

Volume 13 , Number S-4
December, 2002

NSW Public **Health** *Bulletin Supplement*

NSW HEALTH
Working as a Team

ISSN 1034 7674

State Health Publication PH 020166

New South Wales Mothers and Babies 2001

NSW DEPARTMENT OF HEALTH

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State Health Publication No: PH020166
ISSN 1034 7674

suggested citation:

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).

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1. ACKNOWLEDGEMENTS

Data collection

NSW Midwives Data Collection	Margy Pym, NSW hospitals' midwives and independent midwives
NSW Birth Defects Register	Susan Travis, Clare Banks 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 liaison officers for obstetric hospitals in NSW and the ACT
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

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2. EXECUTIVE SUMMARY

This is the fifth 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 2001.

Trends in NSW

There were 85,858 babies born to 84,379 mothers in 2001, slightly less than the previous four years. The number of teenage mothers continues to decline, falling from 4,291 (4.9 per cent of all mothers) in 1997 to 3,797 (4.5 per cent) in 2001; while the number of mothers aged 35 years and over increased from 13,465 in 1997 to 15,250 in 2001, an increase from 15.5 to 18.1 per cent of all confinements.

The reported number of Aboriginal and Torres Strait Islander mothers giving birth increased from 1,842 in 1997 (2.1 per cent of all mothers) to 2,110 in 2001 (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.

About one in four mothers were born overseas in 2001, most commonly in the United Kingdom (2.8 per cent), New Zealand (2.4 per cent), China (2.1 per cent), Vietnam (2.0 per cent), and Lebanon (2.0 per cent). Numbers of confinements to mothers born in Southern European countries. China, Vietnam, and Lebanon declined while confinements to mothers born in Fiji, Iraq, and Indonesia increased slightly over the five year period 1997 to 2001.

The proportion of mothers planning to give birth in a birth centre fell slightly from 4.6 per cent in 1997 to 3.4 per cent in 2001, while the reported number of mothers planning a home birth decreased from 202 to 182 over the five year period.

The rate of normal vaginal birth fell from 70.4 per cent in 1997 to 65.4 per cent in 2001. Over the five years, the caesarean section rate increased from 18.2 to 23.6 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 1996 and 2000. Among privately insured mothers the rate of normal vaginal birth decreased from 61.0 to 55.5 per cent and the rate of caesarean section increased from 22.2 to 28.2 per cent. Among publicly insured mothers the rate of normal vaginal birth decreased from 75.4 to 71.8 per cent and the rate of caesarean section increased from 15.4 to 18.6 per cent.

Since 1995, 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 2001.

There was a slight increase in the percentage of babies born prematurely (less than 37 weeks gestation) and a slight decrease in the percentage born at 42 weeks or more. The rate of premature births rose from 6.8 per cent in 1997 to 7.2 per cent in 2001.

The perinatal mortality rate varied from 9.2 to 9.6 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 1990–1999, 118 deaths were reported among pregnant women or women who gave birth less than six weeks previously. Seventy-five of these were classified as directly or indirectly associated with the pregnant state, while 42 were incidental (not related pregnancy), and one was of undetermined cause.

Aboriginal and Torres Strait Islander Mothers and Babies

In 2001, 64.7 per cent of Aboriginal and Torres Strait Islander mothers commenced antenatal care before 20 weeks gestation compared with 86.7 per cent of non-Aboriginal and Torres Strait Islander mothers. About one in five Aboriginal and Torres Strait Islander mothers were teenagers. Since 1997, 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 the rates for NSW overall. The perinatal mortality rate in babies born to Aboriginal and Torres Strait Islander mothers was 18.2 per 1,000 in 2000, about twice the rate of 9.2 per 1,000 for NSW overall.

Neonatal Intensive Care

There were 2,010 infants registered in the Neonatal Intensive Care Units' Data Collection in 2001 representing a registration rate of 22.3 per 1,000 live births. Seventy-nine (3.9 per cent) infants registered in

2001 were born to Aboriginal or Torres Strait Islander mothers.

The 2,010 infants were born to 1,830 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 15 to 45 years with a mean age of 28.3 years. Antenatal complications were reported for 88.9 per cent of mothers. The proportion of women receiving antenatal corticosteroids for lung maturation has increased each year since 1992, with 74.1 per cent of mothers receiving steroids in 2001.

Thirty-three per cent of infants registered in 2001 were born following a booked tertiary centre birth and 37.2 per cent were born following maternal transfer. Thirty 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 (73.7 per cent) of the infants registered in 2001 were born in a tertiary centre. There is an inverse relationship between gestational age and birth in a tertiary centre.

Boys comprised 59.8 per cent of the 2001 cohort and girls 40.2 per cent. Most infants (77.6 per cent) were from a singleton pregnancy, 21.1 per cent were from a twin pregnancy, and 1.3 per cent were from a triplet pregnancy.

Seventy-six per cent of infants registered during 2001 were preterm (less than 37 weeks gestation), 45.7 per cent were very preterm (less than 32 weeks gestation) and 13.7 per cent were extremely preterm (less than 28 weeks gestation). Nearly one in five (18.0 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 2001 (88.6 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 14.3 per cent of infants, necrotising enterocolitis in 2.8 per cent, intraventricular haemorrhage in 13.5 per cent, treated patent ductus arteriosus in 15.2 per cent, and major surgery in 4.1 per cent. Severe grades (Grade 3 or 4) of retinopathy of prematurity were present in 4.9 per cent of infants less than 32 weeks gestation, of whom 69.8 per cent had either cryo or laser therapy to prevent retinal detachment. Surfactant was given to 41.0 per cent of infants; the majority (61.0 per cent) of ventilated infants with a diagnosis of Respiratory Distress Syndrome received surfactant.

Overall, 92.2 per cent of infants without a major congenital anomaly survived to six-months of age. Survival improved with gestational age up to 33 weeks after which it decreased slightly. Of the infants who died, most (74.8 per cent) died at less than one week of age and a further 15.3 per cent died at less than 29 days of age. The six-month survival rate for infants born at 23 to 27 weeks gestation was higher for those born in a tertiary centre (71.3 per cent) compared with those born in a non-tertiary centre (65.2 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 1995–2001, 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 2000, the reported rate of defects in stillborn and liveborn babies was slightly lower than the previous five years combined (39.8 versus 41.5 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 655 perinatal deaths occurring in 2001 that were of at least 22 weeks gestation or at least 500 grams birthweight, confidential reports on 597 (91.1 per cent) were reviewed. Deaths reviewed comprised 443 stillbirths and 212 neonatal deaths.

Overall, just under one third of all deaths reviewed (31.2 per cent) were unexplained. Among term infants 41.0 per cent were unexplained. The proportion of unexplained deaths has declined compared to 2000, when 34.8 per cent of all perinatal deaths and 56.8 per cent of term perinatal deaths were unexplained. In 2001, postmortem examinations were carried out in 26.8 per cent of deaths, compared to 32.6 per cent of deaths reviewed in 2000.

The next most common obstetric causes of death were spontaneous preterm labour ($n=116$, 19.4 per cent), fetal abnormalities ($n=88$, 14.7 per cent), specific perinatal conditions such as twin-to-twin transfusion and umbilical cord complications ($n=51$, 8.5 per cent), antepartum haemorrhage ($n=47$, 7.9 per cent), and hypertension ($n=38$, 6.4 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.

Over 66 per cent of MDC notifications are received electronically from hospital obstetric information systems. These notifications are received on disk or by email and replace the submission of the record on paper. There are several source systems that generate the MDC data. The largest source is the OBSTET database, which supplies 49.9 per cent of all MDC data, followed by: the OIS database (Central Sydney Area Health Service) 6.2 per cent; the Central Coast modified CRS System (3.3 per cent); the Illawarra Shared Care System (3.0 per cent); the Sydney Adventist database (2.5 per cent); and Medistat (1.1 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 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 2001 the 10 neonatal intensive care units in NSW and ACT were situated at the following perinatal centres: John Hunter Children's Hospital (Newcastle), King George V 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 neonatal, maternal, and perinatal data that comprise the NICUS Data Collection are collected and collated within each neonatal intensive care unit 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. 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 7-year 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 7-year period 1994–2000. 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 96.2 per cent of MDC records (98.2 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.

Country of birth

The mother's country of 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 85,858 births to 84,379 women reported in 2001, the lowest number for the last 5 years (Table 1). However, the proportion of all births that were multiple

births (twins, triplets, etc.) increased from 2,393 to 2,932—an increase from 2.7 per cent to 3.4 per cent.

TABLE 1

BIRTHS AND CONFINEMENTS BY PLURALITY, NSW 1997–2001

Plurality	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
Confinements										
Singleton	85740	98.6	83869	98.6	84676	98.5	85027	98.3	82926	98.3
Twins	1147	1.3	1174	1.4	1261	1.5	1404	1.6	1428	1.7
Triplets	32	0.0	28	0.0	30	0.0	29	0.0	24	0.0
Quadruplets	1	0.0	1	0.0	0	0.0	0	0.0	1	0.0
Total	86920	100.0	85072	100.0	85967	100.0	86460	100.0	84379	100.0
Births										
Singleton	85740	97.3	83869	97.2	84676	97.0	85027	96.7	82926	96.6
Twins	2293	2.6	2348	2.7	2523	2.9	2808	3.2	2856	3.3
Triplets	96	0.1	84	0.1	90	0.1	87	0.1	72	0.1
Quadruplets	4	0.0	4	0.0	0	0.0	0	0.0	4	0.0
Total	88133	100.0	86305	100.0	87289	100.0	87922	100.0	85858	100.0

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

Health area of residence

The fall in the number of mothers giving birth was more pronounced in rural than urban health areas. In rural areas, the number of confinements fell from 18,264 in 1997 to 16,377 in 2001. In urban areas, the number of confinements fell from 67,947 to 67,440 (Table 2).

While reported confinements fell in all rural areas over the five-year period, the fall was not consistent across urban areas with increases in the number of confinements reported in the Northern Sydney, Western Sydney and South Eastern Sydney Health Areas.

TABLE 2

CONFINEMENTS BY HEALTH AREA OF RESIDENCE, NSW 1997–2001

Health Area	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney	6657	7.7	6574	7.7	6625	7.7	6775	7.8	6602	7.8
Northern Sydney	8985	10.3	8824	10.4	9242	10.8	9432	10.9	9226	10.9
Western Sydney	10559	12.1	10541	12.4	10712	12.5	10794	12.5	10818	12.8
Wentworth	4827	5.6	4825	5.7	4851	5.6	4921	5.7	4683	5.5
South Western Sydney	12511	14.4	12050	14.2	12219	14.2	12541	14.5	12161	14.4
Central Coast	3792	4.4	3736	4.4	3665	4.3	3772	4.4	3628	4.3
Hunter	7034	8.1	6875	8.1	6965	8.1	6981	8.1	6725	8.0
Illawarra	4434	5.1	4350	5.1	4413	5.1	4407	5.1	4250	5.0
South Eastern Sydney	9148	10.5	9135	10.7	9428	11.0	9697	11.2	9347	11.1
Northern Rivers	2963	3.4	2941	3.5	2903	3.4	2766	3.2	2755	3.3
Mid North Coast	3073	3.5	2954	3.5	2906	3.4	2802	3.2	2806	3.3
New England	2463	2.8	2381	2.8	2348	2.7	2265	2.6	2228	2.6
Macquarie	1595	1.8	1589	1.9	1596	1.9	1590	1.8	1552	1.8
Mid Western	2437	2.8	2339	2.7	2297	2.7	2264	2.6	2249	2.7
Far West	600	0.7	556	0.7	533	0.6	533	0.6	564	0.7
Greater Murray	3357	3.9	2946	3.5	2603	3.0	2517	2.9	2550	3.0
Southern	1776	2.0	1782	2.1	1845	2.1	1766	2.0	1673	2.0
Other/Not stated	709	0.8	674	0.8	816	0.9	637	0.7	562	0.7
TOTAL	86920	100.0	85072	100.0	85967	100.0	86460	100.0	84379	100.0

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

Maternal age

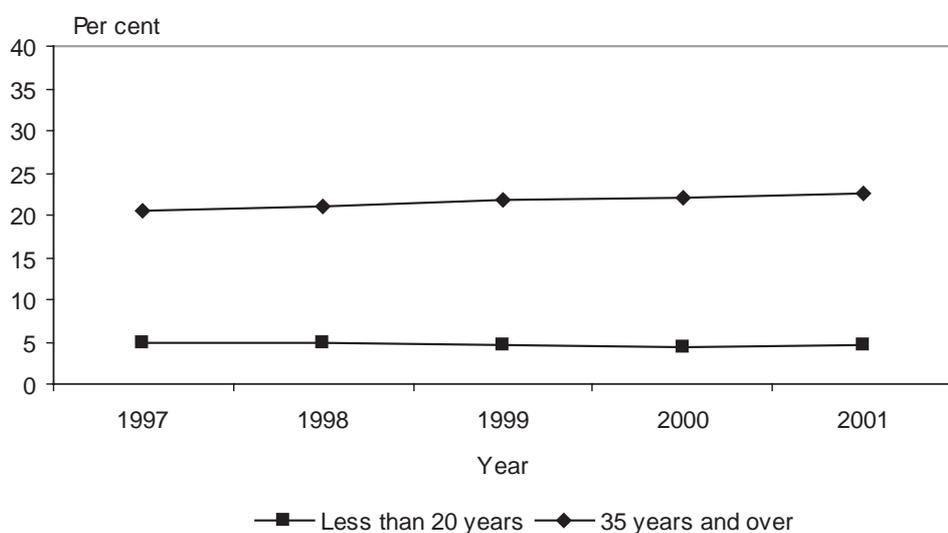
The number of teenage mothers decreased from 4,291 in 1997 to 3,797 in 2001 (Figure 1, Table 3). The mean maternal age rose slightly from 29.4 to 29.9 years over the same period.

The number of mothers 35 years of age or over giving birth increased from 13,465 in 1997 to 15,250 in 2001,

an increase from 15.5 to 18.1 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 8.9 to 11.6 per cent over the 5-year period, and the proportion of multiparous mothers increased from 20.0 to 22.7 per cent.

FIGURE 1

CONFINEMENTS AMONG MOTHERS AGED LESS THAN 20 YEARS AND 35 YEARS AND OVER, NSW 1997–2001



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

TABLE 3

CONFINEMENTS BY MATERNAL AGE, NSW 1997–2001

Maternal age (years)	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
Under 15	28	0.0	27	0.0	27	0.0	31	0.0	19	0.0
15–19	4263	4.9	4091	4.8	4072	4.7	3822	4.4	3778	4.5
20–24	14913	17.2	14261	16.8	13790	16.0	13316	15.4	13036	15.4
25–29	28345	32.6	27759	32.6	27678	32.2	27293	31.6	25528	30.3
30–34	25856	29.7	25014	29.4	25703	29.9	26640	30.8	26707	31.7
35–39	11572	13.3	11745	13.8	12372	14.4	12894	14.9	12640	15.0
40–44	1829	2.1	2026	2.4	2199	2.6	2342	2.7	2488	2.9
45+	64	0.1	68	0.1	97	0.1	98	0.1	122	0.1
Not stated	50	0.1	81	0.1	29	0.0	24	0.0	61	0.1
TOTAL	86920	100.0	85072	100.0	85967	100.0	86460	100.0	84379	100.0

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

Maternal country of birth

In the period 1997–2001, almost three-quarters of confinements were to mothers who were born in Australia. Numbers of confinements to mothers born in Southern European countries, China, Vietnam, and Lebanon declined while confinements to mothers born in Fiji, Iraq, and Indonesia increased slightly over the 5-year period (Table 4). Further information on maternal country of birth is shown in Chapter 7.

TABLE 4

CONFINEMENTS BY MATERNAL COUNTRY OF BIRTH, NSW 1997–2001 #

Country of birth	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
Australia	63292	72.8	62606	73.6	62555	72.8	62368	72.1	61655	73.1
United Kingdom	2593	3.0	2471	2.9	2627	3.1	2557	3.0	2331	2.8
New Zealand	1826	2.1	1762	2.1	1966	2.3	1962	2.3	2009	2.4
China	2111	2.4	1892	2.2	2015	2.3	2163	2.5	1791	2.1
Vietnam	1853	2.1	1462	1.7	1804	2.1	2053	2.4	1691	2.0
Lebanon	1983	2.3	1942	2.3	1788	2.1	1766	2.0	1667	2.0
Philippines	1275	1.5	1308	1.5	1319	1.5	1315	1.5	1243	1.5
Fiji	603	0.7	640	0.8	604	0.7	688	0.8	652	0.8
India	673	0.8	634	0.7	635	0.7	643	0.7	612	0.7
Former Yugoslavia	714	0.8	659	0.8	662	0.8	627	0.7	607	0.7
Iraq	326	0.4	360	0.4	414	0.5	455	0.5	577	0.7
Indonesia	398	0.5	424	0.5	460	0.5	566	0.7	494	0.6
South Africa	349	0.4	329	0.4	386	0.4	387	0.4	450	0.5
South Korea	308	0.4	370	0.4	370	0.4	426	0.5	358	0.4
Hong Kong	531	0.6	433	0.5	409	0.5	357	0.4	332	0.4
United States of America	330	0.4	340	0.4	372	0.4	377	0.4	332	0.4
Western Samoa	312	0.4	349	0.4	318	0.4	320	0.4	319	0.4
Turkey	364	0.4	340	0.4	314	0.4	335	0.4	317	0.4
Japan	226	0.3	239	0.3	264	0.3	252	0.3	293	0.3
Ireland	275	0.3	280	0.3	287	0.3	273	0.3	291	0.3
Sri Lanka	279	0.3	276	0.3	295	0.3	304	0.4	291	0.3
Cambodia	305	0.4	238	0.3	303	0.4	326	0.4	285	0.3
Tonga	292	0.3	312	0.4	308	0.4	296	0.3	278	0.3
Pakistan	202	0.2	200	0.2	192	0.2	224	0.3	276	0.3
Malaysia	307	0.4	259	0.3	286	0.3	319	0.4	251	0.3
Thailand	186	0.2	194	0.2	207	0.2	199	0.2	221	0.3
Chile	209	0.2	214	0.3	224	0.3	202	0.2	206	0.2
Canada	155	0.2	177	0.2	185	0.2	177	0.2	203	0.2
Germany	213	0.2	187	0.2	226	0.3	204	0.2	192	0.2
Bangladesh	125	0.1	140	0.2	134	0.2	179	0.2	183	0.2
Egypt	253	0.3	202	0.2	218	0.3	196	0.2	176	0.2
Iran	147	0.2	139	0.2	140	0.2	153	0.2	169	0.2
Syria	141	0.2	143	0.2	145	0.2	138	0.2	150	0.2
Afghanistan	110	0.1	85	0.1	120	0.1	96	0.1	147	0.2
Italy	272	0.3	230	0.3	221	0.3	191	0.2	139	0.2
Papua New Guinea	150	0.2	131	0.2	136	0.2	132	0.2	133	0.2
Singapore	89	0.1	102	0.1	101	0.1	104	0.1	119	0.1
Laos	133	0.2	126	0.1	118	0.1	136	0.2	118	0.1
Uruguay	102	0.1	123	0.1	91	0.1	111	0.1	106	0.1
North Korea	53	0.1	71	0.1	90	0.1	140	0.2	102	0.1
Portugal	121	0.1	136	0.2	120	0.1	101	0.1	101	0.1
Other/Not stated	2734	3.1	2547	3.0	2538	3.0	2642	3.1	2512	3.0
TOTAL	86920	100.0	85072	100.0	85967	100.0	86460	100.0	84379	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 2001.

Maternal Aboriginality

The reported number of Aboriginal or Torres Strait Islander mothers giving birth increased from 1,842 in 1997 (2.1 per cent of all mothers) to 2,110 in 2001 (2.5 per cent of all mothers) (Table 5). Part of this increase is likely to be due to an increased willingness of mothers to be identified as Aboriginal or Torres Strait Islander. Further information on maternal Aboriginality and reporting of Aboriginality is shown in Chapter 6.

TABLE 5

CONFINEMENTS BY MATERNAL ABORIGINALITY, NSW 1997–2001

Aboriginality	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
Aboriginal or Torres Strait Islander	1842	2.1	2043	2.4	2059	2.4	2105	2.4	2110	2.5
Non-Aboriginal or Torres Strait Islander	84854	97.6	82787	97.3	83899	97.6	84306	97.5	82223	97.4
Not stated	224	0.3	242	0.3	9	0.0	49	0.1	46	0.1
TOTAL	86920	100.0	85072	100.0	85967	100.0	86460	100.0	84379	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 rose slightly to 41.7 per cent, while the proportion of mothers giving birth to a second to fourth baby fell slightly to 56.7 per cent.

TABLE 6

CONFINEMENTS BY NUMBER OF PREVIOUS PREGNANCIES, NSW 1997–2001

Number of previous pregnancies (>20 weeks gestation)	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
0	34984	40.2	34376	40.4	35311	41.1	35953	41.6	35153	41.7
1–4	50451	58.0	49462	58.1	49432	57.5	49146	56.8	47850	56.7
5+	1267	1.5	1184	1.4	1206	1.4	1331	1.5	1329	1.6
Not stated	218	0.3	50	0.1	18	0.0	30	0.0	47	0.1
TOTAL	86920	100.0	85072	100.0	85967	100.0	86460	100.0	84379	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 1997, 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 1997–2001

Duration of pregnancy (weeks)	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
0–19	73666	84.8	72257	84.9	74077	86.2	74803	86.5	72704	86.2
20-plus	11549	13.3	11410	13.4	10979	12.8	10748	12.4	10878	12.9
Not stated	1705	2.0	1405	1.7	911	1.1	909	1.1	797	0.9
TOTAL	86920	100.0	85072	100.0	85967	100.0	86460	100.0	84379	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 1997 and 2001: in 1997, 17,871 (20.6 per cent) mothers reported smoking in pregnancy, compared to 16,859 (19.8 per cent) in 1998, 16,302 (19.0 per cent) in 1999, 15,001 (17.4 per cent) in 2000, and 14,424 (17.1 per cent) in 2001.

Of mothers who smoked during pregnancy in 2001, 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 1997–2001

Cigarettes smoked in the second half of pregnancy	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
None	570	3.2	690	4.1	739	4.5	622	4.1	576	4.0
1–10 per day	7872	44.0	7634	45.3	7303	44.8	7092	47.3	6834	47.4
More than 10 per day	8574	48.0	8171	48.5	7966	48.9	7005	46.7	6725	46.6
Smoked, amount not stated	833	4.7	358	2.1	294	1.8	282	1.9	289	2.0
Not stated	22	0.1	6	0.0	0	0.0	0	0.0	0	0.0
TOTAL	17871	100.0	16859	100.0	16302	100.0	15001	100.0	14424	100.0

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

Place of birth

In 2001, 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, Figure 2). About two-thirds of mothers who planned to give birth in a birth centre actually did so.

Over the 5-year period 1997–2001, there was a slight increase in the proportion of births in hospital and a decline in the proportion of births reported in birth centres.

TABLE 9

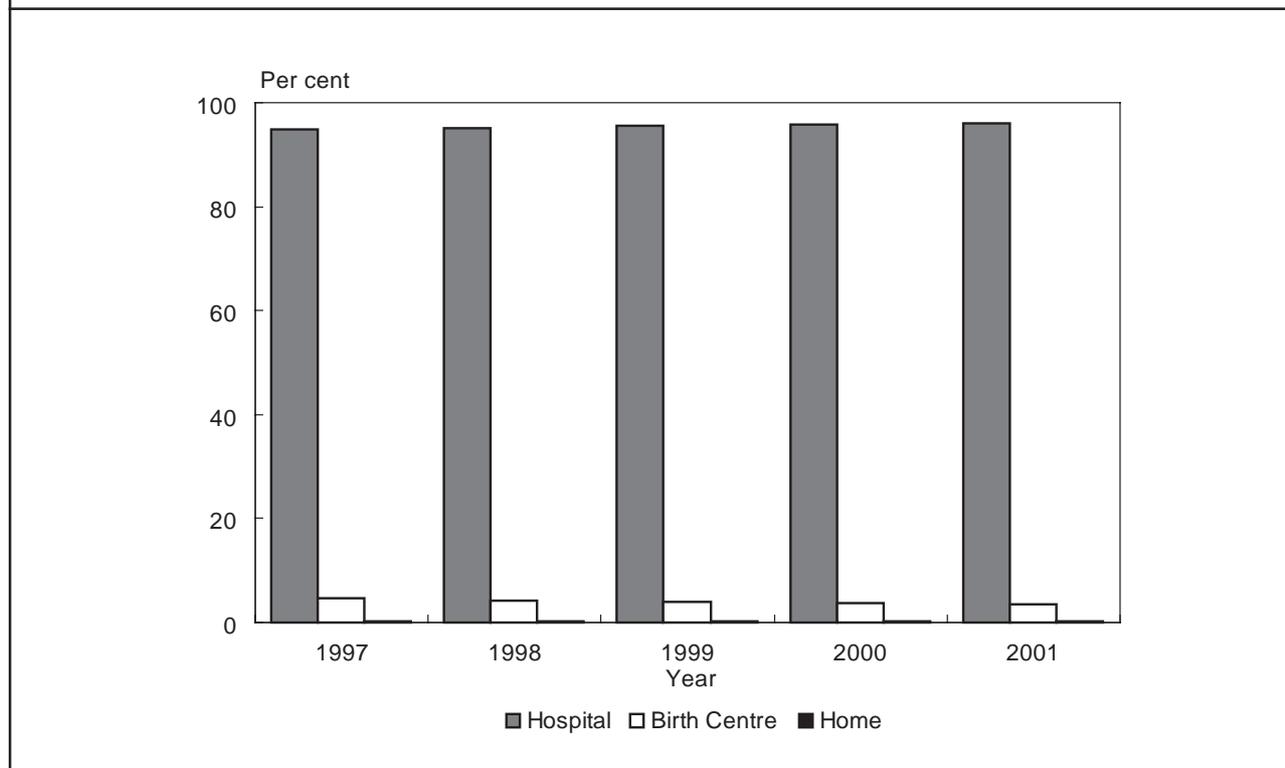
CONFINEMENTS BY PLACE OF BIRTH, NSW 1997–2001

Place of birth	1997		1998		Year 1999		2000		2001	
	No.	%								
Hospital	82410	94.8	80835	95.0	82103	95.5	82782	95.7	80984	96.0
Birth centre	2795	3.2	2514	3.0	2249	2.6	2205	2.6	2038	2.4
Planned birth centre/ hospital admission	1188	1.4	1154	1.4	1070	1.2	959	1.1	822	1.0
Planned homebirth	159	0.2	147	0.2	139	0.2	108	0.1	144	0.2
Planned homebirth/ hospital admission	43	0.0	55	0.1	43	0.1	38	0.0	38	0.0
Born before arrival	297	0.3	366	0.4	363	0.4	366	0.4	353	0.4
Not stated	28	0.0	1	0.0	0	0.0	2	0.0	0	0.0
TOTAL	86920	100.0	85072	100.0	85967	100.0	86460	100.0	84379	100.0

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

FIGURE 2

CONFINEMENTS BY PLANNED PLACE OF BIRTH, NSW 1997–2001



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 68.1 in 1997 to 62.2 per cent in 2001 (Table 10). About one in 10 labours were augmented with oxytocics or prostaglandins in 2001.

The rate of induction of labour rose slightly from 21.8 per cent in 1997 to 24.8 per cent in 2001. The most common reported reason for induction of labour was prolonged pregnancy (41 or more weeks) (35.0 per cent), followed by hypertensive disease (13.5 per cent), prelabour rupture of membranes (9.2 per cent), suspected intrauterine growth retardation (4.3 per cent) and fetal death (1.1 per cent).

The rate of normal vaginal birth decreased from 70.4 per cent in 1997 to 65.4 per cent in 2001 (Table 11). The caesarean section rate increased from 18.2 to 23.6 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 4.5 to 6.5 per cent and the rate of forceps delivery declined from 5.8 to 4.0 per cent.

Operative and instrumental deliveries continue to be more common among privately than publicly insured mothers (Table 12). The changing pattern in type of delivery is evident in both groups between 1996 and 2000. Among privately insured mothers the rate of normal vaginal birth decreased from 61.0 to 55.5 per cent and the rate of caesarean section increased from 22.2 to 28.2 per cent. Among publicly insured mothers the rate of normal vaginal birth decreased from 75.4 to 71.8 per cent and the rate of caesarean section increased from 15.4 to 18.6 per cent.

