	1322	51.9	410	16.1	378	14.8	2546	100.0
Southern														
Goulburn Base	58	19.3	38	12.6	47	15.6	186	61.8	12	4.0	26	8.6	301	100.0
Queanbeyan	47	18.3	21	8.2	41	16.0	109	42.4	9	3.5	89	34.6	257	100.0
Other Area hospitals	83	9.2	44	4.9	242	26.8	477	52.8	115	12.7	168	18.6	904	100.0
ALL HOSPITALS	188	12.9	103	7.0	330	22.6	772	52.8	136	9.3	283	19.4	1462	100.0
TOTAL	23543	27.8	4811	5.7	21038	24.9	40729	48.2	8672	10.3	9163	10.8	84587	100.0

Source: NSW Midwives Data 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.

Perineal status in selected hospitals

Table 119 show the perineal status in vaginal deliveries for individual hospitals where the number of reported confinements exceeded 200 in 2002, totals for all hospitals within each health area and the NSW total.

In addition to the perinatal outcomes described in the table there were 74 cases of fourth degree tear reported in 2002.

TABLE 119

CONFINEMENTS WITH VAGINAL DELIVERIES BY PERINEAL STATUS AND HOSPITAL, NSW 2002[#]

Health Area and Hospital	Perineal status																TOTAL	
	Intact		1st degree tear-graze		2nd degree tear		3rd or 4th degree tear		Episiotomy		Combined tear and episiotomy		Other		Not stated			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Central Sydney																		
Canterbury	263	22.5	427	36.5	295	25.2	33	2.8	124	10.6	6	0.5	22	1.9	0	0.0	1170	100.0
Royal Prince Alfred	469	18.0	989	37.9	829	31.8	62	2.4	219	8.4	10	0.4	32	1.2	0	0.0	2610	100.0
ALL HOSPITALS	732	19.4	1416	37.5	1124	29.7	95	2.5	343	9.1	16	0.4	54	1.4	0	0.0	3780	100.0
Northern Sydney																		
Hornsby	146	21.1	155	22.4	224	32.4	21	3.0	81	11.7	3	0.4	61	8.8	0	0.0	691	100.0
Manly	126	20.5	181	29.5	161	26.2	12	2.0	69	11.2	1	0.2	64	10.4	0	0.0	614	100.0
Mona Vale	132	31.5	150	35.8	68	16.2	7	1.7	26	6.2	1	0.2	35	8.4	0	0.0	419	100.0
Royal North Shore	134	13.8	260	26.7	282	29.0	39	4.0	159	16.3	1	0.1	98	10.1	0	0.0	973	100.0
Ryde	73	19.3	122	32.3	88	23.3	10	2.6	61	16.1	2	0.5	22	5.8	0	0.0	378	100.0
Mater, North Sydney	153	12.9	236	19.9	351	29.6	13	1.1	368	31.1	35	3.0	28	2.4	0	0.0	1184	100.0
North Shore Private	172	13.9	214	17.4	390	31.6	46	3.7	356	28.9	9	0.7	46	3.7	0	0.0	1233	100.0
Sydney Adventist	331	17.9	484	26.2	438	23.7	14	0.8	535	28.9	27	1.5	20	1.1	0	0.0	1849	100.0
ALL HOSPITALS	1267	17.3	1802	24.5	2002	27.3	162	2.2	1655	22.5	79	1.1	374	5.1	0	0.0	7341	100.0
Western Sydney																		
Auburn	375	37.2	267	26.5	172	17.1	10	1.0	116	11.5	3	0.3	64	6.4	0	0.0	1007	100.0
Blacktown	530	26.5	640	32.0	337	16.8	21	1.0	335	16.7	18	0.9	121	6.0	0	0.0	2002	100.0
Westmead	600	20.0	927	31.0	641	21.4	39	1.3	551	18.4	9	0.3	226	7.6	0	0.0	2993	100.0
The Hills Private	301	28.4	221	20.8	259	24.4	7	0.7	237	22.3	17	1.6	19	1.8	0	0.0	1061	100.0
Westmead Private	205	20.8	203	20.6	223	22.7	9	0.9	296	30.1	30	3.0	17	1.7	1	0.1	984	100.0
ALL HOSPITALS	2011	25.0	2258	28.1	1632	20.3	86	1.1	1535	19.1	77	1.0	447	5.6	1	0.0	8047	100.0
Wentworth																		
Blue Mountains	45	29.8	41	27.2	44	29.1	2	1.3	9	6.0	0	0.0	10	6.6	0	0.0	151	100.0
Nepean	781	31.5	712	28.7	495	19.9	50	2.0	191	7.7	5	0.2	248	10.0	0	0.0	2482	100.0
Hawkesbury	278	37.2	181	24.2	182	24.4	11	1.5	51	6.8	8	1.1	36	4.8	0	0.0	747	100.0
Nepean Private	138	22.9	74	12.3	149	24.7	2	0.3	212	35.2	18	3.0	10	1.7	0	0.0	603	100.0
ALL HOSPITALS	1242	31.2	1008	25.3	870	21.8	65	1.6	463	11.6	31	0.8	304	7.6	0	0.0	3983	100.0
South Western Sydney																		
Fairfield	463	29.1	402	25.3	355	22.3	29	1.8	289	18.2	1	0.1	52	3.3	0	0.0	1591	100.0
Liverpool	696	28.4	588	24.0	532	21.7	53	2.2	394	16.1	5	0.2	183	7.5	0	0.0	2451	100.0
Campbelltown	673	31.9	562	26.7	391	18.5	20	0.9	295	14.0	3	0.1	164	7.8	0	0.0	2108	100.0
Bankstown-Lidcombe	382	25.4	445	29.6	330	22.0	21	1.4	194	12.9	5	0.3	124	8.3	0	0.0	1501	100.0
Sydney Southwest Private	161	20.8	183	23.6	145	18.7	11	1.4	253	32.7	9	1.2	12	1.6	0	0.0	774	100.0
Bowral	172	34.1	152	30.2	120	23.8	4	0.8	33	6.5	1	0.2	22	4.4	0	0.0	504	100.0
ALL HOSPITALS	2547	28.5	2332	26.1	1873	21.0	138	1.5	1458	16.3	24	0.3	557	6.2	0	0.0	8929	100.0
Central Coast																		
Gosford	591	38.9	376	24.8	497	32.7	32	2.1	7	0.5	15	1.0	1	0.1	0	0.0	1519	100.0
Wyong	158	48.0	90	27.4	80	24.3	0	0.0	0	0.0	1	0.3	0	0.0	0	0.0	329	100.0
North Gosford Private	148	26.3	118	21.0	161	28.6	4	0.7	114	20.3	10	1.8	7	1.2	0	0.0	562	100.0
ALL HOSPITALS	897	37.2	584	24.2	738	30.6	36	1.5	121	5.0	26	1.1	8	0.3	0	0.0	2410	100.0
Hunter																		
Maitland	348	32.5	390	36.4	173	16.2	26	2.4	79	7.4	2	0.2	53	4.9	0	0.0	1071	100.0
Muswellbrook	71	41.5	55	32.2	30	17.5	2	1.2	11	6.4	0	0.0	2	1.2	0	0.0	171	100.0
Belmont	151	30.6	184	37.3	85	17.2	9	1.8	31	6.3	0	0.0	33	6.7	0	0.0	493	100.0
John Hunter	700	28.2	961	38.7	470	18.9	67	2.7	151	6.1	4	0.2	129	5.2	0	0.0	2482	100.0
Christo Road Private	195	25.8	205	27.2	209	27.7	16	2.1	126	16.7	0	0.0	4	0.5	0	0.0	755	100.0
Other Area hospitals	161	46.9	100	29.2	58	16.9	4	1.2	17	5.0	1	0.3	2	0.6	0	0.0	343	100.0
ALL HOSPITALS	1626	30.6	1895	35.7	1025	19.3	124	2.3	415	7.8	7	0.1	223	4.2	0	0.0	5315	100.0
Illawarra																		
Shoalhaven	187	31.8	206	35.0	85	14.5	11	1.9	55	9.4	3	0.5	41	7.0	0	0.0	588	100.0
Wollongong	363	25.2	552	38.3	329	22.8	19	1.3	175	12.1	4	0.3	1	0.1	0	0.0	1443	100.0
Shellharbour	113	31.8	141	39.7	72	20.3	2	0.6	26	7.3	1	0.3	0	0.0	0	0.0	355	100.0
Illawarra Private	149	20.3	109	14.9	226	30.8	3	0.4	213	29.1	20	2.7	12	1.6	1	0.1	733	100.0
Other Area hospitals	24	48.0	13	26.0	10	20.0	0	0.0	3	6.0	0	0.0	0	0.0	0	0.0	50	100.0
ALL HOSPITALS	836	26.4	1021	32.2	722	22.8	35	1.1	472	14.9	28	0.9	54	1.7	1	0.0	3169	100.0

TABLE 119 (continued)
CONFINEMENTS WITH VAGINAL DELIVERIES BY PERINEAL STATUS AND HOSPITAL, NSW 2002#

Health Area and Hospital	Perineal status																TOTAL	
	Intact		1st degree tear-graze		2nd degree tear		3rd or 4th degree tear		Episiotomy		Combined tear and episiotomy		Other		Not stated			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
South Eastern Sydney																		
Royal Hospital for Women	573	20.2	852	30.0	779	27.4	48	1.7	483	17.0	20	0.7	87	3.1	0	0.0	2842	100.0
St. George	430	24.8	558	32.1	450	25.9	41	2.4	125	7.2	3	0.2	129	7.4	0	0.0	1736	100.0
Sutherland	135	25.6	167	31.7	118	22.4	6	1.1	55	10.4	2	0.4	44	8.3	0	0.0	527	100.0
Hurstville Community	141	17.5	200	24.9	169	21.0	2	0.2	272	33.8	13	1.6	7	0.9	0	0.0	804	100.0
Kareena Private	106	25.5	94	22.7	108	26.0	2	0.5	86	20.7	12	2.9	7	1.7	0	0.0	415	100.0
St. George Private	229	23.8	220	22.8	295	30.6	6	0.6	162	16.8	30	3.1	21	2.2	0	0.0	963	100.0
Prince of Wales Private	176	17.3	261	25.7	221	21.8	4	0.4	294	29.0	21	2.1	37	3.6	1	0.1	1015	100.0
ALL HOSPITALS	1790	21.6	2352	28.3	2140	25.8	109	1.3	1477	17.8	101	1.2	332	4.0	1	0.0	8302	100.0
Northern Rivers																		
Grafton Base	112	39.7	58	20.6	54	19.1	4	1.4	40	14.2	7	2.5	7	2.5	0	0.0	282	100.0
Lismore Base	339	36.5	223	24.0	194	20.9	11	1.2	101	10.9	8	0.9	52	5.6	0	0.0	928	100.0
Murwillumbah	105	34.5	53	17.4	57	18.8	1	0.3	65	21.4	7	2.3	16	5.3	0	0.0	304	100.0
Tweed Heads	221	42.3	156	29.8	78	14.9	7	1.3	40	7.6	3	0.6	18	3.4	0	0.0	523	100.0
Other Area hospitals	103	38.3	101	37.5	46	17.1	0	0.0	15	5.6	1	0.4	3	1.1	0	0.0	269	100.0
ALL HOSPITALS	880	38.2	591	25.6	429	18.6	23	1.0	261	11.3	26	1.1	96	4.2	0	0.0	2306	100.0
Mid North Coast																		
Coffs Harbour	251	43.1	143	24.5	111	19.0	1	0.2	57	9.8	6	1.0	14	2.4	0	0.0	583	100.0
Kempsey	152	56.3	56	20.7	48	17.8	1	0.4	6	2.2	0	0.0	7	2.6	0	0.0	270	100.0
Port Macquarie Base	175	36.2	78	16.1	121	25.1	3	0.6	76	15.7	12	2.5	16	3.3	2	0.4	483	100.0
Manning Base	218	42.7	147	28.8	78	15.3	8	1.6	24	4.7	8	1.6	28	5.5	0	0.0	511	100.0
Other Area hospitals	90	38.3	56	23.8	48	20.4	1	0.4	32	13.6	4	1.7	4	1.7	0	0.0	235	100.0
ALL HOSPITALS	886	42.6	480	23.1	406	19.5	14	0.7	195	9.4	30	1.4	69	3.3	2	0.1	2082	100.0
New England																		
Armidale	114	29.5	77	19.9	97	25.1	6	1.6	65	16.8	11	2.8	17	4.4	0	0.0	387	100.0
Inverell	53	30.6	79	45.7	14	8.1	0	0.0	23	13.3	1	0.6	3	1.7	0	0.0	173	100.0
Moree	100	50.0	43	21.5	33	16.5	3	1.5	12	6.0	7	3.5	2	1.0	0	0.0	200	100.0
Tamworth Base	155	33.0	164	34.9	104	22.1	4	0.9	25	5.3	1	0.2	17	3.6	0	0.0	470	100.0
Other Area hospitals	191	33.5	163	28.6	110	19.3	4	0.7	74	13.0	17	3.0	10	1.8	1	0.2	570	100.0
ALL HOSPITALS	613	34.1	526	29.2	358	19.9	17	0.9	199	11.1	37	2.1	49	2.7	1	0.1	1800	100.0
Macquarie																		
Dubbo Base	311	32.6	341	35.8	127	13.3	8	0.8	125	13.1	26	2.7	13	1.4	2	0.2	953	100.0
Mudgee	64	36.8	52	29.9	29	16.7	2	1.1	21	12.1	6	3.4	0	0.0	0	0.0	174	100.0
Other Area hospitals	33	55.9	11	18.6	8	13.6	0	0.0	7	11.9	0	0.0	0	0.0	0	0.0	59	100.0
ALL HOSPITALS	408	34.4	404	34.1	164	13.8	10	0.8	153	12.9	32	2.7	13	1.1	2	0.2	1186	100.0
Mid Western																		
Bathurst Base	109	32.8	113	34.0	65	19.6	0	0.0	34	10.2	6	1.8	5	1.5	0	0.0	332	100.0
Orange Base	193	36.0	105	19.6	138	25.7	3	0.6	62	11.6	14	2.6	21	3.9	0	0.0	536	100.0
Other Area hospitals	202	36.7	133	24.2	109	19.8	5	0.9	76	13.8	19	3.5	6	1.1	0	0.0	550	100.0
ALL HOSPITALS	504	35.5	351	24.8	312	22.0	8	0.6	172	12.1	39	2.8	32	2.3	0	0.0	1418	100.0
Far West																		
Broken Hill Base	111	54.7	56	27.6	24	11.8	1	0.5	9	4.4	1	0.5	1	0.5	0	0.0	203	100.0
Other Area hospitals	29	41.4	24	34.3	9	12.9	1	1.4	2	2.9	1	1.4	4	5.7	0	0.0	70	100.0
ALL HOSPITALS	140	51.3	80	29.3	33	12.1	2	0.7	11	4.0	2	0.7	5	1.8	0	0.0	273	100.0
Greater Murray																		
Griffith Base	156	44.2	127	36.0	31	8.8	4	1.1	29	8.2	6	1.7	0	0.0	0	0.0	353	100.0
Wagga Wagga Base	237	41.5	151	26.4	106	18.6	8	1.4	53	9.3	4	0.7	12	2.1	0	0.0	571	100.0
Calvary, Wagga Wagga	121	29.7	72	17.7	124	30.5	7	1.7	54	13.3	21	5.2	8	2.0	0	0.0	407	100.0
Other Area hospitals	240	41.4	171	29.5	93	16.0	1	0.2	69	11.9	4	0.7	2	0.3	0	0.0	580	100.0
ALL HOSPITALS	754	39.5	521	27.3	354	18.5	20	1.0	205	10.7	35	1.8	22	1.2	0	0.0	1911	100.0
Southern																		
Goulburn Base	70	30.6	20	8.7	52	22.7	8	3.5	61	26.6	13	5.7	5	2.2	0	0.0	229	100.0
Queanbeyan	85	41.1	67	32.4	36	17.4	1	0.5	10	4.8	3	1.4	5	2.4	0	0.0	207	100.0
Other Area hospitals	306	42.2	200	27.6	117	16.1	4	0.6	78	10.8	10	1.4	9	1.2	1	0.1	725	100.0
ALL HOSPITALS	461	39.7	287	24.7	205	17.7	13	1.1	149	12.8	26	2.2	19	1.6	1	0.1	1161	100.0
TOTAL NSW	17657	27.8	17923	28.2	14404	22.7	958	1.5	9284	14.6	616	1.0	2659	4.2	12	0.0	63513	100.0

Source: NSW Midwives Data 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.