TABLE 10

CONFINEMENTS BY ONSET AND AUGMENTATION OF LABOUR, NSW 1997–2001

Onset of labour	1997		1998		Year 1999		2000		2001	
	No.	%								
Spontaneous	39839	45.8	39281	46.2	39706	46.2	40042	46.3	37492	44.4
Spontaneous augmented with ARM	9764	11.2	7997	9.4	7844	9.1	7014	8.1	6684	7.9
Spontaneous augmented with oxytocics–prostaglandins#	9622	11.1	8411	9.9	8657	10.1	9050	10.5	8297	9.8
No labour	8616	9.9	8800	10.3	9147	10.6	9926	11.5	10986	13.0
Induced–oxytocics–prostaglandins	5934	6.8	7893	9.3	7626	8.9	7493	8.7	7422	8.8
Induced–ARM only	1238	1.4	1462	1.7	1305	1.5	1196	1.4	1181	1.4
Induced–ARM–oxytocics–prostaglandins	11722	13.5	11069	13.0	11527	13.4	11516	13.3	12033	14.3
Induced–other##	87	0.1	138	0.2	154	0.2	215	0.2	277	0.3
Not stated	98	0.1	21	0.0	1	0.0	8	0.0	7	0.0
TOTAL	86920	100.0	85072	100.0	85967	100.0	86460	100.0	84379	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 11

CONFINEMENTS BY TYPE OF DELIVERY, NSW 1997–2001

Type of delivery	1997		1998		Year 1999		2000		2001	
	No.	%								
Normal vaginal	61175	70.4	59097	69.5	58951	68.6	58049	67.1	55206	65.4
Forceps	5014	5.8	4478	5.3	4190	4.9	3904	4.5	3398	4.0
Vacuum extraction	3919	4.5	4453	5.2	5152	6.0	5367	6.2	5499	6.5
Vaginal breech	921	1.1	805	0.9	762	0.9	669	0.8	383	0.5
Elective caesarean section	8616	9.9	8800	10.3	9147	10.6	9926	11.5	10986	13.0
Emergency caesarean section#	7195	8.3	7416	8.7	7765	9.0	8530	9.9	8894	10.5
Not stated	80	0.1	23	0.0	0	0.0	15	0.0	13	0.0
TOTAL	86920	100.0	85072	100.0	85967	100.0	86460	100.0	84379	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 12**CONFINEMENTS BY HEALTH INSURANCE STATUS AND TYPE OF DELIVERY, NSW 1996–2000**

Insurance status– type of delivery	Year									
	1996		1997		1998		1999		2000	
	No.	%								
Public										
Normal vaginal	43495	75.4	45183	75.1	42967	73.8	44151	72.8	43687	71.8
Forceps	3019	5.2	2643	4.4	2268	3.9	2385	3.9	2202	3.6
Vacuum extraction	1587	2.8	2295	3.8	2593	4.5	3157	5.2	3120	5.1
Vaginal breech	680	1.2	733	1.2	611	1.0	596	1.0	512	0.8
Elective caesarean section	4408	7.6	4684	7.8	4890	8.4	5193	8.6	5682	9.3
Emergency caesarean section#	4472	7.7	4610	7.7	4870	8.4	5198	8.6	5658	9.3
Not stated	47	0.1	45	0.1	13	0.0	0	0.0	12	0.0
TOTAL	57708	100.0	60193	100.0	58212	100.0	60680	100.0	60873	100.0
Private										
Normal vaginal	16834	61.0	15929	59.8	15325	59.4	14206	58.1	13679	55.5
Forceps	2705	9.8	2368	8.9	2167	8.4	1780	7.3	1672	6.8
Vacuum extraction	1697	6.2	1621	6.1	1818	7.0	1969	8.0	2197	8.9
Vaginal breech	194	0.7	185	0.7	162	0.6	139	0.6	136	0.6
Elective caesarean section	3642	13.2	3927	14.7	3835	14.9	3859	15.8	4172	16.9
Emergency caesarean section#	2482	9.0	2581	9.7	2482	9.6	2508	10.3	2779	11.3
Not stated	25	0.1	34	0.1	10	0.0	0	0.0	3	0.0
TOTAL	27579	100.0	26645	100.0	25799	100.0	24461	100.0	24638	100.0
TOTAL##										
Normal vaginal	60339	70.7	61175	70.4	59097	69.5	58951	68.6	58049	67.1
Forceps	5724	6.7	5014	5.8	4478	5.3	4190	4.9	3904	4.5
Vacuum extraction	3286	3.9	3919	4.5	4453	5.2	5152	6.0	5367	6.2
Vaginal breech	874	1.0	921	1.1	805	0.9	762	0.9	669	0.8
Elective caesarean section	8052	9.4	8616	9.9	8800	10.3	9147	10.6	9926	11.5
Emergency caesarean section#	6955	8.2	7195	8.3	7416	8.7	7765	9.0	8530	9.9
Not stated	72	0.1	80	0.1	23	0.0	0	0.0	15	0.0
TOTAL	85302	100.0	86920	100.0	85072	100.0	85967	100.0	86460	100.0

Source: 1996–1997: NSW Midwives Data Collection (HOIST). 1998–2000: 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

Information on pain relief was collected by the MDC from 1998. Over the four years 1998 to 2001 there was a trend towards increased use of epidural and spinal anaesthetics.

In 2001, almost one half (48.5 per cent) of all mothers used nitrous oxide for pain relief, 29.1 per cent had an epidural anaesthetic, 25.4 per cent received intra-muscular narcotics, and no pain relief was reported for 11.5 per cent of mothers (Table 13).

TABLE 13**CONFINEMENTS BY TYPE OF PAIN RELIEF, NSW 1998–2001**

Type of pain relief #	Year							
	1998		1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%
Epidural	22917	26.9	24289	28.3	25728	29.8	24572	29.1
General anaesthetic	5004	5.9	4735	5.5	4753	5.5	4866	5.8
IM Narcotics	22274	26.2	22800	26.5	22654	26.2	21451	25.4
Nitrous Oxide	41273	48.5	42361	49.3	42303	48.9	40964	48.5
Spinal	3314	3.9	4179	4.9	5248	6.1	6677	7.9
Nil	12656	14.9	11468	13.3	10518	12.2	9674	11.5
TOTAL CONFINEMENTS	85072	100.0	85967	100.0	86460	100.0	84379	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 1997, with slightly more male babies born than females in each year. In 2001, 44,168 (51.4 per cent) of babies were male, 41,625 (48.5 per cent) were female, 10 were of indeterminate sex, and the sex was not reported for 55 babies. This compares with babies born in 1997, when 45,204 (51.3 per cent) were male, 42,889 (48.7 per cent) were female, 14 were of indeterminate sex, and the sex was not reported for 26 babies.

Gestational age

Since 1997 there has been a marginal increase in the percentage of babies born prematurely (less than 37 weeks gestation) from 6.8 to 7.2 per cent, and a slight decrease in the proportion of babies born at term (Table 14). There was no change in the proportion of babies who were postmature (41-plus weeks gestation).

TABLE 14

BIRTHS BY GESTATIONAL AGE, NSW 1997–2001

Gestational age (weeks)	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
20–27	562	0.6	588	0.7	585	0.7	623	0.7	628	0.7
28–31	596	0.7	607	0.7	625	0.7	663	0.8	667	0.8
32–36	4852	5.5	4758	5.5	5026	5.8	5114	5.8	4890	5.7
37–41	79987	90.8	78463	90.9	79114	90.6	79368	90.3	77566	90.3
42 +	2091	2.4	1871	2.2	1932	2.2	2148	2.4	2093	2.4
Not stated	45	0.1	18	0.0	7	0.0	6	0.0	14	0.0
TOTAL	88133	100.0	86305	100.0	87289	100.0	87922	100.0	85858	100.0

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

Birthweight

Since 1997, the rate of low birthweight (less than 2,500 grams) has been about six per cent (Table 15). The rate was 6.4 per cent in 2001.

TABLE 15

BIRTHS BY BIRTHWEIGHT, NSW 1997–2001

Birthweight (grams)	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 500	182	0.2	190	0.2	212	0.2	228	0.3	243	0.3
500–999	414	0.5	398	0.5	391	0.4	425	0.5	416	0.5
1000–1499	467	0.5	481	0.6	509	0.6	546	0.6	526	0.6
1500–1999	1033	1.2	1017	1.2	1076	1.2	1079	1.2	1043	1.2
2000–2499	3318	3.8	3147	3.6	3353	3.8	3383	3.8	3283	3.8
2500–2999	13487	15.3	12810	14.8	12942	14.8	12819	14.6	12783	14.9
3000–3499	31863	36.2	30974	35.9	30978	35.5	30647	34.9	30312	35.3
3500–3999	26957	30.6	26818	31.1	27173	31.1	27483	31.3	26542	30.9
4000–4499	8816	10.0	8807	10.2	9002	10.3	9454	10.8	9060	10.6
4500+	1535	1.7	1597	1.9	1629	1.9	1811	2.1	1607	1.9
Not stated	61	0.1	66	0.1	24	0.0	47	0.1	43	0.1
TOTAL	88133	100.0	86305	100.0	87289	100.0	87922	100.0	85858	100.0

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

Apgar score

In 2001, 2.2 per cent of babies were born with an Apgar score of less than seven at five minutes and 1.1 per cent were born with a score less than four (Table 16). These rates are similar to those of previous years.

TABLE 16

BIRTHS BY APGAR SCORE AT FIVE MINUTES, NSW 1997–2001 #

Apgar score	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
0–4	1065	1.2	1001	1.2	996	1.1	1043	1.2	922	1.1
5–6	1116	1.3	990	1.1	1098	1.3	956	1.1	938	1.1
7+	85788	97.3	84114	97.5	85028	97.4	85756	97.5	83797	97.6
Not stated	164	0.2	200	0.2	167	0.2	167	0.2	201	0.2
TOTAL	88133	100.0	86305	100.0	87289	100.0	87922	100.0	85858	100.0

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

Includes stillbirths and live births.

Perinatal outcomes

In the period 1997–2001 the perinatal mortality rate varied from 9.2 to 9.6 per 1,000 (Table 17). In 2001, about two-thirds of all perinatal deaths were stillbirths and one third were neonatal deaths.

In 2001, of the 789 perinatal deaths in NSW, 762 (96.6 per cent) were reported among planned hospital births, 10 (1.3 per cent) among planned birth centre births, 3 among planned home births, and 14 were among babies born before arrival at hospital.

TABLE 17

BIRTHS BY PERINATAL OUTCOME, NSW 1997–2001 #

Year	Liveborn surviving		Stillborn		Perinatal Outcome Neonatal death		Not stated		Total births		Perinatal mortality rate/1,000 births
	No.	%	No.	%	No.	%	No.	%	No.	%	
1997	87209	99.0	587	0.7	253	0.3	84	0.1	88133	100.0	9.5
1998	85384	98.9	595	0.7	208	0.3	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

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 1990–1999, 118 deaths were reported among pregnant women or women who gave birth less than six weeks previously. Of these, 42 (35.6 per cent) died of incidental causes not related to the pregnancy or its management; 55 (46.6 per cent) deaths were found to be directly due to pregnancy or its management; and 20

(16.9 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 18). Table 19 shows maternal deaths by cause in NSW for 1999.

TABLE 18

MATERNAL DEATHS BY YEAR, NSW 1990–2000 #

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	5	5.8	12	14.0
2000####									13	15.0

Source: NSW Maternal and Perinatal Committee.

Includes all deaths of women who were pregnant at the time of death, or who died within 42 days of childbirth.

Direct deaths include those resulting from obstetric complications of the pregnant state, including its management.

Indirect deaths include those resulting from 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 2000.

TABLE 19

MATERNAL DEATHS BY CAUSE, NSW 1999

Classification	Cause	No.
Direct	Anaphylactic reaction following spinal anaesthetic for elective caesarean section	1
Direct	Postpartum haemorrhage associated with inversion of uterus	1
Direct	Pregnancy-induced hypertension and postpartum haemorrhage	1
Direct	Shock due to uncompensated postpartum haemorrhage	1
Indirect	Myocardial infarction	1
Incidental	Suicide associated with severe depression	2
Incidental	Septicemia with secondary coagulopathy	1
Incidental	Cardiogenic shock following acute viral myocarditis	1
Incidental	Heroin overdose	1
Incidental	Metastatic cancer	1
Undetermined		1
TOTAL		12

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 2001 were among mothers resident in the South Western Sydney (12,161, 14.4 per cent) and Western Sydney Health Areas (10,818, 12.8 per cent). These two health areas contributed over one quarter of the State's births. Eighty per cent of confinements were to mothers resident in the metropolitan health areas (including the Central Coast, Hunter and Illawarra Health Areas), and 19.4 per cent were to mothers resident in rural health areas (Table 20).

Maternal age

The proportion of women giving birth at less than 20 years of age varied from 0.7 per cent in the Northern Sydney Health Area to 14.2 per cent in the Far West Health Area, while the proportion of mothers giving birth at 35 years of age or more ranged from 9.8 per cent in the Far West Health Area to 30.3 per cent in the Northern Sydney Health Area.

Maternal country of birth

Eighty per cent of women who gave birth in NSW in 2001 were born in English speaking countries, 10.6 per cent were born in Asian countries, and 4.4 per cent were born in the Middle East or Africa (Table 21).

The highest proportions of mothers born in non-English speaking countries were in the Central Sydney and South Western Sydney Health Areas. In Central Sydney, the majority of mothers born in non-English speaking countries were born in North East Asia (10.4 per cent) and South East Asia (10.1 per cent). In South Western Sydney, the majority of mothers born in non-English speaking countries were born in South East Asia (14.3 per cent).

Duration of pregnancy at first antenatal visit

In 2001, 86.2 per cent of mothers commenced antenatal care prior to 20 weeks gestation. This percentage varied from 71.3 per cent in the Far West Health Area to 94.9 in the Central Coast Health Area (Table 22).

Smoking in pregnancy

In 2001, 16.4 per cent of mothers reported smoking in the second half of pregnancy (Table 23). The lowest reported rate was among mothers resident in the Northern Sydney Health Area (4.7 per cent) and the highest rate among residents of the Far West Health Area (41.7 per cent).

Maternal Aboriginality

In 2001, 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 0.1 per cent in the Northern Sydney Area to 29.4 per cent in the Far West Area.

Place of birth

Ninety-six per cent of mothers chose to deliver in a hospital delivery suite in 2001, compared to 3.4 per cent who planned a birth centre birth and 0.2 per cent who planned a home birth (Table 25). Planned birth centre births were most common in the Hunter and Central Sydney Health Areas, and planned home births were most common in the Northern Rivers Health Area.

Labour and delivery

In 2001, the onset of labour was spontaneous in 62.2 per cent of confinements (Table 26). Labour was induced in 24.8 per cent of confinements and no labour (elective caesarean section) was reported in 13.0 per cent of confinements.

The rate of spontaneous onset of labour was highest among residents of the Northern Rivers Health Area (68.8 per cent). The highest rate of induction of labour was among residents of the Greater Murray Health Area (28.6 per cent).

About two-thirds of confinements were by normal vaginal birth, 10.5 per cent were instrumental and 23.6 per cent were by caesarean section (Table 27). The highest rate of normal vaginal birth was among residents of Far West Health Area (73.0 per cent), while the highest rates of instrumental delivery were among residents of Northern Sydney and South Eastern Sydney Health Areas (14.1 per cent). The caesarean section rate varied from 18.9 per cent among mothers resident in the South Western Sydney Health Area to 29.3 per cent in the Northern Sydney Health Area.

TABLE 20

CONFINEMENTS BY MATERNAL AGE AND HEALTH AREA OF RESIDENCE, NSW 2001

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.	%		
Central Sydney	121	1.8	692	10.5	1655	25.1	2458	37.2	1414	21.4	248	3.8	12	0.2	2	0.0	6602	100.0
Northern Sydney	63	0.7	428	4.6	1998	21.7	3939	42.7	2313	25.1	463	5.0	21	0.2	1	0.0	9226	100.0
Western Sydney	459	4.2	1801	16.6	3490	32.3	3301	30.5	1454	13.4	291	2.7	13	0.1	9	0.1	10818	100.0
Wentworth	239	5.1	835	17.8	1656	35.4	1304	27.8	511	10.9	117	2.5	6	0.1	15	0.3	4683	100.0
South Western Sydney	584	4.8	2277	18.7	4174	34.3	3361	27.6	1429	11.8	316	2.6	14	0.1	6	0.0	12161	100.0
Central Coast	166	4.6	610	16.8	1205	33.2	1102	30.4	455	12.5	83	2.3	6	0.2	1	0.0	3628	100.0
Hunter	397	5.9	1289	19.2	2215	32.9	1931	28.7	757	11.3	124	1.8	9	0.1	3	0.0	6725	100.0
Illawarra	221	5.2	724	17.0	1409	33.2	1255	29.5	541	12.7	99	2.3	1	0.0	0	0.0	4250	100.0
South Eastern Sydney	150	1.6	802	8.6	2588	27.7	3573	38.2	1839	19.7	375	4.0	20	0.2	0	0.0	9347	100.0
Northern Rivers	220	8.0	603	21.9	773	28.1	699	25.4	359	13.0	82	3.0	8	0.3	11	0.4	2755	100.0
Mid North Coast	269	9.6	589	21.0	849	30.3	691	24.6	338	12.0	68	2.4	2	0.1	0	0.0	2806	100.0
New England	197	8.8	497	22.3	680	30.5	590	26.5	216	9.7	44	2.0	1	0.0	3	0.1	2228	100.0
Macquarie	135	8.7	335	21.6	470	30.3	411	26.5	163	10.5	36	2.3	2	0.1	0	0.0	1552	100.0
Mid Western	166	7.4	456	20.3	722	32.1	624	27.7	237	10.5	40	1.8	2	0.1	2	0.1	2249	100.0
Far West	80	14.2	145	25.7	164	29.1	119	21.1	50	8.9	4	0.7	1	0.2	1	0.2	564	100.0
Greater Murray	162	6.4	487	19.1	817	32.0	732	28.7	296	11.6	52	2.0	0	0.0	4	0.2	2550	100.0
Southern	135	8.1	350	20.9	490	29.3	463	27.7	192	11.5	37	2.2	3	0.2	3	0.2	1673	100.0
Other/Not stated	33	5.9	116	20.6	173	30.8	154	27.4	76	13.5	9	1.6	1	0.2	0	0.0	562	100.0
TOTAL	3797	4.5	13036	15.4	25528	30.3	26707	31.7	12640	15.0	2488	2.9	122	0.1	61	0.1	84379	100.0

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

TABLE 21

CONFINEMENTS BY MATERNAL COUNTRY OF BIRTH AND HEALTH AREA OF RESIDENCE, NSW 2001*

Health Area	Country of birth group																		TOTAL			
	English speaking		Central & South America		Melanesia, Micronesia & Polynesia		Southern Europe		Western Europe Northern Europe		Eastern Europe, 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.	%	
Central Sydney	3866	58.6	77	1.2	192	2.9	168	2.5	81	1.2	47	0.7	545	8.3	669	10.1	688	10.4	269	4.1	6602	100.0
Northern Sydney	7364	79.8	73	0.8	99	1.1	96	1.0	162	1.8	59	0.6	211	2.3	347	3.8	613	6.6	202	2.2	9226	100.0
Western Sydney	6953	64.3	105	1.0	421	3.9	148	1.4	33	0.3	55	0.5	1091	10.1	796	7.4	616	5.7	592	5.5	10810	100.0
Wentworth	4271	91.4	22	0.5	48	1.0	32	0.7	30	0.6	22	0.5	61	1.3	101	2.2	28	0.6	60	1.3	4675	100.0
South Western Sydney	7522	61.9	235	1.9	497	4.1	309	2.5	61	0.5	75	0.6	1245	10.2	1743	14.3	282	2.3	191	1.6	12160	100.0
Central Coast	3477	95.8	15	0.4	21	0.6	8	0.2	12	0.3	6	0.2	16	0.4	49	1.4	17	0.5	7	0.2	3628	100.0
Hunter	6498	96.6	8	0.1	27	0.4	19	0.3	27	0.4	14	0.2	12	0.2	83	1.2	25	0.4	11	0.2	6724	100.0
Illawarra	3897	91.7	29	0.7	27	0.6	94	2.2	30	0.7	10	0.2	52	1.2	72	1.7	28	0.7	11	0.3	4250	100.0
South Eastern Sydney	6988	74.8	108	1.2	134	1.4	220	2.4	123	1.3	109	1.2	421	4.5	479	5.1	619	6.6	144	1.5	9345	100.0
Northern Rivers	2653	96.3	6	0.2	8	0.3	9	0.3	21	0.8	3	0.1	4	0.1	33	1.2	13	0.5	5	0.2	2755	100.0
Mid North Coast	2716	96.8	9	0.3	9	0.3	5	0.2	15	0.5	2	0.1	4	0.1	30	1.1	7	0.2	9	0.3	2806	100.0
New England	2193	98.5	1	0.0	5	0.2	3	0.1	7	0.3	0	0.0	1	0.0	10	0.4	5	0.2	2	0.1	2227	100.0
Macquarie	1528	98.5	1	0.1	3	0.2	1	0.1	3	0.2	0	0.0	4	0.3	7	0.5	3	0.2	2	0.1	1552	100.0
Mid Western	2191	97.4	3	0.1	6	0.3	6	0.3	6	0.3	4	0.2	1	0.0	23	1.0	7	0.3	2	0.1	2249	100.0
Far West	558	98.9	0	0.0	1	0.2	0	0.0	0	0.0	1	0.2	0	0.0	2	0.4	0	0.0	2	0.4	564	100.0
Greater Murray	2449	96.1	1	0.0	34	1.3	2	0.1	8	0.3	0	0.0	11	0.4	11	0.4	10	0.4	22	0.9	2548	100.0
Southern	1613	96.5	2	0.1	7	0.4	8	0.5	7	0.4	5	0.3	8	0.5	18	1.1	0	0.0	3	0.2	1671	100.0
Other/Not stated	538	95.7	2	0.4	5	0.9	1	0.2	5	0.9	0	0.0	1	0.2	5	0.9	4	0.7	1	0.2	562	100.0
TOTAL	67275	79.8	697	0.8	1544	1.8	1129	1.3	631	0.7	412	0.5	3688	4.4	4478	5.3	2965	3.5	1535	1.8	84354	100.0

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

Excludes 25 mothers for whom country of birth was not stated. Maternal countries of birth and country of birth groups are shown in Appendix 3.

TABLE 22**CONFINEMENTS BY DURATION OF PREGNANCY AT FIRST ANTENATAL CHECK AND HEALTH AREA OF RESIDENCE, NSW 2001**

Health Area	Duration of pregnancy at first antenatal visit						TOTAL	
	0-19		20-plus		Not stated		No.	%
	No.	%	No.	%	No.	%	No.	%
Central Sydney	5492	83.2	1075	16.3	35	0.5	6602	100.0
Northern Sydney	8672	94.0	530	5.7	24	0.3	9226	100.0
Western Sydney	8818	81.5	1924	17.8	76	0.7	10818	100.0
Wentworth	3828	81.7	813	17.4	42	0.9	4683	100.0
South Western Sydney	9513	78.2	2536	20.9	112	0.9	12161	100.0
Central Coast	3442	94.9	172	4.7	14	0.4	3628	100.0
Hunter	5808	86.4	866	12.9	51	0.8	6725	100.0
Illawarra	3932	92.5	290	6.8	28	0.7	4250	100.0
South Eastern Sydney	8319	89.0	944	10.1	84	0.9	9347	100.0
Northern Rivers	2440	88.6	283	10.3	32	1.2	2755	100.0
Mid North Coast	2439	86.9	292	10.4	75	2.7	2806	100.0
New England	1996	89.6	169	7.6	63	2.8	2228	100.0
Macquarie	1241	80.0	281	18.1	30	1.9	1552	100.0
Mid Western	2063	91.7	155	6.9	31	1.4	2249	100.0
Far West	402	71.3	136	24.1	26	4.6	564	100.0
Greater Murray	2294	90.0	222	8.7	34	1.3	2550	100.0
Southern	1494	89.3	152	9.1	27	1.6	1673	100.0
Other/Not stated	511	90.9	38	6.8	13	2.3	562	100.0
TOTAL	72704	86.2	10878	12.9	797	0.9	84379	100.0

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

TABLE 23**CONFINEMENTS BY NUMBER OF CIGARETTES SMOKED IN THE SECOND HALF OF PREGNANCY, NSW 2001**

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.	%
Central Sydney	6112	92.6	317	4.8	166	2.5	6	0.1	1	0.0	6602	100.0
Northern Sydney	8792	95.3	284	3.1	118	1.3	32	0.3	0	0.0	9226	100.0
Western Sydney	9302	86.0	717	6.6	759	7.0	38	0.4	2	0.0	10818	100.0
Wentworth	3810	81.4	385	8.2	454	9.7	31	0.7	3	0.1	4683	100.0
South Western Sydney	10434	85.8	795	6.5	875	7.2	56	0.5	1	0.0	12161	100.0
Central Coast	2747	75.7	444	12.2	432	11.9	5	0.1	0	0.0	3628	100.0
Hunter	5221	77.6	675	10.0	802	11.9	25	0.4	2	0.0	6725	100.0
Illawarra	3323	78.2	549	12.9	372	8.8	6	0.1	0	0.0	4250	100.0
South Eastern Sydney	8585	91.8	467	5.0	281	3.0	13	0.1	1	0.0	9347	100.0
Northern Rivers	2020	73.3	364	13.2	355	12.9	14	0.5	2	0.1	2755	100.0
Mid North Coast	1943	69.2	427	15.2	415	14.8	21	0.7	0	0.0	2806	100.0
New England	1592	71.5	292	13.1	334	15.0	9	0.4	1	0.0	2228	100.0
Macquarie	1119	72.1	183	11.8	247	15.9	3	0.2	0	0.0	1552	100.0
Mid Western	1680	74.7	242	10.8	320	14.2	6	0.3	1	0.0	2249	100.0
Far West	329	58.3	93	16.5	134	23.8	8	1.4	0	0.0	564	100.0
Greater Murray	1897	74.4	301	11.8	344	13.5	7	0.3	1	0.0	2550	100.0
Southern	1196	71.5	221	13.2	248	14.8	7	0.4	1	0.1	1673	100.0
Other/Not stated	412	73.3	78	13.9	69	12.3	2	0.4	1	0.2	562	100.0
TOTAL	70514	83.6	6834	8.1	6725	8.0	289	0.3	17	0.0	84379	100.0

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

TABLE 24**CONFINEMENTS BY MATERNAL ABORIGINALITY AND HEALTH AREA OF RESIDENCE, NSW 2001**

Health Area	Aboriginal Torres Strait Islander		Aboriginality Non-Aboriginal Torres Strait Islander		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
	Central Sydney	62	0.9	6537	99.0	3	0.0	6602
Northern Sydney	8	0.1	9216	99.9	2	0.0	9226	100.0
Western Sydney	141	1.3	10668	98.6	9	0.1	10818	100.0
Wentworth	64	1.4	4602	98.3	17	0.4	4683	100.0
South Western Sydney	112	0.9	12047	99.1	2	0.0	12161	100.0
Central Coast	66	1.8	3562	98.2	0	0.0	3628	100.0
Hunter	165	2.5	6556	97.5	4	0.1	6725	100.0
Illawarra	117	2.8	4133	97.2	0	0.0	4250	100.0
South Eastern Sydney	36	0.4	9311	99.6	0	0.0	9347	100.0
Northern Rivers	183	6.6	2566	93.1	6	0.2	2755	100.0
Mid North Coast	200	7.1	2606	92.9	0	0.0	2806	100.0
New England	259	11.6	1969	88.4	0	0.0	2228	100.0
Macquarie	216	13.9	1336	86.1	0	0.0	1552	100.0
Mid Western	136	6.0	2113	94.0	0	0.0	2249	100.0
Far West	166	29.4	397	70.4	1	0.2	564	100.0
Greater Murray	107	4.2	2443	95.8	0	0.0	2550	100.0
Southern	55	3.3	1617	96.7	1	0.1	1673	100.0
Other/Not stated	17	3.0	544	96.8	1	0.2	562	100.0
TOTAL	2110	2.5	82223	97.4	46	0.1	84379	100.0

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

TABLE 25**CONFINEMENTS BY PLACE OF BIRTH AND HEALTH AREA OF RESIDENCE, NSW 2001**

Health Area	Hospital		Birth centre		Place of birth				Planned home birth– hospital admission		Born before arrival		TOTAL	
	No.	%	No.	%	Planned birth centre– hospital admission	No.	%	Planned home birth	No.	%	No.	%	No.	%
	Central Sydney	6026	91.3	416	6.3	127	1.9	7	0.1	3	0.0	23	0.3	6602
Northern Sydney	9056	98.2	91	1.0	24	0.3	31	0.3	1	0.0	23	0.2	9226	100.0
Western Sydney	10174	94.0	294	2.7	283	2.6	7	0.1	3	0.0	57	0.5	10818	100.0
Wentworth	4552	97.2	43	0.9	62	1.3	5	0.1	4	0.1	17	0.4	4683	100.0
South Western Sydney	11931	98.1	154	1.3	17	0.1	13	0.1	2	0.0	44	0.4	12161	100.0
Central Coast	3580	98.7	20	0.6	1	0.0	3	0.1	0	0.0	24	0.7	3628	100.0
Hunter	6066	90.2	560	8.3	61	0.9	3	0.0	1	0.0	34	0.5	6725	100.0
Illawarra	4198	98.8	12	0.3	15	0.4	12	0.3	0	0.0	13	0.3	4250	100.0
South Eastern Sydney	8684	92.9	412	4.4	198	2.1	17	0.2	2	0.0	34	0.4	9347	100.0
Northern Rivers	2689	97.6	4	0.1	2	0.1	27	1.0	15	0.5	18	0.7	2755	100.0
Mid North Coast	2761	98.4	15	0.5	8	0.3	2	0.1	3	0.1	17	0.6	2806	100.0
New England	2213	99.3	5	0.2	2	0.1	0	0.0	0	0.0	8	0.4	2228	100.0
Macquarie	1532	98.7	3	0.2	6	0.4	0	0.0	1	0.1	10	0.6	1552	100.0
Mid Western	2226	99.0	2	0.1	7	0.3	3	0.1	2	0.1	9	0.4	2249	100.0
Far West	560	99.3	0	0.0	1	0.2	1	0.2	0	0.0	2	0.4	564	100.0
Greater Murray	2535	99.4	1	0.0	4	0.2	0	0.0	1	0.0	9	0.4	2550	100.0
Southern	1646	98.4	4	0.2	3	0.2	10	0.6	0	0.0	10	0.6	1673	100.0
Other/Not stated	555	98.8	2	0.4	1	0.2	3	0.5	0	0.0	1	0.2	562	100.0
TOTAL	80984	96.0	2038	2.4	822	1.0	144	0.2	38	0.0	353	0.4	84379	100.0

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

TABLE 26

CONFINEMENTS BY ONSET AND AUGMENTATION OF LABOUR AND HEALTH AREA OF RESIDENCE, NSW 2001

Health Area	Spontaneous		Spontaneous augmented with ARM		Spontaneous augmented with oxytocics prosta-glandins		No labour		Onset of labour				Induced-ARM+ oxytocics prosta-glandins		Induced-other#		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	Central Sydney	3236	49.0	190	2.9	889	13.5	863	13.1	981	14.9	73	1.1	355	5.4	14	0.2	1	0.0	6602
Northern Sydney	3419	37.1	594	6.4	1065	11.5	1604	17.4	681	7.4	167	1.8	1680	18.2	16	0.2	0	0.0	9226	100.0
Western Sydney	4743	43.8	976	9.0	1181	10.9	1224	11.3	677	6.3	87	0.8	1896	17.5	32	0.3	2	0.0	10818	100.0
Wentworth	2185	46.7	325	6.9	314	6.7	562	12.0	376	8.0	77	1.6	811	17.3	32	0.7	1	0.0	4683	100.0
South Western Sydney	6157	50.6	677	5.6	1092	9.0	1265	10.4	905	7.4	132	1.1	1855	15.3	77	0.6	1	0.0	12161	100.0
Central Coast	1264	34.8	489	13.5	488	13.5	495	13.6	295	8.1	37	1.0	557	15.4	3	0.1	0	0.0	3628	100.0
Hunter	3642	54.2	322	4.8	335	5.0	842	12.5	530	7.9	147	2.2	869	12.9	38	0.6	0	0.0	6725	100.0
Illawarra	1586	37.3	560	13.2	424	10.0	524	12.3	313	7.4	43	1.0	787	18.5	13	0.3	0	0.0	4250	100.0
South Eastern Sydney	3823	40.9	586	6.3	1288	13.8	1413	15.1	861	9.2	99	1.1	1260	13.5	17	0.2	0	0.0	9347	100.0
Northern Rivers	1382	50.2	301	10.9	213	7.7	281	10.2	226	8.2	54	2.0	293	10.6	5	0.2	0	0.0	2755	100.0
Mid North Coast	1222	43.5	318	11.3	196	7.0	372	13.3	266	9.5	43	1.5	388	13.8	1	0.0	0	0.0	2806	100.0
New England	808	36.3	306	13.7	171	7.7	318	14.3	251	11.3	38	1.7	324	14.5	12	0.5	0	0.0	2228	100.0
Macquarie	605	39.0	197	12.7	131	8.4	190	12.2	161	10.4	40	2.6	226	14.6	2	0.1	0	0.0	1552	100.0
Mid Western	957	42.6	312	13.9	135	6.0	349	15.5	235	10.4	43	1.9	215	9.6	3	0.1	0	0.0	2249	100.0
Far West	296	52.5	39	6.9	42	7.4	57	10.1	57	10.1	11	2.0	61	10.8	1	0.2	0	0.0	564	100.0
Greater Murray	1114	43.7	228	8.9	142	5.6	338	13.3	423	16.6	64	2.5	232	9.1	9	0.4	0	0.0	2550	100.0
Southern	810	48.4	195	11.7	133	7.9	213	12.7	153	9.1	21	1.3	144	8.6	2	0.1	2	0.1	1673	100.0
Other/Not stated	243	43.2	69	12.3	58	10.3	76	13.5	31	5.5	5	0.9	80	14.2	0	0.0	0	0.0	562	100.0
TOTAL	37492	44.4	6684	7.9	8297	9.8	10986	13.0	7422	8.8	1181	1.4	12033	14.3	277	0.3	7	0.0	84379	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 27

CONFINEMENTS BY TYPE OF DELIVERY AND HEALTH AREA OF RESIDENCE, NSW 2001

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	4192	63.5	247	3.7	515	7.8	22	0.3	863	13.1	762	11.5	1	0.0	6602
Northern Sydney	5194	56.3	431	4.7	869	9.4	23	0.2	1604	17.4	1105	12.0	0	0.0	9226	100.0
Western Sydney	7292	67.4	694	6.4	416	3.8	67	0.6	1224	11.3	1121	10.4	4	0.0	10818	100.0
Wentworth	3164	67.6	201	4.3	225	4.8	15	0.3	562	12.0	513	11.0	3	0.1	4683	100.0
South Western Sydney	8644	71.1	327	2.7	830	6.8	65	0.5	1265	10.4	1029	8.5	1	0.0	12161	100.0
Central Coast	2309	63.6	57	1.6	365	10.1	8	0.2	495	13.6	394	10.9	0	0.0	3628	100.0
Hunter	4555	67.7	186	2.8	487	7.2	35	0.5	842	12.5	620	9.2	0	0.0	6725	100.0
Illawarra	2821	66.4	96	2.3	326	7.7	20	0.5	524	12.3	463	10.9	0	0.0	4250	100.0
South Eastern Sydney	5397	57.7	524	5.6	795	8.5	32	0.3	1413	15.1	1186	12.7	0	0.0	9347	100.0
Northern Rivers	1995	72.4	105	3.8	80	2.9	17	0.6	281	10.2	277	10.1	0	0.0	2755	100.0
Mid North Coast	1978	70.5	65	2.3	100	3.6	23	0.8	372	13.3	268	9.6	0	0.0	2806	100.0
New England	1513	67.9	79	3.5	96	4.3	15	0.7	318	14.3	206	9.2	1	0.0	2228	100.0
Macquarie	1096	70.6	78	5.0	56	3.6	6	0.4	190	12.2	126	8.1	0	0.0	1552	100.0
Mid Western	1463	65.1	48	2.1	98	4.4	9	0.4	349	15.5	282	12.5	0	0.0	2249	100.0
Far West	412	73.0	19	3.4	6	1.1	7	1.2	57	10.1	62	11.0	1	0.2	564	100.0
Greater Murray	1641	64.4	163	6.4	131	5.1	12	0.5	338	13.3	265	10.4	0	0.0	2550	100.0
Southern	1160	69.3	64	3.8	71	4.2	5	0.3	213	12.7	158	9.4	2	0.1	1673	100.0
Other/Not stated	380	67.6	14	2.5	33	5.9	2	0.4	76	13.5	57	10.1	0	0.0	562	100.0
TOTAL	55206	65.4	3398	4.0	5499	6.5	383	0.5	10986	13.0	8894	10.5	13	0.0	84379	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 2001, 6.4 per cent of births were low birthweight (less than 2,500 grams). These comprised 0.8 per cent of birthweight less than 1,000 grams, 0.6 per cent in the 1,000 to 1,499 gram range, and 5.0 per cent in the 1,500 to 2,499 gram range (Table 28). Rates of low birthweight ranged from 4.9 per cent in Northern Sydney Health Area to 9.3 per cent in the Far West Health Area.

Gestational age

The majority of births (90.3 per cent) were at term, and 2.4 per cent were post-term (42-plus weeks). The 7.3 per cent of preterm births comprised 0.7 per cent born at 20–27 weeks, 0.8 per cent at 28–31 weeks, and 5.7 per cent at 32–36 weeks. The highest rate of preterm birth was in the Far West Health Area (10.0 per cent), while the lowest rate was 4.9 per cent in the Southern Health Area (Table 29).

TABLE 28

BIRTHS BY BIRTHWEIGHT AND HEALTH AREA OF RESIDENCE, NSW 2001

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.	%	No.
Central Sydney	20	0.3	22	0.3	43	0.6	75	1.1	212	3.2	1022	15.3	2544	38.0	1964	29.3	679	10.1	113	1.7	1	0.0	6695	100.0
Northern Sydney	25	0.3	47	0.5	48	0.5	88	0.9	252	2.7	1207	12.8	3382	35.9	3169	33.7	1013	10.8	172	1.8	5	0.1	9408	100.0
Western Sydney	25	0.2	54	0.5	66	0.6	153	1.4	418	3.8	1764	16.0	3880	35.2	3363	30.5	1095	9.9	191	1.7	30.0	1	1012	100.0
Wentworth	14	0.3	23	0.5	37	0.8	58	1.2	194	4.1	655	13.7	1626	34.1	1555	32.6	510	10.7	93	1.9	10	0.2	4775	100.0
South Western Sydney	46	0.4	62	0.5	79	0.6	147	1.2	495	4.0	2092	16.9	4534	36.6	3564	28.8	1152	9.3	201	1.6	4	0.0	12376	100.0
Central Coast	10	0.3	11	0.3	27	0.7	46	1.2	159	4.3	523	14.2	1203	32.6	1118	30.3	499	13.5	87	2.4	2	0.1	3685	100.0
Hunter	29	0.4	35	0.5	35	0.5	95	1.4	288	4.2	988	14.5	2157	31.6	2201	32.2	845	12.4	157	2.3	6	0.1	6836	100.0
Illawarra	7	0.2	29	0.7	25	0.6	68	1.6	184	4.2	576	13.3	1501	34.6	1375	31.7	481	11.1	92	2.1	0	0.0	4338	100.0
South Eastern Sydney	23	0.2	48	0.5	65	0.7	110	1.2	374	3.9	1337	14.0	3587	37.5	2924	30.6	931	9.7	156	1.6	1	0.0	9556	100.0
Northern Rivers	3	0.1	11	0.4	11	0.4	32	1.1	122	4.4	381	13.6	921	32.9	928	33.2	332	11.9	55	2.0	2	0.1	2798	100.0
Mid North Coast	9	0.3	20	0.7	20	0.7	41	1.4	131	4.6	450	15.8	971	34.1	838	29.5	306	10.8	59	2.1	0	0.0	2845	100.0
New England	7	0.3	7	0.3	24	1.1	37	1.6	90	4.0	379	16.8	813	36.0	646	28.6	217	9.6	34	1.5	6	0.3	2260	100.0
Macquarie	4	0.3	6	0.4	11	0.7	15	1.0	63	4.0	245	15.6	534	33.9	491	31.2	171	10.9	34	2.2	0	0.0	1574	100.0
Mid Western	4	0.2	16	0.7	15	0.7	24	1.1	88	3.9	315	13.8	809	35.5	724	31.8	235	10.3	49	2.2	0	0.0	2279	100.0
Far West	2	0.3	6	1.0	3	0.5	5	0.9	37	6.5	114	19.9	194	33.9	162	28.3	41	7.2	8	1.4	1	0.2	573	100.0
Greater Murray	7	0.3	6	0.2	9	0.3	24	0.9	92	3.6	360	13.9	908	35.1	809	31.3	313	12.1	54	2.1	2	0.1	2584	100.0
Southern	3	0.2	7	0.4	8	0.5	16	0.9	59	3.5	287	17.0	553	32.7	526	31.1	192	11.4	40	2.4	0	0.0	1691	100.0
Other/Not stated	5	0.9	6	1.0	0	0.0	9	1.6	25	4.4	88	15.4	195	34.0	185	32.3	48	8.4	12	2.1	0	0.0	573	100.0
TOTAL	243	0.3	416	0.5	526	0.6	1043	1.2	3283	3.8	12783	14.9	30312	35.3	26542	30.9	9060	10.6	1607	1.9	43	0.1	85858	100.0

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

TABLE 29

BIRTHS BY GESTATIONAL AGE AND HEALTH AREA OF RESIDENCE, NSW 2001

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	42	0.6	50	0.7	362	5.4	6120	91.4	121	1.8	0	0.0	6695	100.0
Northern Sydney	68	0.7	59	0.6	435	4.6	8620	91.6	226	2.4	0	0.0	9408	100.0
Western Sydney	68	0.6	77	0.7	600	5.4	9974	90.6	292	2.7	1	0.0	11012	100.0
Wentworth	30	0.6	51	1.1	284	5.9	4278	89.6	128	2.7	4	0.1	4775	100.0
South Western Sydney	109	0.9	89	0.7	678	5.5	11064	89.4	436	3.5	0	0.0	12376	100.0
Central Coast	23	0.6	35	0.9	273	7.4	3334	90.5	20	0.5	0	0.0	3685	100.0
Hunter	57	0.8	69	1.0	459	6.7	5930	86.7	319	4.7	2	0.0	6836	100.0
Illawarra	38	0.9	37	0.9	258	5.9	3927	90.5	77	1.8	1	0.0	4338	100.0
South Eastern Sydney	65	0.7	86	0.9	570	6.0	8689	90.9	145	1.5	1	0.0	9556	100.0
Northern Rivers	15	0.5	8	0.3	177	6.3	2495	89.2	102	3.6	1	0.0	2798	100.0
Mid North Coast	27	0.9	23	0.8	168	5.9	2579	90.7	48	1.7	0	0.0	2845	100.0
New England	20	0.9	20	0.9	132	5.8	2069	91.5	17	0.8	2	0.1	2260	100.0
Macquarie	8	0.5	19	1.2	83	5.3	1442	91.6	22	1.4	0	0.0	1574	100.0
Mid Western	19	0.8	19	0.8	123	5.4	2076	91.1	42	1.8	0	0.0	2279	100.0
Far West	7	1.2	3	0.5	47	8.2	510	89.0	5	0.9	1	0.2	573	100.0
Greater Murray	14	0.5	12	0.5	138	5.3	2373	91.8	46	1.8	1	0.0	2584	100.0
Southern	9	0.5	8	0.5	66	3.9	1577	93.3	31	1.8	0	0.0	1691	100.0
Other/Not stated	9	1.6	2	0.3	37	6.5	509	88.8	16	2.8	0	0.0	573	100.0
TOTAL	628	0.7	667	0.8	4890	5.7	77566	90.3	2093	2.4	14	0.0	85858	100.0

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

Perinatal outcomes

The perinatal mortality rate in 2001 was 9.2 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 30). The rate varied from 7.0 per 1,000 in the Macquarie Health Area to 19.2 per 1,000 in the Far West Health Area.

TABLE 30

PERINATAL OUTCOMES BY HEALTH AREA OF RESIDENCE, NSW 2001#

Health Area	Liveborn surviving		Stillborn		Perinatal outcome Neonatal death		Not stated		Total births births		Perinatal mortality rate/1,000
	No.	%	No.	%	No.	%	No.	%	No.	%	
Central Sydney	6639	99.2	44	0.7	12	0.2	0	0.0	6695	100.0	8.4
Northern Sydney	9337	99.2	48	0.5	23	0.2	0	0.0	9408	100.0	7.5
Western Sydney	10905	99.0	72	0.7	35	0.3	0	0.0	11012	100.0	9.7
Wentworth	4739	99.2	26	0.5	9	0.2	1	0.0	4775	100.0	7.3
South Western Sydney	12244	98.9	88	0.7	44	0.4	0	0.0	12376	100.0	10.7
Central Coast	3655	99.2	22	0.6	8	0.2	0	0.0	3685	100.0	8.1
Hunter	6765	99.0	54	0.8	17	0.2	0	0.0	6836	100.0	10.4
Illawarra	4302	99.2	16	0.4	20	0.5	0	0.0	4338	100.0	8.3
South Eastern Sydney	9477	99.2	46	0.5	33	0.3	0	0.0	9556	100.0	8.3
Northern Rivers	2774	99.1	15	0.5	7	0.3	2	0.1	2798	100.0	7.9
Mid North Coast	2818	99.1	21	0.7	6	0.2	0	0.0	2845	100.0	9.5
New England	2231	98.7	22	1.0	7	0.3	0	0.0	2260	100.0	12.8
Macquarie	1563	99.3	6	0.4	5	0.3	0	0.0	1574	100.0	7.0
Mid Western	2261	99.2	9	0.4	9	0.4	0	0.0	2279	100.0	7.9
Far West	560	97.7	9	1.6	2	0.3	2	0.3	573	100.0	19.2
Greater Murray	2555	98.9	22	0.9	6	0.2	1	0.0	2584	100.0	10.8
Southern	1676	99.1	10	0.6	5	0.3	0	0.0	1691	100.0	8.9
Other/Not stated	562	98.1	8	1.4	3	0.5	0	0.0	573	100.0	19.2
TOTAL	85063	99.1	538	0.6	251	0.3	6	0.0	85858	100.0	9.2

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 31

LIVEBIRTHS BY HEALTH AREA AND STATISTICAL LOCAL AREA OF RESIDENCE, NSW 2001

Health Area/ Statistical Local Area	No.	%	Health Area/ Statistical Local Area	No.	%
Central Sydney			South Eastern Sydney		
Ashfield	506	7.6	Botany	482	5.1
Burwood	314	4.7	Hurstville	958	10.1
Canterbury	2228	33.5	Kogarah	668	7.0
Concord	335	5.0	Randwick	1466	15.4
Drummoyne	433	6.5	Rockdale	1397	14.7
Leichhardt	905	13.6	South Sydney	379	4.0
Marrickville	1106	16.6	Sutherland Shire — East	1221	12.8
South Sydney	427	6.4	Sutherland Shire — West	1493	15.7
Strathfield	282	4.2	Sydney — Inner	48	0.5
Sydney	115	1.7	Sydney	60	0.6
TOTAL	6651	100.0	Waverley	792	8.3
Northern Sydney			Woollahra	545	5.7
Hornsby	1664	17.8	Other	1	0.0
Hunter's Hill	124	1.3	TOTAL	9510	100.0
Ku-ring-gai	902	9.6	Northern Rivers		
Lane Cove	352	3.8	Ballina	388	14.0
Manly	596	6.4	Byron	319	11.5
Mosman	373	4.0	Copmanhurst	36	1.3
North Sydney	678	7.2	Grafton	215	7.7
Pittwater	715	7.6	Kyogle	116	4.2
Ryde	1263	13.5	Lismore — Pt A	428	15.4
Warringah	1797	19.2	Lismore — Pt B	135	4.9
Willoughby	896	9.6	Macleay	175	6.3
TOTAL	9360	100.0	Pristine Waters — Nymboida	35	1.3
Western Sydney			Pristine Waters — Ulmarra	53	1.9
Auburn	1002	9.2	Richmond River — Casino	152	5.5
Baulkham Hills	1703	15.6	Richmond River — Balance	109	3.9
Blacktown — North	1397	12.8	Tweed — Pt A	338	12.2
Blacktown — South-East	1481	13.5	Tweed — Pt B	282	10.1
Blacktown — South-West	1759	16.1	TOTAL	2781	100.0
Holroyd	1418	13.0	Mid North Coast		
Parramatta	2180	19.9	Bellingen	132	4.7
TOTAL	10940	100.0	Coff's Harbour — Pt A	539	19.1
Wentworth			Coff's Harbour — Pt B	147	5.2
Blue Mountains	906	19.1	Gloucester	40	1.4
Hawkesbury	1001	21.1	Greater Taree	492	17.4
Penrith	2841	59.8	Great Lakes	266	9.4
TOTAL	4748	100.0	Hastings — Pt A	387	13.7
South Western Sydney			Hastings — Pt B	287	10.2
Bankstown	2596	21.1	Kempsey	337	11.9
Camden	740	6.0	Nambucca	197	7.0
Campbelltown	2347	19.1	TOTAL	2824	100.0
Fairfield	2709	22.0	New England		
Liverpool	2849	23.2	Armidale Dumaresq — City	287	12.8
Wingecarribee	508	4.1	Armidale Dumaresq — Balance	23	1.0
Wollondilly	539	4.4	Barraba	29	1.3
TOTAL	12288	100.0	Bingara	24	1.1
Central Coast			Glen Innes	65	2.9
Gosford	1903	52.0	Gunnedah	170	7.6
Wyong	1760	48.0	Guyra	56	2.5
TOTAL	3663	100.0	Inverell — Pt A	43	1.9
Hunter			Inverell — Pt B	166	7.4
Cessnock	636	9.4	Manilla	42	1.9
Dungog	99	1.5	Moree Plains	239	10.7
Lake Macquarie	2152	31.7	Narrabri	198	8.8
Maitland	774	11.4	Nundle	12	0.5
Merrima	24	0.4	Parry — Pt A	53	2.4
Murrurundi	36	0.5	Parry — Pt B	72	3.2
Muswellbrook	226	3.3	Quirindi	48	2.1
Newcastle — Inner	51	0.8	Severn	31	1.4
Newcastle — Remainder	1682	24.8	Tamworth	503	22.5
Port Stephens	675	10.0	Tenterfield	40	1.8
Scone	128	1.9	Uralla	63	2.8
Singleton	299	4.4	Walcha	51	2.3
TOTAL	6782	100.0	Yallaroi	23	1.0
Illawarra			TOTAL	2238	100.0
Kiama	211	4.9			
Shellharbour	831	19.2			
Shoalhaven — Pt A	381	8.8			
Shoalhaven — Pt B	481	11.1			
Wollongong	2418	55.9			
TOTAL	4322	100.0			

TABLE 31 continued

LIVEBIRTHS BY HEALTH AREA AND STATISTICAL LOCAL AREA OF RESIDENCE, NSW 2001

Health Area/ Statistical Local Area	No.	%	Health Area/ Statistical Local Area	No.	%
Macquarie			Berrigan	35	1.4
Bogan	48	3.1	Bland	91	3.6
Cobar	91	5.8	Carrathool	52	2.0
Coolah	49	3.1	Coolamon	51	2.0
Coonabarabran	76	4.8	Cootamundra	84	3.3
Coonamble	74	4.7	Corowa	53	2.1
Dubbo — Pt A	597	38.1	Culcairn	19	0.7
Dubbo — Pt B	35	2.2	Deniliquin	112	4.4
Gilgandra	48	3.1	Griffith	403	15.7
Mudgee	226	14.4	Gundagai	52	2.0
Narromine	120	7.7	Hay	62	2.4
Warren	60	3.8	Holbrook	17	0.7
Wellington	144	9.2	Hume	7	0.3
TOTAL	1568	100.0	Jerilderie	21	0.8
Mid Western			June	61	2.4
Bathurst	450	19.8	Leeton	182	7.1
Blayney — Pt A	80	3.5	Lockhart	45	1.8
Blayney — Pt B	11	0.5	Murray	5	0.2
Cabonne — Pt A	18	0.8	Murrumbidgee	37	1.4
Cabonne — Pt B	6	0.3	Narrandera	68	2.7
Cabonne — Pt C	103	4.5	Temora	97	3.8
Cowra	157	6.9	Tumbarumba	24	0.9
Evans — Pt A	11	0.5	Tumut	129	5.0
Evans — Pt B	33	1.5	Urana	9	0.4
Forbes	126	5.6	Wagga Wagga — Pt A	783	30.6
Greater Lithgow	258	11.4	Other/Not stated	53	2.1
Lachlan	108	4.8	Other	9	0.4
Oberon	65	2.9	TOTAL	2561	100.0
Orange	543	23.9	Southern		
Parkes	221	9.7	Bega Valley	281	16.7
Rylstone	49	2.2	Bombala	36	2.1
Weddin	31	1.4	Boorowa	15	0.9
TOTAL	2270	100.0	Cooma—Monaro	69	4.1
Far West			Crookwell	36	2.1
Bourke	88	15.7	Eurobodalla	300	17.8
Brewarrina	44	7.8	Goulburn	271	16.1
Broken Hill	258	45.9	Gunning	20	1.2
Central Darling	36	6.4	Harden	44	2.6
Walgett	122	21.7	Mulwaree	53	3.2
Unincorporated Far West	11	2.0	Queanbeyan	253	15.1
Other	3	0.5	Snowy River	65	3.9
TOTAL	562	100.0	Tallaganda	15	0.9
Greater Murray			Yarrowlumla — Part A	28	1.7
			Yass	41	2.4
			Young	154	9.2
			TOTAL	1681	100.0
			Not Stated/Other	565	100.0
			TOTAL NSW	85314	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 improvements over time is to compare the reporting on maternal Aboriginality as reported to the MDC with information on birth registrations reported to the NSW Registry of Births, Deaths and Marriages. Using capture–recapture methods, an estimate of the total number of Aboriginal mothers can be obtained and compared with the number of Aboriginal mothers reported to the MDC. The method used here is described in Chapter 3 (page 13).

Using capture–recapture methods, the percentage of the estimated total number of Aboriginal mothers reported to the MDC rose from 58.7 to 65.7 per cent in the period 1994 to 1999, and fell slightly to 65.0 per cent in 2000 (Table 32, Figure 3). Reporting was better in rural hospitals than urban hospitals: it is estimated that in 2000 49.5 per cent of births to Aboriginal mothers in urban hospitals were correctly reported as Aboriginal compared to 83.8 per cent in rural hospitals.

Paternal Aboriginality is not reported to the MDC, but is reported to the Registry of Births, Deaths and Marriages. Among births occurring in 2000 that were reported to the Registry and match with a birth reported to the MDC, 1,995 babies were born to Aboriginal or Torres Strait Islander mothers and 1,802 had Aboriginal or Torres Strait Islander fathers. For 767 babies, both parents were reported to be Aboriginal or Torres Strait Islander.

Under-reporting of Aboriginality on the MDC means that all statistics presented in this chapter should be interpreted with caution. Overall, the true number of Aboriginal mothers and babies is probably about 50 per cent higher than is shown. For tables where information is presented by area health service, it is likely that the true number of Aboriginal mothers and babies is about 50 per cent 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 20 per cent higher than the number shown.