Birthweight in selected hospitals

Table 120 shows the birthweight of babies for individual hospitals where the number of reported confinements exceeded 200 in 2002, totals for all hospitals within each health area and the NSW total.

TABLE 120

BIRTHS BY BIRTHWEIGHT AND HOSPITAL, NSW 2002#

Health Area and Hospital	Birthweight (grams)										Total	
	Less than 1,000		1,000–1,499		1,500–2,499		2,500+		Not stated			
	No.	%	No.	%	No.	%	No.	%	No.	%		
Central Sydney												
Canterbury	2	0.1	3	0.2	45	3.1	1400	96.6	0	0.0	1450	100.0
Royal Prince Alfred	62	1.7	61	1.7	251	6.9	3244	89.6	4	0.1	3622	100.0
ALL HOSPITALS	64	1.3	64	1.3	296	5.8	4644	91.6	4	0.1	5072	100.0
Northern Sydney												
Hornsby	1	0.1	1	0.1	22	2.4	892	97.4	0	0.0	916	100.0
Manly	3	0.4	1	0.1	22	2.8	766	96.7	0	0.0	792	100.0
Mona Vale	1	0.2	0	0.0	18	3.2	541	96.6	0	0.0	560	100.0
Royal North Shore	41	2.8	35	2.4	130	9.0	1236	85.7	0	0.0	1442	100.0
Ryde	2	0.4	0	0.0	13	2.7	464	96.9	0	0.0	479	100.0
Mater, North Sydney	3	0.2	2	0.1	70	3.6	1891	96.2	0	0.0	1966	100.0
North Shore Private	8	0.4	0	0.0	88	4.1	2048	95.5	0	0.0	2144	100.0
Sydney Adventist	9	0.3	0	0.0	79	2.9	2611	96.7	1	0.0	2700	100.0
ALL HOSPITALS	68	0.6	39	0.4	442	4.0	10449	95.0	1	0.0	10999	100.0
Western Sydney												
Auburn	4	0.3	1	0.1	47	3.8	1170	95.7	0	0.0	1222	100.0
Blacktown	12	0.5	6	0.2	122	4.8	2377	94.4	0	0.0	2517	100.0
Westmead	86	2.1	65	1.6	327	8.1	3559	88.1	1	0.0	4038	100.0
The Hills Private	1	0.1	3	0.2	61	4.4	1336	95.4	0	0.0	1401	100.0
Westmead Private	3	0.2	0	0.0	56	4.1	1319	95.6	1	0.1	1379	100.0
ALL HOSPITALS	106	1.0	75	0.7	613	5.8	9761	92.5	2	0.0	10557	100.0
Wentworth												
Blue Mountains	0	0.0	0	0.0	7	3.4	196	96.6	0	0.0	203	100.0
Nepean	40	1.2	49	1.5	239	7.1	3047	90.3	0	0.0	3375	100.0
Hawkesbury	1	0.1	2	0.2	32	3.3	930	96.4	0	0.0	965	100.0
Nepean Private	1	0.1	0	0.0	28	3.1	879	96.7	1	0.1	909	100.0
ALL HOSPITALS	42	0.8	51	0.9	306	5.6	5052	92.7	1	0.0	5452	100.0
South Western Sydney												
Fairfield	6	0.3	1	0.1	71	3.9	1759	95.8	0	0.0	1837	100.0
Liverpool	52	1.7	49	1.6	260	8.6	2653	88.0	0	0.0	3014	100.0
Campbelltown	12	0.5	3	0.1	138	5.2	2486	94.2	1	0.0	2640	100.0
Bankstown–Lidcombe	11	0.6	3	0.2	59	3.3	1702	95.9	0	0.0	1775	100.0
Sydney Southwest Private	2	0.2	2	0.2	31	3.0	1010	96.7	0	0.0	1045	100.0
Bowral	1	0.2	0	0.0	22	3.5	597	96.3	0	0.0	620	100.0
ALL HOSPITALS	84	0.8	58	0.5	581	5.3	10207	93.4	1	0.0	10931	100.0
Central Coast												
Gosford	8	0.4	6	0.3	110	5.3	1947	94.0	1	0.0	2072	100.0
Wyong	0	0.0	1	0.3	13	3.8	330	95.9	0	0.0	344	100.0
North Gosford Private	2	0.2	0	0.0	40	4.4	870	95.3	1	0.1	913	100.0
ALL HOSPITALS	10	0.3	7	0.2	163	4.9	3147	94.5	2	0.1	3329	100.0
Hunter												
Maitland	3	0.2	3	0.2	79	5.2	1421	94.4	0	0.0	1506	100.0
Muswellbrook	0	0.0	1	0.4	7	3.1	218	96.5	0	0.0	226	100.0
Belmont	1	0.2	0	0.0	30	4.5	635	95.3	0	0.0	666	100.0
John Hunter	73	2.2	66	2.0	299	9.1	2840	86.6	0	0.0	3278	100.0
Christo Road Private	5	0.5	0	0.0	41	3.9	1018	95.7	0	0.0	1064	100.0
Other Area hospitals	1	0.2	0	0.0	10	2.0	498	97.6	1	0.2	510	100.0
ALL HOSPITALS	83	1.1	70	1.0	466	6.4	6630	91.4	1	0.0	7250	100.0
Illawarra												
Shoalhaven	0	0.0	0	0.0	44	5.5	756	94.5	0	0.0	800	100.0
Wollongong	17	0.9	9	0.5	122	6.7	1677	91.9	0	0.0	1825	100.0
Shellharbour	0	0.0	0	0.0	4	0.9	420	99.1	0	0.0	424	100.0
Illawarra Private	4	0.4	0	0.0	27	2.7	987	97.0	0	0.0	1018	100.0
Other Area hospitals	0	0.0	0	0.0	1	1.1	90	98.9	0	0.0	91	100.0
ALL HOSPITALS	21	0.5	9	0.2	198	4.8	3930	94.5	0	0.0	4158	100.0

TABLE 120 (continued)
BIRTHS BY BIRTHWEIGHT AND HOSPITAL, NSW 2002#

Health Area and Hospital	Birthweight (grams)											
	Less than 1,000		1,000–1,499		1,500–2,499		2,500+		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
South Eastern Sydney												
Royal Hospital for Women	60	1.5	55	1.4	244	6.1	3632	90.9	3	0.1	3994	100.0
St. George	8	0.4	7	0.3	118	5.3	2099	94.0	1	0.0	2233	100.0
Sutherland	0	0.0	0	0.0	28	4.0	678	96.0	0	0.0	706	100.0
Hurstville Community	0	0.0	0	0.0	58	4.5	1231	95.5	0	0.0	1289	100.0
Kareena Private	0	0.0	2	0.3	26	3.7	683	96.1	0	0.0	711	100.0
St. George Private	0	0.0	4	0.3	70	4.6	1450	95.1	0	0.0	1524	100.0
Prince of Wales Private	0	0.0	1	0.1	54	3.3	1569	95.8	13	0.8	1637	100.0
ALL HOSPITALS	68	0.6	69	0.6	598	4.9	11342	93.8	17	0.1	12094	100.0
Northern Rivers												
Grafton Base	1	0.2	2	0.5	20	4.8	393	94.5	0	0.0	416	100.0
Lismore Base	7	0.5	4	0.3	69	5.3	1214	93.8	0	0.0	1294	100.0
Murwillumbah	1	0.2	1	0.2	11	2.6	413	96.9	0	0.0	426	100.0
Tweed Heads	4	0.6	2	0.3	37	5.4	645	93.6	1	0.1	689	100.0
Other Area hospitals	1	0.3	0	0.0	7	2.3	290	96.7	2	0.7	300	100.0
ALL HOSPITALS	14	0.4	9	0.3	144	4.6	2955	94.6	3	0.1	3125	100.0
Mid North Coast												
Coffs Harbour	3	0.4	1	0.1	45	5.5	763	94.0	0	0.0	812	100.0
Kempsey	0	0.0	1	0.3	10	3.2	297	96.4	0	0.0	308	100.0
Port Macquarie Base	2	0.3	0	0.0	36	5.4	628	94.0	2	0.3	668	100.0
Manning Base	5	0.8	0	0.0	46	7.2	592	92.1	0	0.0	643	100.0
Other Area hospitals	1	0.4	0	0.0	6	2.1	275	97.5	0	0.0	282	100.0
ALL HOSPITALS	11	0.4	2	0.1	143	5.3	2555	94.2	2	0.1	2713	100.0
New England												
Armidale	1	0.2	1	0.2	23	4.9	442	94.6	0	0.0	467	100.0
Inverell	0	0.0	0	0.0	12	5.4	208	94.1	1	0.5	221	100.0
Moree	0	0.0	0	0.0	16	6.3	237	93.3	1	0.4	254	100.0
Tamworth Base	4	0.7	4	0.7	47	7.8	546	90.7	1	0.2	602	100.0
Other Area hospitals	1	0.1	1	0.1	25	3.4	709	96.2	1	0.1	737	100.0
ALL HOSPITALS	6	0.3	6	0.3	123	5.4	2142	93.9	4	0.2	2281	100.0
Macquarie												
Dubbo Base	11	0.9	4	0.3	76	6.2	1131	92.3	3	0.2	1225	100.0
Mudgee	0	0.0	0	0.0	2	0.9	217	99.1	0	0.0	219	100.0
Other Area hospitals	0	0.0	0	0.0	2	2.2	88	97.8	0	0.0	90	100.0
ALL HOSPITALS	11	0.7	4	0.3	80	5.2	1436	93.6	3	0.2	1534	100.0
Mid Western												
Bathurst Base	3	0.6	1	0.2	23	4.2	516	95.0	0	0.0	543	100.0
Orange Base	3	0.4	2	0.3	36	4.8	711	94.3	2	0.3	754	100.0
Other Area hospitals	3	0.4	0	0.0	19	2.6	709	97.0	0	0.0	731	100.0
ALL HOSPITALS	9	0.4	3	0.1	78	3.8	1936	95.5	2	0.1	2028	100.0
Far West												
Broken Hill Base	0	0.0	0	0.0	14	5.4	244	94.6	0	0.0	258	100.0
Other Area hospitals	0	0.0	1	1.3	5	6.7	69	92.0	0	0.0	75	100.0
ALL HOSPITALS	0	0.0	1	0.3	19	5.7	313	94.0	0	0.0	333	100.0
Greater Murray												
Griffith Base	3	0.6	0	0.0	24	4.9	466	94.5	0	0.0	493	100.0
Wagga Wagga Base	9	1.2	1	0.1	46	6.2	685	92.4	0	0.0	741	100.0
Calvary, Wagga Wagga	1	0.2	0	0.0	29	4.8	567	94.7	2	0.3	599	100.0
Other Area hospitals	0	0.0	1	0.1	26	3.5	717	96.1	2	0.3	746	100.0
ALL HOSPITALS	13	0.5	2	0.1	125	4.8	2435	94.4	4	0.2	2579	100.0
Southern												
Goulburn Base	1	0.3	0	0.0	9	3.0	292	96.7	0	0.0	302	100.0
Queanbeyan	0	0.0	0	0.0	5	1.9	252	97.7	1	0.4	258	100.0
Other Area hospitals	0	0.0	0	0.0	38	4.2	871	95.8	0	0.0	909	100.0
ALL HOSPITALS	1	0.1	0	0.0	52	3.5	1415	96.3	1	0.1	1469	100.0
TOTAL NSW	611	0.7	469	0.5	4427	5.1	80448	93.5	50	0.1	86005	100.0

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

Hospitals with more than 200 total deliveries are identified individually. All hospitals include all public and private hospitals.

Gestational age in selected hospitals

Table 121 shows the gestational age of babies for individual hospitals where the number of reported confinements exceeded 200 in 2002, totals for all hospitals within each health area and the NSW total.

TABLE 121

BIRTHS BY GESTATIONAL AGE AND HOSPITAL, NSW 2002#

Health Area and Hospital	Gestational age (weeks)										TOTAL	
	20-31		32-33		34-36		37+		Not stated		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney												
Royal Prince Alfred	152	4.2	80	2.2	180	5.0	3210	88.6	0	0.0	3622	100.0
Canterbury	4	0.3	3	0.2	45	3.1	1398	96.4	0	0.0	1450	100.0
ALL HOSPITALS	156	3.1	83	1.6	225	4.4	4608	90.9	0	0.0	5072	100.0
Northern Sydney												
Manly	4	0.5	0	0.0	38	4.8	750	94.7	0	0.0	792	100.0
Royal North Shore	89	6.2	57	4.0	77	5.3	1219	84.5	0	0.0	1442	100.0
North Shore Private	8	0.4	8	0.4	106	4.9	2022	94.3	0	0.0	2144	100.0
Sydney Adventist	11	0.4	11	0.4	114	4.2	2564	95.0	0	0.0	2700	100.0
Hornsby	2	0.2	3	0.3	28	3.1	883	96.4	0	0.0	916	100.0
Ryde	2	0.4	0	0.0	11	2.3	466	97.3	0	0.0	479	100.0
Mater, North Sydney	4	0.2	7	0.4	103	5.2	1852	94.2	0	0.0	1966	100.0
Mona Vale	1	0.2	2	0.4	13	2.3	544	97.1	0	0.0	560	100.0
ALL HOSPITALS	121	1.1	88	0.8	490	4.5	10300	93.6	0	0.0	10999	100.0
Western Sydney												
Blacktown	17	0.7	12	0.5	117	4.6	2371	94.2	0	0.0	2517	100.0
Westmead	163	4.0	82	2.0	197	4.9	3596	89.1	0	0.0	4038	100.0
Auburn	5	0.4	3	0.2	33	2.7	1181	96.6	0	0.0	1222	100.0
Westmead Private	3	0.2	1	0.1	71	5.1	1301	94.3	3	0.2	1379	100.0
The Hills Private	5	0.4	11	0.8	71	5.1	1314	93.8	0	0.0	1401	100.0
ALL HOSPITALS	193	1.8	109	1.0	489	4.6	9763	92.5	3	0.0	10557	100.0
Wentworth												
Nepean	89	2.6	60	1.8	197	5.8	3029	89.7	0	0.0	3375	100.0
Hawkesbury	6	0.6	4	0.4	41	4.2	914	94.7	0	0.0	965	100.0
Nepean Private	1	0.1	0	0.0	45	5.0	863	94.9	0	0.0	909	100.0
Blue Mountains	0	0.0	0	0.0	4	2.0	199	98.0	0	0.0	203	100.0
ALL HOSPITALS	96	1.8	64	1.2	287	5.3	5005	91.8	0	0.0	5452	100.0
South Western Sydney												
Liverpool	117	3.9	57	1.9	160	5.3	2680	88.9	0	0.0	3014	100.0
Campbelltown	19	0.7	6	0.2	126	4.8	2489	94.3	0	0.0	2640	100.0
Bankstown-Lidcombe	13	0.7	5	0.3	56	3.2	1701	95.8	0	0.0	1775	100.0
Fairfield	7	0.4	3	0.2	59	3.2	1768	96.2	0	0.0	1837	100.0
Sydney Southwest Private	3	0.3	0	0.0	49	4.7	993	95.0	0	0.0	1045	100.0
Bowral	1	0.2	0	0.0	23	3.7	596	96.1	0	0.0	620	100.0
ALL HOSPITALS	160	1.5	71	0.6	473	4.3	10227	93.6	0	0.0	10931	100.0
Central Coast												
Gosford	19	0.9	24	1.2	150	7.2	1879	90.7	0	0.0	2072	100.0
North Gosford Private	2	0.2	3	0.3	45	4.9	863	94.5	0	0.0	913	100.0
Wyong	1	0.3	2	0.6	9	2.6	332	96.5	0	0.0	344	100.0
ALL HOSPITALS	22	0.7	29	0.9	204	6.1	3074	92.3	0	0.0	3329	100.0
Hunter												
John Hunter	152	4.6	87	2.7	228	7.0	2811	85.8	0	0.0	3278	100.0
Christo Road Private	5	0.5	4	0.4	59	5.5	996	93.6	0	0.0	1064	100.0
Maitland	7	0.5	7	0.5	97	6.4	1395	92.6	0	0.0	1506	100.0
Belmont	3	0.5	2	0.3	31	4.7	630	94.6	0	0.0	666	100.0
Muswellbrook	0	0.0	1	0.4	11	4.9	214	94.7	0	0.0	226	100.0
Other Area hospitals	1	0.2	1	0.2	9	1.8	499	97.8	0	0.0	510	100.0
ALL HOSPITALS	168	2.3	102	1.4	435	6.0	6545	90.3	0	0.0	7250	100.0
Illawarra												
Wollongong	24	1.3	23	1.3	144	7.9	1634	89.5	0	0.0	1825	100.0
Illawarra Private	4	0.4	0	0.0	15	1.5	999	98.1	0	0.0	1018	100.0
Shoalhaven	1	0.1	2	0.3	51	6.4	746	93.3	0	0.0	800	100.0
Shellharbour	0	0.0	1	0.2	0	0.0	423	99.8	0	0.0	424	100.0
Other Area hospitals	0	0.0	0	0.0	2	2.2	89	97.8	0	0.0	91	100.0
ALL HOSPITALS	29	0.7	26	0.6	212	5.1	3891	93.6	0	0.0	4158	100.0