TABLE 32

BIRTHS TO ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY SOURCE OF BIRTH REPORT, YEAR OF BIRTH AND URBAN–RURAL HEALTH AREA OF HOSPITAL, NSW 1994–2000

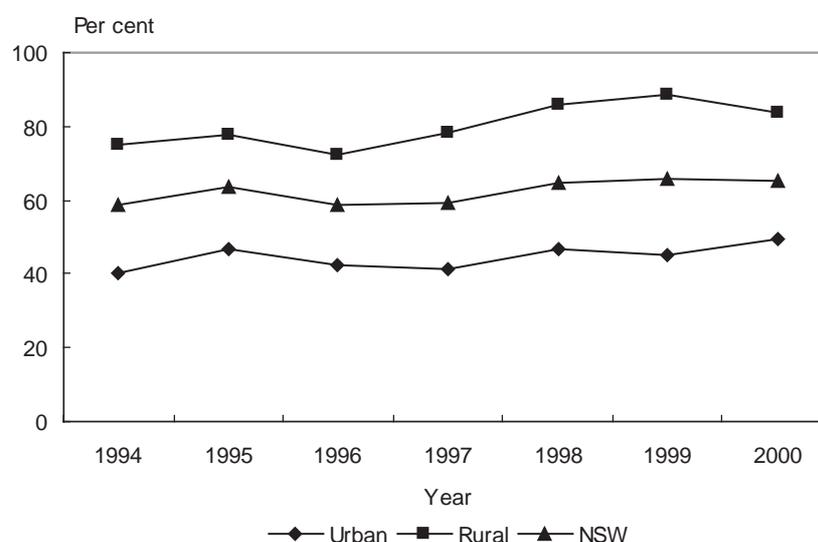
Urban–Rural locality of hospital–Year [#]	MDC births	RBDM births	Births reported to both MDC–RBDM	Estimated Aboriginal births	Estimated Aboriginal births reported to MDC	95% confidence interval of estimated births reported
	No.	No.	No.	No.	%	
Urban						
1994	553	665	268	1371	40.3	37.7–42.9
1995	642	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
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
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

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 3

LEVEL OF REPORTING OF ABORIGINALITY TO THE NSW MIDWIVES DATA COLLECTION BY YEAR OF BIRTH AND URBAN-RURAL HEALTH AREA OF HOSPITAL, NSW 1994-2000[#]



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.

Trends in births

Between 1997 and 2001, the reported number of babies born to Aboriginal and Torres Strait Islander mothers increased from 1,854 to 2,138 (Table 33), an increase from 2.1 to 2.5 per cent of all babies born in NSW. Multiple pregnancies (twins, triplets etc.) were reported for about one per cent of mothers.

TABLE 33

ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS AND BABIES BY PLURALITY, NSW 1997-2001[#]

Plurality	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
Confinements										
Singleton	1828	99.2	2017	98.7	2040	99.1	2089	99.2	2082	98.7
Multiple	14	0.8	26	1.3	19	0.9	16	0.8	28	1.3
TOTAL	1842	100.0	2043	100.0	2059	100.0	2105	100.0	2110	100.0
Births										
Singleton	1828	98.6	2017	97.5	2040	98.2	2089	98.4	2082	97.4
Multiple	26	1.4	51	2.5	38	1.8	33	1.6	56	2.6
TOTAL	1854	100.0	2068	100.0	2078	100.0	2122	100.0	2138	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 50 per cent higher than shown.

Previous pregnancies

In 2001, 30 per cent of Aboriginal and Torres Strait Islander mothers gave birth for the first time, and 70 per cent gave birth to their second to fourth baby (Table 34). About eight per cent of mothers had given birth to five or more babies. This pattern has not changed substantially since 1997.

TABLE 34

NUMBER OF PREVIOUS PREGNANCIES AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1997–2001[#]

No. previous pregnancies (>20 weeks)	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
0	554	30.1	599	29.3	613	29.8	645	30.6	634	30.0
1–4	1147	62.3	1280	62.7	1301	63.2	1285	61.0	1309	62.0
5+	139	7.5	161	7.9	144	7.0	174	8.3	164	7.8
Not stated	2	0.1	3	0.1	1	0.0	1	0.0	3	0.1
TOTAL	1842	100.0	2043	100.0	2059	100.0	2105	100.0	2110	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 50 per cent 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 2001. 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 5.0 per cent in 1997 to 7.2 per cent in 2001 (Table 35).

TABLE 35

AGE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1997–2001[#]

Maternal age (years)	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
12–19	398	21.6	389	19.0	443	21.5	459	21.8	439	20.8
20–34	1352	73.4	1536	75.2	1492	72.5	1491	70.8	1515	71.8
35+	92	5.0	113	5.5	124	6.0	155	7.4	152	7.2
Not stated	0	0.0	5	0.2	0	0.0	0	0.0	4	0.2
TOTAL	1842	100.0	2043	100.0	2059	100.0	2105	100.0	2110	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 50 per cent higher than shown.

Health area of residence

The reported number of Aboriginal and Torres Strait Islander mothers who gave birth in 2001 ranged from eight (0.4 per cent) in the Northern Sydney Area to 259 (12.3 per cent) in the New England Area (Table 36). 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 (62.6 per cent).

In 2001, over one quarter of Aboriginal and Torres Strait Islander mothers in the Wentworth, Far West and South Western Sydney Areas were teenagers (Table 37).

TABLE 36

HEALTH AREA OF RESIDENCE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1997–2001[#]

Health Area	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney	70	3.8	71	3.5	61	3.0	69	3.3	62	2.9
Northern Sydney	7	0.4	10	0.5	9	0.4	9	0.4	8	0.4
Western Sydney	105	5.7	172	8.4	139	6.8	134	6.4	141	6.7
Wentworth	47	2.6	77	3.8	74	3.6	64	3.0	64	3.0
South Western Sydney	89	4.8	108	5.3	91	4.4	99	4.7	112	5.3
Central Coast	37	2.0	42	2.1	50	2.4	72	3.4	66	3.1
Hunter	107	5.8	103	5.0	98	4.8	156	7.4	165	7.8
Illawarra	125	6.8	119	5.8	104	5.1	138	6.6	117	5.5
South Eastern Sydney	36	2.0	47	2.3	45	2.2	35	1.7	36	1.7
Northern Rivers	146	7.9	161	7.9	162	7.9	175	8.3	183	8.7
Mid North Coast	181	9.8	167	8.2	230	11.2	218	10.4	200	9.5
New England	255	13.8	267	13.1	273	13.3	255	12.1	259	12.3
Macquarie	202	11.0	212	10.4	230	11.2	222	10.5	216	10.2
Mid Western	99	5.4	113	5.5	123	6.0	124	5.9	136	6.4
Far West	172	9.3	169	8.3	162	7.9	143	6.8	166	7.9
Greater Murray	100	5.4	120	5.9	116	5.6	107	5.1	107	5.1
Southern	51	2.8	64	3.1	68	3.3	69	3.3	55	2.6
Other/Not stated	13	0.7	21	1.0	24	1.2	16	0.8	17	0.8
TOTAL	1842	100.0	2043	100.0	2059	100.0	2105	100.0	2110	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 total number is about 50 per cent 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 20 per cent higher than the number shown.

TABLE 37

HEALTH AREA OF RESIDENCE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY AGE, NSW 2001[#]

Health Area	Maternal age (years)						TOTAL	
	Less than 20		20+		Not stated		No.	%
	No.	%	No.	%	No.	%	No.	%
Central Sydney	8	12.9	54	87.1	0	0.0	62	100.0
Northern Sydney##	—	—	—	—	0	0.0	8	100.0
Western Sydney	27	19.1	114	80.9	0	0.0	141	100.0
Wentworth	19	29.7	45	70.3	0	0.0	64	100.0
South Western Sydney	30	26.8	82	73.2	0	0.0	112	100.0
Central Coast	9	13.6	57	86.4	0	0.0	66	100.0
Hunter	31	18.8	134	81.2	0	0.0	165	100.0
Illawarra	23	19.7	94	80.3	0	0.0	117	100.0
South Eastern Sydney#	—	—	—	—	0	0.0	36	100.0
Northern Rivers	36	19.7	146	79.8	1	0.5	183	100.0
Mid North Coast	50	25.0	150	75.0	0	0.0	200	100.0
New England	61	23.6	196	75.7	2	0.8	259	100.0
Macquarie	44	20.4	172	79.6	0	0.0	216	100.0
Mid Western	21	15.4	115	84.6	0	0.0	136	100.0
Far West	47	28.3	118	71.1	1	0.6	166	100.0
Greater Murray	20	18.7	87	81.3	0	0.0	107	100.0
Southern	10	18.2	45	81.8	0	0.0	55	100.0
Other/Not stated	0	0.0	17	100.0	0	0.0	17	100.0
TOTAL	439	20.8	1667	79.0	4	0.2	2110	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 total number is about 50 per cent 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 20 per cent higher than the number shown.

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

Booking status

In 2001, 87.0 per cent of Aboriginal and Torres Strait Islander mothers were booked into the hospital of birth, compared with 97.7 per cent of non-Aboriginal or Torres Strait Islander mothers.

Duration of pregnancy at first antenatal visit

Between 1997 and 2001, the proportion of mothers who commenced antenatal care at less than 20 weeks gestation rose from 62.2 per cent in 1997 to 67.6 per cent in 2000, and then fell slightly to 64.7 per cent in 2001. This compares with 86.7 per cent of non-Aboriginal and Torres Strait Islander mothers who commenced antenatal care at less than 20 weeks gestation in 2001.

In 2001, the proportion of Aboriginal and Torres Strait Islander mothers who commenced antenatal care at less than 20 weeks gestation varied from 48.2 per cent in the Far West Area to 100.0 per cent in the Northern Sydney Area, though the number of Aboriginal and Torres Strait Islander mothers in Northern Sydney Area was very small. (Table 38).

TABLE 38

DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY HEALTH AREA OF RESIDENCE, NSW 2001[#]

Health Area	Duration of pregnancy at first antenatal visit (weeks)						TOTAL	
	No.	0-19	%	No.	20+	%	No.	%
Central Sydney	38	61.3		23	37.1		62	100.0
Northern Sydney	8	100.0		0	0.0		8	100.0
Western Sydney	73	51.8		64	45.4		141	100.0
Wentworth	35	54.7		25	39.1		64	100.0
South Western Sydney	56	50.0		48	42.9		112	100.0
Central Coast	56	84.8		9	13.6		66	100.0
Hunter	113	68.5		46	27.9		165	100.0
Illawarra	90	76.9		22	18.8		117	100.0
South Eastern Sydney	25	69.4		8	22.2		36	100.0
Northern Rivers	117	63.9		55	30.1		183	100.0
Mid North Coast	132	66.0		41	20.5		200	100.0
New England	186	71.8		61	23.6		259	100.0
Macquarie	128	59.3		76	35.2		216	100.0
Mid Western	99	72.8		29	21.3		136	100.0
Far West	80	48.2		68	41.0		166	100.0
Greater Murray	81	75.7		23	21.5		107	100.0
Southern	35	63.6		15	27.3		55	100.0
Other/Not stated	13	76.5		2	11.8		17	100.0
TOTAL	1365	64.7		615	29.1		2110	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 total number is about 50 per cent 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 20 per cent higher than the number shown.

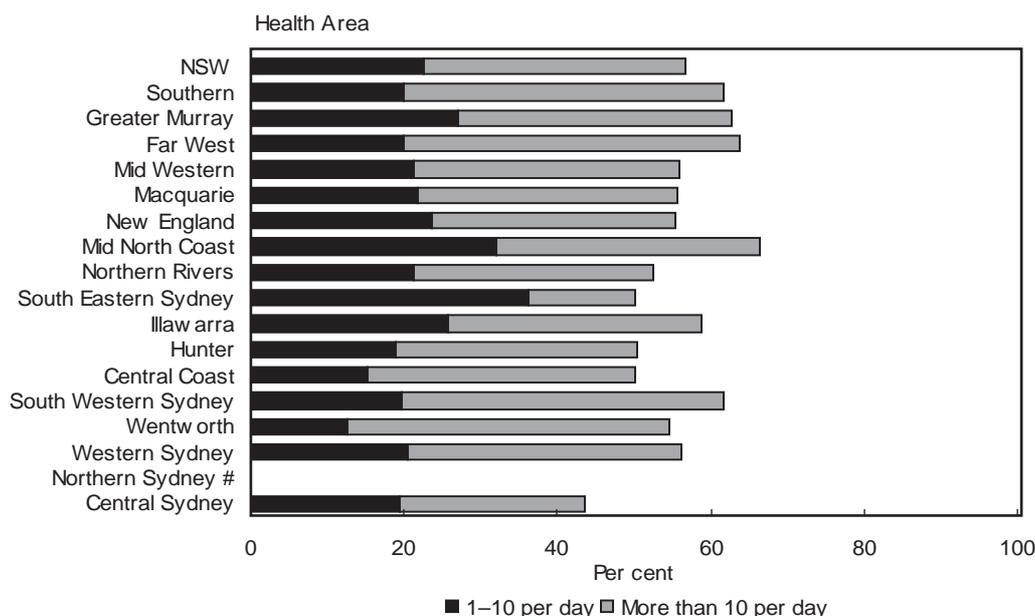
Smoking in pregnancy

In 2001, 59.0 per cent of Aboriginal and Torres Strait Islander mothers reported smoking at some time during pregnancy, compared to 60.8 per cent in 1997. This compares with 16.0 per cent of all mothers who reported smoking at some time during pregnancy in 2001.

Smoking in the second half of pregnancy poses the greatest risk to the health of both mother and baby. In 2001, 58.1 per cent of Aboriginal and Torres Strait Islander mothers reported smoking in the second half of pregnancy. This percentage varied from 43.5 per cent in the Central Sydney Area to 69.0 per cent in the Mid North Coast Area (Figure 4).

FIGURE 4

SMOKING IN THE SECOND HALF OF PREGNANCY AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY AMOUNT SMOKED AND HEALTH AREA OF RESIDENCE, NSW 2001



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.

Medical conditions and obstetric complications

In 2001, there were slightly lower rates of diabetes mellitus, gestational diabetes, essential hypertension and pre-eclampsia reported among Aboriginal and Torres Strait Islander mothers compared with non-Aboriginal or Torres

Strait Islander mothers (Table 39). 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 39

MATERNAL MEDICAL CONDITIONS AND OBSTETRIC COMPLICATIONS BY ABORIGINALITY, NSW 2001*

Condition	Aboriginal and Torres Strait Islander		Aboriginality Non-Aboriginal or Torres Strait Islander		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Diabetes mellitus	7	0.3	397	0.5	0	0.0	404	0.5
Gestational diabetes	71	3.4	3141	3.8	1	2.2	3213	3.8
Essential hypertension	17	0.8	806	1.0	0	0.0	823	1.0
Pre-eclampsia	115	5.5	5245	6.4	0	0.0	5360	6.4
TOTAL CONFINEMENTS	2110	100.0	8223	100.0	46	100.0	84379	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 50 per cent higher than shown.

Labour and delivery

The rate of induction of labour among Aboriginal and Torres Strait Islander mothers increased from 16.9 to 19.8 per cent between 1997 and 2001, while the rate of spontaneous onset of labour decreased from 74.8 to 70.4 per cent (Table 40).

These trends follow statewide trends (page 24). However, the rate of induction of labour among Aboriginal and Torres

Strait Islander mothers continued to be lower than the NSW rate of 24.8 per cent in 2001.

Since 1997, the rate of normal vaginal birth fell slightly from 77.3 to 74.0 per cent. The caesarean section rate rose from 16.9 to 20.2 per cent (Table 41). Following statewide trends the percentage of deliveries by vacuum extraction increased from 2.4 to 3.1 per cent.

TABLE 40

LABOUR ONSET FOR ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1997–2001[#]

Labour onset	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
Spontaneous	1377	74.8	1467	71.8	1512	73.4	1527	72.5	1486	70.4
No labour ^{##}	153	8.3	176	8.6	172	8.4	206	9.8	207	9.8
Induced	311	16.9	400	19.6	375	18.2	372	17.7	417	19.8
Not stated	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL	1842	100.0	2043	100.0	2059	100.0	2105	100.0	2110	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 50 per cent higher than shown.

^{##} No labour indicates elective caesarean section.

TABLE 41

TYPE OF DELIVERY AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1997–2001[#]

Type of delivery	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal vaginal	1423	77.3	1563	76.5	1586	77.0	1573	74.7	1562	74.0
Forceps	47	2.6	56	2.7	64	3.1	51	2.4	39	1.8
Vacuum extraction	45	2.4	43	2.1	54	2.6	67	3.2	66	3.1
Vaginal breech	15	0.8	27	1.3	25	1.2	31	1.5	16	0.8
Elective caesarean section	153	8.3	176	8.6	172	8.4	206	9.8	207	9.8
Emergency caesarean section ^{##}	159	8.6	177	8.7	158	7.7	177	8.4	220	10.4
Not stated	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0
TOTAL	1842	100.0	2043	100.0	2059	100.0	2105	100.0	2110	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 50 per cent higher than shown.

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

Birthweight

Since 1997, 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 13.5 per cent in 2001 (Table 42). This is over twice the rate for NSW overall, which was 6.4 per cent in 2001. In 2001, the largest number of low birthweight babies were born in Mid North Coast Area (Table 43).

TABLE 42

WEIGHT OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 1997–2001[#]

Birthweight (grams)	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 1,000	30	1.6	24	1.2	20	1.0	33	1.6	27	1.3
1,000–1,499	18	1.0	19	0.9	24	1.2	20	0.9	33	1.5
1,500–2,499	175	9.4	174	8.4	217	10.4	199	9.4	228	10.7
2,500+	1631	88.0	1850	89.5	1816	87.4	1866	87.9	1848	86.4
Not stated	0	0.0	1	0.0	1	0.0	4	0.2	2	0.1
TOTAL	1854	100.0	2068	100.0	2078	100.0	2122	100.0	2138	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 50 per cent higher than shown.

TABLE 43

WEIGHT OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES BY HEALTH AREA OF RESIDENCE, NSW 2001[#]

Health Area	Less than 2,500		Birthweight (grams) 2,500+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Central Central Sydney	9	14.1	55	85.9	0	0.0	64	100.0
Northern Sydney ^{##}	—	—	—	—	0	0.0	8	100.0
Western Sydney	14	9.8	129	90.2	0	0.0	143	100.0
Wentworth	12	18.5	53	81.5	0	0.0	65	100.0
South Western Sydney	14	12.2	101	87.8	0	0.0	115	100.0
Central Coast	9	13.2	59	86.8	0	0.0	68	100.0
Hunter	26	15.5	142	84.5	0	0.0	168	100.0
Illawarra	19	16.2	98	83.8	0	0.0	117	100.0
South Eastern Sydney	8	21.6	29	78.4	0	0.0	37	100.0
Northern Rivers	25	13.6	159	86.4	0	0.0	184	100.0
Mid North Coast	36	17.9	165	82.1	0	0.0	201	100.0
New England	27	10.4	231	88.8	2	0.8	260	100.0
Macquarie	29	13.2	190	86.8	0	0.0	219	100.0
Mid Western	21	15.0	119	85.0	0	0.0	140	100.0
Far West	25	14.9	143	85.1	0	0.0	168	100.0
Greater Murray	6	5.5	103	94.5	0	0.0	109	100.0
Southern	6	10.9	49	89.1	0	0.0	55	100.0
Other/Not stated	—	—	—	—	0	0.0	17	100.0
TOTAL	288	13.5	1848	86.4	2	0.1	2138	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 total number is about 50 per cent 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 20 per cent higher than the number shown.

^{##} Information not shown for Health Areas where the number of mothers is less than five in a group.

Gestational age

Since 1997, 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 12.4 per cent in 2001 (Table 44)—compared with a rate of 7.2 per cent for NSW overall. In 2001, the largest number of premature babies were born in the Mid North Coast and New England Areas (Table 45).

TABLE 44

GESTATIONAL AGE OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 1997–2001[#]

Gestational age (weeks)	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
20–27	29	1.6	26	1.3	18	0.9	33	1.6	26	1.2
28–31	18	1.0	26	1.3	29	1.4	29	1.4	38	1.8
32–36	182	9.8	167	8.1	209	10.1	185	8.7	201	9.4
37–41	1584	85.4	1822	88.1	1780	85.7	1839	86.7	1824	85.3
42+	40	2.2	27	1.3	42	2.0	36	1.7	48	2.2
Not stated	1	0.1	0	0.0	0	0.0	0	0.0	1	0.0
TOTAL	1854	100.0	2068	100.0	2078	100.0	2122	100.0	2138	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 50 per cent higher than shown.

TABLE 45

GESTATIONAL AGE OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES BY HEALTH AREA OF RESIDENCE, NSW 2001[#]

Health Area	Gestational age (weeks)						TOTAL	
	Less than 37		37+		Not stated		No.	%
	No.	%	No.	%	No.	%	No.	%
Central Sydney	11	17.2	53	82.8	0	0.0	64	100.0
Northern Sydney ^{##}	—	—	—	—	0	0.0	8	100.0
Western Sydney	12	8.4	131	91.6	0	0.0	143	100.0
Wentworth	16	24.6	49	75.4	0	0.0	65	100.0
South Western Sydney	15	13.0	100	87.0	0	0.0	115	100.0
Central Coast	6	8.8	62	91.2	0	0.0	68	100.0
Hunter	21	12.5	147	87.5	0	0.0	168	100.0
Illawarra	16	13.7	101	86.3	0	0.0	117	100.0
South Eastern Sydney	7	18.9	30	81.1	0	0.0	37	100.0
Northern Rivers	22	12.0	162	88.0	0	0.0	184	100.0
Mid North Coast	26	12.9	175	87.1	0	0.0	201	100.0
New England	26	10.0	234	90.0	0	0.0	260	100.0
Macquarie	25	11.4	194	88.6	0	0.0	219	100.0
Mid Western	18	12.9	122	87.1	0	0.0	140	100.0
Far West	25	14.9	142	84.5	1	0.6	168	100.0
Greater Murray	10	9.2	99	90.8	0	0.0	109	100.0
Southern	7	12.7	48	87.3	0	0.0	55	100.0
Other/Not stated	—	—	—	—	0	0.0	17	100.0
TOTAL	265	12.4	1872	87.6	1	0.0	2138	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 total number is about 50 per cent 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 20 per cent higher than the number shown.

^{##} Information not shown for Health Areas where the number of babies is less than five in a group.

Apgar score

In 2001, 3.6 per cent of Aboriginal and Torres Strait Islander babies were born with an Apgar score less than seven (Table 46). This rate is higher than the rate of 2.2 per cent for NSW overall (page 27).

TABLE 46

APGAR SCORE OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 1997–2001[#]

Apgar score at 5 minutes	1997		1998		Year 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
0–4	42	2.3	38	1.8	36	1.7	41	1.9	49	2.3
5–6	34	1.8	28	1.4	24	1.2	26	1.2	29	1.4
7+	1770	95.5	1989	96.2	2003	96.4	2045	96.4	2048	95.8
Not stated	8	0.4	13	0.6	15	0.7	10	0.5	12	0.6
TOTAL	1854	100.0	2068	100.0	2078	100.0	2122	100.0	2138	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 50 per cent higher than shown.

Perinatal mortality

Since 1997, the perinatal mortality rate among Aboriginal and Torres Strait Islander babies has varied from 14.0 to 20.0 per 1,000 births (Table 47). The rate of 18.2 per 1,000 in 2001 is almost twice the rate of 9.2 per 1,000 for NSW overall (page 27).

TABLE 47

PERINATAL DEATHS AMONG ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 1997–2001[#]

Perinatal deaths	1997		1998		Year 1999		2000		2001	
	No.	Rate/1,000	No.	Rate/1,000	No.	Rate/1,000	No.	Rate/1,000	No.	Rate/1,000
Stillbirth	24	12.9	21	10.2	21	10.1	24	11.3	29	13.6
Neonatal death	13	7.0	11	5.3	8	3.8	13	6.1	10	4.7
TOTAL PERINATAL DEATHS	7	20.0	32	15.5	29	14.0	37	17.4	39	18.2

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 50 per cent 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 1997 and 2001, about 20 per cent of mothers were born in non-English speaking countries (Table 48). 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 48

CONFINEMENTS AND BIRTHS BY COUNTRY OF BIRTH GROUP, NSW 1997–2001

	1997		1998		Year 1999		2000		2001	
	No.	%								
Confinements										
English speaking	68827	79.2	67971	79.9	68381	79.5	68105	78.8	67275	79.7
Central & South America	687	0.8	683	0.8	725	0.8	708	0.8	697	0.8
Melanesia, Micronesia & Polynesia	1561	1.8	1590	1.9	1540	1.8	1606	1.9	1544	1.8
Southern Europe	1516	1.7	1380	1.6	1337	1.6	1217	1.4	1129	1.3
Western & Northern Europe	627	0.7	646	0.8	690	0.8	671	0.8	631	0.7
Eastern Europe, Russia, Central Asian & Baltic States	393	0.5	362	0.4	421	0.5	428	0.5	412	0.5
Middle East & Africa	3793	4.4	3670	4.3	3579	4.2	3685	4.3	3688	4.4
South East Asia	4599	5.3	4157	4.9	4659	5.4	5085	5.9	4478	5.3
North East Asia	3325	3.8	3097	3.6	3225	3.8	3449	4.0	2965	3.5
Southern Asia	1407	1.6	1349	1.6	1398	1.6	1476	1.7	1535	1.8
Other/Not stated	185	0.2	167	0.2	12	0.0	30	0.0	25	0.0
TOTAL	86920	100.0	85072	100.0	85967	100.0	86460	100.0	84379	100.0
Births										
English speaking	69843	79.2	69008	80.0	69460	79.6	69300	78.8	68524	79.8
Central & South America	693	0.8	689	0.8	730	0.8	716	0.8	707	0.8
Melanesia, Micronesia & Polynesia	1585	1.8	1610	1.9	1555	1.8	1636	1.9	1567	1.8
Southern Europe	1532	1.7	1412	1.6	1361	1.6	1256	1.4	1153	1.3
Western & Northern Europe	633	0.7	652	0.8	710	0.8	688	0.8	643	0.7
Eastern Europe, Russia, Central Asian & Baltic States	398	0.5	365	0.4	423	0.5	439	0.5	418	0.5
Middle East & Africa	3854	4.4	3731	4.3	3644	4.2	3747	4.3	3758	4.4
South East Asia	4636	5.3	4181	4.8	4707	5.4	5127	5.8	4527	5.3
North East Asia	3355	3.8	3118	3.6	3266	3.7	3483	4.0	2982	3.5
Southern Asia	1416	1.6	1360	1.6	1420	1.6	1499	1.7	1554	1.8
Other/Not stated	188	0.2	179	0.2	13	0.0	31	0.0	25	0.0
TOTAL	88133	100.0	86305	100.0	87289	100.0	87922	100.0	85858	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 49, Figure 5), while the largest proportions of mothers aged 35 years and over were born in North East Asia (33.1 per cent) and Western and Northern Europe (31.2 per cent).

TABLE 49

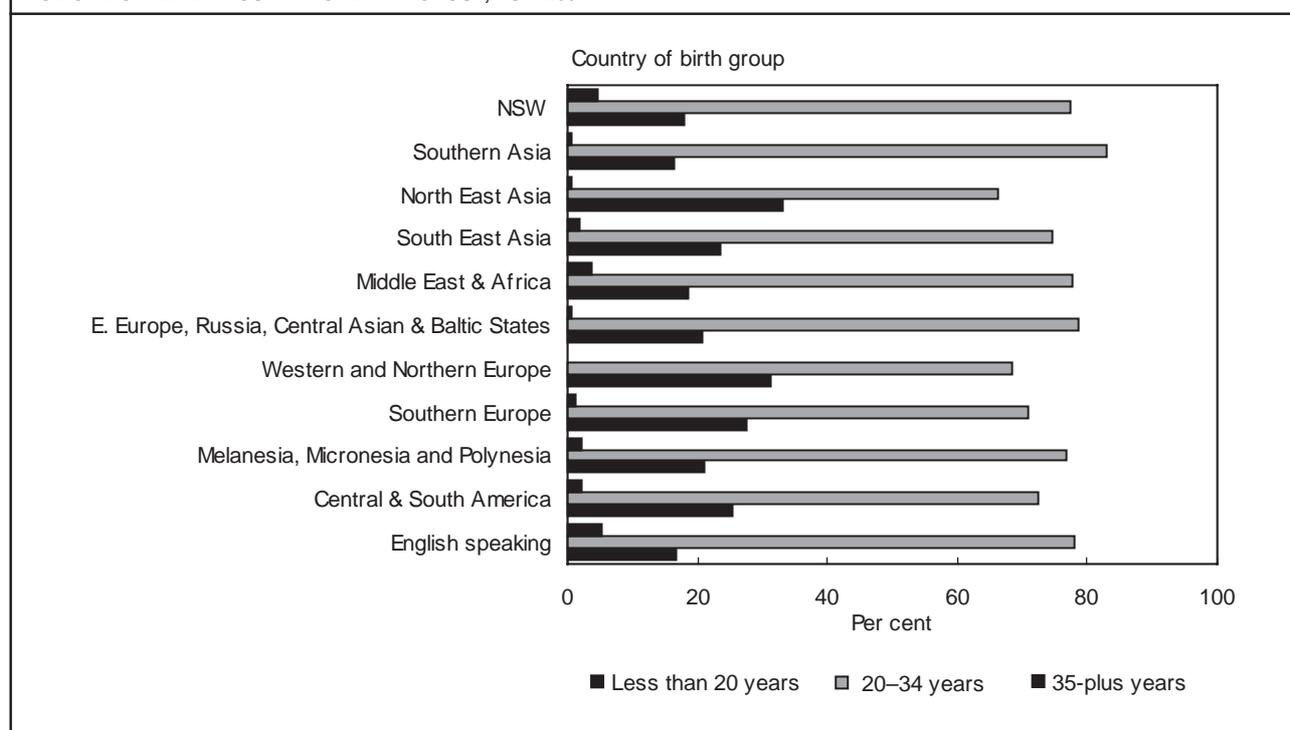
AGE OF MOTHER BY COUNTRY OF BIRTH GROUP, NSW 2001

Country of birth group	Maternal age (years)									
	12-19		20-34		35+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
English speaking	3492	5.2	52554	78.1	11181	16.6	48	0.1	67275	100.0
Central & South America	16	2.3	505	72.5	176	25.3	0	0.0	697	100.0
Melanesia, Micronesia & Polynesia	34	2.2	1186	76.8	324	21.0	0	0.0	1544	100.0
Southern Europe	13	1.2	802	71.0	313	27.7	1	0.1	1129	100.0
Western & Northern Europe	2	0.3	432	68.5	197	31.2	0	0.0	631	100.0
Eastern Europe, Russia, Central Asian & Baltic States	3	0.7	324	78.6	85	20.6	0	0.0	412	100.0
Middle East & Africa	132	3.6	2866	77.7	688	18.7	2	0.1	3688	100.0
South East Asia	84	1.9	3343	74.7	1049	23.4	2	0.0	4478	100.0
North East Asia	14	0.5	1968	66.4	980	33.1	3	0.1	2965	100.0
Southern Asia	7	0.5	1275	83.1	251	16.4	2	0.1	1535	100.0
Other/Not stated	0	0.0	16	64.0	6	24.0	3	12.0	25	100.0
TOTAL	3797	4.5	65271	77.4	15250	18.1	61	0.1	84379	100.0

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

FIGURE 5

AGE OF MOTHER BY COUNTRY OF BIRTH GROUP, NSW 2001



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

Health area of residence

In 2001, the proportion of mothers born in non-English speaking countries was highest in the Central Sydney Area (41.4 per cent), followed by the South Western Sydney and Western Sydney Areas (38.1 and 35.7 per cent respectively). Five per cent of mothers were born in South East Asian countries, 38.9 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 63.3 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 50).

TABLE 50

HEALTH AREA OF RESIDENCE BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2001*

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.	%			
Central Sydney	3866	58.6	77	1.2	192	2.9	168	2.5	81	1.2	47	0.7	545	8.3	669	10.1	688	10.4	269	4.1	0	0.0	0	0.0	6602	100.0		
Northern Sydney	7364	79.8	73	0.8	99	1.1	96	1.0	162	1.8	59	0.6	211	2.3	347	3.8	613	6.6	202	2.2	0	0.0	0	0.0	9226	100.0		
Western Sydney	6953	64.3	105	1.0	421	3.9	148	1.4	33	0.3	55	0.5	1091	10.1	796	7.4	616	5.7	592	5.5	8	0.1	0	0.0	10818	100.0		
Wentworth South	4271	91.2	22	0.5	48	1.0	32	0.7	30	0.6	22	0.5	61	1.3	101	2.2	28	0.6	60	1.3	8	0.2	0	0.0	4683	100.0		
Western Sydney	7522	61.9	235	1.9	497	4.1	309	2.5	61	0.5	75	0.6	1245	10.2	1743	14.3	282	2.3	191	1.6	1	0.0	0	0.0	12161	100.0		
Central Coast	3477	95.8	15	0.4	21	0.6	8	0.2	12	0.3	6	0.2	16	0.4	49	1.4	17	0.5	7	0.2	0	0.0	0	0.0	3628	100.0		
Hunter Illawarra	6498	96.6	8	0.1	27	0.4	19	0.3	27	0.4	14	0.2	12	0.2	83	1.2	25	0.4	11	0.2	1	0.0	0	0.0	6725	100.0		
South Coast	3897	91.7	29	0.7	27	0.6	94	2.2	30	0.7	10	0.2	52	1.2	72	1.7	28	0.7	11	0.3	0	0.0	0	0.0	4250	100.0		
Eastern Sydney	6988	74.8	108	1.2	134	1.4	220	2.4	123	1.3	109	1.2	421	4.5	479	5.1	619	6.6	144	1.5	2	0.0	0	0.0	9347	100.0		
Northern Rivers	2653	96.3	6	0.2	8	0.3	9	0.3	21	0.8	-	-	-	-	33	1.2	13	0.5	5	0.2	0	0.0	0	0.0	2755	100.0		
Mid North Coast	2716	96.8	9	0.3	9	0.3	5	0.2	15	0.5	-	-	-	-	30	1.1	7	0.2	9	0.3	0	0.0	0	0.0	2806	100.0		
New England	2193	98.4	-	-	5	0.2	-	-	7	0.3	-	-	-	-	10	0.4	5	0.2	-	-	1	0.0	0	0.0	2228	100.0		
Macquarie	1528	98.5	-	-	-	-	-	-	-	-	-	-	-	-	7	0.5	-	-	-	-	0	0.0	0	0.0	1552	100.0		
Mid Western	2191	97.4	-	-	6	0.3	6	0.3	6	0.3	-	-	-	-	23	1.0	7	0.3	-	-	0	0.0	0	0.0	2249	100.0		
Far West	558	98.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.0	0	0.0	564	100.0		
Greater Murray	2449	96.0	-	-	34	1.3	-	-	8	0.3	-	-	11	0.4	11	0.4	10	0.4	22	0.9	2	0.1	0	0.0	2550	100.0		
Southern	1613	96.4	-	-	7	0.4	8	0.5	7	0.4	5	0.3	8	0.5	18	1.1	-	-	-	-	-	-	2	0.1	0	0.0	1673	100.0
Other- Not stated	538	95.7	2	0.4	5	0.9	1	0.2	-	-	0	0.0	1	0.2	-	-	4	0.7	1	0.2	0	0.0	0	0.0	562	100.0		
TOTAL	67275	79.7	697	0.8	1544	1.8	1129	1.3	631	0.7	412	0.5	3688	4.4	4478	5.3	2965	3.5	1535	1.8	25	0.0	0	0.0	84379	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.

Booking status

In 2001, 97.5 per cent of all mothers were booked at the hospital of birth. The lowest rate (96.4 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 2001, 86.2 per cent of all mothers commenced antenatal care before 20 weeks gestation. There was some variation between country of birth groups, with 88.3 per cent of mothers born in English speaking countries commencing antenatal care before 20 weeks gestation, compared with 56.7 per cent of mothers born in Melanesia, Micronesia, and Polynesia, and 70.6 per cent of mothers born in the Middle East and Africa (Table 51).

TABLE 51

CONFINEMENTS BY COUNTRY OF BIRTH AND DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT, NSW 2001

Country of birth group	0-19		Duration of pregnancy at first antenatal visit (weeks)				TOTAL	
	No.	%	No.	%	No.	%	No.	%
English speaking	59380	88.3	7176	10.7	719	1.1	67275	100.0
Central & South America	599	85.9	93	13.3	5	0.7	697	100.0
Melanesia, Micronesia & Polynesia	875	56.7	652	42.2	17	1.1	1544	100.0
Southern Europe	953	84.4	171	15.1	5	0.4	1129	100.0
Western & Northern Europe	562	89.1	66	10.5	3	0.5	631	100.0
Eastern Europe, Russia,								
Central Asian & Baltic States	321	77.9	89	21.6	2	0.5	412	100.0
Middle East & Africa	2602	70.6	1071	29.0	15	0.4	3688	100.0
South East Asia	3696	82.5	768	17.2	14	0.3	4478	100.0
North East Asia	2416	81.5	538	18.1	11	0.4	2965	100.0
Southern Asia	1280	83.4	252	16.4	3	0.2	1535	100.0
Other/Not stated	20	80.0	2	8.0	3	12.0	25	100.0
TOTAL	72704	86.2	10878	12.9	797	0.9	84379	100.0

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

Smoking in pregnancy

In 2001, 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 52). About one in five mothers born in English speaking countries smoked at some time during pregnancy, compared to less than one in 10 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. Mothers born in Central and South America and South East Asia were more likely to quit smoking in the second half of pregnancy, compared to mothers born in other country of birth groups (Table 53).

TABLE 52

CONFINEMENTS BY COUNTRY OF BIRTH GROUP AND SMOKING IN PREGNANCY, NSW 2001

Country of birth group	No		Smoking in pregnancy				TOTAL	
	No.	%	No.	%	No.	%	No.	%
English speaking	53676	79.8	13582	20.2	17	0.0	67275	100.0
Central & South America	646	92.7	51	7.3	0	0.0	697	100.0
Melanesia, Micronesia & Polynesia	1391	90.1	153	9.9	0	0.0	1544	100.0
Southern Europe	1022	90.5	107	9.5	0	0.0	1129	100.0
Western & Northern Europe	583	92.4	48	7.6	0	0.0	631	100.0
Eastern Europe, Russia,								
Central Asian & Baltic States	389	94.4	23	5.6	0	0.0	412	100.0
Middle East & Africa	3401	92.2	287	7.8	0	0.0	3688	100.0
South East Asia	4366	97.5	112	2.5	0	0.0	4478	100.0
North East Asia	2921	98.5	44	1.5	0	0.0	2965	100.0
Southern Asia	1523	99.2	12	0.8	0	0.0	1535	100.0
Other/Not stated	20	80.0	5	20.0	0	0.0	25	100.0
TOTAL	69938	82.9	14424	17.1	17	0.0	84379	100.0

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

TABLE 53
MOTHERS WHO SMOKED AT ALL DURING PREGNANCY BY NUMBER OF CIGARETTES SMOKED IN THE SECOND HALF OF PREGNANCY AND COUNTRY OF BIRTH GROUP, NSW 2001

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	531	3.9	6441	47.4	6339	46.7	271	2.0	13582	100.0
Central & South America	7	13.7	19	37.3	25	49.0	0	0.0	51	100.0
Melanesia, Micronesia & Polynesia	7	4.6	37	24.2	107	69.9	2	1.3	153	100.0
Southern Europe	5	4.7	43	40.2	53	49.5	6	5.6	107	100.0
Western & Northern Europe	2	4.2	15	31.3	30	62.5	1	2.1	48	100.0
Eastern Europe, Russia, Central Asian & Baltic States	0	0.0	7	30.4	16	69.6	0	0.0	23	100.0
Middle East & Africa	6	2.1	113	39.4	163	56.8	5	1.7	287	100.0
South East Asia	7	6.3	39	34.8	65	58.0	1	0.9	112	100.0
North East Asia	10	22.7	4	9.1	28	63.6	2	4.5	44	100.0
Southern Asia	1	8.3	4	33.3	6	50.0	1	8.3	12	100.0
Other/Not stated	0	0.0	3	60.0	2	40.0	0	0.0	5	100.0
TOTAL	576	4.0	6725	46.6	6834	47.4	289	2.0	14424	100.0

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

Medical conditions and obstetric complications

In 2001, 0.9 per cent of mothers born in Melanesia, Micronesia, and Polynesia were reported to have diabetes mellitus, about twice the rate for all mothers in NSW, though the number of mothers is small (Table 54). The rates of gestational diabetes in mothers born in Asian countries and Melanesia, Micronesia, and Polynesia were over eight per cent, and were more than twice the rate for all mothers in NSW.

Overall, 1.0 per cent of mothers were reported to have essential hypertension, and 6.4 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 54
CONFINEMENTS BY MATERNAL MEDICAL CONDITIONS AND OBSTETRIC COMPLICATIONS AND COUNTRY OF BIRTH GROUP, NSW 2001

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 Asia		North East Asia		Southern Asia			Other/Not stated		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	
Diabetes mellitus	305	0.5	2	0.3	14	0.9	5	0.4	1	0.2	1	0.2	19	0.5	23	0.5	21	0.7	13	0.8	0	0.0	404	0.5
Gestational diabetes	1828	2.7	30	4.3	133	8.6	71	6.3	22	3.5	19	4.6	254	6.9	372	8.3	325	11.0	159	10.4	0	0.0	3213	3.8
Essential hypertension	702	1.0	5	0.7	14	0.9	16	1.4	2	0.3	2	0.5	22	0.6	39	0.9	8	0.3	13	0.8	0	0.0	823	1.0
Pre-eclampsia	4471	6.6	58	8.3	112	7.3	58	5.1	41	6.5	33	8.0	149	4.0	245	5.5	104	3.5	87	5.7	2	8.0	5360	6.4
TOTAL#	67275	100.0	697	100.0	1544	100.0	1129	100.0	631	100.0	412	100.0	3688	100.0	4478	100.0	2965	100.0	1535	100.0	25	100.0	84379	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 55).

Mothers born in Melanesia, Micronesia and Polynesia, and the Middle East and Africa were more likely to have a normal vaginal delivery than mothers in other country of birth groups (Table 56). The highest caesarean section rates were among mothers born in Southern Asia (27.6 per cent) and Central and South America (27.3 per cent).

TABLE 55

LABOUR ONSET BY COUNTRY OF BIRTH GROUP, NSW 2001

Country of birth group	Spontaneous		No labour [#]		Onset of labour Induced		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
English speaking	40550	60.3	8958	13.3	17763	26.4	4	0.0	67275	100.0
Central & South America	446	64.0	97	13.9	154	22.1	0	0.0	697	100.0
Melanesia, Micronesia & Polynesia	1056	68.4	166	10.8	322	20.9	0	0.0	1544	100.0
Southern Europe	725	64.2	156	13.8	248	22.0	0	0.0	1129	100.0
Western & Northern Europe	404	64.0	78	12.4	149	23.6	0	0.0	631	100.0
Eastern Europe, Russia, Central										
Asian & Baltic States	287	69.7	41	10.0	84	20.4	0	0.0	412	100.0
Middle East & Africa	2601	70.5	370	10.0	717	19.4	0	0.0	3688	100.0
South East Asia	3329	74.3	487	10.9	660	14.7	2	0.0	4478	100.0
North East Asia	2064	69.6	410	13.8	491	16.6	0	0.0	2965	100.0
Southern Asia	1000	65.1	219	14.3	316	20.6	0	0.0	1535	100.0
Other/Not stated	11	44.0	4	16.0	9	36.0	1	4.0	25	100.0
TOTAL	52473	62.2	10986	13.0	20913	24.8	7	0.0	84379	100.0

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

No labour indicates elective caesarean section.

TABLE 56

TYPE OF DELIVERY BY COUNTRY OF BIRTH GROUP, NSW 2001

Country of birth group	Normal vaginal		Forceps		Vacuum extraction		Type of delivery Vaginal breech		Elective caesarean section		Emergency caesarean section [#]		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
English speaking	43870	65.2	2698	4.0	4330	6.4	310	0.5	8958	13.3	7099	10.6	10	0.0	67275	100.0
Central & South America	419	60.1	39	5.6	48	6.9	1	0.1	97	13.9	93	13.3	0	0.0	697	100.0
Melanesia, Micronesia & Polynesia	1101	71.3	34	2.2	70	4.5	10	0.6	166	10.8	163	10.6	0	0.0	1544	100.0
Southern Europe	728	64.5	37	3.3	85	7.5	2	0.2	156	13.8	121	10.7	0	0.0	1129	100.0
Western & Northern Europe	396	62.8	26	4.1	52	8.2	1	0.2	78	12.4	78	12.4	0	0.0	631	100.0
Eastern Europe, Russia, Central Asian & Baltic States	269	65.3	20	4.9	41	10.0	2	0.5	41	10.0	39	9.5	0	0.0	412	100.0
Middle East & Africa	2717	73.7	115	3.1	176	4.8	22	0.6	370	10.0	287	7.8	1	0.0	3688	100.0
South East Asia	2966	66.2	188	4.2	345	7.7	23	0.5	487	10.9	468	10.5	1	0.0	4478	100.0
North East Asia	1806	60.9	152	5.1	250	8.4	7	0.2	410	13.8	339	11.4	1	0.0	2965	100.0
Southern Asia	915	59.6	89	5.8	102	6.6	5	0.3	219	14.3	205	13.4	0	0.0	1535	100.0
Other/Not stated	19	76.0	0	0.0	0	0.0	0	0.0	4	16.0	2	8.0	0	0.0	25	100.0
TOTAL	55206	65.4	3398	4.0	5499	6.5	383	0.5	10986	13.0	8894	10.5	13	0.0	84379	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 2001 was 6.4 per cent in NSW. The highest rates of low birthweight were in babies of mothers born in Southern Asian countries (8.8 per cent) (Table 57). Babies of mothers born in Western and Northern Europe were least likely to be low birthweight.

TABLE 57

BIRTHWEIGHT BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2001

Country of birth group	Birthweight (grams)							
	Less than 2,500		2,500+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
English speakingEnglish speaking	4428	6.5	64055	93.5	41	0.1	68524	100.0
Central & South America	58	8.2	649	91.8	0	0.0	707	100.0
Melanesia, Micronesia & Polynesia	116	7.4	1450	92.5	1	0.1	1567	100.0
Southern Europe	76	6.6	1077	93.4	0	0.0	1153	100.0
Western & Northern Europe	22	3.4	621	96.6	0	0.0	643	100.0
Eastern Europe, Russia, Central Asian & Baltic States	19	4.5	399	95.5	0	0.0	418	100.0
Middle East & Africa	228	6.1	3530	93.9	0	0.0	3758	100.0
South East Asia	293	6.5	4234	93.5	0	0.0	4527	100.0
North East Asia	134	4.5	2848	95.5	0	0.0	2982	100.0
Southern Asia	137	8.8	1416	91.1	1	0.1	1554	100.0
Other/Not stated	0	0.0	25	100.0	0	0.0	25	100.0
TOTAL	5511	6.4	80304	93.5	43	0.1	85858	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 2001 was 7.2 per cent in NSW. The highest rates of prematurity were in babies of mothers born in Central and South America (8.6 per cent). Babies of mothers born in Eastern Europe, Russia, and Central Asian and Baltic States were least likely to be premature (Table 58).

TABLE 58

GESTATIONAL AGE BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2001

Country of birth group	Gestational age (weeks)							
	Less than 37		37+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%
English speaking	5100	7.4	63412	92.5	12	0.0	68524	100.0
Central & South America	61	8.6	646	91.4	0	0.0	707	100.0
Melanesia, Micronesia & Polynesia	107	6.8	1460	93.2	0	0.0	1567	100.0
Southern Europe	75	6.5	1078	93.5	0	0.0	1153	100.0
Western & Northern Europe	27	4.2	616	95.8	0	0.0	643	100.0
Eastern Europe, Russia, Central Asian & Baltic States	16	3.8	402	96.2	0	0.0	418	100.0
Middle East & Africa	236	6.3	3521	93.7	1	0.0	3758	100.0
South East Asia	313	6.9	4213	93.1	1	0.0	4527	100.0
North East Asia	136	4.6	2846	95.4	0	0.0	2982	100.0
Southern Asia	113	7.3	1441	92.7	0	0.0	1554	100.0
Other/Not stated	1	4.0	24	96.0	0	0.0	25	100.0
TOTAL	6185	7.2	79659	92.8	14	0.0	85858	100.0

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

Apgar score

In 2001, 2.2 per cent of all babies (including stillborn babies) had an Apgar score of 7 or less at five minutes and 1.1 per cent had a score of less than 4 (Table 59). Low Apgar scores were most common among babies of mothers born in Melanesia, Micronesia and Polynesia (3.1 per cent).

TABLE 59

BIRTHS BY COUNTRY OF BIRTH GROUP AND APGAR SCORE AT FIVE MINUTES, NSW 2001[#]

Country of birth group	0-4		Apgar score				Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
English speaking	716	1.0	763	1.1	66878	97.6	167	0.2	68524	100.0
Central & South America	8	1.1	5	0.7	693	98.0	1	0.1	707	100.0
Melanesia, Micronesia & Polynesia	27	1.7	22	1.4	1511	96.4	7	0.4	1567	100.0
Southern Europe	12	1.0	15	1.3	1125	97.6	1	0.1	1153	100.0
Western & Northern Europe	4	0.6	7	1.1	631	98.1	1	0.2	643	100.0
Eastern Europe, Russia, Central Asian & Baltic States	4	1.0	5	1.2	409	97.8	0	0.0	418	100.0
Middle East & Africa	54	1.4	37	1.0	3663	97.5	4	0.1	3758	100.0
South East Asia	54	1.2	51	1.1	4409	97.4	13	0.3	4527	100.0
North East Asia	21	0.7	15	0.5	2942	98.7	4	0.1	2982	100.0
Southern Asia	22	1.4	16	1.0	1513	97.4	3	0.2	1554	100.0
Other/Not stated	0	0.0	2	8.0	23	92.0	0	0.0	25	100.0
TOTAL	922	1.1	938	1.1	83797	97.6	201	0.2	85858	100.0

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

Births include stillbirths.

Perinatal outcomes

In 2001, 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 60). Perinatal mortality was highest among babies of mothers born in Melanesia, Micronesia and Polynesia, and Central and South America.

TABLE 60

PERINATAL OUTCOMES BY COUNTRY OF BIRTH GROUP, NSW 2001[#]

Country of birth group surviving	Liveborn		Stillborn death		Perinatal outcome Neonatal		Not stated		Total births rate/1,000		Perinatal mortality births
	No.	%	No.	%	No.	%	No.	%	No.	%	
English speaking	67896	99.1	427	0.6	195	0.3	6	0.0	68524	100.0	9.1
Central & South America	697	98.6	6	0.8	4	0.6	0	0.0	707	100.0	14.1
Melanesia, Micronesia & Polynesia	1544	98.5	14	0.9	9	0.6	0	0.0	1567	100.0	14.7
Southern Europe	1144	99.2	4	0.3	5	0.4	0	0.0	1153	100.0	7.8
Western & Northern Europe	641	99.7	2	0.3	0	0.0	0	0.0	643	100.0	-
Eastern Europe, Russia, Central Asian & Baltic States	415	99.3	0	0.0	3	0.7	0	0.0	418	100.0	-
Middle East & Africa	3712	98.8	33	0.9	13	0.3	0	0.0	3758	100.0	12.2
South East Asia	4484	99.1	29	0.6	14	0.3	0	0.0	4527	100.0	9.5
North East Asia	2968	99.5	11	0.4	3	0.1	0	0.0	2982	100.0	4.7
Southern Asia	1537	98.9	12	0.8	5	0.3	0	0.0	1554	100.0	10.9
Other/Not stated	25	100.0	0	0.0	0	0.0	0	0.0	25	100.0	-
TOTAL	85063	99.1	538	0.6	251	0.3	6	0.0	85858	100.0	9.2

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

Information on infants admitted to a neonatal intensive care unit was obtained from the Neonatal Intensive Care Units (NICUS) Data Collection, which is described in Chapter 3 under Data Sources.

Registration rate

There were 2,010 infants registered in NICUS in 2001. The most common reasons for registration of an infant were assisted ventilation for four hours or more (67.2 per cent) and gestational age less than 29 weeks (20.0 per cent). Infants generally met more than one of the registration criteria.

The NICUS registration rate in 2001 was 22.3 per 1,000 livebirths, which has increased slightly each year since 1992 (17.9 per 1,000 live births). Table 61 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-nine of the 2,010 infants (3.9 per cent) registered in NICUS were born to Aboriginal or Torres Strait Islander mothers. There were 2,163 livebirths to Aboriginal or Torres Strait Islander women recorded by the NSW and ACT Midwives Data Collections for 2001. The registration rate for these infants was 36.5 per 1,000 livebirths and has increased since 1992. Seventy-one of the 1,830 mothers (3.9 per cent) were Aboriginal or Torres Strait Islander, of whom 29 (40.8 per cent) were residents of the Far West, Hunter, Macquarie and Southern Health Areas (Table 62). Fifteen of the 379 mothers (4.0 per cent) of infants less than 29 weeks and/or less than 1,000 grams were Aboriginal or Torres Strait Islander.

TABLE 61

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

Health Area	Total NICUS registrants		Total NSW & ACT live births No.	Registrants per 1,000 live births
	No.	%		
Central Sydney	116	5.8	6719	17.3
Northern Sydney	170	8.5	9358	18.2
South Eastern Sydney	206	10.3	9537	21.6
South Western Sydney	299	14.9	12611	23.7
Wentworth	112	5.6	4298	26.1
Western Sydney	247	12.3	11015	22.4
Central Coast	75	3.7	3709	20.2
Hunter	237	11.8	6750	35.1
Illawarra	94	4.7	4311	21.8
Far West	9	0.5	551	16.3
Greater Murray	47	2.3	2573	18.3
Macquarie	46	2.3	1573	29.2
Mid North Coast	74	3.7	2817	26.3
Mid Western	48	2.4	2270	21.1
New England	49	2.4	2259	21.7
Northern Rivers	10	0.5	2778	3.6
Southern	65	3.2	2219	29.3
ACT	98	4.9	4169	23.5
Interstate	3	0.2	518	5.8
Overseas	5	0.3	0	-
Not stated	0	0.0	13	-
TOTAL	2010	100.0	90050	22.3

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research. NSW Midwives Data Collection 2001. Centre for Epidemiology and Research, NSW Department of Health. ACT Maternal-Perinatal Data Collection, 2000.

Maternal characteristics

There were 1,830 mothers of the 2,010 infants registered in NICUS during 2001. Nearly 80 per cent of the mothers were residents of the Sydney, Central Coast, Hunter and Illawarra Health Areas. The distribution of the mothers' health area of residence for infants less than 29 weeks and/or less than 1,000 grams was similar to those for the whole group. Of the 379 mothers of infants in this group just over half (55.1 per cent) were residents of the South Western Sydney, Western Sydney, Hunter, South Eastern Sydney, or Northern Sydney Health Areas.

The age of mothers of NICUS infants ranged from 15 to 45 years, with a mean age of 29.3 years. The mean maternal age was similar across all gestational age groups and has remained constant since 1992. In 2001, 19.9 per cent of mothers were aged 35 years or more (compared with 13.7 per cent in 1992 and 20.8 per cent in 1999). In 2001, 5.7 per cent of mothers were aged less than 20 years (compared with 5.0 per cent in 1999 and 6.8 per cent in 2000) (Table 63). The health areas of residence with the highest

proportion of teenage mothers were Far West, Greater Murray, Macquarie, Southern, and Mid North Coast. There were 1,626 mothers (88.9 per cent) who had an antenatal complication. The most common antenatal complications were preterm labour (49.2 per cent), fetal distress (20.5 per cent), antepartum haemorrhage (19.1 per cent) and pregnancy induced hypertension (16.8 per cent). Antenatal complications were more frequent in mothers delivering at less than 37 weeks compared with at term. Even so, 57.5 per cent of mothers giving birth at term had an antenatal complication (Table 64).

Administration of corticosteroids to the mother prior to preterm birth improves the outcome for the infant. In 2001, 86.7 per cent of mothers of infants born at less than 28 weeks received corticosteroids (Figure 6 and Table 65). Nearly ninety per cent of mothers of 28–31 week gestation infants received antenatal corticosteroids. The overall proportion of mothers receiving antenatal corticosteroids has increased from 45 per cent in 1992 to 74.1 per cent in 2001.