TABLE 121 (continued)
BIRTHS BY GESTATIONAL AGE AND HOSPITAL, NSW 2002#

Health Area and Hospital	Gestational age (weeks)										TOTAL	
	20-31		32-33		34-36		37+		Not stated		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
South Eastern Sydney												
Royal Hospital for Women	131	3.3	80	2.0	192	4.8	3591	89.9	0	0.0	3994	100.0
St. George	12	0.5	26	1.2	87	3.9	2108	94.4	0	0.0	2233	100.0
Kareena Private	1	0.1	7	1.0	45	6.3	658	92.5	0	0.0	711	100.0
Prince of Wales Private2	0.1	2	0.1	60	3.7	1564	95.5	9	0.5	1637	100.0	
St. George Private	1	0.1	4	0.3	100	6.6	1419	93.1	0	0.0	1524	100.0
Sutherland	0	0.0	4	0.6	28	4.0	674	95.5	0	0.0	706	100.0
Hurstville Community	0	0.0	6	0.5	59	4.6	1224	95.0	0	0.0	1289	100.0
ALL HOSPITALS	147	1.2	129	1.1	571	4.7	11238	92.9	9	0.1	12094	100.0
Northern Rivers												
Tweed Heads	7	1.0	2	0.3	35	5.1	645	93.6	0	0.0	689	100.0
Lismore Base	11	0.9	14	1.1	62	4.8	1207	93.3	0	0.0	1294	100.0
Grafton Base	6	1.4	1	0.2	20	4.8	389	93.5	0	0.0	416	100.0
Murwillumbah	2	0.5	0	0.0	17	4.0	407	95.5	0	0.0	426	100.0
Other Area hospitals	2	0.7	0	0.0	4	1.3	294	98.0	0	0.0	300	100.0
ALL HOSPITALS	28	0.9	17	0.5	138	4.4	2942	94.1	0	0.0	3125	100.0
Mid North Coast												
Port Macquarie Base	2	0.3	1	0.1	44	6.6	619	92.7	2	0.3	668	100.0
Manning Base	5	0.8	5	0.8	35	5.4	597	92.8	1	0.2	643	100.0
Coffs Harbour	7	0.9	4	0.5	28	3.4	773	95.2	0	0.0	812	100.0
Kempsey	2	0.6	2	0.6	12	3.9	292	94.8	0	0.0	308	100.0
Other Area hospitals	1	0.4	0	0.0	6	2.1	275	97.5	0	0.0	282	100.0
ALL HOSPITALS	17	0.6	12	0.4	125	4.6	2556	94.2	3	0.1	2713	100.0
New England												
Tamworth Base	10	1.7	1	0.2	45	7.5	546	90.7	0	0.0	602	100.0
Moree	1	0.4	2	0.8	15	5.9	236	92.9	0	0.0	254	100.0
Armidale	2	0.4	2	0.4	23	4.9	440	94.2	0	0.0	467	100.0
Inverell	1	0.5	0	0.0	9	4.1	211	95.5	0	0.0	221	100.0
Other Area hospitals	1	0.1	1	0.1	15	2.0	719	97.6	1	0.1	737	100.0
ALL HOSPITALS	15	0.7	6	0.3	107	4.7	2152	94.3	1	0.0	2281	100.0
Macquarie												
Dubbo Base	17	1.4	4	0.3	76	6.2	1126	91.9	2	0.2	1225	100.0
Mudgee	0	0.0	0	0.0	2	0.9	217	99.1	0	0.0	219	100.0
Other Area hospitals	0	0.0	0	0.0	4	4.4	85	94.4	1	1.1	90	100.0
ALL HOSPITALS	17	1.1	4	0.3	82	5.3	1428	93.1	3	0.2	1534	100.0
Mid Western												
Orange Base	6	0.8	2	0.3	46	6.1	700	92.8	0	0.0	754	100.0
Bathurst Base	5	0.9	2	0.4	39	7.2	497	91.5	0	0.0	543	100.0
Other Area hospitals	4	0.5	0	0.0	14	1.9	713	97.5	0	0.0	731	100.0
ALL HOSPITALS	15	0.7	4	0.2	99	4.9	1910	94.2	0	0.0	2028	100.0
Far West												
Broken Hill Base	0	0.0	1	0.4	16	6.2	241	93.4	0	0.0	258	100.0
Other Area hospitals	0	0.0	0	0.0	4	5.3	71	94.7	0	0.0	75	100.0
ALL HOSPITALS	0	0.0	1	0.3	20	6.0	312	93.7	0	0.0	333	100.0
Greater Murray												
Wagga Wagga Base	10	1.3	5	0.7	35	4.7	690	93.1	1	0.1	741	100.0
Calvary, Wagga Wagga	4	0.7	9	1.5	20	3.3	566	94.5	0	0.0	599	100.0
Griffith Base	3	0.6	4	0.8	22	4.5	464	94.1	0	0.0	493	100.0
Other Area hospitals	3	0.4	3	0.4	11	1.5	727	97.5	2	0.3	746	100.0
ALL HOSPITALS	20	0.8	21	0.8	88	3.4	2447	94.9	3	0.1	2579	100.0
Southern												
Goulburn Base	1	0.3	0	0.0	11	3.6	290	96.0	0	0.0	302	100.0
Queanbeyan	0	0.0	0	0.0	7	2.7	251	97.3	0	0.0	258	100.0
Other Area hospitals	1	0.1	2	0.2	33	3.6	873	96.0	0	0.0	909	100.0
ALL HOSPITALS	2	0.1	2	0.1	51	3.5	1414	96.3	0	0.0	1469	100.0
TOTAL NSW	1206	1.4	768	0.9	4097	4.8	79912	92.9	22	0.0	86005	100.0

Source: NSW Midwives Data 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.

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

Table 122 shows admissions of babies to special care and neonatal intensive care units for individual hospitals where the number of reported confinements exceeded 200 in 2002, 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 122

BIRTHS BY ADMISSION TO SPECIAL CARE OR NEONATAL INTENSIVE CARE UNIT AND HOSPITAL, NSW 2002*

Health Area and Hospital	No		Admission to special care unit				TOTAL		No		Admission to neonatal intensive care unit				TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney																
Canterbury	1247	86.0	203	14.0	0	0.0	1450	100.0	1450	100.0	0	0.0	0	0.0	1450	100.0
Royal Prince Alfred	3267	90.2	355	9.8	0	0.0	3622	100.0	3406	94.0	216	6.0	0	0.0	3622	100.0
ALL HOSPITALS	4514	89.0	558	11.0	0	0.0	5072	100.0	4856	95.7	216	4.3	0	0.0	5072	100.0
Northern Sydney																
Hornsby	516	56.3	400	43.7	0	0.0	916	100.0	916	100.0	0	0.0	0	0.0	916	100.0
Manly	662	83.6	130	16.4	0	0.0	792	100.0	792	100.0	0	0.0	0	0.0	792	100.0
Mona Vale	456	81.4	104	18.6	0	0.0	560	100.0	560	100.0	0	0.0	0	0.0	560	100.0
Royal North Shore	1440	99.9	2	0.1	0	0.0	1442	100.0	1171	81.2	271	18.8	0	0.0	1442	100.0
Ryde	365	76.2	114	23.8	0	0.0	479	100.0	479	100.0	0	0.0	0	0.0	479	100.0
Mater, North Sydney	1736	88.3	230	11.7	0	0.0	1966	100.0	1955	99.4	11	0.6	0	0.0	1966	100.0
North Shore Private	1949	90.9	195	9.1	0	0.0	2144	100.0	2131	99.4	13	0.6	0	0.0	2144	100.0
Sydney Adventist	2309	85.5	391	14.5	0	0.0	2700	100.0	2689	99.6	11	0.4	0	0.0	2700	100.0
ALL HOSPITALS	9433	85.8	1566	14.2	0	0.0	10999	100.0	10693	97.2	306	2.8	0	0.0	10999	100.0
Western Sydney																
Auburn	872	71.4	350	28.6	0	0.0	1222	100.0	1219	99.8	3	0.2	0	0.0	1222	100.0
Blacktown	2167	86.1	350	13.9	0	0.0	2517	100.0	2515	99.9	2	0.1	0	0.0	2517	100.0
Westmead	3588	88.9	450	11.1	0	0.0	4038	100.0	3614	89.5	424	10.5	0	0.0	4038	100.0
The Hills Private	1147	81.9	254	18.1	0	0.0	1401	100.0	1395	99.6	6	0.4	0	0.0	1401	100.0
Westmead Private	1104	80.1	275	19.9	0	0.0	1379	100.0	1370	99.3	9	0.7	0	0.0	1379	100.0
ALL HOSPITALS	8878	84.1	1679	15.9	0	0.0	10557	100.0	10113	95.8	444	4.2	0	0.0	10557	100.0
Wentworth																
Blue Mountains	189	93.1	14	6.9	0	0.0	203	100.0	203	100.0	0	0.0	0	0.0	203	100.0
Nepean	2869	85.0	506	15.0	0	0.0	3375	100.0	3007	89.1	368	10.9	0	0.0	3375	100.0
Hawkesbury	818	84.8	147	15.2	0	0.0	965	100.0	952	98.7	13	1.3	0	0.0	965	100.0
Nepean Private	784	86.2	125	13.8	0	0.0	909	100.0	905	99.6	4	0.4	0	0.0	909	100.0
ALL HOSPITALS	4660	85.5	792	14.5	0	0.0	5452	100.0	5067	92.9	385	7.1	0	0.0	5452	100.0
South Western Sydney																
Fairfield	1445	78.7	392	21.3	0	0.0	1837	100.0	1833	99.8	4	0.2	0	0.0	1837	100.0
Liverpool	2652	88.0	362	12.0	0	0.0	3014	100.0	2901	96.3	113	3.7	0	0.0	3014	100.0
Campbelltown	2269	85.9	371	14.1	0	0.0	2640	100.0	2635	99.8	5	0.2	0	0.0	2640	100.0
Bankstown-Lidcombe	1513	85.2	262	14.8	0	0.0	1775	100.0	1769	99.7	6	0.3	0	0.0	1775	100.0
Sydney Southwest Private	813	77.8	232	22.2	0	0.0	1045	100.0	1040	99.5	5	0.5	0	0.0	1045	100.0
Bowral	549	88.5	71	11.5	0	0.0	620	100.0	618	99.7	2	0.3	0	0.0	620	100.0
ALL HOSPITALS	9241	84.5	1690	15.5	0	0.0	10931	100.0	10796	98.8	135	1.2	0	0.0	10931	100.0
Central Coast																
Gosford	1783	86.1	289	13.9	0	0.0	2072	100.0	2041	98.5	31	1.5	0	0.0	2072	100.0
Wyong	321	93.3	23	6.7	0	0.0	344	100.0	342	99.4	2	0.6	0	0.0	344	100.0
North Gosford Private	798	87.4	115	12.6	0	0.0	913	100.0	909	99.6	4	0.4	0	0.0	913	100.0
ALL HOSPITALS	2902	87.2	427	12.8	0	0.0	3329	100.0	3292	98.9	37	1.1	0	0.0	3329	100.0
Hunter																
Maitland	1222	81.1	284	18.9	0	0.0	1506	100.0	1503	99.8	3	0.2	0	0.0	1506	100.0
Muswellbrook	212	93.8	14	6.2	0	0.0	226	100.0	224	99.1	2	0.9	0	0.0	226	100.0
Belmont	571	85.7	95	14.3	0	0.0	666	100.0	663	99.5	3	0.5	0	0.0	666	100.0
John Hunter	2825	86.2	453	13.8	0	0.0	3278	100.0	3029	92.4	249	7.6	0	0.0	3278	100.0
Christo Road Private	845	79.4	219	20.6	0	0.0	1064	100.0	1062	99.8	2	0.2	0	0.0	1064	100.0
Other Area hospitals	495	97.1	15	2.9	0	0.0	510	100.0	506	99.2	4	0.8	0	0.0	510	100.0
ALL HOSPITALS	6170	85.1	1080	14.9	0	0.0	7250	100.0	6987	96.4	263	3.6	0	0.0	7250	100.0
Illawarra																
Shoalhaven	664	83.0	136	17.0	0	0.0	800	100.0	800	100.0	0	0.0	0	0.0	800	100.0
Wollongong	1413	77.4	412	22.6	0	0.0	1825	100.0	1825	100.0	0	0.0	0	0.0	1825	100.0
Shellharbour	405	95.5	19	4.5	0	0.0	424	100.0	424	100.0	0	0.0	0	0.0	424	100.0
Illawarra Private	880	86.4	138	13.6	0	0.0	1018	100.0	1016	99.8	2	0.2	0	0.0	1018	100.0
Other Area hospitals	88	96.7	3	3.3	0	0.0	91	100.0	91	100.0	0	0.0	0	0.0	91	100.0
ALL HOSPITALS	3450	83.0	708	17.0	0	0.0	4158	100.0	4156	100.0	2	0.0	0	0.0	4158	100.0