Continued on page 60

TABLE 62

MOTHERS OF NICUS REGISTRANTS BY HEALTH AREA OF RESIDENCE AND ABORIGINALITY, NSW & ACT 2001

Health Area	Aboriginal		Non-Aboriginal		TOTAL	
	No.	%	No.	%	No.	%
Central Sydney	3	2.9	102	97.1	105	5.7
Northern Sydney	0	0.0	155	100.0	155	8.5
South Eastern Sydney	3	1.6	181	98.4	184	10.1
South Western Sydney	1	0.4	268	99.6	269	14.7
Wentworth	3	2.9	99	97.1	102	5.6
Western Sydney	4	1.8	222	98.2	226	12.3
Central Coast	3	4.3	67	95.7	70	3.8
Hunter	8	3.7	210	96.3	218	11.9
Illawarra	6	7.1	79	92.9	85	4.6
Far West	7	77.8	2	22.2	9	0.5
Greater Murray	4	8.9	41	91.1	45	2.5
Macquarie	7	17.1	34	82.9	41	2.2
Mid North Coast	5	7.2	64	92.8	69	3.8
Mid Western	2	4.5	42	95.5	44	2.4
New England	5	10.6	42	89.4	47	2.6
Northern Rivers	1	10.0	9	90.0	10	0.5
Southern	7	11.9	52	88.1	59	3.2
ACT	2	2.4	82	97.6	84	4.6
Interstate	0	0.0	3	100.0	3	0.2
Overseas	0	0.0	5	100.0	5	0.3
TOTAL	71	3.9	1759	96.1	1830	100.0

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

TABLE 63**MOTHERS OF NICUS REGISTRANTS BY HEALTH AREA OF RESIDENCE AND MATERNAL AGE, NSW & ACT 2001**

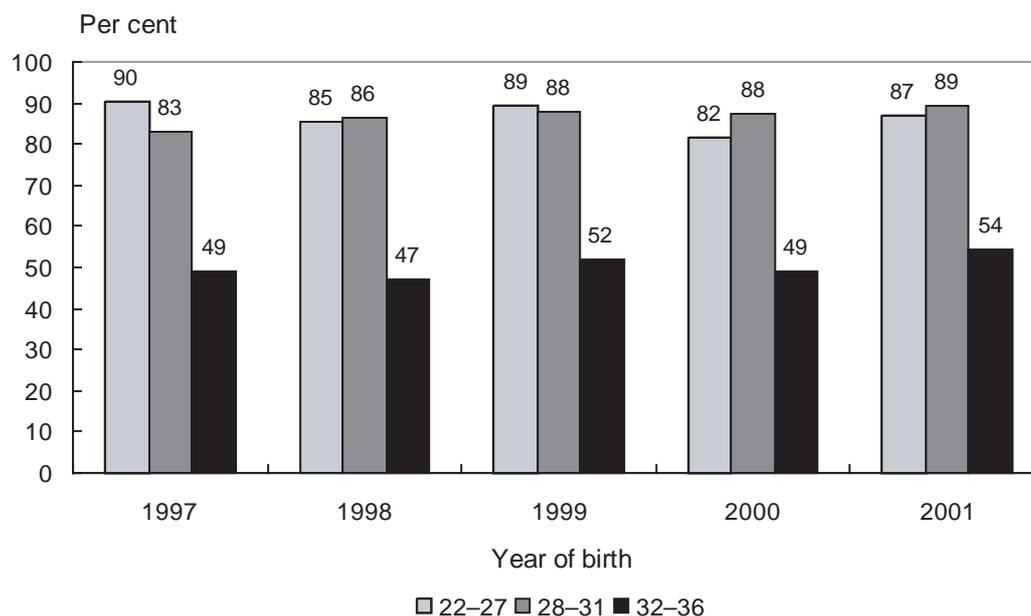
Health Area	Maternal age (years)						TOTAL	
	Less than 20		20-34		35+			
	No.	%	No.	%	No.	%	No.	%
Central Sydney	1	1.0	73	69.5	31	29.5	105	5.7
Northern Sydney	2	1.3	101	65.2	52	33.5	155	8.5
South Eastern Sydney	5	2.7	128	69.6	51	27.7	184	10.1
South Western Sydney	11	4.1	213	79.2	45	16.7	269	14.7
Wentworth	5	4.9	82	80.4	15	14.7	102	5.6
Western Sydney	9	4.0	172	76.1	45	19.9	226	12.3
Central Coast	5	7.1	51	72.9	14	20.0	70	3.8
Hunter	14	6.4	164	75.2	40	18.3	218	11.9
Illawarra	5	5.9	68	80.0	12	14.1	85	4.6
Far West	4	44.4	5	55.6	0	0.0	9	0.5
Greater Murray	9	20.0	33	73.3	3	6.7	45	2.5
Macquarie	8	19.5	26	63.4	7	17.1	41	2.2
Mid North Coast	8	11.6	52	75.4	9	13.0	69	3.8
Mid Western	1	2.3	36	81.8	7	15.9	44	2.4
New England	5	10.6	36	76.6	6	12.8	47	2.6
Northern Rivers	1	10.0	9	90.0	0	0.0	10	0.5
Southern	8	13.6	39	66.1	12	20.3	59	3.2
ACT	2	2.4	69	82.1	13	15.5	84	4.6
Interstate	1	33.3	1	33.3	1	33.3	3	0.2
Overseas	1	20.0	2	40.0	2	40.0	5	0.3
TOTAL	105	5.7	1360	74.3	365	19.9	1830	100.0

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

TABLE 64**MOTHERS OF NICUS REGISTRANTS BY ANTENATAL COMPLICATIONS AND GESTATIONAL AGE, NSW & ACT 2001**

Antenatal complication	Gestational age (weeks)										TOTAL	
	22-27		28-31		32-36		37-41		42+			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Preterm labour	198	79.8	355	66.7	331	58.1	17	3.6	0	0.0	901	49.2
Antenatal fetal distress	38	15.3	93	17.5	121	21.2	121	25.7	2	22.2	375	20.5
Antepartum haemorrhage	101	40.7	135	25.4	96	16.8	18	3.8	0	0.0	350	19.1
Pregnancy induced hypertension	32	12.9	115	21.6	120	21.1	40	8.5	0	0.0	307	16.8
Intrauterine growth restriction	20	8.1	55	10.3	90	15.8	19	4.0	1	11.1	185	10.1
Chorioamnionitis	59	23.8	75	14.1	24	4.2	6	1.3	0	0.0	164	9.0
Antenatal fetal anomaly diagnosis	5	2.0	22	4.1	43	7.5	70	14.9	2	22.2	142	7.8
Gestational diabetes	7	2.8	25	4.7	29	5.1	20	4.2	0	0.0	81	4.4
Any complication	248	100.0	532	100.0	570	100.0	271	57.5	5	55.6	1626	88.9
TOTAL MOTHERS	248	100.0	532	100.0	570	100.0	471	100.0	9	100.0	1830	100.0

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

FIGURE 6**CONFINEMENTS BY ANTENATAL CORTICOSTEROID ADMINISTRATION AND GESTATIONAL AGE, NSW & ACT 1997–2001**

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

TABLE 65**MOTHERS OF NICUS REGISTRANTS BY ANTENATAL CORTICOSTEROID ADMINISTRATION AND GESTATIONAL AGE, NSW & ACT 1997–2001**

Year	Corticosteroid administration	Gestational age (weeks)						TOTAL	
		22–27		28–31		32–36		No.	%
		No.	%	No.	%	No.	%	No.	%
1997	No	20	9.7	80	17.1	263	50.9	363	30.5
	Yes	187	90.3	388	82.9	254	49.1	829	69.5
	TOTAL	207	100.0	468	100.0	517	100.0	1192	100.0
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	27.5
	Yes	227	89.4	419	88.0	297	52.1	943	72.5
	TOTAL	254	100.0	476	100.0	570	100.0	1300	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

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-three per cent of all births were booked at a tertiary centre, ranging from 38.3 per cent for the 32–36 week gestational age group to 32.0 per cent for the 22–27 week gestational age group (Table 66). 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 (58.2 per cent) and for those born at 28–31 weeks gestation (61.0 per cent). The overall rate of maternal transfer was 37.2 per cent.

Thirty per cent of infants were transferred to a tertiary centre following birth. There were 4.3 per cent (87/2,010) 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 (65.7 per cent). Forty-one infants (41/1,092; 3.8 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 7 and Table 67. The proportion of infants born in a tertiary centre increased from 60.0 per cent in 1992 to 74.7 per cent 2000. In 2001, 90.4 per cent of infants less than 32 weeks gestation were born in a tertiary centre compared with 70.0 per cent of 32–36 week gestation infants and 46.6 per cent of term infants.

The pattern of transfer status (Table 68) and place of birth (Table 69) by birthweight is similar to that of gestational age, with the majority (91.0 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 70). Augmentation and induction of labour were most common in term and post-term births. Similarly spontaneous onset of labour occurred in just over two-thirds (71.4 per cent) of all infants less than 2,500 grams birthweight (Table 71). As expected, augmentation, or induction of labour was most common in mothers of infants with a birthweight of 2,500 grams or more (31.5 per cent).

Prolonged rupture of membranes (greater than 24 hours) was more common at lower gestations, affecting 29 per cent of infants less than 28 weeks gestation (Table 72).

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 2001 (Table 73). The most common type of delivery was caesarean section (45.8 per cent in 1993 to 54.5 per cent in 2001), followed by normal vaginal delivery (41.9 per cent in 1993 to 36.9 per cent in 2001) and vaginal breech delivery (7.0 per cent in 1998 to 4.5 per cent in 2001) (Table 74). 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 23.9 per cent for all livebirths in NSW and the ACT in 2001.

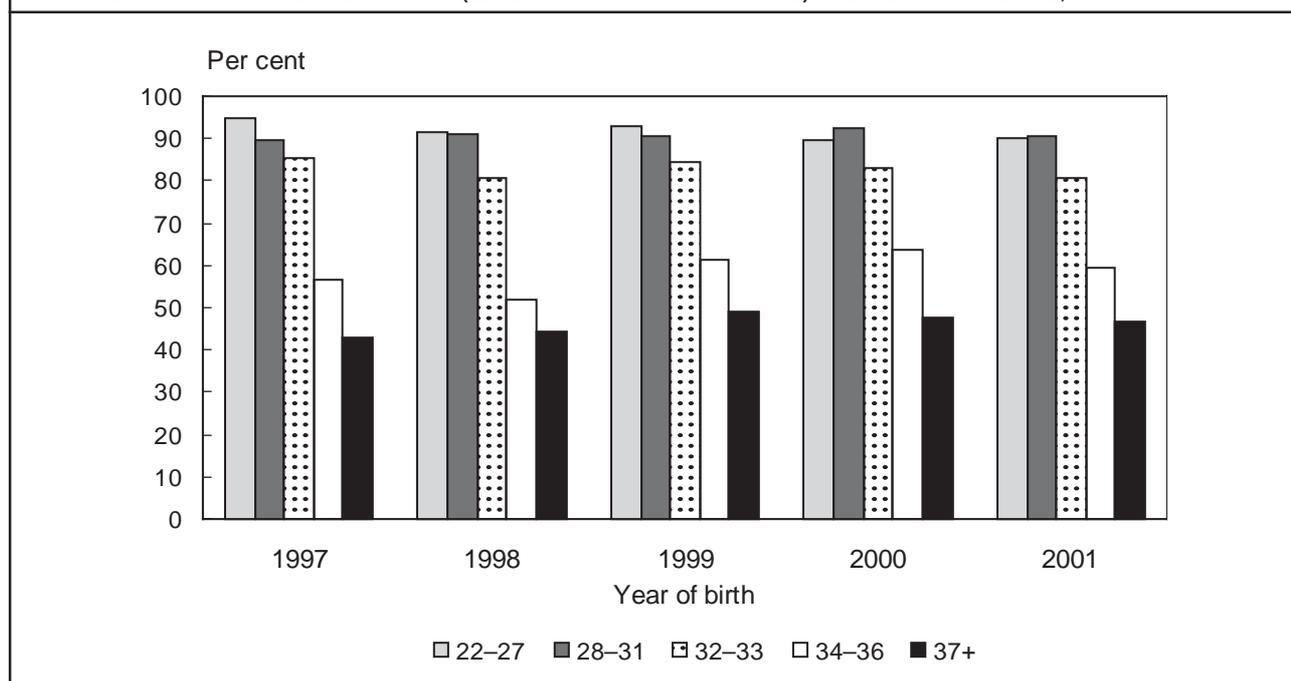
Continued on page 63

TABLE 66

NICUS REGISTRANTS BY BOOKING STATUS, TRANSFER STATUS AND GESTATIONAL AGE, NSW & ACT 2001

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 hosp	88	32.0	190	29.5	234	38.3	144	30.5	5	55.6	661	32.9
Transfer before birth	160	58.2	392	61.0	180	29.5	15	3.2	1	11.1	748	37.2
Transfer after birth	27	9.8	61	9.5	197	32.2	313	66.3	3	33.3	601	29.9
TOTAL	275	100.0	643	100.0	611	100.0	472	100.0	9	100.0	2010	100.0

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

FIGURE 7**NICUS REGISTRANTS BY PLACE OF BIRTH (LEVEL OF OBSTETRIC HOSPITAL) AND GESTATIONAL AGE, NSW & ACT 2001**

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

TABLE 67**NICUS REGISTRANTS BY PLACE OF BIRTH (LEVEL OF OBSTETRIC HOSPITAL) AND GESTATIONAL AGE, NSW & ACT 2001**

Place of birth	22-27		28-31		Gestational age (weeks)				37+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Level 1-4	22	8.0	42#	6.5	34	11.2	104	32.9	206	42.8	408	20.3
Level 5	2	0.7	16#	2.5	24	7.9	20	6.5	46	9.6	108	5.4
Level 6	248	90.2	582#	90.5	245	80.6	183	59.6	224	46.6	1482	73.7
Planned home birth	0	0.0	0	0.0	0	0.0	0	0.0	3	0.6	3	0.1
Born before arrival	3	1.1	3#	0.5	1	0.3	0	0.0	2	0.4	9	0.5
TOTAL	275	100.0	643	100.0	304	100.0	307	100.0	481	100.0	2010	100.0

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

32/59 (54.2%) babies not born in a level six hospital were 30-31 weeks gestation.
359/582 (61.7%) babies born in a level six hospital were 30-31 weeks gestation.**TABLE 68****NICUS REGISTRANTS BY BOOKING STATUS, TRANSFER STATUS AND BIRTHWEIGHT, NSW & ACT 2001**

Booking status and transfer status	Less than 1,000		1,000-1,499		1,500-2,499		2,500+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Booked at tertiary hosp	92	34.1	145	29.4	226	35.2	198	32.7	661	32.9
Transfer before birth	154	57.0	303	61.5	257	40.0	34	5.6	748	37.2
Transfer after birth	24	8.9	45	9.1	159	24.8	373	61.7	601	29.9
TOTAL	270	100.0	493	100.0	642	100.0	605	100.0	2010	100.0

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

TABLE 69**NICUS REGISTRANTS BY PLACE OF BIRTH (LEVEL OF OBSTETRIC HOSPITAL) AND BIRTHWEIGHT, NSW & ACT 2001**

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	18	6.7	33	6.7	98	15.3	259	42.8	408	20.3
Level 5	3	1.1	9	1.8	47	7.3	49	8.1	108	5.4
Level 6	246	91.1	448	90.9	494	76.9	294	48.6	1482	73.7
Planned home birth	0	0.0	1	0.2	0	0.0	2	0.3	3	0.1
Born before arrival	3	1.1	2	0.4	3	0.5	1	0.2	9	0.5
TOTAL	270	100.0	493	100.0	642	100.0	605	100.0	2010	100.0

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

TABLE 70**MOTHERS OF NICUS REGISTRANTS BY ONSET OF LABOUR AND GESTATIONAL AGE, NSW & ACT 2001**

Onset of labour	Gestational age (weeks)											
	22–27		28–31		32–36		37–41		42+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Spontaneous	170	68.6	301	56.6	263	46.1	211	44.8	3	33.3	948	51.8
Augmented	8	3.2	21	3.9	22	3.9	62	13.1	0	0.0	113	6.2
Induced	3	1.2	9	1.7	36	6.3	103	21.9	4	44.5	155	8.5
No labour	67	27.0	201	37.8	249	43.7	95	20.2	2	22.2	614	33.6
TOTAL	248	100.0	532	100.0	570	100.0	471	100.0	9	100.0	1830	100.0

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

TABLE 71**MOTHERS OF NICUS REGISTRANTS BY ONSET OF LABOUR AND BIRTHWEIGHT, NSW & ACT 2001**

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	134	54.9	229	55.8	313	54.4	272	45.3	948	51.8
Augmented	7	2.9	14	3.4	26	4.5	66	11.0	113	6.2
Induced	3	1.2	8	2.0	21	3.7	123	20.5	155	8.5
No labour	100	41.0	159	38.8	215	37.4	140	23.3	614	33.6
TOTAL	244	100.0	410	100.0	575	100.0	601	100.0	1830	100.0

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

TABLE 72**NICUS REGISTRANTS BY DURATION OF RUPTURE OF MEMBRANES AND GESTATIONAL AGE, NSW & ACT 2001**

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	195	71.0	481	74.8	529	86.6	455	96.4	7	77.8	1667	82.9
24 hours–7 days	40	14.5	91	14.2	51	8.3	12	2.5	1	11.1	195	9.7
8+ days	40	14.5	71	11.0	31	5.1	5	1.1	1	11.1	148	7.4
TOTAL	275	100.0	643	100.0	611	100.0	472	100.0	9	100.0	2010	100.0

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

TABLE 73**NICUS REGISTRANTS BY TYPE OF DELIVERY AND GESTATIONAL AGE, NSW & ACT 2001**

Type of delivery	Gestational age (weeks)										TOTAL	
	22-27		28-31		32-36		37-41		42+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Normal vaginal	93	33.8	212	33.0	185	30.3	247	52.3	4	44.5	741	36.9
Forceps	3	1.1	11	1.7	8	1.3	20	4.2	1	11.1	43	2.1
Forceps rotation	0	0.0	1	0.2	2	0.3	2	0.4	0	0.0	5	0.2
Vacuum extraction	0	0.0	5	0.8	8	1.3	21	4.5	0	0.0	34	1.7
Vaginal breech	29	10.6	35	5.4	23	3.8	4	0.9	0	0.0	91	4.5
Caesarean section not in labour	74	26.9	241	37.5	275	45.0	100	21.2	2	22.2	692	34.4
Caesarean section in labour	76	27.6	138	21.4	110	18.0	78	16.5	2	22.2	404	20.1
TOTAL	275	100.0	643	100.0	611	100.0	472	100.0	9	100.0	2010	100.0

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

TABLE 74**NICUS REGISTRANTS BY TYPE OF DELIVERY AND BIRTHWEIGHT, NSW & ACT 2001**

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.	%		
Normal vaginal	69	25.6	155	31.4	215	33.5	302	59.9	741	36.9
Forceps	3	1.1	7	1.4	11	1.7	22	3.6	43	2.1
Forceps rotation	0	0.0	0	0.0	3	0.5	2	0.3	5	0.2
Vacuum extraction	0	0.0	1	0.2	12	1.9	21	3.5	34	1.7
Vaginal breech	27	10.0	26	5.3	30	4.7	8	1.3	91	4.5
Caesarean section not in labour ¹¹¹	41.1	195	39.6	240	37.4	146	24.1	692	34.4	
Caesarean section in labour	60	22.2	109	22.1	131	20.4	104	17.2	404	20.1
TOTAL	270	100.0	493	100.0	642	100.0	605	100.0	2010	100.0

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

(Continued from page 60)

Infant characteristics

Nearly three quarters of the infants (76.1 per cent) were preterm (less than 37 weeks gestation), 45.7 per cent were very preterm (less than 32 weeks gestation) and 13.7 per cent were extremely preterm (less than 28 weeks gestation) (Figure 8). The proportion of infants in each gestational age group has remained constant (Table 75). 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 76).

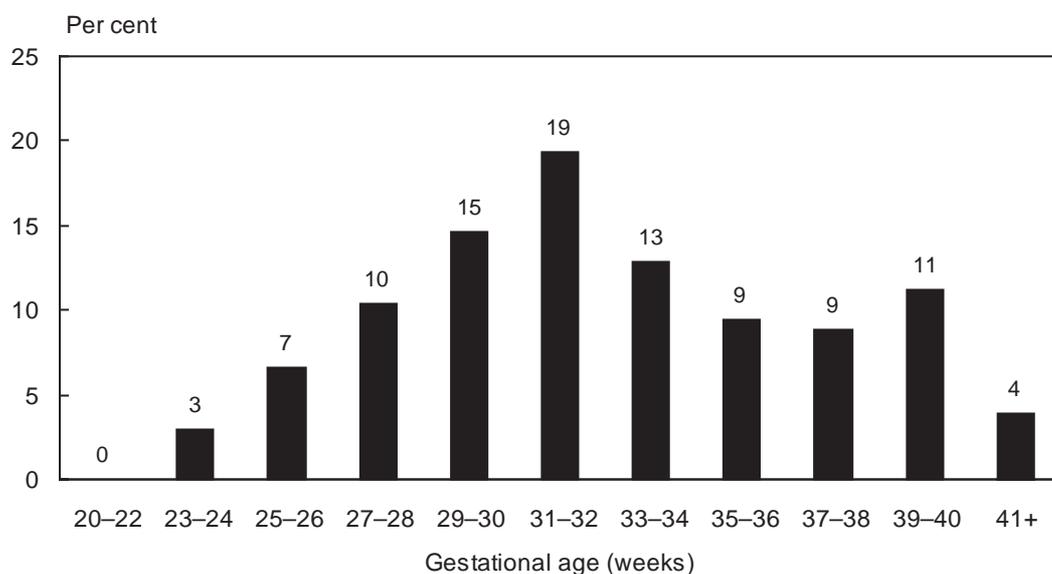
Seventy per cent of infants had a low birthweight (less than 2,500 grams), 34.5 per cent had a very low birthweight (less than 1,500 grams) and 10.0 per cent

had an extremely low birthweight (less than 1,000 grams). The proportion of infants in each birthweight group has remained constant (Table 77). Almost all liveborn infants 600-1500 grams birthweight were admitted to a NICU (Table 78).

Overall, 59.8 per cent of infants were male. The ratio of males to females was approximately 3:2 in most gestational age groups (Table 79).

The overall proportion of the infants who had a major congenital anomaly decreased from 20.9 per cent in 1992 to 16.1 per cent in 2001. Congenital anomalies were more common among term infants (37 plus weeks gestational age), of whom 41.6 per cent had a major congenital anomaly and 2.9 per cent had a minor congenital anomaly (Table 80).

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FIGURE 8**NICUS REGISTRANTS BY GESTATIONAL AGE, NSW & ACT 2001**

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

TABLE 75**NICUS REGISTRANTS BY GESTATIONAL AGE, NSW & ACT 1997-2001**

Gestational age (weeks)	1997		1998		Year of birth 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
22-27	232	13.1	287	15.1	289	14.5	275	13.7	275	13.7
28-31	539	30.6	589	31.0	551	27.7	605	30.2	643	32.0
32-36	543	30.8	536	28.2	623	31.3	601	30.0	611	30.4
37-41	428	24.3	479	25.2	512	25.7	512	25.6	472	23.5
42+	22	1.2	8	0.4	16	0.8	10	0.5	9	0.4
TOTAL	1764	100.0	1899	100.0	1991	100.0	2003	100.0	2010	100.0

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

TABLE 76**BIRTHS BY NICUS REGISTRATION AND GESTATIONAL AGE, NSW & ACT 2001#**

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	16	0	0.0	0.0
21	58	27	0	0.0	0.0
22	57	31	1	32.3	0.1
23	38	32	15	468.8	0.8
24	34	66	45	681.8	2.2
25	12	53	62	1169.8	3.1
26	20	68	70	1029.4	3.2
27	28	92	82	891.3	4.1
28	18	118	126	1067.8	6.3
29	13	126	126	1000.0	6.3
30	10	177	167	943.5	8.3
31	17	239	224	937.2	11.1
32	12	327	164	501.5	8.2
33	20	445	140	314.6	7.0
34	17	808	118	146.0	5.9
35	20	1238	111	89.7	5.5
36	28	2305	78	33.8	3.9
37	16	4742	90	19.0	4.5
38	32	13576	88	6.5	4.4
39	34	20145	107	5.3	5.3
40	27	28217	118	4.2	5.9
41	16	14979	69	4.6	3.4
42	2	2069	9	4.3	0.5
43	0	137	0	0.0	0.0
44	0	1	0	0.0	0.0
Not stated	0	17	0	0.0	0.0
TOTAL	575	90051	2010	22.3	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research, 2000. NSW Midwives Data Collection. Epidemiology and Surveillance Branch, NSW Department of Health, 2001. ACT Maternal-Perinatal Data Collection, 2000.

Excludes four babies reported to the MDC in 2000 for whom the birth outcome was not known.

TABLE 77**NICUS REGISTRANTS BY BIRTHWEIGHT, NSW & ACT 1997-2001**

Birthweight (grams)	1997		1998		Year of birth 1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 400	2	0.1	0	0.0	3	0.2	1	0.0	2	0.1
400-499	3	0.2	6	0.3	9	0.5	6	0.3	5	0.2
500-599	19	1.1	23	1.2	24	1.2	21	1.0	30	1.5
600-699	42	2.4	43	2.3	51	2.6	56	2.8	49	2.4
700-799	58	3.3	62	3.3	62	3.1	62	3.1	49	2.4
800-899	48	2.7	65	3.4	75	3.8	53	2.6	72	3.6
900-999	80	4.5	85	4.5	58	2.9	84	4.2	63	3.1
1,000-1,249	204	11.6	207	10.9	210	10.5	211	10.5	219	10.9
1,250-1,499	225	12.8	238	12.5	247	12.4	280	14.0	274	13.6
1,500-1,749	164	9.3	205	10.8	207	10.4	203	10.1	231	11.5
1,750-1,999	137	7.8	143	7.5	151	7.6	144	7.2	160	8.0
2,000-2,499	230	13.0	221	11.6	242	12.2	253	12.6	251	12.5
2,500-2,999	179	10.1	198	10.4	211	10.6	201	10.0	215	10.7
3,000-3,499	191	10.8	214	11.3	205	10.3	200	10.0	195	9.7
3,500-3,999	123	7.0	128	6.7	153	7.7	149	7.4	132	6.6
4,000+	59	3.3	61	3.2	83	4.2	79	3.9	63	3.1
TOTAL	1764	100.0	1899	100.0	1991	100.0	2003	100.0	2010	100.0

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

TABLE 78**BIRTHS BY NICUS REGISTRATION AND BIRTHWEIGHT, NSW & ACT 2001#**

Birthweight (grams)	NSW & ACT		Registrations No.	NICUS Rate per 1,000 live births	% of cohort
	Stillbirths No.	Live births# No.			
Less than 400	141	62	2	32.3	0.1
400-499	64	37	5	135.1	0.3
500-599	44	62	30	483.9	1.5
600-699	25	71	49	690.1	2.4
700-799	18	54	49	907.4	2.4
800-899	15	77	72	935.1	3.6
900-999	19	67	63	940.3	3.1
1,000-1,249	23	221	219	991.0	10.9
1,250-1,499	17	303	274	904.3	13.6
1,500-1,749	24	425	231	543.5	11.5
1,750-1,999	24	656	160	243.9	8.0
2,000-2,499	41	3428	251	73.2	12.5
2,500-2,999	50	13334	215	16.1	10.7
3,000-3,499	34	31898	195	6.1	9.7
3,500-3,999	21	28052	132	4.7	6.6
4,000+	16	11303	63	5.6	3.1
TOTAL	576	90050	2010	22.3	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research, 2000. NSW Midwives Data Collection. Centre for Epidemiology and Research, NSW Department of Health, 2001. ACT Maternal-Perinatal Data Collection, 2000.

Excludes 4 babies reported to the MDC in 2000 for whom the birth outcome was not known.

TABLE 79**NICUS REGISTRANTS BY GENDER AND GESTATIONAL AGE, NSW & ACT 2001**

Sex	Gestational age (weeks)										TOTAL	
	22-27		28-31		32-36		37-41		42+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Male	147	53.5	373	58.0	373	61.0	301	63.8	7	77.8	1201	59.8
Female	128	46.5	270	42.0	238	39.0	171	36.2	2	22.2	809	40.2
TOTAL	275	100.0	643	100.0	611	100.0	472	100.0	9	100.0	2010	100.0

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

TABLE 80**NICUS REGISTRANTS BY CONGENITAL ANOMALIES AND GESTATIONAL AGE, NSW & ACT 2001**

Congenital anomaly	Gestational age (weeks)										TOTAL	
	22-27		28-31		32-36		37-41		42+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
None	262	95.3	601	93.5	518	84.8	262	55.5	5	55.6	1648	82.0
Minor	4	1.4	11	1.7	9	1.5	14	3.0	0	0.0	38	1.9
Major	9	3.3	31	4.8	84	13.8	196	41.5	4	44.4	324	16.1
TOTAL	275	100.0	643	100.0	611	100.0	472	100.0	9	100.0	2010	100.0

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

(Continued from page 63)

The overall proportion of infants born following a multiple pregnancy has increased from 14.5 per cent in 1993 to 22.4 per cent in 2001. In 2001, most of the infants (77.6 per cent) were from a singleton pregnancy, 21.1 per cent were from a twin pregnancy and 1.3 per cent were from a triplet pregnancy. Infants born as a result of a multiple gestation were more likely to be preterm, with 28.4 per cent of infants less than 37 weeks gestation being from a multiple gestation pregnancy (Table 81). Multiple births represented 3.4 per cent of all NSW and ACT livebirths in 2001. The higher than expected rate of multiple births among the 2001 NICUS cohort reflects the high proportion of multiple pregnancies resulting in preterm birth.

Table 82 shows the median, 25th and 75th percentiles for one- and five-minute Apgar scores according to gestational age groups. For infants greater than 27 weeks gestational age, the median one-minute Apgar score was eight and the median five-minute score was nine. The proportion of infants with a one-minute Apgar score of 0–4 has decreased from 38.7 per cent in 1992 to 25.7 per cent in 2001. Similarly the proportion of infants with a five-minute Apgar score of 0–4 has decreased from 10.8 per cent in 1992 to 7.1 per cent in 2001 (Table 83).

Infants with major congenital anomalies ($n=324$) have been excluded from the analysis of morbidity and mortality.

The majority of infants without a major congenital anomaly (1,493/1,686; 88.6 per cent) in the 2001 NICUS cohort received assisted ventilation (intermittent

mandatory ventilation and/or continuous positive airways pressure) (Table 84).

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 85).

Proven systemic infection has decreased from 22.0 per cent in 1992 to 14.3 per cent of infants in 2001. Infection was most common among infants less than 28 weeks gestation (42.5 per cent) (Table 86).

The overall proportion of ventilated infants who received surfactant was 41.0 in 2001 (range 33.8 per cent in 1992 to 51.8 per cent in 1998) (Table 87). In 2001, 55.8 per cent of the infants who received surfactant were less than 32 weeks gestational age. The majority (61.0 per cent) of ventilated infants with a diagnosis of respiratory distress syndrome received surfactant.

Overall, the incidence of treated patent ductus arteriosus (PDA) has decreased from 18.7 per cent in 1993 to 15.2 per cent in 2001. In 2001, 96.2 per cent of the infants treated for PDA were less than 32 weeks gestational age (Table 88). The majority of infants with a PDA requiring treatment received indomethacin only (13.3 per cent). Surgical treatment of PDA was predominantly performed on infants less than 28 weeks gestation (1.9 per cent).

Continued on page 71

TABLE 81

NICUS REGISTRANTS BY PLURALITY AND GESTATIONAL AGE, NSW & ACT 2001

Plurality	Gestational age (weeks)										TOTAL	
	22–27		28–31		32–36		37–41		42+			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Singleton	217	78.9	423	65.8	455	74.5	455	96.4	9	100.0	1559	77.6
Twins	58	21.1	206	32.0	144	23.6	17	3.6	0	0.0	425	21.1
Triplets	0	0.0	14	2.2	12	1.9	0	0.0	0	0.0	26	1.3
TOTAL	275	100.0	643	100.0	611	100.0	472	100.0	9	100.0	2010	100.0

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

TABLE 82**NICUS REGISTRANTS BY APGAR SCORE AND GESTATIONAL AGE, NSW & ACT 2001**

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	(3,6)	7	(5,8)	7	(5,8)	7	(4,9)
Five-minute Apgar	7	(6,8)	9	(8,9)	9	(8,9)	9	(7,9)

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

TABLE 83**NICUS REGISTRANTS BY APGAR SCORE AT ONE AND FIVE MINUTES, NSW & ACT 1997-2001**

Apgar Score	Year of birth									
	1997		1998		1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%	No.	%
One minute										
0-4	453	25.7	533	28.1	530	26.6	509	25.4	516	25.7
5-7	651	36.9	693	36.5	689	34.6	743	37.1	745	37.1
8+	650	36.8	657	34.6	766	38.5	737	36.8	734	36.5
Not stated	10	0.6	16	0.8	6	0.3	14	0.7	15	0.7
TOTAL	1764	100.0	1899	100.0	1991	100.0	2003	100.0	2010	100.0
Five minutes										
0-4	121	6.9	142	7.5	132	6.6	154	7.7	143	7.1
5-7	413	23.4	412	21.7	436	21.9	399	19.9	425	21.1
8+	1221	69.2	1329	70.0	1417	71.2	1437	71.7	1429	71.1
Not stated	9	0.5	16	0.8	6	0.3	13	0.7	13	0.7
TOTAL	1764	100.0	1899	100.0	1991	100.0	2003	100.0	2010	100.0

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

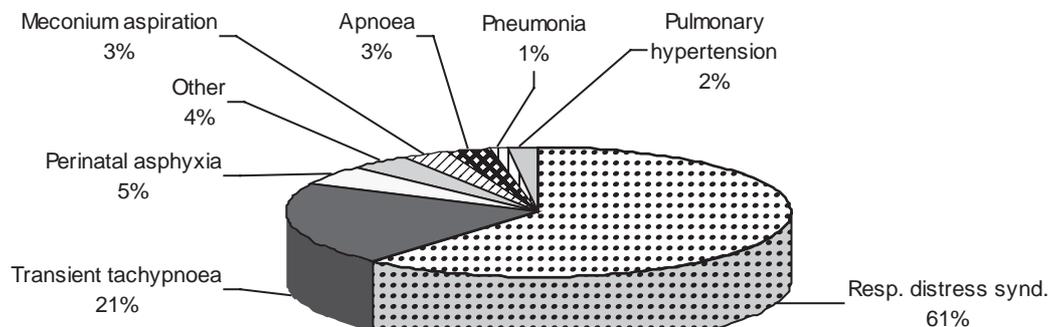
TABLE 84**ASSISTED VENTILATION BY GESTATIONAL AGE, NSW & ACT 1997-2001#**

Year	Assisted ventilation	Gestational age (weeks)									
		22-27		28-31		32-36		37+		TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	%
1997	No	0	0.0	105	20.3	60	12.9	9	3.5	174	11.9
	Yes	227	100.0	413	79.7	406	87.1	248	96.5	1294	88.1
	TOTAL	227	100.0	518	100.0	466	100.0	257	100.0	1468	100.0
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	265	97.4	1423	90.1
	TOTAL	280	100.0	564	100.0	463	100.0	272	100.0	1579	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	11.4
	Yes	264	99.2	485	79.2	466	88.4	278	98.9	1493	88.6
	TOTAL	266	100.0	612	100.0	527	100.0	281	100.0	1686	100.0

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

FIGURE 9

NICUS REGISTRANTS BY MAIN INDICATION FOR ASSISTED VENTILATION, NSW & ACT 2001#



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

TABLE 85

MAIN INDICATION FOR ASSISTED VENTILATION OF BABIES BY GESTATIONAL AGE, NSW & ACT 2001#

Indication	Gestational age (weeks)								TOTAL	
	22-27		28-31		32-36		37+			
	No.	%	No.	%	No.	%	No.	%	No.	%
Respiratory distress syndrome	245	92.8	359	74.0	273	58.6	42	15.1	919	61.6
Transient tachypnoea of newborn	6	2.3	82	16.9	131	28.1	60	21.6	279	18.7
Meconium aspiration	0	0.0	0	0.0	4	0.9	47	16.9	51	3.4
Pneumonia	0	0.0	1	0.2	5	1.1	5	1.8	11	0.7
Newborn encephalopathy	0	0.0	6	1.2	15	3.2	57	20.5	78	5.2
Immature lung	11	4.2	12	2.5	1	0.2	0	0.0	24	1.6
Apnoea	2	0.8	17	3.5	15	3.2	16	5.8	50	3.3
Pulmonary hypertension	0	0.0	2	0.4	4	0.9	21	7.6	27	1.8
Pulmonary hypertension	0	0.0	2	0.4	4	0.9	21	7.6	27	1.8
Congenital anomaly	0	0.0	0	0.0	0	0.0	1	0.4	1	0.1
Peri surgery	0	0.0	2	0.4	5	1.1	7	2.5	14	0.9
Other	0	0.0	4	0.8	13	2.8	22	7.9	39	2.6
TOTAL	264	100.0	485	100.0	466	100.0	278	100.0	1493	100.0

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

TABLE 86**PROVEN SYSTEMIC INFECTION BY GESTATIONAL AGE, NSW & ACT 2001[#]**

Infection	Gestational age (weeks)									
	22-27		28-31		32-36		37+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
No	153	57.5	531	86.8	495	93.9	266	94.7	1445	85.7
Yes	113	42.5	81	13.2	32	6.1	15	5.3	241	14.3
TOTAL	266	100.0	612	100.0	527	100.0	281	100.0	1686	100.0

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

Babies with major congenital anomalies excluded.

TABLE 87**SURFACTANT ADMINISTRATION BY GESTATIONAL AGE, NSW & ACT 1997-2001[#]**

Year	Surfactant administration	Gestational age (weeks)									
		22-27		28-31		32-36		37+		TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	%
1997	No	60	26.4	175	42.4	218	53.7	187	75.4	640	49.5
	Yes	167	73.6	238	57.6	188	46.3	61	24.6	654	50.5
	TOTAL	227	100.0	413	100.0	406	100.0	248	100.0	1294	100.0
1998	No	53	19.1	212	45.6	213	51.3	208	78.5	686	48.2
	Yes	225	80.9	253	54.4	202	48.7	57	21.5	737	51.8
	TOTAL	278	100.0	465	100.0	415	100.0	265	100.0	1423	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	46.2
	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	223	80.2	881	59.0
	Yes	208	78.8	210	43.3	139	29.8	55	19.8	612	41.0
	TOTAL	264	100.0	485	100.0	466	100.0	278	100.0	1493	100.0

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

TABLE 88**TREATED PATENT DUCTUS ARTERIOSUS (PDA) BY GESTATIONAL AGE, NSW & ACT 2001[#]**

PDA-Treatment for PDA	Gestational age (weeks)									
	22-27		28-31		32-36		37+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
No treated PDA	142	53.4	531	86.8	519	98.5			1192	84.8
Indomethacin only	106	39.8	76	12.4	5	0.9			187	13.3
Surgery only	4	1.5	1	0.2	1	0.2			6	0.4
Indomethacin & surgery	14	5.3	4	0.7	2	0.4			20	1.4
TOTAL	266	100.0	612	100.0	527	100.0			1405	100.0

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

Babies with major congenital anomalies excluded.

(Continued from page 67)

Some infants (1.4 per cent) were treated with both indomethacin and surgery.

Overall, the incidence of necrotising enterocolitis (NEC) has decreased from 9.6 per cent in 1992 to 2.8 per cent in 2001. The diagnosis of NEC was made radiologically or at surgery in 66.7 per cent of infants and clinically in the remainder. NEC was more common at the lower gestational age groups and 87.5 per cent of the infants with NEC were born at less than 32 weeks gestation (Table 89).

The overall incidence of major surgery has decreased from 7.6 per cent in 1992 to 4.1 per cent in 2001. In 2001, 69.6 per cent of the infants who required major surgery were less than 32 weeks gestation (Table 90). The most common surgical procedures amongst these infants were for patent ductus arteriosus and necrotising enterocolitis.

The incidence of intraventricular haemorrhage (IVH) among preterm infants (less than 37 weeks gestational

age) has remained relatively constant (13.5 per cent in 2001). In 2001, confirmed IVH was most common among infants less than 28-weeks gestation (30.9 per cent); 40.2 per cent of these infants had severe IVH (grade 3 or 4). Three infants less than 32 weeks gestation with severe IVH required surgical drainage for post haemorrhagic hydrocephalus (3/45; 6.7 per cent). Of the surviving infants born before 32 weeks gestation, 95.9 per cent had a head ultrasound examination to detect IVH (Table 91). The incidence of severe IVH has remained constant since 1992.

The proportion of infants with severe grades (Grade 3 or Grade 4) of retinopathy of prematurity (ROP) has decreased from 7.5 per cent in 1992 to 4.9 per cent in 2001. In 2001, all infants with severe grades of ROP were less than 32 weeks gestation and 68.3 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 92).

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TABLE 89

NECROTISING ENTEROCOLITIS (NEC) BY GESTATIONAL AGE, NSW & ACT 2001#

NEC—Treatment for NEC	Gestational age (weeks)								TOTAL	
	22–27		28–31		32–36		37+			
	No.	%	No.	%	No.	%	No.	%	No.	%
No NEC	243	91.4	593	96.9	523	99.2	279	99.3	1638	97.2
Clinical diagnosis	8	3.0	7	1.1	1	0.2	0	0.0	16	0.9
X-ray diagnosis	10	3.8	10	1.6	3	0.6	1	0.4	24	1.4
Surgery for NEC	5	1.9	2	0.3	0	0.0	1	0.4	8	0.5
TOTAL	266	100.0	612	100.0	527	100.0	281	100.0	1686	100.0

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

Babies with major congenital anomalies excluded.

TABLE 90

MAJOR SURGERY BY GESTATIONAL AGE, NSW & ACT 2001#

Major Surgery	Gestational age (weeks)								TOTAL	
	22–27		28–31		32–36		37+			
	No.	%	No.	%	No.	%	No.	%	No.	%
No	230	86.5	600	98.0	516	97.9	271	96.4	1617	95.9
Yes	36	13.5	12	2.0	11	2.1	10	3.6	69	4.1
TOTAL	266	100.0	612	100.0	527	100.0	281	100.0	1686	100.0

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

Babies with major congenital anomalies excluded.

TABLE 91**NICUS REGISTRANTS BY INTRAVENTRICULAR HAEMORRHAGE (IVH) AND GESTATIONAL AGE, NSW & ACT 2001#**

Head ultrasound	Gestational age (weeks)						TOTAL	
	22-27		28-31		32-36		No.	%
	No.	%	No.	%	No.	%	No.	%
No IVH	162	60.9	482	78.8	236	44.8	880	62.6
Grade 1	31	11.7	63	10.3	13	2.5	107	7.6
Grade 2	18	6.8	12	2.0	4	0.8	34	2.4
Grade 3	14	5.3	5	0.8	3	0.6	22	1.6
Grade 4	19	7.1	7	1.1	1	0.2	27	1.9
Hydrocephalus requiring drainage	1	3.0	2	16.7	1	25.0	4	8.2
Not examined & lived	0	0.0	35	5.7	269	51.0	304	21.6
Not examined & died	22	8.3	8	1.3	1	0.2	31	2.2
TOTAL	266	100.0	612	100.0	527	100.0	1405	100.0

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

Babies with major congenital anomalies excluded.

TABLE 92**NICUS REGISTRANTS BY RETINOPATHY OF PREMATURITY (ROP) AND GESTATIONAL AGE, NSW & ACT 2001#**

Retinopathy of prematurity (ROP)	Gestational age (weeks)				TOTAL	
	22-27		28-31		No.	%
	No.	%	No.	%	No.	%
No ROP	89	33.4	416	68.0	505	57.5
Grade 1	25	9.4	23	3.8	48	5.5
Grade 2	39	14.7	20	3.3	59	6.7
Grade 3	38	14.3	2	0.3	40	4.6
Grade 4	3	1.1	0	0.0	3	0.3
Treatment with cryo-laser	28	68.3	2	100.0	30	69.8
Not examined & lived	0	0.0	131	21.4	131	14.9
Not examined & died	72	27.1	20	3.3	92	10.5
TOTAL	266	100.0	612	100.0	878	100.0

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

Babies with major congenital anomalies excluded.

(Continued from page 71)

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 10, 11 and 12 and Table 93). 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 2001, the total cohort used 58,037 bed days in a tertiary centre in NSW and the ACT (range 46,090 in 1993 to 58,529 in 2000); as well as 20,018 in a non-tertiary centre (level 2 neonatal

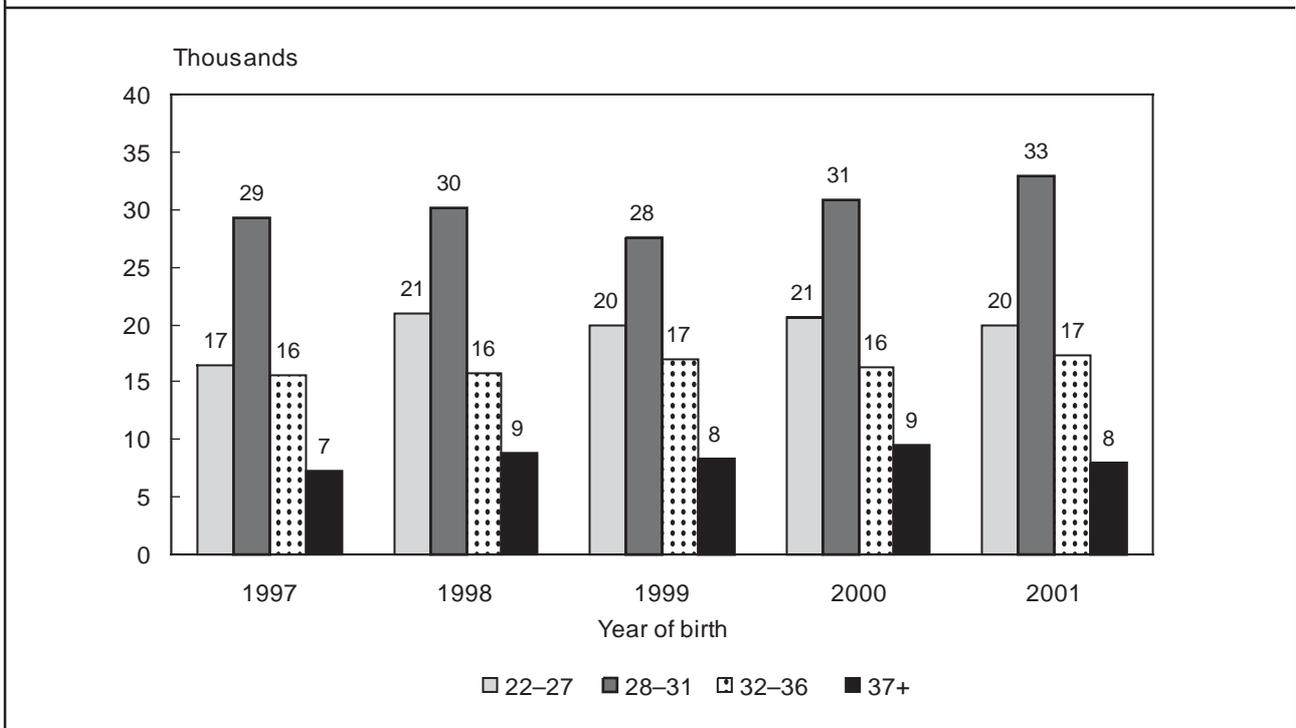
unit) in NSW and the ACT (14,288 in 1992 to 20,018 in 2001). Even when these infants leave the neonatal intensive care unit, they still require substantial resources.

In 2001, NICUS registrants used 16,537 days of assisted ventilation (range 15,282 in 1993 to 18,909 in 2000) and 30,802 days of oxygen therapy (range 22,526 in 1992 to 30,802 in 2001). In 2001, 82 (4.9 per cent) infants were discharged home on oxygen therapy (range 2.1 per cent in 1992 to 5.1 per cent in 1998). The proportion of infants less than 28 weeks gestation discharged home on oxygen therapy was 18.8 per cent (range 7.5 per cent in 1992 to 20.0 per cent in 1998) (Table 94).

Continued on page 77

FIGURE 10

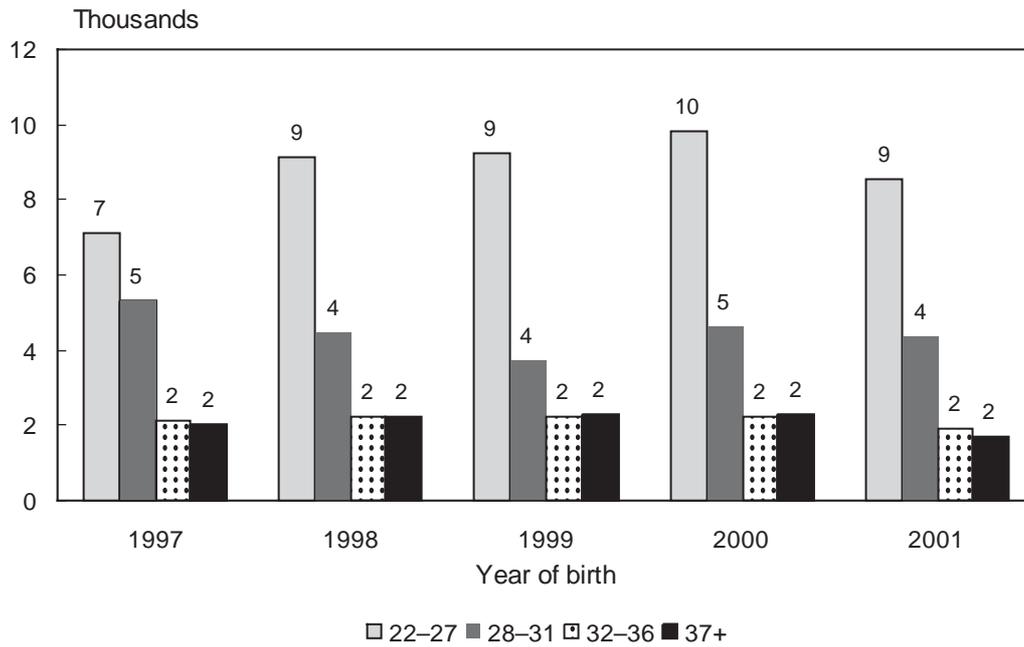
MEDIAN NUMBER OF DAYS IN HOSPITAL, OXYGEN THERAPY AND ASSISTED VENTILATION BY GESTATIONAL AGE, NSW & ACT 2001



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

FIGURE 11

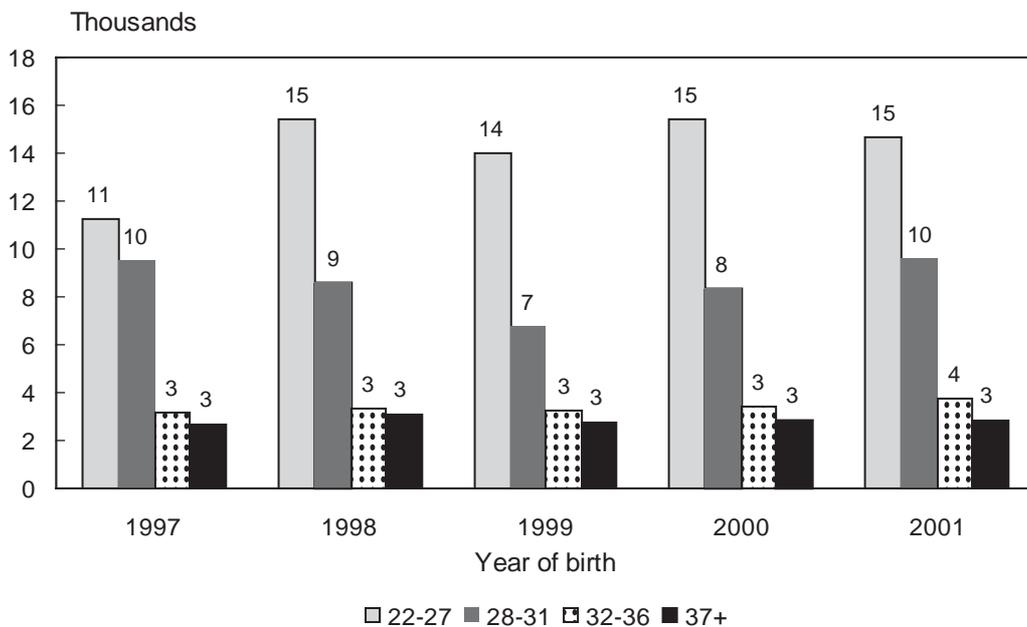
TOTAL NUMBER OF DAYS IN HOSPITAL, OXYGEN THERAPY AND ASSISTED VENTILATION BY GESTATIONAL AGE, NSW & ACT 2001



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

FIGURE 12

DEATHS BY POST-MORTEM EXAMINATION AND GESTATIONAL AGE, NSW & ACT 1997-2001



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

TABLE 93
NICUS REGISTRANTS BY SERVICE UTILISATION INDICATORS AND GESTATIONAL AGE, NSW & ACT 2001

Indicators	Gestational age (weeks)				TOTAL
	22-27	28-31	32-36	37+	
Non-tertiary hospital stay (days)					
Minimum	0	0	0	0	0
Maximum	108	357	108	43	357
Sum	2532	11128	5381	977	20018
Median	0	17	4	0	1
25th percentile	0	0	0	0	0
75th percentile	15	29	16	2	18
Tertiary hospital stay (days)					
Minimum	1	1	1	1	
Maximum	278	257	385	222	385
Sum	17443	21721	11870	7003	58037
Median	68	29	12	10	17
25th percentile	14	15	7	6	8
75th percentile	93	48	24	17	39
Total hospital stay (days)					
Minimum	1	1	1	1	
Maximum	322	399	385	224	399
Sum	19975	32849	17251	7980	78055
Median	77	47	24	11	31
25th percentile	14	38	16	7	14
75th percentile	102	62	34	20	54
Mechanical ventilation (days)					
Minimum	0	0	0	0	0
Maximum	87	85	89	34	89
Sum	3359	1644	1162	1390	7555
Median	5	0	0	2	1
25th percentile	2	0	0	0	0
75th percentile	18	2	2	4	3
Continuous positive airways pressure (days)					
Minimum	0	0	0	0	0
Maximum	136	51	18	48	136
Sum	5214	2721	734	312	8982
Median	17	1	0	0	0
25th percentile	1	0	0	0	0
75th percentile	31	5	2	0	3
Assisted ventilation (days)					
Minimum	0	0	0	0	0
Maximum	194	88	107	48	194
Sum	8574	4365	1897	1702	16537
Median	26	2	2	2	2
25th percentile	7	0	0	1	1
75th percentile	49	8	4	4	6
Oxygen (days)					
Minimum	0	0	0	0	0
Maximum	322	257	385	77	385
Sum	14656	9551	3774	2821	30802
Median	47	3	3	3	3
25th percentile	5	1	1	1	1
75th percentile	88	16	6	7	12

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

TABLE 94**NICUS REGISTRANTS BY HOME OXYGEN ADMINISTRATION AND GESTATIONAL AGE, NSW & ACT 1997–2001#**

Year	Home oxygen	Gestational age (weeks)									
		22–27		28–31		32–36		37+		TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	%
1997	No	204	89.9	499	96.3	464	99.6	254	98.8	1421	96.8
	Yes	23	10.1	19	3.7	2	0.4	3	1.2	47	3.2
	TOTAL	227	100.0	518	100.0	466	100.0	257	100.0	1468	100.0
1998	No	224	80.0	550	97.5	459	99.1	266	97.8	1499	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	272	100.0	1579	100.0
1999	No	243	86.5	512	97.7	521	99.4	297	99.0	1573	96.6
	Yes	38	13.5	12	2.3	3	0.6	3	1.0	56	3.4
	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	217	81.6	583	95.3	526	99.8	278	98.9	1604	95.1
	Yes	49	18.4	29	4.7	1	0.2	3	1.1	82	4.9
	TOTAL	266	100.0	612	100.0	527	100.0	281	100.0	1686	100.0

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

Babies with major congenital anomalies excluded.

(Continued from page 73)

Survival

Infants with a major congenital anomaly have been excluded from the analysis of survival, with the exception of data reported in Table 98.

The six-month survival rate for all infants without a major congenital anomaly in the 2001 cohort was 92.2 per cent compared with 87.8 per cent in 1992. 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 13 and Table 95). Term infants (91.1 per cent) were slightly less likely to survive than preterm infants (92.5 per cent). Among infants who died, 74.8 per cent of deaths occurred during the first week of life (compared with 62.5 per cent in 1998 to 75.5 per cent in 1994) with a further 15.3 per cent occurring during the first month of life (Table 95).