TABLE 122 (continued)
BIRTHS BY ADMISSION TO SPECIAL CARE OR NEONATAL INTENSIVE CARE UNIT AND HOSPITAL, NSW 2002*

Health Area and Hospital	No		Admission to special care unit				TOTAL		Admission to neonatal intensive care unit		No		Yes		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
South Eastern Sydney																		
Royal Hospital for Women	3518	88.1	476	11.9	0	0.0	3994	100.0	3798	95.1	196	4.9	0	0.0	3994	100.0		
St. George	1900	85.1	333	14.9	0	0.0	2233	100.0	2227	99.7	6	0.3	0	0.0	2233	100.0		
Sutherland	624	88.4	82	11.6	0	0.0	706	100.0	704	99.7	2	0.3	0	0.0	706	100.0		
Hurstville Community	1090	84.6	199	15.4	0	0.0	1289	100.0	1282	99.5	7	0.5	0	0.0	1289	100.0		
Kareena Private	539	75.8	172	24.2	0	0.0	711	100.0	705	99.2	6	0.8	0	0.0	711	100.0		
St. George Private	1238	81.2	286	18.8	0	0.0	1524	100.0	1522	99.9	2	0.1	0	0.0	1524	100.0		
Prince of Wales																		
Private	1373	83.9	264	16.1	0	0.0	1637	100.0	1623	99.1	14	0.9	0	0.0	1637	100.0		
ALL HOSPITALS	10282	85.0	1812	15.0	0	0.0	12094	100.0	11861	98.1	233	1.9	0	0.0	12094	100.0		
Northern Rivers																		
Grafton Base	355	85.3	61	14.7	0	0.0	416	100.0	406	97.6	10	2.4	0	0.0	416	100.0		
Lismore Base	1038	80.2	256	19.8	0	0.0	1294	100.0	1275	98.5	19	1.5	0	0.0	1294	100.0		
Murwillumbah	380	89.2	46	10.8	0	0.0	426	100.0	424	99.5	2	0.5	0	0.0	426	100.0		
Tweed Heads	560	81.3	129	18.7	0	0.0	689	100.0	682	99.0	7	1.0	0	0.0	689	100.0		
Other Area hospitals	286	95.3	14	4.7	0	0.0	300	100.0	298	99.3	2	0.7	0	0.0	300	100.0		
ALL HOSPITALS	2619	83.8	506	16.2	0	0.0	3125	100.0	3085	98.7	40	1.3	0	0.0	3125	100.0		
Mid North Coast																		
Coffs Harbour	697	85.8	115	14.2	0	0.0	812	100.0	804	99.0	8	1.0	0	0.0	812	100.0		
Kempsey	271	88.0	37	12.0	0	0.0	308	100.0	307	99.7	1	0.3	0	0.0	308	100.0		
Port Macquarie Base	527	78.9	141	21.1	0	0.0	668	100.0	665	99.6	3	0.4	0	0.0	668	100.0		
Manning Base	536	83.4	107	16.6	0	0.0	643	100.0	632	98.3	11	1.7	0	0.0	643	100.0		
Other Area hospitals	264	93.6	18	6.4	0	0.0	282	100.0	279	98.9	3	1.1	0	0.0	282	100.0		
ALL HOSPITALS	2295	84.6	418	15.4	0	0.0	2713	100.0	2687	99.0	26	1.0	0	0.0	2713	100.0		
New England																		
Armidale	360	77.1	107	22.9	0	0.0	467	100.0	465	99.6	2	0.4	0	0.0	467	100.0		
Inverell	211	95.5	10	4.5	0	0.0	221	100.0	220	99.5	1	0.5	0	0.0	221	100.0		
Moree	224	88.2	30	11.8	0	0.0	254	100.0	250	98.4	4	1.6	0	0.0	254	100.0		
Tamworth Base	410	68.1	192	31.9	0	0.0	602	100.0	595	98.8	7	1.2	0	0.0	602	100.0		
Other Area hospitals	679	92.1	58	7.9	0	0.0	737	100.0	731	99.2	6	0.8	0	0.0	737	100.0		
ALL HOSPITALS	1884	82.6	397	17.4	0	0.0	2281	100.0	2261	99.1	20	0.9	0	0.0	2281	100.0		
Macquarie																		
Dubbo Base	1029	84.0	194	15.8	2	0.2	1225	100.0	1207	98.5	16	1.3	2	0.2	1225	100.0		
Mudgee	203	92.7	16	7.3	0	0.0	219	100.0	219	100.0	0	0.0	0	0.0	219	100.0		
Other Area hospitals	82	91.1	8	8.9	0	0.0	90	100.0	90	100.0	0	0.0	0	0.0	90	100.0		
ALL HOSPITALS	1314	85.7	218	14.2	2	0.1	1534	100.0	1516	98.8	16	1.0	2	0.1	1534	100.0		
Mid Western																		
Bathurst Base	467	86.0	76	14.0	0	0.0	543	100.0	533	98.2	10	1.8	0	0.0	543	100.0		
Orange Base	625	82.9	129	17.1	0	0.0	754	100.0	748	99.2	6	0.8	0	0.0	754	100.0		
Other Area hospitals	674	92.2	57	7.8	0	0.0	731	100.0	726	99.3	5	0.7	0	0.0	731	100.0		
ALL HOSPITALS	1766	87.1	262	12.9	0	0.0	2028	100.0	2007	99.0	21	1.0	0	0.0	2028	100.0		
Far West																		
Broken Hill Base	238	92.2	20	7.8	0	0.0	258	100.0	256	99.2	2	0.8	0	0.0	258	100.0		
Other Area hospitals	74	98.7	1	1.3	0	0.0	75	100.0	74	98.7	1	1.3	0	0.0	75	100.0		
ALL HOSPITALS	312	93.7	21	6.3	0	0.0	333	100.0	330	99.1	3	0.9	0	0.0	333	100.0		
Greater Murray																		
Griffith Base	250	50.7	243	49.3	0	0.0	493	100.0	486	98.6	7	1.4	0	0.0	493	100.0		
Wagga Wagga Base	630	85.0	111	15.0	0	0.0	741	100.0	741	100.0	0	0.0	0	0.0	741	100.0		
Calvary, Wagga Wagga	541	90.3	58	9.7	0	0.0	599	100.0	590	98.5	9	1.5	0	0.0	599	100.0		
Other Area hospitals	676	90.6	70	9.4	0	0.0	746	100.0	737	98.8	9	1.2	0	0.0	746	100.0		
ALL HOSPITALS	2097	81.3	482	18.7	0	0.0	2579	100.0	2554	99.0	25	1.0	0	0.0	2579	100.0		
Southern																		
Goulburn Base	260	86.1	42	13.9	0	0.0	302	100.0	298	98.7	4	1.3	0	0.0	302	100.0		
Queanbeyan	246	95.3	12	4.7	0	0.0	258	100.0	250	96.9	8	3.1	0	0.0	258	100.0		
Other Area hospitals	844	92.8	64	7.0	1	0.1	909	100.0	897	98.7	12	1.3	0	0.0	909	100.0		
ALL HOSPITALS	1350	91.9	118	8.0	1	0.1	1469	100.0	1445	98.4	24	1.6	0	0.0	1469	100.0		
TOTAL NSW	73262	85.2	12740	14.8	3	0.0	86005	100.0	83807	97.4	2196	2.6	2	0.0	86005	100.0		

Source: NSW Midwives Data 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.

Baby discharge status in selected hospitals

Table 123 shows the discharge status of babies born in hospitals where the number of reported confinements exceeded 200 in 2002, totals for all hospitals within each health area and the NSW total.

TABLE 123

BIRTHS BY BABY DISCHARGE STATUS AND HOSPITAL, NSW 2002[#]

Health Area and Hospital	Baby discharge status										TOTAL	
	Discharged		Stillborn		Neonatal death		Transferred		Not stated			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney												
Canterbury	1424	98.2	8	0.6	1	0.1	17	1.2	0	0.0	1450	100.0
Royal Prince Alfred	3434	94.8	32	0.9	31	0.9	125	3.5	0	0.0	3622	100.0
ALL HOSPITALS	4858	95.8	40	0.8	32	0.6	142	2.8	0	0.0	5072	100.0
Northern Sydney												
Hornsby	903	98.6	3	0.3	1	0.1	9	1.0	0	0.0	916	100.0
Manly	780	98.5	4	0.5	0	0.0	8	1.0	0	0.0	792	100.0
Mona Vale	553	98.8	3	0.5	0	0.0	4	0.7	0	0.0	560	100.0
Royal North Shore	1306	90.6	7	0.5	13	0.9	116	8.0	0	0.0	1442	100.0
Ryde	470	98.1	2	0.4	1	0.2	6	1.3	0	0.0	479	100.0
Mater, North Sydney	1948	99.1	4	0.2	2	0.1	12	0.6	0	0.0	1966	100.0
North Shore Private	2119	98.8	10	0.5	3	0.1	12	0.6	0	0.0	2144	100.0
Sydney Adventist	2671	98.9	13	0.5	0	0.0	16	0.6	0	0.0	2700	100.0
ALL HOSPITALS	10750	97.7	46	0.4	20	0.2	183	1.7	0	0.0	10999	100.0
Western Sydney												
Auburn	1203	98.4	4	0.3	0	0.0	15	1.2	0	0.0	1222	100.0
Blacktown	2475	98.3	16	0.6	3	0.1	23	0.9	0	0.0	2517	100.0
Westmead	3734	92.5	48	1.2	37	0.9	219	5.4	0	0.0	4038	100.0
The Hills Private	1381	98.6	9	0.6	0	0.0	11	0.8	0	0.0	1401	100.0
Westmead Private	1361	98.7	5	0.4	0	0.0	11	0.8	2	0.1	1379	100.0
ALL HOSPITALS	10154	96.2	82	0.8	40	0.4	279	2.6	2	0.0	10557	100.0
Wentworth												
Blue Mountains	200	98.5	0	0.0	0	0.0	3	1.5	0	0.0	203	100.0
Nepean	3167	93.8	20	0.6	16	0.5	172	5.1	0	0.0	3375	100.0
Hawkesbury	945	97.9	0	0.0	1	0.1	19	2.0	0	0.0	965	100.0
Nepean Private	902	99.2	1	0.1	1	0.1	5	0.6	0	0.0	909	100.0
ALL HOSPITALS	5214	95.6	21	0.4	18	0.3	199	3.7	0	0.0	5452	100.0
South Western Sydney												
Fairfield	1809	98.5	15	0.8	0	0.0	13	0.7	0	0.0	1837	100.0
Liverpool	2836	94.1	23	0.8	20	0.7	135	4.5	0	0.0	3014	100.0
Campbelltown	2526	95.7	17	0.6	3	0.1	91	3.4	3	0.1	2640	100.0
Bankstown-Lidcombe	1753	98.8	14	0.8	1	0.1	7	0.4	0	0.0	1775	100.0
Sydney Southwest Private	1034	98.9	2	0.2	0	0.0	9	0.9	0	0.0	1045	100.0
Bowral	474	76.5	4	0.6	0	0.0	142	22.9	0	0.0	620	100.0
ALL HOSPITALS	10432	95.4	75	0.7	24	0.2	397	3.6	3	0.0	10931	100.0
Central Coast												
Gosford	1712	82.6	14	0.7	0	0.0	346	16.7	0	0.0	2072	100.0
Wyong	325	94.5	0	0.0	1	0.3	18	5.2	0	0.0	344	100.0
North Gosford Private	904	99.0	2	0.2	0	0.0	7	0.8	0	0.0	913	100.0
ALL HOSPITALS	2941	88.3	16	0.5	1	0.0	371	11.1	0	0.0	3329	100.0
Hunter												
Maitland	1195	79.3	8	0.5	1	0.1	302	20.1	0	0.0	1506	100.0
Muswellbrook	218	96.5	0	0.0	0	0.0	8	3.5	0	0.0	226	100.0
Belmont	641	96.2	3	0.5	1	0.2	21	3.2	0	0.0	666	100.0
John Hunter	2690	82.1	41	1.3	30	0.9	517	15.8	0	0.0	3278	100.0
Christo Road Private	1000	94.0	9	0.8	0	0.0	55	5.2	0	0.0	1064	100.0
Other Area hospitals	492	96.5	1	0.2	0	0.0	17	3.3	0	0.0	510	100.0
ALL HOSPITALS	6236	86.0	62	0.9	32	0.4	920	12.7	0	0.0	7250	100.0
Illawarra												
Shoalhaven	733	91.6	3	0.4	0	0.0	64	8.0	0	0.0	800	100.0
Wollongong	1494	81.9	14	0.8	5	0.3	312	17.1	0	0.0	1825	100.0
Shellharbour	407	96.0	0	0.0	0	0.0	17	4.0	0	0.0	424	100.0
Illawarra Private	1002	98.4	4	0.4	1	0.1	11	1.1	0	0.0	1018	100.0
Other Area hospitals	89	97.8	0	0.0	0	0.0	2	2.2	0	0.0	91	100.0
ALL HOSPITALS	3725	89.6	21	0.5	6	0.1	406	9.8	0	0.0	4158	100.0

TABLE 123 (continued)
BIRTHS BY BABY DISCHARGE STATUS AND HOSPITAL, NSW 2002[#]

Health Area and Hospital	Discharged		Stillborn		Baby discharge status Neonatal death		Transferred		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
South Eastern Sydney												
Royal Hospital for Women	3804	95.2	39	1.0	38	1.0	113	2.8	0	0.0	3994	100.0
St. George	2194	98.3	17	0.8	2	0.1	18	0.8	2	0.1	2233	100.0
Sutherland	699	99.0	1	0.1	0	0.0	6	0.8	0	0.0	706	100.0
Hurstville Community	1281	99.4	0	0.0	0	0.0	8	0.6	0	0.0	1289	100.0
Kareena Private	700	98.5	1	0.1	0	0.0	10	1.4	0	0.0	711	100.0
St. George Private	1508	99.0	4	0.3	1	0.1	11	0.7	0	0.0	1524	100.0
Prince of Wales Private	1606	98.1	0	0.0	1	0.1	22	1.3	8	0.5	1637	100.0
ALL HOSPITALS	11792	97.5	62	0.5	42	0.3	188	1.6	10	0.1	12094	100.0
Northern Rivers												
Grafton Base	402	96.6	3	0.7	0	0.0	11	2.6	0	0.0	416	100.0
Lismore Base	994	76.8	12	0.9	2	0.2	286	22.1	0	0.0	1294	100.0
Murwillumbah	419	98.4	1	0.2	1	0.2	5	1.2	0	0.0	426	100.0
Tweed Heads	672	97.5	6	0.9	1	0.1	10	1.5	0	0.0	689	100.0
Other Area hospitals	279	93.0	0	0.0	0	0.0	21	7.0	0	0.0	300	100.0
ALL HOSPITALS	2766	88.5	22	0.7	4	0.1	333	10.7	0	0.0	3125	100.0
Mid North Coast												
Coffs Harbour	753	92.7	3	0.4	0	0.0	56	6.9	0	0.0	812	100.0
Kempsey	299	97.1	0	0.0	0	0.0	9	2.9	0	0.0	308	100.0
Port Macquarie Base	637	95.4	1	0.1	2	0.3	23	3.4	5	0.7	668	100.0
Manning Base	596	92.7	5	0.8	1	0.2	41	6.4	0	0.0	643	100.0
Other Area hospitals	270	95.7	1	0.4	0	0.0	11	3.9	0	0.0	282	100.0
ALL HOSPITALS	2555	94.2	10	0.4	3	0.1	140	5.2	5	0.2	2713	100.0
New England												
Armidale	436	93.4	2	0.4	1	0.2	28	6.0	0	0.0	467	100.0
Inverell	212	95.9	0	0.0	0	0.0	9	4.1	0	0.0	221	100.0
Moree	243	95.7	3	1.2	0	0.0	8	3.1	0	0.0	254	100.0
Tamworth Base	528	87.7	7	1.2	0	0.0	67	11.1	0	0.0	602	100.0
Other Area hospitals	687	93.2	2	0.3	0	0.0	48	6.5	0	0.0	737	100.0
ALL HOSPITALS	2106	92.3	14	0.6	1	0.0	160	7.0	0	0.0	2281	100.0
Macquarie												
Dubbo Base	810	66.1	11	0.9	4	0.3	391	31.9	9	0.7	1225	100.0
Mudgee	213	97.3	0	0.0	0	0.0	6	2.7	0	0.0	219	100.0
Other Area hospitals	78	86.7	0	0.0	0	0.0	12	13.3	0	0.0	90	100.0
ALL HOSPITALS	1101	71.8	11	0.7	4	0.3	409	26.7	9	0.6	1534	100.0
Mid Western												
Bathurst Base	427	78.6	2	0.4	0	0.0	114	21.0	0	0.0	543	100.0
Orange Base	620	82.2	6	0.8	1	0.1	127	16.8	0	0.0	754	100.0
Other Area hospitals	700	95.8	5	0.7	1	0.1	25	3.4	0	0.0	731	100.0
ALL HOSPITALS	1747	86.1	13	0.6	2	0.1	266	13.1	0	0.0	2028	100.0
Far West												
Broken Hill Base	253	98.1	0	0.0	1	0.4	4	1.6	0	0.0	258	100.0
Other Area hospitals	65	86.7	0	0.0	0	0.0	10	13.3	0	0.0	75	100.0
ALL HOSPITALS	318	95.5	0	0.0	1	0.3	14	4.2	0	0.0	333	100.0
Greater Murray												
Griffith Base	472	95.7	3	0.6	2	0.4	16	3.2	0	0.0	493	100.0
Wagga Wagga Base	682	92.0	10	1.3	1	0.1	48	6.5	0	0.0	741	100.0
Calvary, Wagga Wagga	578	96.5	5	0.8	0	0.0	16	2.7	0	0.0	599	100.0
Other Area hospitals	706	94.6	0	0.0	0	0.0	37	5.0	3	0.4	746	100.0
ALL HOSPITALS	2438	94.5	18	0.7	3	0.1	117	4.5	3	0.1	2579	100.0
Southern												
Goulburn Base	283	93.7	1	0.3	2	0.7	14	4.6	2	0.7	302	100.0
Queanbeyan	249	96.5	0	0.0	0	0.0	9	3.5	0	0.0	258	100.0
Other Area hospitals	867	95.4	1	0.1	2	0.2	38	4.2	1	0.1	909	100.0
ALL HOSPITALS	1399	95.2	2	0.1	4	0.3	61	4.2	3	0.2	1469	100.0
TOTAL NSW	80629	93.7	515	0.6	237	0.3	4589	5.3	35	0.0	86005	100.0

Source: NSW Midwives Data 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.

Postnatal length of stay in selected hospitals

Table 124 shows the mother's postnatal length of stay in the hospital of birth for hospitals where the number of reported confinements exceeded 200 in 2001, totals for all hospitals within each health area and the NSW total.

TABLE 124

AVERAGE MATERNAL POSTNATAL LENGTH OF STAY IN HOSPITAL OF BIRTH, NSW 1997–2001*

Health Area and Hospital	Average postnatal length of stay (days)					Health Area and Hospital	Average postnatal length of stay (days)				
	1997	1998	1999	2000	2001		1997	1998	1999	2000	2001
Central Sydney						South Eastern Sydney					
Canterbury	–	2.8	2.9	2.8	2.7	Royal Hospital for Women	4.1	3.8	3.6	3.8	3.5
Royal Prince Alfred	3.9	3.9	4.0	3.7	3.7	St. George	3.9	3.6	3.5	3.6	2.9
Other Area hospitals	5.4	4.6	5.0	5.1	–	Sutherland	3.8	3.8	3.6	3.2	3.0
ALL HOSPITALS	4.0	3.9	3.8	3.5	3.4	Hurstville Community	6.6	6.4	5.5	4.5	4.4
Northern Sydney						Kareena Private	6.3	5.9	5.9	5.6	5.1
Hornsby	3.7	3.8	3.7	3.6	3.4	St. George Private	6.2	5.5	5.3	5.1	5.1
Manly	3.8	3.7	3.8	3.8	3.6	Prince of Wales Private	6.3	5.6	5.2	4.9	4.6
Mona Vale	3.9	3.8	3.7	4.1	3.4	Other Area hospitals	5.8	5.6	–	–	–
Royal North Shore	3.9	4.1	4.3	4.2	3.6	ALL HOSPITALS	4.8	4.5	4.2	4.1	3.9
Ryde	3.6	3.3	3.4	3.7	3.1	Northern Rivers					
Mater, North Sydney	5.3	5.2	5.4	5.2	4.8	Grafton Base	4.5	3.9	3.9	3.8	3.4
North Shore Private	–	4.8	4.8	4.8	4.6	Lismore Base	3.2	3.4	3.1	3.3	3.0
Sydney Adventist	5.6	5.3	5.5	5.2	4.7	Murwillumbah	4.0	3.7	3.7	3.9	3.5
ALL HOSPITALS	4.5	4.5	4.6	4.5	4.2	Tweed Heads	3.0	3.1	3.4	3.5	3.0
Western Sydney						Other Area hospitals	3.9	3.4	3.2	3.3	3.1
Auburn	3.0	2.8	2.8	3.5	2.7	ALL HOSPITALS	3.5	3.5	3.4	3.5	3.1
Blacktown	3.1	3.1	3.0	3.2	3.1	Mid North Coast					
Westmead	–	3.3	3.4	3.3	3.2	Coffs Harbour	3.9	4.0	3.9	4.1	3.7
The Hills Private	5.8	5.6	5.5	5.3	4.9	Kempsey	4.1	3.9	3.8	3.7	3.1
Westmead Private	–	–	–	4.9	4.9	Port Macquarie Base	3.7	3.8	4.1	3.9	3.7
Other Area hospitals	3.5	–	–	1.0	1.0	Manning Base	4.5	3.9	4.1	4.1	3.1
ALL HOSPITALS	3.6	3.5	3.5	3.6	3.5	Other Area hospitals	4.5	4.8	4.4	4.1	4.4
Wentworth						ALL HOSPITALS	4.1	4.0	4.0	4.0	3.6
Blue Mountains	3.6	3.7	3.5	3.6	3.7	New England					
Nepean	3.5	3.2	3.3	3.5	3.1	Armidale	4.7	4.4	4.4	4.2	3.8
Hawkesbury	3.8	3.5	3.4	3.3	3.2	Inverell	3.8	3.4	3.4	3.2	2.9
Nepean Private	–	–	–	4.3	4.8	Moree	3.6	4.0	3.7	3.6	3.3
Other Area hospitals	5.5	5.3	5.0	4.6	–	Tamworth Base	3.6	3.6	3.8	4.2	3.4
ALL HOSPITALS	3.9	3.6	3.6	3.6	3.4	Other Area hospitals	4.2	4.1	4.1	4.1	4.1
South Western Sydney						ALL HOSPITALS	4.0	3.9	4.0	4.0	3.6
Fairfield	2.9	2.9	2.8	3.0	2.6	Macquarie					
Liverpool	3.1	2.9	3.0	2.9	2.7	Dubbo Base	3.0	3.0	2.9	3.0	2.4
Campbelltown	2.7	2.6	2.6	2.9	2.5	Mudgee	3.3	3.5	3.2	3.2	2.9
Bankstown–Lidcombe	2.8	2.8	2.9	2.8	2.8	Other Area hospitals	3.3	3.5	3.1	3.0	3.1
Sydney Southwest Private	–	–	4.5	6.5	4.6	ALL HOSPITALS	3.1	3.1	2.9	3.0	2.5
Bowral	3.0	3.0	3.0	2.7	2.6	Mid Western					
Other Area hospitals	4.4	4.1	4.6	4.4	–	Bathurst Base	3.2	3.3	3.4	3.2	3.0
ALL HOSPITALS	3.1	3.0	2.9	3.1	2.8	Orange Base	3.4	3.1	3.4	3.8	3.2
Central Coast						Other Area hospitals	4.2	4.0	4.0	4.6	3.7
Gosford	3.1	2.4	2.5	2.5	2.3	ALL HOSPITALS	3.7	3.5	3.6	4.0	3.4
Wyong	3.2	2.5	2.4	2.3	2.1	Far West					
North Gosford Private	5.9	5.9	5.6	5.4	4.9	Broken Hill Base	3.8	4.1	4.4	3.5	3.6
ALL HOSPITALS	3.7	3.1	3.1	3.0	2.9	Other Area hospitals	2.9	2.8	3.6	3.5	2.7
Hunter						ALL HOSPITALS	3.6	3.8	4.2	3.5	3.5
Maitland	3.1	3.2	3.4	3.5	2.6	Greater Murray					
Muswellbrook	3.8	3.5	3.5	3.7	3.3	Griffith Base	3.4	3.4	3.1	3.2	3.1
Belmont	3.5	3.5	3.6	3.2	3.3	Wagga Wagga Base	3.4	3.3	3.8	3.3	2.9
Singleton	3.3	3.5	3.3	2.9	3.3	Calvary, Wagga Wagga	6.5	5.5	5.2	4.7	5.0
John Hunter	4.0	3.9	3.6	3.6	3.3	Other Area hospitals	4.2	4.0	4.0	3.8	3.8
Christo Road Private	5.8	5.5	5.3	5.0	4.9	ALL HOSPITALS	4.2	3.9	3.9	3.7	3.6
Other Area hospitals	4.7	4.8	4.1	3.9	4.3	Southern					
ALL HOSPITALS	4.1	4.0	3.8	3.7	3.4	Goulburn Base	3.8	3.3	3.5	3.5	3.4
Illawarra						Queanbeyan	3.2	3.4	3.4	3.3	3.1
Shoalhaven	2.3	2.5	2.7	2.6	2.4	Other Area hospitals	3.9	4.0	3.8	3.8	3.5
Shellharbour	3.3	3.0	2.8	2.7	2.8	ALL HOSPITALS	3.7	3.7	3.6	3.6	3.4
Illawarra Private	6.3	5.6	5.6	5.6	5.4	TOTAL NSW					
Other Area hospitals	2.4	2.7	2.8	2.6	2.6		3.9	3.7	3.7	3.7	3.5
ALL HOSPITALS	2.5	3.0	3.2	3.1	3.2						

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.

Indicators of obstetric care

The Australian Council on Healthcare Standards and the Royal Australian and New Zealand College of Obstetricians and Gynaecologists have endorsed seven clinical indicators for use in Hospitals.

Table 125 shows aggregate information for these indicators for all NSW hospitals and comparative information for all participating hospitals in Australia.

TABLE 125

CLINICAL INDICATORS FOR OBSTETRICS, NSW AND AUSTRALIA, 2002

Indicator description	NSW	Australia	
	%	20th Centile	80th Centile
Indicator 1: Induction of labour other than for defined indications.#			
1.1 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).	33.1	33.6	22.2 48.1
1.2 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).	8.3	8.6	4.6 13.7
Indicator 2: The rate of vaginal delivery following primary caesarean section.			
2.1 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.	17.2	16.7	11.5 25.0
Indicator 3: Primary caesarean section for failure to progress.			
3.1 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.	10.6	9.9	6.5 19.3
3.2 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.	31.9	27.9	24.8 39.5
Indicator 4: Primary caesarean section for fetal distress.			
4.1 The number of patients undergoing primary caesarean section for fetal distress as a percentage of the total number of patients delivering.	3.4	3.6	2.5 4.1
4.2 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.	19.1	20.5	14.1 26.6
Indicator 5: Incidence of intact lower genital tract in primiparous patients delivering vaginally.			
5.1 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.	29.8	29.0	19.8 39.0
Indicator 6: Apgar scores.			
6.1 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.	1.1	0.6	0.3 0.7
6.2 The number of babies born with an Apgar score of six or below at ten minutes post delivery as a percentage of the total number of babies born.##	–	0.3	0.2 0.4
Indicator 7: Term infants transferred or admitted to a neonatal intensive care unit for reasons other than congenital abnormalities.			
7.1 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.###	0.8	1.1	0.2 1.3

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health. The Australian Council on Healthcare Standards. Determining the Potential to Improve Quality of Care. 4th Edition, ACHS Clinical Indicator Results for Australia and New Zealand 1998–2002. Sydney: The Australian Council on Healthcare Standards, 2003.

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.

NSW data not collected.

NSW data are provided by hospital of birth and may be under-enumerated. Infants transferred to another hospital and then admitted to NICU for reasons other than congenital abnormality may not be reported by the hospital of birth.

11. REVIEW OF PERINATAL DEATHS 2002

Introduction

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 *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 Circular No. 2002/6 describes hospital procedures for review and reporting of perinatal deaths. The circular is available on the Department's web site at: www.health.nsw.gov.au/fcsd/rmc/cib/circulars/2002/cir2002-6.pdf. 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 birthweight. The criteria used by the NSW Midwives Data Collection (MDC) for reporting of births is at least 400 grams birthweight 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 Australia and New Zealand Antecedent Classification of Perinatal Mortality (ANZACPM). Neonatal deaths were also classified by neonatal cause according to the Australia and New Zealand Neonatal Death Classification.

Of the 637 perinatal deaths of at least 22 weeks gestation or at least 500 grams birthweight reported to the NSW Midwives Data Collection in 2002, confidential reports on 613 (96.2 per cent) were reviewed and classified. Of the 424 stillbirths and 213 neonatal deaths reported to the MDC, reviews were carried out on 411 (96.9 per cent) and 202 (94.8 per cent) respectively.

Comparative information is also presented for 2001. Figures presented for 2001 may differ from those in the *NSW Mothers and Babies 2001* report as additional information on some deaths in 2001 was received after the report was published.

Trends in obstetric antecedents of perinatal death

Between 2001 and 2002 there was a reduction in the proportion of unexplained antepartum deaths, from 31.0 to 26.3 per cent (Figure 22, Table 126). This was associated with an increase in the proportion of deaths for which postmortem examinations were carried out — from 27.1 per cent in 2001 to 30.3 per cent in 2002; and an increase in the proportion of deaths for which placental histopathology examinations were carried out — from

75.0 per cent in 2001 to 79.0 per cent in 2002. There was an increase in the proportion of deaths attributed to fetal growth restriction, fetal abnormality, antepartum haemorrhage and maternal conditions.

Obstetric antecedents of perinatal death 2002

1. Congenital abnormality

Congenital abnormalities were the underlying cause for 103 deaths (Table 127). Chromosomal abnormalities were most common ($n=25$, 24.3 per cent). Of these, 8 were trisomy 13, 7 were trisomy 18, 4 were trisomy 13, 3 were Turner syndrome, and 3 were other abnormalities.

Twenty-five deaths were associated with abnormalities of the central nervous system (24.3 per cent), of which 18 were neural tube defects. Seventeen deaths occurred among babies who had multiple abnormalities not associated with a chromosomal abnormality. Eight deaths were associated with congenital diaphragmatic hernia.

2. Perinatal infection

Twenty-seven deaths were found to be due to infection, of which 17 were stillbirths and 10 were neonatal deaths. In 16 deaths there was an associated chorioamnionitis.

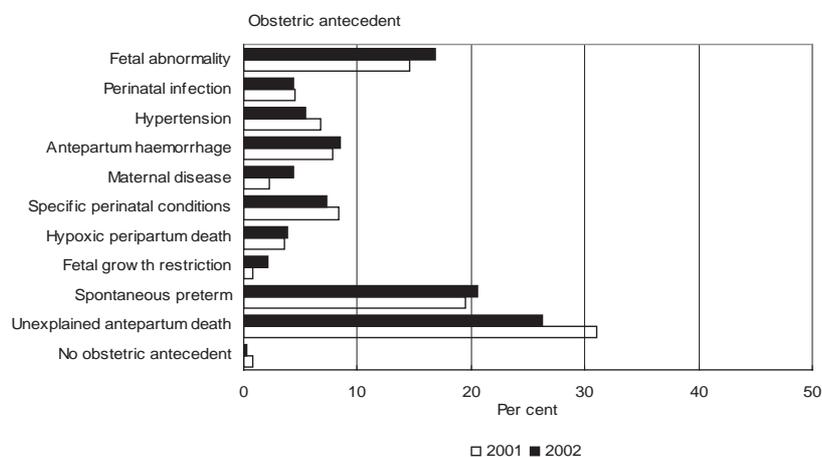
The most common infective organism identified was group B streptococcus, which was considered responsible for 4 neonatal deaths and 3 stillbirths. Four neonatal deaths were caused by *E. Coli* infection. Four stillbirths followed cytomegalovirus infection and one was associated with an *E. faecalis* infection. One neonatal death was attributed to cardiomyopathy caused by a Cocksackie virus infection. The causative organism was not specified for 10 deaths.

3. Hypertension

Thirty-four (5.6 per cent) deaths were considered to be due to maternal hypertension, with the majority ($n=28$, 82.4 per cent) occurring in mothers with pre-eclampsia. There were twenty stillbirths and 14 neonatal deaths. Four deaths were among babies of twin pregnancies. Three deaths in this group were associated with placental abruption. Two deaths were associated with maternal diabetes, and one with hyperthyroidism.

4. Antepartum haemorrhage

Fifty-two deaths were due to antepartum haemorrhage, of which 40 were due to placental abruption, and 1 was due to placenta praevia. There were thirty-five stillbirths, of whom 3 died during labour, and 17 were neonatal deaths. Six cases of placental abruption were associated with a twin pregnancy. Three cases were associated with maternal hypertension.

FIGURE 22**PERINATAL DEATHS BY OBSTETRIC ANTECEDENT AND YEAR, NSW 2001–2002**

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

TABLE 126**PERINATAL DEATHS BY OBSTETRIC ANTECEDENT AND YEAR, NSW 2001–2002**

Obstetric cause	Year					
	2001		2002			
	No.	%	No.	%		
1. Fetal abnormality	90	14.6	103	16.8		
2. Perinatal infection	28	4.5	27	4.4		
3. Hypertension	41	6.7	34	5.5		
4. Antepartum haemorrhage	48	7.8	52	8.5		
5. Maternal disease	14	2.3	27	4.4		
6. Specific perinatal conditions	52	8.4	45	7.3		
7. Hypoxic peripartum death	22	3.6	23	3.8		
8. Fetal growth restriction	5	0.8	13	2.1		
9. Spontaneous preterm	120	19.5	126	20.6		
10. Unexplained antepartum death	191	31.0	161	26.3		
11. No obstetric antecedent	5	0.8	2	0.3		
TOTAL	616	100.0	613	100.0		

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

TABLE 127

PERINATAL DEATHS BY OBSTETRIC ANTECEDENT AND PERINATAL OUTCOME, NSW 2002

Obstetric cause	Stillbirth		Perinatal outcome Neonatal death		TOTAL	
	No.	%	No.	%	No.	%
1. Fetal abnormality						
Central nervous system	19	4.6	6	3.0	25	4.1
Cardiovascular system	8	1.9	2	1.0	10	1.6
Urinary tract	3	0.7	3	1.5	6	1.0
Gastrointestinal system	1	0.2	1	0.5	2	0.3
Chromosomal	17	4.1	8	4.0	25	4.1
Metabolic	1	0.2	1	0.5	2	0.3
Multiple	8	1.9	9	4.5	17	2.8
Other	4	1.0	12	5.9	16	2.6
Total	61	14.8	42	20.8	103	16.8
2. Perinatal infection						
Group B Streptococcus	3	0.7	4	2.0	7	1.1
E Coli	0	0.0	4	2.0	4	0.7
Other bacterial	1	0.2	0	0.0	1	0.2
Unspecified bacterial	3	0.7	0	0.0	3	0.5
Cytomegalovirus	4	1.0	0	0.0	4	0.7
Other viral	0	0.0	1	0.5	1	0.2
Unspecified organism	6	1.5	1	0.5	7	1.1
Total	17	4.1	10	5.0	27	4.4
3. Hypertension						
Chronic: Secondary eg renal	1	0.2	1	0.5	2	0.3
Gestational	0	0.0	2	1.0	2	0.3
Pre-eclampsia	16	3.9	9	4.5	25	4.1
Pre-eclampsia superimposed on pre-existing	2	0.5	1	0.5	3	0.5
Unspecified	1	0.2	1	0.5	2	0.3
Total	20	4.9	14	6.9	34	5.5
4. Antepartum haemorrhage						
Placental abruption	28	6.8	12	5.9	40	6.5
Placenta praevia	1	0.2	0	0.0	1	0.2
Undetermined origin	5	1.2	3	1.5	8	1.3
Other	1	0.2	2	1.0	3	0.5
Total	35	8.5	17	8.4	52	8.5
5. Maternal disease						
Termination of pregnancy other than for fetal abnormality	1	0.2	0	0.0	1	0.2
Diabetes—gestational diabetes	5	1.2	1	0.5	6	1.0
Maternal injury: Accidental	2	0.5	1	0.5	3	0.5
Maternal injury: Non-accidental	1	0.2	0	0.0	1	0.2
Sepsis	0	0.0	1	0.5	1	0.2
Other	13	3.2	2	1.0	15	2.4
Total	22	5.4	5	2.5	27	4.4
6. Specific perinatal conditions						
Twin-to-twin transfusion	13	3.2	1	0.5	14	2.3
Fetomaternal haemorrhage	5	1.2	0	0.0	5	0.8
Antepartum cord complications	8	1.9	1	0.5	9	1.5
Uterine abnormality	1	0.2	1	0.5	2	0.3
Idiopathic hydrops	4	1.0	6	3.0	10	1.6
Other	5	1.2	0	0.0	5	0.8
Total	36	8.8	9	4.5	45	7.3
7. Hypoxic peripartum death						
Uterine rupture	3	0.7	0	0.0	3	0.5
Other intrapartum complication	0	0.0	9	4.5	9	1.5
No intrapartum complication	1	0.2	1	0.5	2	0.3
Unspecified	3	0.7	6	3.0	9	1.5
Total	7	1.7	16	8.0	23	3.8
8. Fetal growth restriction						
With evidence of uteroplacental insufficiency	4	1.0	2	1.0	6	1.0
With chronic villitis	1	0.2	1	0.5	2	0.3
Without the above placental pathology	2	0.5	1	0.5	3	0.5
No placental examination	2	0.5	0	0.0	2	0.3
Total	9	2.2	4	2.0	13	2.1

TABLE 127 (continued)
PERINATAL DEATHS BY OBSTETRIC ANTECEDENT AND PERINATAL OUTCOME, NSW 2002

Obstetric cause	Stillbirth		Perinatal outcome Neonatal death		TOTAL	
	No.	%	No.	%	No.	%
9. Spontaneous preterm						
Intact membranes or membrane rupture less than 24 hours:						
with chorioamnionitis	13	3.2	26	12.9	39	6.4
without chorioamnionitis	10	2.4	20	9.9	30	4.9
no placental examination	1	0.2	2	1.0	3	0.5
unspecified placental examination	2	0.5	0	0.0	2	0.3
Membrane rupture 24 hours or more:						
with chorioamnionitis	10	2.4	15	7.4	25	4.1
without chorioamnionitis	2	0.5	2	1.0	4	0.7
no placental examination	1	0.2	3	1.5	4	0.7
unspecified placental examination	0	0.0	4	2.0	4	0.7
Membrane rupture unknown duration:						
with chorioamnionitis	1	0.2	6	3.0	7	1.1
without chorioamnionitis	2	0.5	2	1.0	4	0.7
no placental examination	0	0.0	3	1.5	3	0.5
unspecified placental examination	1	0.2	0	0.0	1	0.2
Total	43	10.5	83	41.1	126	20.6
10. Unexplained antepartum death						
With evidence of uteroplacental insufficiency	32	7.8	0	0.0	32	5.2
With chronic villitis	3	0.7	0	0.0	3	0.5
Without the above placental pathology	99	24.1	0	0.0	99	16.2
No placental examination	14	3.4	0	0.0	14	2.3
Unspecified placental examination	13	3.2	0	0.0	13	2.1
Total	161	39.2	0	0.0	161	26.3
11. No obstetric antecedent						
Unknown/unexplained	0	0.0	2	1.0	2	0.3
Total	0	0.0	2	1.0	2	0.3
TOTAL	411	100.0	202	100.0	613	100.0

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

5. Maternal disease

Twenty-seven deaths were attributed to other maternal conditions including: diabetes (6), motor vehicle accident (2), other maternal injury (2), sepsis (1), cholestasis (2), hypotension following rupture of maternal splenic artery aneurysm (2), chemotherapy (1), liver failure (1), antiphospholipid syndrome (2), laparotomy for bowel obstruction (1), renal failure (1), and anaphylaxis (1).

6. Specific perinatal conditions

Of the 45 deaths in this group, twin-twin transfusion accounted for 14 deaths, followed by idiopathic hydrops (10) and antepartum cord complications (9). Other causes were: fetomaternal haemorrhage (5), uterine abnormalities (2), uterine rupture (1), fetal teratoma (1), prolonged premature rupture of membranes (1), foeto-maternal blood group incompatibility (1), and haemorrhage and necrosis of fetal brain of unknown cause (1).

7. Hypoxic peripartum death

There were 23 deaths associated with peripartum hypoxia. Four deaths occurred prior to the onset of labour, two of which were associated with uterine rupture. Three deaths of singleton term babies occurred during labour. The remaining 16 deaths occurred in the neonatal period.

8. Fetal growth restriction

In 13 cases, the main obstetric cause of death was considered to be fetal growth restriction (FGR). Of these, 9 were stillbirths and 4 were neonatal deaths. FGR is defined as less than the tenth percentile of birthweight 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 126 perinatal deaths associated with spontaneous preterm birth, which comprises normally formed babies born before 37 weeks gestation. Of these, 43 (34.1 per cent) were stillbirths and 83 (65.9 per cent) were neonatal deaths. Thirty-four deaths (27.0 per cent) were at 21–22 weeks gestation, 63 (50.0 per cent) were at 22–25 weeks gestation, and 29 (23.0 per cent) occurred between 26 and 36 weeks gestation. Chorioamnionitis was reported in 54 deaths (42.9 per cent). Thirty-three deaths (26.2 per cent) were associated with membrane rupture of 24 hours or more.

10. Unexplained antepartum death

The cause of death could not be adequately explained in 161 stillbirths (39.2 per cent). Of these, 98 (60.9 per cent) were low birthweight and 95 (59.0 per cent) were premature. There were a variety of associated maternal conditions reported in this group, including: multiple pregnancy (11 deaths), maternal hypertension (9), diabetes (6), hypothyroidism (1), and history of drug dependency or abuse (2). Placental histopathology results were provided for 134 unexplained antepartum deaths (83.2 per cent) and evidence of uteroplacental insufficiency was found in 24.

11. No obstetric antecedent

Two deaths were considered not to have an obstetric antecedent. Both these babies died shortly after birth and no cause of death could be identified. Post mortem examination was not carried out in either case.

Obstetric cause of perinatal death by hospital service level 2002

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 (52.5 per cent, Table 128). The proportion of unexplained intrauterine deaths was substantially lower in level 6 hospitals than other hospitals, possibly due to better access to perinatal postmortem 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 2002

Of the 613 perinatal deaths in 2002, 286 (46.7 per cent) occurred before the onset of labour, 47 (7.7 per cent) occurred during labour, 78 (12.7 per cent) occurred at an unknown time before birth, and 202 (33.0 per cent) were neonatal deaths.

Trends in neonatal causes of death

In both 2001 and 2002 extreme prematurity was the most common cause of neonatal death, accounting for about 40 per cent of all neonatal deaths (Table 129). Congenital abnormalities were the next most common cause of neonatal death for both years. There were slightly more deaths attributed to neurological conditions in 2002 compared with 2001, particularly hypoxic ischaemic encephalopathy.

Neonatal causes of death 2002

Of the 202 neonatal deaths reviewed for 2002, 159 (78.7 per cent) were less than 37 weeks gestation (Table 130). The most common neonatal cause of death was extreme prematurity ($n=80$, 39.6 per cent). Thirty-nine infants died from a congenital abnormality. There were 16 deaths due to hypoxic ischaemic encephalopathy and 11 deaths due to intracranial haemorrhage.

Perinatal deaths associated with maternal drug dependency–abuse 2002

No perinatal deaths were directly attributed to maternal drug dependency or drug abuse. Ten perinatal deaths occurred among babies of mothers reported to have a history of drug dependency or abuse, but drug use was not considered to be the main cause of death.

Postmortem examination 2002

Postmortem examination is valuable in ascertaining or confirming the cause of death, identifying additional factors which may have contributed to the death, and counselling parents about the cause of death.

In 2002, postmortem examinations were carried out for 186 (30.3 per cent) deaths: 147 among stillborn infants (35.8 per cent) and 33 among babies who died in the neonatal period (17.8 per cent). Placental histopathology was carried out in 484 perinatal deaths (79.0 per cent).

TABLE 128

PERINATAL DEATHS BY OBSTETRIC CAUSE AND HOSPITAL SERVICE LEVEL, NSW 2002

Obstetric cause	Hospital service level												TOTAL	
	Level 2		Level 3		Level 4		Level 5		Level 6		Private			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1. Fetal abnormality	0	0.0	3	14.3	17	17.7	12	11.3	64	19.9	7	10.6	103	16.8
2. Perinatal infection	0	0.0	2	9.5	3	3.1	4	3.8	14	4.3	4	6.1	27	4.4
3. Hypertension	0	0.0	1	4.8	4	4.2	3	2.8	25	7.8	1	1.5	34	5.5
4. Antepartum haemorrhage	1	50.0	2	9.5	3	3.1	13	12.3	25	7.8	8	12.1	52	8.5
5. Maternal disease	0	0.0	0	0.0	4	4.2	4	3.8	14	4.3	5	7.6	27	4.4
6. Specific perinatal conditions	0	0.0	1	4.8	5	5.2	7	6.6	23	7.1	9	13.6	45	7.3
7. Hypoxic peripartum death	0	0.0	2	9.5	1	1.0	3	2.8	13	4.0	4	6.1	23	3.8
8. Fetal growth restriction	0	0.0	0	0.0	4	4.2	2	1.9	5	1.6	2	3.0	13	2.1
9. Spontaneous preterm	1	50.0	1	4.8	12	12.5	17	16.0	85	26.4	10	15.2	126	20.6
10. Unexplained antepartum death	0	0.0	8	38.1	43	44.8	41	38.7	54	16.8	15	22.7	161	26.3
11. No obstetric antecedent	0	0.0	1	4.8	0	0.0	0	0.0	0	0.0	1	1.5	2	0.3
TOTAL	2	100.0	21	100.0	96	100.0	106	100.0	322	100.0	66	100.0	613	100.0

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

TABLE 129**NEONATAL DEATHS BY CAUSE AND YEAR, NSW 2001–2002**

Neonatal cause	2001		Year 2002		TOTAL	
	No.	%	No.	%	No.	%
1. Congenital abnormality						
Central nervous system	6	3.2	6	3.0	12	3.1
Cardiovascular system	8	4.2	2	1.0	10	2.6
Urinary tract	5	2.6	2	1.0	7	1.8
Gastrointestinal tract	2	1.1	2	1.0	4	1.0
Chromosomal	3	1.6	8	4.0	11	2.8
Metabolic	0	0.0	1	0.5	1	0.3
Multiple	5	2.6	5	2.5	10	2.6
Unspecified	0	0.0	1	0.5	1	0.3
Other	14	7.4	12	5.9	26	6.6
Total	43	22.8	39	19.3	82	21.0
2. Extreme prematurity						
Not resuscitated	34	18.0	39	19.3	73	18.7
Unsuccessful resuscitation	34	18.0	31	15.3	65	16.6
Resuscitation unspecified or unknown	16	8.5	10	5.0	26	6.6
Total	84	44.4	80	39.6	164	41.9
3. Cardio-respiratory disorders						
Hyaline membrane disease– Respiratory distress syndrome	8	4.2	5	2.5	13	3.3
Meconium aspiration syndrome	1	0.5	1	0.5	2	0.5
Primary persistent pulmonary hypertension	2	1.1	2	1.0	4	1.0
Pulmonary hypoplasia	6	3.2	8	4.0	14	3.6
Other	6	3.2	8	4.0	14	3.6
Total	23	12.2	24	11.9	47	12.0
4. Infection						
Congenital bacterial	2	1.1	7	3.5	9	2.3
Acquired bacterial	4	2.1	8	4.0	12	3.1
Fungal	0	0.0	1	0.5	1	0.3
Unspecified organism	2	1.1	0	0.0	2	0.5
Other	0	0.0	1	0.5	1	0.3
Total	8	4.2	17	8.4	25	6.4
5. Neurological						
Hypoxic ischaemic encephalopathy– perinatal asphyxia	8	4.2	16	7.9	24	6.1
Intracranial haemorrhage	10	5.3	11	5.4	21	5.4
Total	18	9.5	27	13.4	45	11.5
6. Gastrointestinal						
Necrotising enterocolitis	2	1.1	5	2.5	7	1.8
Other	1	0.5	1	0.5	2	0.5
Total	3	1.6	6	3.0	9	2.3
7. Other						
Trauma	0	0.0	1	0.5	1	0.3
Other	7	3.7	3	1.5	10	2.6
Undetermined–not stated	3	1.6	5	2.5	8	2.0
Total	10	5.3	9	4.5	19	4.9
TOTAL	189	100.0	202	100.0	391	100.0

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

TABLE 130
NEONATAL DEATHS BY CAUSE AND GESTATIONAL AGE, NSW 2002

Neonatal cause	Gestational age (weeks)					
	Less than 37		37+		TOTAL	
	No.	%	No.	%	No.	%
1. Congenital abnormality						
Central nervous system	3	1.9	3	7.0	6	3.0
Cardiovascular system	2	1.3	0	0.0	2	1.0
Urinary tract	1	0.6	1	2.3	2	1.0
Gastrointestinal tract	1	0.6	1	2.3	2	1.0
Chromosomal	5	3.1	3	7.0	8	4.0
Metabolic	0	0.0	1	2.3	1	0.5
Multiple	2	1.3	3	7.0	5	2.5
Other	8	5.0	4	9.3	12	5.9
Unspecified	1	0.6	0	0.0	1	0.5
Total	23	14.5	16	37.2	39	19.3
2. Extreme prematurity						
Not resuscitated	39	24.5	0	0.0	39	19.3
Unsuccessful resuscitation	31	19.5	0	0.0	31	15.3
Resuscitation unspecified or unknown	10	6.3	0	0.0	10	5.0
Total	80	50.3	0	0.0	80	39.6
3. Cardio-respiratory disorders						
Hyaline membrane disease– Respiratory distress syndrome	5	3.1	0	0.0	5	2.5
Meconium aspiration syndrome	0	0.0	1	2.3	1	0.5
Primary persistent pulmonary hypertension	2	1.3	0	0.0	2	1.0
Pulmonary hypoplasia	7	4.4	1	2.3	8	4.0
Other	4	2.5	4	9.3	8	4.0
Total	18	11.3	6	14.0	24	11.9
4. Infection						
Congenital bacterial	7	4.4	0	0.0	7	3.5
Acquired bacterial	7	4.4	1	2.3	8	4.0
Fungal	1	0.6	0	0.0	1	0.5
Other	1	0.6	0	0.0	1	0.5
Total	16	10.1	1	2.3	17	8.4
5. Neurological						
Hypoxic ischaemic encephalopathy– perinatal asphyxia	1	0.6	15	34.9	16	7.9
Intracranial haemorrhage	11	6.9	0	0.0	11	5.4
Total	12	7.5	15	34.9	27	13.4
6. Gastrointestinal						
Necrotising enterocolitis	5	3.1	0	0.0	5	2.5
Other	1	0.6	0	0.0	1	0.5
Total	6	3.8	0	0.0	6	3.0
7. Other						
Trauma	1	0.6	0	0.0	1	0.5
Other	1	0.6	2	4.7	3	1.5
Undetermined–Unknown	2	1.3	3	7.0	5	2.5
Total	4	2.5	5	11.6	9	4.5
TOTAL	159	100.0	43	100.0	202	100.0

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

12. REPEAT OBSTETRIC INTERVENTIONS AMONG MULTIPAROUS WOMEN GIVING BIRTH IN 2001

Introduction

Rates of obstetric interventions are of interest to consumers, clinicians and the community and are reported each year in this report.

We have not previously examined how rates of obstetric interventions might be influenced by the occurrence of an obstetric intervention in a previous pregnancy. In this chapter we look at the association between having an episiotomy, epidural anaesthetic, and instrumental or caesarean section delivery for the latest birth compared to the previous birth for women whose latest birth was in 2001.

Methods

NSW Midwives Data Collection (MDC) records of mothers giving birth in the period 1994–2001 were linked to create a data set containing a birth history for each mother. Linkage was carried out using probabilistic record linkage software (Automatch). Approval for the linkage was obtained from the NSW Department of Health Ethics Committee.

The linked data set contained 697,311 records, of which 371,090 (53.2 per cent) were matched records and 326,220 (46.8 per cent) were unmatched records. From the linked data set we selected records of multiparous mothers who gave birth in 2001 and who had a singleton pregnancy in the latest birth. Records of the latest birth and the previous birth were then selected. The reported number of previous pregnancies for each record pair was then compared for consistency and inconsistent records were excluded. For example, if the number of previous pregnancies reported on the most recent birth was 3 and the number reported on the previous birth was 1 then the record pair was excluded from the analysis. The data set was then restricted to births where both the latest and previous birth was singleton, at term (38–41 weeks gestation), and with a vertex presentation.

Descriptive analyses were carried out using SAS. Rates of epidural anaesthetic, episiotomy and type of delivery were compared for the latest birth versus the previous (most recent prior) birth. Analyses were stratified by the reported number of previous pregnancies at the latest birth. A comparison of maternal characteristics for records of births in 2001 that were included and excluded from the study was carried out.

Results

Of the 84,379 mothers who gave birth in NSW in 2001, 41,100 (48.7 per cent) were singleton pregnancies with a vertex presentation, where the birth occurred at term (38–41 weeks gestation) and a previous pregnancy of greater than 20 weeks was reported.

Of these, 29,850 (73 per cent) mothers had linked records for previous pregnancies and the linked records showed a consistent birth history. A further 4,478 mothers had previous births that fell outside the inclusion criteria for the study, leaving 25,372 records available for analysis.

Epidural anaesthetic

Epidural anaesthetic was examined for women whose latest and previous births were both by vaginal delivery. Women who had only one previous birth were more likely to have an epidural anaesthetic for their latest birth compared to women who had more than one previous birth (17 vs 10 per cent) (Table 131).

Women were more likely to have an epidural anaesthetic for the latest birth if they had received an epidural anaesthetic in the previous birth. Of women who gave birth in 2001 and had an epidural anaesthetic for their previous birth, 47 per cent had an epidural for their latest birth. The proportion was higher among women who had more than one previous birth (58 per cent) compared to women who had only one previous birth (45 per cent).

Of women who did not have an epidural anaesthetic for their previous birth, 95 per cent did not have an epidural for the latest birth. This pattern was similar for women who had one or more than one previous birth.

Episiotomy

Episiotomy was examined for women whose latest and previous births were both by vaginal delivery. Women who had only one previous birth were more likely to have an episiotomy in their latest birth compared to women who had more than one previous birth (11 vs 4 per cent) (Table 132).

Women were more likely to have an episiotomy for the latest birth if they had received an episiotomy in the previous birth. Of women who gave birth in 2001 and had an episiotomy in their previous birth, 25 per cent had an episiotomy for their latest birth. The proportion was slightly higher among women who had more than one previous birth (27 per cent) compared to women who had one previous birth (25 per cent).

Of women who did not have an episiotomy for their previous birth, 97 per cent did not have an episiotomy for their latest birth. The proportion was slightly lower among women who had more than one previous birth (2 per cent) compared to women who had one previous birth (4 per cent).

Type of delivery

Women who had more than one previous birth were more likely to have a normal vaginal delivery than women who had one previous birth (84 vs 78 per cent) (Table 133).

Ninety four per cent of women who gave birth in 2001 and whose previous birth was by normal vaginal delivery had a normal vaginal delivery in their latest birth. This pattern was the same for women who had one previous birth and women who had more than one previous birth.

For instrumental deliveries, 76 per cent of women whose previous birth was by forceps delivery and 78 per cent of women whose previous birth was by vacuum extraction had a normal vaginal delivery for their latest birth. Women who had an instrumental delivery and more than one previous birth were less likely to have a normal vaginal delivery in their latest birth than women who had only one previous birth.

Of women whose previous birth was by caesarean section (elective or emergency), 13.4 per cent had a vaginal delivery in the latest birth. This proportion was higher for women who had one previous birth (16.1 per cent), compared to women who had more than one previous birth (7.1 per cent). After excluding instrumental deliveries in the latest birth, these proportions fell. Of

women whose previous birth was by caesarean section, 9.2 per cent had a normal (unassisted) vaginal delivery in the latest birth, and this proportion was higher for women who had one previous birth (10.5 per cent), compared to women who had more than one previous birth (6.2 per cent).

Of women whose previous birth was by elective caesarean section, 86 per cent had an elective caesarean section in their latest birth, 7 per cent had an emergency caesarean section, and 5 per cent had a normal vaginal delivery. Women who had one previous birth were more likely to have a normal vaginal delivery in the latest birth compared to women who had more than one previous birth (9 vs 3 per cent).

Of women whose previous birth was by emergency caesarean section, 18 per cent had another emergency caesarean section in their latest birth, 66 per cent had an elective caesarean section, and 11 per cent had a normal vaginal delivery. The effect of parity was the inverse of that for elective caesarean section—women who had more

TABLE 131

EPIDURAL ANAESTHETIC IN THE LATEST AND PREVIOUS BIRTH BY NUMBER OF PREVIOUS BIRTHS#

Number of previous births— epidural for latest birth	No epidural		Epidural anaesthetic in previous birth		Total	
	No.	%	No.	%	No.	%
1 previous birth						
No epidural	8183	95.0	2046	55.0	10229	82.9
Epidural	434	5.0	1672	45.0	2106	17.1
Total	8617	100.0	3718	100.0	12335	100.0
More than 1 previous birth						
No epidural	7464	95.1	385	42.5	7849	89.6
Epidural	388	4.9	521	57.5	909	10.4
Total	7852	100.0	906	100.0	8758	100.0
Total						
No epidural	15647	95.0	2431	52.6	18078	85.7
Epidural	822	5.0	2193	47.4	3015	14.3
Total	16469	100.0	4624	100.0	21093	100.0

Source: *Linked NSW Midwives Data Collection 1994-2001. Centre for Epidemiology and Research, NSW Department of Health.*

Data relate only to those mothers where the latest and previous births were by vaginal delivery, occurred at term (38-41 weeks gestation), and had a vertex presentation.

TABLE 132

EPISIOTOMY IN THE LATEST AND PREVIOUS BIRTH BY NUMBER OF PREVIOUS BIRTHS#

Number of previous births— episiotomy for latest birth	No episiotomy		Episiotomy in previous birth		Total	
	No.	%	No.	%	No.	%
1 previous birth						
No episiotomy	8027	95.5	2957	75.2	10984	89.0
Episiotomy	375	4.5	976	24.8	1351	11.0
Total	8402	100.0	3933	100.0	12335	100.0
More than 1 previous birth						
No episiotomy	7825	98.2	571	72.6	8396	95.9
Episiotomy	147	1.8	215	27.4	362	4.1
Total	7972	100.0	786	100.0	8758	100.0
Total						
No episiotomy	15852	96.8	3528	74.8	19380	91.9
Episiotomy	522	3.2	1191	25.2	1713	8.1
Total	16374	100.0	4719	100.0	21093	100.0

Source: *Linked NSW Midwives Data Collection 1994-2001. Centre for Epidemiology and Research, NSW Department of Health.*

Data relate only to those mothers where the latest and previous births were by vaginal delivery, occurred at term (38-41 weeks gestation), and had a vertex presentation.

one previous birth were slightly more likely to have a normal vaginal delivery in the latest birth compared to women who had one previous birth (13 vs 11 per cent).

Comparison of included versus excluded records

Table 134 shows selected maternal characteristics for records that were included and excluded from the study. The total of 41,100 (48.7 per cent) refers to singleton pregnancies with a vertex presentation, where the birth occurred at term (38–41 weeks gestation) and a previous pregnancy of greater than 20 weeks was reported. The 11,250 records excluded comprise those where no match for a prior birth record could be found or where reporting of the number of previous pregnancies was inconsistent in the record pairs. Mothers whose records were available for analysis were more likely to be younger, born in Australia and have only one previous pregnancy. There was no substantial variation in health area of residence.

Discussion

Our results show that normal vaginal delivery followed a previous normal vaginal delivery in 94 per cent of women. Episiotomy, epidural anaesthetic, instrumental and caesarean section delivery were more likely to occur in the latest birth if they occurred in the previous birth, with highest rates for elective and emergency caesarean section.

These results apply only to the subset of multiparous women where both the latest and previous pregnancies

were singleton with a vertex presentation and were delivered at term. For episiotomy and epidural anaesthetic a further restriction was imposed, that is, of both latest and previous births being by vaginal delivery. Nevertheless, these women comprise a substantial proportion of mothers giving birth in 2001.

Only 73 per cent of eligible mothers had linked records for previous births and the linked records showed a consistent birth history. Factors that may have affected the number of records not available for analysis include:

- Records of previous births may not be linked when women change their names or addresses following marriage or divorce. This may account for the relatively higher exclusion rate for records of older mothers compared to younger mothers.
- Women who live close to interstate borders may give birth in an interstate hospital on one occasion and in a NSW hospital on another occasion. The comparison of included and excluded records suggests that this was not a major factor in this study.
- The relatively higher proportion of excluded records for overseas-born mothers suggests that previous births for some mothers may not have occurred in Australia.
- Errors in recording of the number of previous pregnancies resulted in inconsistencies in the birth history and these records were excluded from the analysis.

TABLE 133

TYPE OF DELIVERY IN THE LATEST AND PREVIOUS BIRTH BY NUMBER OF PREVIOUS BIRTHS#

Number of previous births– type of delivery in latest birth	Normal vaginal		Forceps		Type of delivery in previous birth										TOTAL		
	No.	%	No.	%	Vacuum extraction	Elective caesarean section	Emergency caesarean section#	Not stated					No.	%			
1 previous birth																	
Normal vaginal	9044	94.4	1319	77.5	1311	79.3	39	8.9	199	10.9	2	66.7	11914	78.3			
Forceps	63	0.7	71	4.2	40	2.4	4	0.9	54	2.9	0	0.0	232	1.5			
Vacuum extraction	179	1.9	106	6.2	198	12.0	7	1.6	63	3.4	0	0.0	553	3.6			
Elective caesarean section	136	1.4	121	7.1	53	3.2	347	79.2	1195	65.2	1	33.3	1853	12.2			
Emergency caesarean section#	153	1.6	86	5.0	52	3.1	41	9.4	322	17.6	0	0.0	654	4.3			
Not stated	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0			
Total	9577	100.0	1703	100.0	1654	100.0	438	100.0	1833	100.0	3	100.0	15208	100.0			
More than 1 previous birth																	
Normal vaginal	8239	94.1	107	60.1	157	70.7	20	2.9	42	13.4	3	100.0	8568	84.3			
Forceps	46	0.5	14	7.9	4	1.8	0	0.0	2	0.6	0	0.0	66	0.6			
Vacuum extraction	140	1.6	18	10.1	29	13.1	3	0.4	4	1.3	0	0.0	194	1.9			
Elective caesarean section	179	2.0	29	16.3	23	10.4	626	91.0	212	67.5	0	0.0	1069	10.5			
Emergency caesarean section#	154	1.8	10	5.6	9	4.1	39	5.7	53	16.9	0	0.0	265	2.6			
Not stated	1	0.0	0	0.0	0	0.0	0	0.0	1	0.3	0	0.0	2	0.0			
Total	8759	100.0	178	100.0	222	100.0	688	100.0	314	100.0	3	100.0	10164	100.0			
Total																	
Normal vaginal	17283	94.3	1426	75.8	1468	78.3	59	5.2	241	11.2	5	83.3	20482	80.7			
Forceps	109	0.6	85	4.5	44	2.3	4	0.4	56	2.6	0	0.0	298	1.2			
Vacuum extraction	319	1.7	124	6.6	227	12.1	10	0.9	67	3.1	0	0.0	747	2.9			
Elective caesarean section	315	1.7	150	8.0	76	4.1	973	86.4	1407	65.5	1	16.7	2922	11.5			
Emergency caesarean section#	307	1.7	96	5.1	61	3.3	80	7.1	375	17.5	0	0.0	919	3.6			
Not stated	3	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	4	0.0			
Total	18336	100.0	1881	100.0	1876	100.0	1126	100.0	2147	100.0	6	100.0	25372	100.0			

Source: *Linked NSW Midwives Data Collection 1994–2001. Centre for Epidemiology and Research, NSW Department of Health.*

Emergency caesarean section includes caesarean sections where the onset of labour was not stated. Data relate only to those mothers where the latest and previous births occurred at term (38–41 weeks gestation) and had a vertex presentation.

The recurrence rates of obstetric interventions were: epidural anaesthetic, 47 per cent; episiotomy, 25 per cent; forceps delivery, 5 per cent; vacuum extraction, 12 per cent; elective caesarean section, 86 per cent; and emergency caesarean section, 66 per cent. The number of previous births had little effect on episiotomy rates, and a substantial effect on elective caesarean section.

The rate of elective caesarean section following previous elective caesarean section for women with more than one previous birth (91 per cent) is particularly high, and may be due to mothers with repeat previous caesarean sections.

The Australian Council on Healthcare Standards clinical indicator *the rate of vaginal delivery after primary caesarean section* was 18.4 per cent in NSW in 2001.¹ We found that, of women whose previous birth was by caesarean section, 13.4 per cent had a vaginal delivery in the latest birth. However this includes women with more than one previous caesarean section. For women who had only one previous birth that was by caesarean section, we found that 16.1 per cent had a vaginal delivery in the latest birth. Our relatively lower results may be due to differences in definition, as our study was of births at term with a vertex presentation and we did not distinguish

primary from repeat caesarean sections among women with more than one previous birth.

Women who had more than one previous birth and an epidural anaesthetic in the previous birth were more likely to have an epidural anaesthetic for the latest birth, compared to women with only one previous birth. This small proportion of women (4.3 per cent) may have, from their earlier birth experiences, developed a preference for epidural anaesthetic for pain relief during labour.

This study used linked routinely collected MDC data to provide population based information on recurrence rates of selected obstetric interventions in NSW. The risk of recurrence of these interventions may also be affected by the presence of chronic medical conditions in the mother - information that is not readily available on the MDC. Nevertheless, this study shows that linkage of routinely collected MDC data is useful for obtaining information on health and health care at a population level.

Reference

1. Centre for Epidemiology and Research, NSW Department of Health. New South Wales Mothers and Babies 2001. *N S W Public Health Bull* 2002;13 (S-4).

TABLE 134

MATERNAL CHARACTERISTICS OF INCLUDED AND EXCLUDED RECORDS

Characteristic	Record status				Total	
	Exclusion No.	%	Inclusion No.	%	No.	%
1 previous birth						
<25	1170	10.4	4233	14.2	5403	13.1
25-34	6782	60.3	19743	66.1	26525	64.5
35+	3267	29.0	5871	19.7	9138	22.2
Not stated	31	0.3	3	0.0	34	0.1
Total	11250	100.0	29850	100.0	41100	100.0
Health area of residence						
Central Sydney	833	7.4	2068	6.9	2901	7.1
Northern Sydney	1020	9.1	3164	10.6	4184	10.2
Western Sydney	1572	14.0	3805	12.7	5377	13.1
Wentworth	580	5.2	1758	5.9	2338	5.7
South Western Sydney	1649	14.7	4395	14.7	6044	14.7
Central Coast	438	3.9	1405	4.7	1843	4.5
Hunter	820	7.3	2395	8.0	3215	7.8
Illawarra	543	4.8	1598	5.4	2141	5.2
South Eastern Sydney	990	8.8	2986	10.0	3976	9.7
Northern Rivers	483	4.3	980	3.3	1463	3.6
Mid North Coast	429	3.8	1058	3.5	1487	3.6
New England	352	3.1	868	2.9	1220	3.0
Macquarie	260	2.3	599	2.0	859	2.1
Mid Western	371	3.3	851	2.9	1222	3.0
Far West	89	0.8	202	0.7	291	0.7
Greater Murray	397	3.5	965	3.2	1362	3.3
Southern	313	2.8	602	2.0	915	2.2
Not Stated/Other	111	1.0	151	0.5	262	0.6
Total	11250	100.0	29850	100.0	41100	100.0
Country of birth						
Australia	7022	62.4	22935	76.8	29957	72.9
Other	4228	37.6	6915	23.2	11143	27.1
Total	11250	100.0	29850	100.0	41100	100.0
Number of previous pregnancies						
1	5744	51.1	18158	60.8	23902	58.2
>1	5469	48.6	11692	39.2	17161	41.8
Not stated	37	0.3	0	0.0	37	0.1
Total	11250	100.0	29850	100.0	41100	100.0

13. APPENDICES

APPENDIX 1

DESCRIPTION OF SELECTED BIRTH DEFECTS

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

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

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. For further details, please contact the NSW Birth Defects Register.

Abnormal palmar creases	Intrauterine growth retardation
Accessory nipples	Low birthweight
Balanced chromosomal translocation (unless occurring with structural defects)	Meconium ileus
Birthmarks (single, < 4 cms diameter)	Minor ear anomalies
Bronchopulmonary dysplasia	Minor finger/hand anomalies
Cerebral palsy	Minor toe/foot anomalies
Clicky hips	Muscular dystrophies & myopathies
Congenital infections (unless occurring with structural defects)	Oesophageal reflux
Congenital neoplasms/tumours (exception: cystic hygroma)	Patent ductus arteriosus (less than 37 weeks gestation)
Developmental disability	Pilonidal sinus
Deviated nasal septum	Sacral dimples
Fetal alcohol syndrome	Single umbilical artery (unless occurring with structural defects)
Glucose-6-phosphate dehydrogenase (G6PD) deficiency	Skin tag
Haemophilia	Strabismus
Heart murmurs (functional)	Talipes (exception: those requiring surgery)
Hernia (epigastric, hiatus, inguinal, umbilical)	Tongue tie
Hydrocele (testis)	Undescended testes (exception: those requiring surgery)
Hypoplastic lung (less than 37 weeks gestation)	Webbing of 2nd & 3rd toes
Imperforate hymen	Wide sutures
Inborn errors of metabolism other than phenylketonuria, galactosemia and congenital hypothyroidism.	

APPENDIX 3**MATERNAL COUNTRIES OF BIRTH AND COUNTRY OF BIRTH GROUPS****English speaking**

Australia
Christmas Island
Cocos (Keeling) Islands
Norfolk Island
New Zealand
United Kingdom
Channel Islands
Isle of Man
Ireland
Bermuda
Canada
United States of America
South Africa

Central and South America

Argentina
Bolivia
Brazil
Chile
Colombia
Ecuador
Falkland Islands
French Guiana
Guyana
Paraguay
Peru
Surinam
Uruguay
Venezuela
Belize
Costa Rica
El Salvador
Guatemala
Honduras
Mexico
Nicaragua
Panama
Antigua and Barbuda
Bahamas
Barbados
Cayman Islands
Cuba
Grenada
Guadeloupe
Jamaica
Netherlands Antilles
Puerto Rico
St Kitts-Nevis
St Lucia
St Vincent and the Grenadines
Trinidad and Tobago
Turks and Caicos Islands

**Eastern Europe, Russia,
Central Asian and Baltic States**

Bulgaria
Czechoslovakia
Hungary
Poland
Romania
Armenia
Azerbaijan
Belarus (formerly Byelorussia)
Estonia
Georgia
Kazakhstan
Kyrgyzstan (formerly Kirghizia)
Latvia
Lithuania
Moldova (formerly Moldavia)
Russian Federation
Ukraine
Uzbekistan

**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

Afghanistan
Bangladesh
Bhutan
India
Maldives
Nepal
Pakistan
Sri 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.	<input type="text"/>	Hospital	Code <input type="text"/>
First Name	<input type="text"/>	Family Name	<input type="text"/>
Address	<input type="text"/>		
Postcode	<input type="text"/>		
Mother's birth date	<input type="text"/>	<input type="text"/>	
Country of birth	Australia <input type="checkbox"/> 36	Other <input type="checkbox"/>	
If other, specify	<input type="text"/>		
Indigenous status:	Aboriginal <input type="checkbox"/> 1	Torres Strait Islander <input type="checkbox"/> 2	
	Aboriginal and Torres Strait Islander <input type="checkbox"/> 3	None of the above <input type="checkbox"/> 4	
PREVIOUS PREGNANCIES			
Previous pregnancy greater than 20 weeks?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 0	
If no, go to next section.			
If yes:	Specify the number of previous pregnancies > 20 weeks <input type="text"/>		
Was the last birth by caesarean?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 0	
Total number of previous caesarean sections?	<input type="text"/>		
THIS PREGNANCY			
Date of LMP	<input type="text"/>	<input type="text"/>	
Prenatal diagnosis (< 20 weeks gestation)	CVS <input type="checkbox"/>	Amniocentesis <input type="checkbox"/>	
Antenatal care	Duration of pregnancy at first visit (weeks) <input type="text"/>	Not booked <input type="checkbox"/>	
Medical conditions	Diabetes mellitus <input type="checkbox"/>	Gestational diabetes <input type="checkbox"/>	
	Chronic hypertension <input type="checkbox"/>	Pre-eclampsia <input type="checkbox"/>	
Smoking	Did the mother smoke at all during pregnancy? Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0		
	If yes, how many cigarettes each day on average in the second half of pregnancy?		
	None <input type="checkbox"/> 1	> 10 per day <input type="checkbox"/> 2	≤ 10 per day <input type="checkbox"/> 3
	Unknown <input type="checkbox"/> 4		
LABOUR AND DELIVERY			
Onset of labour	Spontaneous <input type="checkbox"/> 1	Induced <input type="checkbox"/> 2	
	No labour <input type="checkbox"/> 3		
If labour augmented/ induced (tick 1 or more):	Oxytocins <input type="checkbox"/> ARM <input type="checkbox"/>		
	Prostaglandins <input type="checkbox"/> Other <input type="checkbox"/>		
LABOUR AND DELIVERY			
If labour induced, main indication:	Diabetes <input type="checkbox"/> 1		
	Hypertensive disease <input type="checkbox"/> 2		
	Fetal distress <input type="checkbox"/> 3		
	Fetal death <input type="checkbox"/> 4		
	Chorioamnionitis <input type="checkbox"/> 5		
	Blood group isoimmunisation <input type="checkbox"/> 6		
	Prelabour rupture of membranes <input type="checkbox"/> 7		
	Prolonged pregnancy (41+ weeks) <input type="checkbox"/> 8		
	Suspected intrauterine growth restriction <input type="checkbox"/> 9		
	Other <input type="checkbox"/> 10		
BABY			
Place of birth	Hospital theatre/delivery suite <input type="checkbox"/> 1		
	Birth centre <input type="checkbox"/> 2		
	Planned birth centre/delivery suite birth <input type="checkbox"/> 3		
	Planned homebirth <input type="checkbox"/> 4		
	Planned homebirth/hospital admission <input type="checkbox"/> 5		
	Born before arrival <input type="checkbox"/> 6		
Unit Record No.	<input type="text"/>		
Birth date:	<input type="text"/>		
Sex:	M <input type="checkbox"/> 1 F <input type="checkbox"/> 2 Indet. <input type="checkbox"/> 3		
Plurality:	Single <input type="checkbox"/> 1 Multiple <input type="checkbox"/> 2		
	If multiple, total number <input type="text"/>		
	If multiple birth, specify baby number <input type="text"/>		
Birthweight (grams)	<input type="text"/>		
Estimated gestational age	<input type="text"/>		
Apgar	<input type="text"/>		
	1 min 5 min		
Resuscitation of baby (tick 1 or more)	None <input type="checkbox"/> 1 IPPR : bag + mask <input type="checkbox"/> 4		
	Suction <input type="checkbox"/> 2 Intubation + IPPR <input type="checkbox"/> 5		
	O2 therapy <input type="checkbox"/> 3 External cardiac massage + ventilation <input type="checkbox"/> 6		
	Other <input type="checkbox"/> 7		
POSTNATAL CARE - BABY			
Birth defect?	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0		
If yes, specify:	<input type="text"/>		
Admitted to NICU?	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0		
Admitted to SCN?	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0		
If yes, observation only?	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0		
If admitted to SCN/NICU:	Was a birth defect the main reason for admission? Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0		
DISCHARGE STATUS - MOTHER AND BABY			
Mother	Discharged <input type="checkbox"/> 1	Transferred <input type="checkbox"/> 2	
	Died <input type="checkbox"/> 3		
Baby	Discharged <input type="checkbox"/> 1	Transferred <input type="checkbox"/> 2	
	Stillbirth <input type="checkbox"/> 3		
	Neonatal death <input type="checkbox"/> 4		
	Transferred and died <input type="checkbox"/> 5		
Baby's date of discharge or transfer	<input type="text"/>		
Hospital transferred to:	<input type="text"/>		
If baby died, date of death	<input type="text"/>		
Signature of midwife at discharge	<input type="text"/>		