The six-month survival rate improved with increasing birthweight, ranging from 56.7 per cent for infants in the 500–599 gram group to 95.2 per cent for the 900–999 gram group. Six-month survival continued to improve with increasing birthweight to a maximum of 98.6 per cent for infants of 1,750–1,999 grams birthweight and then decreased slightly (Table 96).

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 2001, the six-month survival rate for infants born at 22 to 27 weeks was greater for those born in a tertiary centre (71.3 per cent) compared with those born in a non-tertiary centre (65.2 per cent). Of the surviving infants born in a non-tertiary centre, 11/15 were 26–27 weeks gestation. Term infants born in a tertiary centre (98.3 per cent) were more likely to survive than term infants born in a non-tertiary centre (85.9 per cent). Place of birth did not significantly affect survival for infants in the other gestational age groups (Table 97).

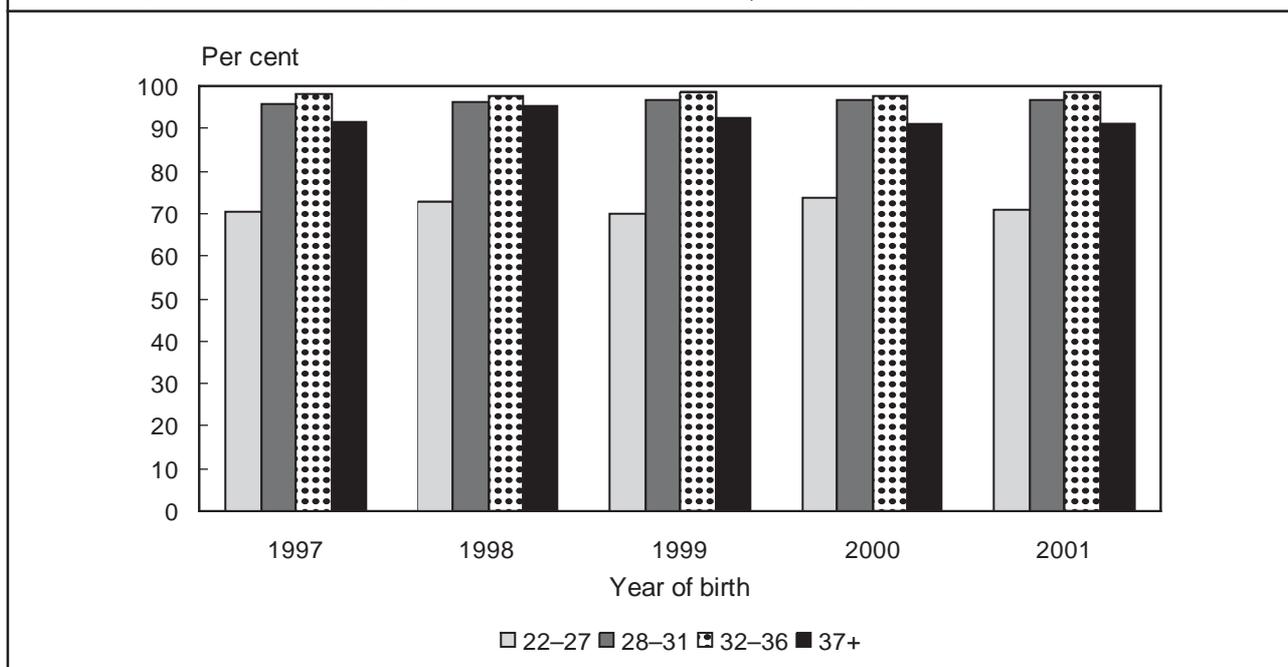
The six-month survival rate was similar for males (92.0 per cent) and females (92.6 per cent) overall, and for all gestational age groups: less than 28 weeks (67.6 per cent versus 75.0 per cent); 28–31 weeks (96.6 per cent versus 96.5 per cent); 32–36 weeks (98.8 per cent versus 98.0 per cent); and 37–41 weeks gestation groups (90.2 per cent versus 93.2 per cent).

The six-month survival rate was 92.3 per cent ($n=1,169$) for singleton infants and 91.9 per cent ($n=386$) for multiple gestation infants. Plurality did not influence survival in infants greater than 27 weeks gestational age. In 2001 the survival rate for infants in the less than 28 week gestation group was lower for infants born of a multiple (32/57; 56.1 per cent) than a singleton pregnancy (157/209; 75.1 per cent).

Continued on page 78

FIGURE 13

NICUS REGISTRANTS BY 6-MONTHS SURVIVAL AND GESTATIONAL AGE, NSW & ACT 1997–2001#



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

Babies with major congenital anomalies excluded.

As expected survival was generally lower (81.5 per cent) in the presence of a major congenital anomaly (Table 98).

Post-mortem examinations were performed on 23/131 infants (17.6 per cent) who died in the 2001 cohort (Figure 14 and Table 99). Post-mortem examinations were most

commonly not requested for infants 22–27 weeks gestation (53.2 per cent) and term infants (44.0 per cent). The highest rate of refusal was in the 32–36 week group (50.0 per cent) and the highest rate of post-mortems done was in the 28–31 week group (33.3 per cent).

TABLE 95

NICUS REGISTRANTS BY DURATION OF SURVIVAL AND GESTATIONAL AGE, NSW & ACT 2001#

Gestational age (weeks)	Alive at six months		Age at death (days)				TOTAL			
	No.	%	0–7	8–28	28+	No.	%			
22	0	0.0	1	100.0	0	0.0	0	0.0	1	0.1
23	4	26.7	9	60.0	2	13.3	0	0.0	15	0.9
24	23	51.1	15	33.3	5	11.1	2	4.4	45	2.7
25	37	60.7	17	27.9	5	8.2	2	3.3	61	3.6
26	52	81.3	11	17.2	1	1.6	0	0.0	64	3.8
27	73	91.3	5	6.3	0	0.0	2	2.5	80	4.7
28	112	94.9	4	3.4	1	0.8	1	0.8	118	7.0
29	115	94.3	5	4.1	1	0.8	1	0.8	122	7.2
30	156	98.1	2	1.3	0	0.0	1	0.6	159	9.4
31	208	97.7	4	1.9	0	0.0	1	0.5	213	12.6
32	149	99.3	0	0.0	1	0.7	0	0.0	150	8.9
33	127	99.2	1	0.8	0	0.0	0	0.0	128	7.6
34	98	95.1	2	1.9	0	0.0	3	2.9	103	6.1
35	87	100.0	0	0.0	0	0.0	0	0.0	87	5.2
36	58	98.3	1	1.7	0	0.0	0	0.0	59	3.5
37	47	88.7	5	9.4	1	1.9	0	0.0	53	3.1
38	44	97.8	1	2.2	0	0.0	0	0.0	45	2.7
39	51	92.7	3	5.5	1	1.8	0	0.0	55	3.3
40	65	87.8	8	10.8	1	1.4	0	0.0	74	4.4
41	45	91.8	3	6.1	1	2.0	0	0.0	49	2.9
42	4	80.0	1	20.0	0	0.0	0	0.0	5	0.3
TOTAL	1555	92.2	98	5.8	20	1.2	13	0.8	1686	100.0

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

Babies with major congenital anomalies excluded.

TABLE 96

NICUS REGISTRANTS BY DURATION OF SURVIVAL AND BIRTHWEIGHT, NSW & ACT 2001#

Birthweight (grams)	Alive at six months		Age at death (days)				TOTAL			
	No.	%	0–7	8–28	28+	No.	%			
Less than 400	0	0.0	1	50.0	1	50.0	0	0.0	2	0.1
400–499	0	0.0	5	100.0	0	0.0	0	0.0	5	0.3
500–599	17	56.7	8	26.7	4	13.3	1	3.3	30	1.8
600–699	26	54.2	15	31.3	4	8.3	3	6.3	48	2.8
700–799	29	60.4	16	33.3	3	6.3	0	0.0	48	2.8
800–899	52	80.0	9	13.8	2	3.1	2	3.1	65	3.9
900–999	59	95.2	2	3.2	0	0.0	1	1.6	62	3.7
1,000–1,249	198	95.7	8	3.9	1	0.5	0	0.0	207	12.3
1,250–1,499	256	98.1	3	1.1	0	0.0	2	0.8	261	15.5
1,500–1,749	207	98.1	4	1.9	0	0.0	0	0.0	211	12.5
1,750–1,999	138	98.6	1	0.7	0	0.0	1	0.7	140	8.3
2,000–2,499	207	95.8	5	2.3	1	0.5	3	1.4	216	12.8
2,500–2,999	131	92.9	9	6.4	1	0.7	0	0.0	141	8.4
3,000–3,499	110	97.3	3	2.7	0	0.0	0	0.0	113	6.7
3,500–3,999	82	92.1	5	5.6	2	2.2	0	0.0	89	5.3
4,000+	43	89.6	4	8.3	1	2.1	0	0.0	48	2.8
TOTAL	1555	92.2	98	5.8	20	1.2	13	0.8	1686	100.0

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

Babies with major congenital anomalies excluded.

TABLE 97**NICUS REGISTRANTS BY DURATION OF SURVIVAL, PLACE OF BIRTH AND GESTATIONAL AGE, NSW & ACT 2001#**

Gestational age (weeks)	Place of birth	Alive at six months		Age at death (days)						TOTAL	
		No.	%	No.	0-7 %	No.	8-28 %	No.	28+ %	No.	%
22-27	Non tertiary	15	65.2	6	26.1	2	8.7	0	0.0	23	8.7
	Tertiary	171	71.3	52	21.7	11	4.6	6	2.5	240	91.3
	Sub-total	186	70.7	58	22.1	13	4.9	6	2.3	263	100.0
28-31	Non tertiary	55	96.5	1	1.7	0	0.0	1	1.7	57	9.4
	Tertiary	533	96.6	14	2.5	2	0.4	3	0.5	552	90.6
	Sub-total	588	96.6	15	2.5	2	0.3	4	0.7	609	100.0
32-36	Non tertiary	148	97.4	2	1.3	0	0.0	2	1.3	152	28.9
	Tertiary	370	98.9	2	0.5	1	0.3	1	0.3	374	71.1
	Sub-total	518	98.5	4	0.8	1	0.2	3	0.6	526	100.0
37-41	Non tertiary	133	86.4	18	11.7	3	1.9	0	0.0	154	56.6
	Tertiary	116	98.3	2	1.7	0	0.0	0	0.0	118	43.4
	Sub-total	249	91.5	20	7.4	3	1.1	0	0.0	272	100.0
42+	Non tertiary	1	50.0	1	50.0	0	0.0	0	0.0	2	40.0
	Tertiary	3	100.0	0	0.0	0	0.0	0	0.0	3	60.0
	Sub-total	4	80.0	1	20.0	0	0.0	0	0.0	5	100.0
TOTAL		1545	92.2	98	5.9	19	1.1	13	0.8	1675	100.0

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

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

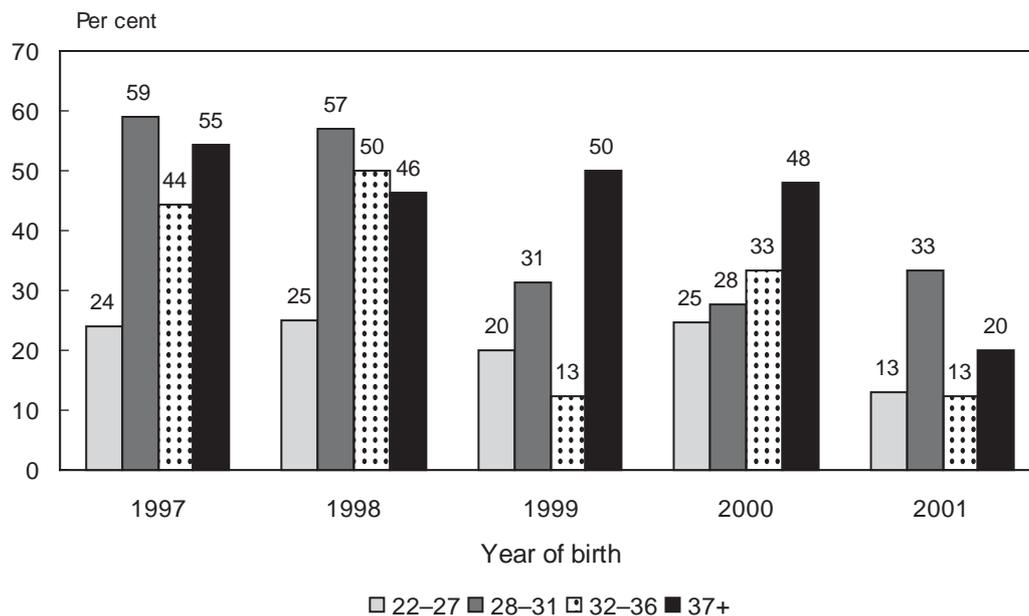
TABLE 98**NICUS REGISTRANTS BY DURATION OF SURVIVAL, MAJOR CONGENITAL ANOMALY AND GESTATIONAL AGE, NSW & ACT 2001**

Gestational age (weeks)	Major congenital anomaly	Alive at six months		Age at death (days)						TOTAL	
		No.	%	No.	0-7 %	No.	8-28 %	No.	28+ %	No.	%
22-27	No	189	71.1	58	21.8	13	4.9	6	2.3	266	96.7
	Yes	5	55.6	1	11.1	2	22.2	1	11.1	9	3.3
	Sub-total	194	70.5	59	21.5	15	5.5	7	2.5	275	100.0
28-31	No	591	96.6	15	2.5	2	0.3	4	0.7	612	95.2
	Yes	18	58.1	6	19.4	5	16.1	2	6.5	31	4.8
	Sub-total	609	94.7	21	3.3	7	1.1	6	0.9	643	100.0
32-36	No	519	98.5	4	0.8	1	0.2	3	0.6	527	86.3
	Yes	60	71.4	12	14.3	7	8.3	5	6.0	84	13.7
	Sub-total	579	94.8	16	2.6	8	1.3	8	1.3	611	100.0
37-41	No	252	91.3	20	7.2	4	1.4	0	0.0	276	58.5
	Yes	179	91.3	8	4.1	6	3.1	3	1.5	196	41.5
	Sub-total	431	91.3	28	5.9	10	2.1	3	0.6	472	100.0
42+	No	4	80.0	1	20.0	0	0.0	0	0.0	5	55.6
	Yes	2	50.0	2	50.0	0	0.0	0	0.0	4	44.4
	Sub-total	6	66.7	3	33.3	0	0.0	0	0.0	9	100.0
TOTAL		1819	90.5	127	6.3	40	2.0	24	1.2	2010	100.0

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

FIGURE 14

NICUS REGISTRANT DEATHS BY POST-MORTEM EXAMINATION AND GESTATIONAL AGE, NSW & ACT 1997-2001#



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

TABLE 99

NICUS REGISTRANTS BY POST-MORTEM EXAMINATION AND GESTATIONAL AGE, NSW & ACT 2001#

Post-mortem	22-27		28-31		32-36		37+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Not requested	41	53.2	6	28.6	3	37.5	11	44.0	61	46.6
Refused	26	33.8	8	38.1	4	50.0	9	36.0	47	35.9
Done	10	13.0	7	33.3	1	12.5	5	20.0	23	17.6
TOTAL	77	100.0	21	100.0	8	100.0	25	100.0	131	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 1995–2000 and birth defects detected during pregnancy or at birth for 2001.

Trends in reported birth defects

Between 1995 and 2000, the reported number of infants with birth defects has remained stable at just over two per cent (Table 100). In 2001, 975 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 100

BIRTH DEFECT CASES, NSW 1995–2001[#]

Year	Birth defect cases	Births	Rate/1,000 births
1995	1947	86648	22.5
1996	1875	85706	21.9
1997	1991	87416	22.8
1998	1941	85627	22.7
1999	1829	86468	21.2
2000	1855	87279	21.3
2001	975	85285	11.4

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

[#] For 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, cases reported during pregnancy or at birth are reported.

greater than 400 grams are presented in Table 101. 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 1995–2001, defects of the cardiovascular system were most commonly reported, followed by defects of the musculoskeletal system and defects of the genito-urinary system (Table 101). This is a similar pattern to previous years. In 2000, the overall rate of defects was slightly lower than the previous five years combined (39.8 versus 41.5 per 1,000).

TABLE 101

BIRTH DEFECTS AMONG STILLBIRTHS AND LIVE BIRTHS BY DIAGNOSTIC CATEGORY, NSW 1995–2001

Diagnostic category	No. defects				Rate/1,000 births			
	1995–1999	2000	2001	1995–2001	1995–1999	2000	2001	1995–2001
Defects of nervous system								
Anencephaly	43	10	8	61	0.1	0.1	0.1	0.1
Spina Bifida	148	29	24	201	0.3	0.3	0.3	0.3
Encephalocele	36	6	2	44	0.1	0.1	0.0	0.1
Microcephaly	139	26	6	171	0.3	0.3	0.1	0.3
Congenital hydrocephalus	176	39	21	236	0.4	0.4	0.2	0.4
Other nervous system defects	417	90	27	534	1.0	1.0	0.3	0.9
TOTAL	959	200	88	1247	2.2	2.3	1.0	2.1
Defects of eye								
Anophthalmos/ microphthalmos	69	13	4	86	0.2	0.1	0.0	0.1
Buphthalmos/ congenital glaucoma	27	4	1	32	0.1	0.0	0.0	0.1
Congenital cataract	97	12	1	110	0.2	0.1	0.0	0.2
Other eye defects	190	25	15	230	0.4	0.3	0.2	0.4
TOTAL	383	54	21	458	0.9	0.6	0.2	0.8
Defects of ear, face and neck								
Absence/ stricture auditory canal	48	7	10	65	0.1	0.1	0.1	0.1
Absent auricle	7	4	2	13	0.0	0.0	0.0	0.0
Defects of face and neck	40	11	5	56	0.1	0.1	0.1	0.1
Other ear defects	86	16	9	111	0.2	0.2	0.1	0.2
TOTAL	181	38	26	245	0.4	0.4	0.3	0.4
Defects of cardiovascular system								
Transposition of great vessels	209	43	23	275	0.5	0.5	0.3	0.5
Tetralogy of Fallot	151	27	8	186	0.3	0.3	0.1	0.3
Ventricular septal defect	967	190	85	1242	2.2	2.2	1.0	2.1
Atrial septal defect	935	193	65	1193	2.2	2.2	0.8	2.0
Heart valve defects	752	131	58	941	1.7	1.5	0.7	1.6

TABLE 101 (continued)
BIRTH DEFECTS AMONG STILLBIRTHS AND LIVE BIRTHS BY DIAGNOSTIC CATEGORY, NSW 1995–2001*

Diagnostic category	No. defects			1995–2001	Rate/1,000 births			
	1995–1999	2000	2001		1995–1999	2000	2001	1995–2001
Defects of cardiovascular system (cont.)								
Patent ductus arteriosus > 37 weeks	560	100	39	699	1.3	1.1	0.5	1.2
Coarctation of aorta	180	36	17	233	0.4	0.4	0.2	0.4
Other defects of aorta	111	17	6	134	0.3	0.2	0.1	0.2
Defects of pulmonary artery	145	36	11	192	0.3	0.4	0.1	0.3
Other cardiovascular defects	876	173	73	1122	2.0	2.0	0.9	1.9
TOTAL	4886	946	385	6217	11.3	10.8	4.5	10.3
Defects of respiratory system								
Defects of nose	73	14	6	93	0.2	0.2	0.1	0.2
Defects of larynx, trachea and bronchus	49	13	2	64	0.1	0.1	0.0	0.1
Defects of lung	102	13	11	126	0.2	0.1	0.1	0.2
Other respiratory defects	1	0	0	1	0.0	0.0	0.0	0.0
TOTAL	225	40	19	284	0.5	0.5	0.2	0.5
Defects of gastrointestinal system								
Cleft palate only	399	84	54	537	0.9	1.0	0.6	0.9
Cleft lip only	177	27	22	226	0.4	0.3	0.3	0.4
Cleft palate and cleft lip	253	39	52	344	0.6	0.4	0.6	0.6
Oesophageal atresia only	6	1	4	11	0.0	0.0	0.0	0.0
Oesophageal atresia with TOF	89	18	7	114	0.2	0.2	0.1	0.2
Tracheo-oesophageal fistula (TOF) only	26	7	3	36	0.1	0.1	0.0	0.1
Atresia/stenosis of small intestine	129	29	20	178	0.3	0.3	0.2	0.3
Atresia/stenosis of anus	166	21	13	200	0.4	0.2	0.2	0.3
Other gastrointestinal defects	513	92	42	647	1.2	1.1	0.5	1.1
TOTAL	1758	318	217	2293	4.1	3.6	2.5	3.8
Defects of genitourinary system								
Defects of female genitals	51	9	10	70	0.1	0.1	0.1	0.1
Undescended testis	413	63	28	504	1.0	0.7	0.3	0.8
Hypospadias	962	191	133	1286	2.2	2.2	1.6	2.1
Epispadias	24	4	2	30	0.1	0.0	0.0	0.0
Chordee	167	26	16	209	0.4	0.3	0.2	0.3
Indeterminate sex/ ambiguous genitalia	66	14	9	89	0.2	0.2	0.1	0.1
Renal agenesis/ dysgenesis	186	49	22	257	0.4	0.6	0.3	0.4
Obstructive defects of renal pelvis and ureter	834	161	32	1027	1.9	1.8	0.4	1.7
Other genitourinary system defects	709	126	65	900	1.6	1.4	0.8	1.5
TOTAL	3412	643	317	4372	7.9	7.4	3.7	7.2
Defects of musculoskeletal system								
Congenital dislocation of the hips	762	150	64	976	1.8	1.7	0.8	1.6
Talipes equinovarus	285	59	26	370	0.7	0.7	0.3	0.6
Polydactyly	478	100	72	650	1.1	1.1	0.8	1.1
Syndactyly	140	18	12	170	0.3	0.2	0.1	0.3
Reduction deformities of limbs	305	64	48	417	0.7	0.7	0.6	0.7
Craniosynostosis	411	69	7	487	1.0	0.8	0.1	0.8
Diaphragmatic hernia	139	20	23	182	0.3	0.2	0.3	0.3
Exomphalos	75	15	13	103	0.2	0.2	0.2	0.2
Gastroschisis	85	20	20	125	0.2	0.2	0.2	0.2
Other musculoskeletal defects	1177	218	112	1507	2.7	2.5	1.3	2.5
TOTAL	3857	733	397	4987	8.9	8.4	4.7	8.3
Defects of integumentary system								
Cystic hygroma	364	85	38	487	0.8	1.0	0.4	0.8
TOTAL	50	8	14	72	0.1	0.1	0.2	0.1
Chromosomal defects								
Trisomy 21	541	118	68	727	1.3	1.4	0.8	1.2
Trisomy 13	29	11	6	46	0.1	0.1	0.1	0.1
Trisomy 18	96	16	9	121	0.2	0.2	0.1	0.2
Turner syndrome	43	17	5	65	0.1	0.2	0.1	0.1
Other chromosomal defects	224	54	23	301	0.5	0.6	0.3	0.5
TOTAL	933	216	111	1260	2.2	2.5	1.3	2.1
Situs inversus	19	2	5	26	0.0	0.0	0.1	0.0
Congenital malformation syndromes	190	49	20	259	0.4	0.6	0.2	0.4
Congenital rubella syndrome	2	0	0	2	0.0	0.0	0.0	0.0
Congenital cytomegalovirus infection	8	1	0	9	0.0	0.0	0.0	0.0
Congenital toxoplasmosis	2	0	0	2	0.0	0.0	0.0	0.0
Non-immune hydrops foetalis	124	21	23	168	0.3	0.2	0.3	0.3
Other and unspecified birth defects	577	119	23	719	1.3	1.4	0.3	1.2
TOTAL	17930	3473	1704	231075	41.5	39.8	20.0	38.2

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

For 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, cases reported during pregnancy or at birth are reported.

Infant characteristics

In the period 1995–2001, a single defect was reported in 63.1 per cent of infants, two defects in 17.9 per cent, three defects in 8.0 per cent, and four or more defects in 11.0 per cent of cases.

The sex was male in 58.6 per cent of infants, female in 40.8 per cent, indeterminate in 0.4 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 102). Birth defects were also more common in infants born of a

multiple pregnancy than a singleton pregnancy: in 1995–2001, 2.0 per cent of singleton babies, 2.6 per cent of twins, and 3.4 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 103). 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 9.2 per 1,000 in 2001 (see Chapter 4).

TABLE 102

BIRTH DEFECT CASES BY GESTATIONAL AGE, NSW 1995–2001[#]

Gestational age (weeks)	1995–1999		2000		Year 2001		1995–2001		Rate/1,000 births
	No.	%	No.	%	No.	%	No.	%	
20–27	460	4.8	114	6.1	87	8.9	661	5.3	167.0
28–31	276	2.9	59	3.2	26	2.7	361	2.9	84.4
32–36	1091	11.4	223	12.0	119	12.2	1433	11.5	42.8
37–41	7238	75.5	1358	73.2	716	73.4	9312	75.0	17.0
42+	234	2.4	42	2.3	25	2.6	301	2.4	20.6
Not stated	284	3.0	59	3.2	2	0.2	345	2.8	–
TOTAL	9583	100.0	1855	100.0	975	100.0	12413	100.0	20.5

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

For 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, cases reported during pregnancy or at birth are reported.

TABLE 103

BIRTH DEFECT CASES BY PREGNANCY OUTCOME, NSW 1995–2001[#]

Pregnancy outcome	1995–1999		2000		Year 2001		1995–2001	
	No.	%	No.	%	No.	%	No.	%
Stillbirth	505	5.3	119	6.4	87	8.9	711	5.7
Liveborn/ neonatal death	424	4.4	70	3.8	70	7.2	564	4.5
Liveborn/ postneonatal death	88	0.9	18	1.0	5	0.5	111	0.9
Liveborn surviving	8566	89.4	1648	88.8	813	83.4	11027	88.8
TOTAL	9583	100.0	1855	100.0	975	100.0	12413	100.0

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

For 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, 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 104). While the rate of birth defects is higher in older women, the majority of births occur in younger women: in 1995–2001, 77.5 per cent of babies with birth defects were born to women aged less than 35 years.

In 1995–2001, 226 babies of Aboriginal or Torres Strait Islander mothers were reported to have birth defects. The rate of birth defects among these babies was 16.6 per 1,000 compared with 20.7 per 1,000 for non-Aboriginal mothers.

TABLE 104

BIRTH DEFECT CASES BY MATERNAL AGE, NSW 1995–2001*

Maternal age (years)	1995–1999		2000		Year 2001		1995–2001		Rate/1,000 births
	No.	%	No.	%	No.	%	No.	%	
Under 20	471	4.9	89	4.8	50	5.1	610	4.9	21.2
20–24	1527	15.9	276	14.9	170	17.4	1973	15.9	19.5
25–29	2815	29.4	513	27.7	300	30.8	3628	29.2	18.8
30–34	2622	27.4	531	28.6	254	26.1	3407	27.4	18.6
35–39	1324	13.8	272	14.7	169	17.3	1765	14.2	21.2
40–44	302	3.2	71	3.8	29	3.0	402	3.2	27.7
45+	17	0.2	7	0.4	3	0.3	27	0.2	45.9
Not stated	505	5.3	96	5.2	0	0.0	601	4.8	–
TOTAL	9583	100.0	1855	100.0	975	100.0	12413	100.0	20.5

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

For 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, 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 1995–1999, about 190 terminations of pregnancy per year were reported to the NSW Birth Defects Register (Table 105). 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 250 in 1998, 308 in 1999, and 251 in 2000.

Of the total 1,320 terminations of pregnancy reported in 1995–2001, 817 (61.9 per cent) were associated with a chromosomal abnormality, the most common of which was Trisomy 21 (Down syndrome), and 268 (20.3 per cent) were associated with a neural tube defect (Table 106). In 1995–2001, 53.8 per cent of terminations were carried out in women aged less than 35 years (Table 107).

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 105

PREGNANCIES WITH FETUSES AFFECTED BY BIRTH DEFECTS AND RESULTING IN SPONTANEOUS ABORTION, TERMINATION OF PREGNANCY OR UNKNOWN OUTCOME, NSW 1995–2001

Pregnancy outcome	1995–1999		Year 2001		1995–2001
	No.	No.	No.	No.	
Spontaneous abortion	380	122	144	646	
Termination of pregnancy less than 20 weeks gestation	948	251	121	1320	
Unknown outcome	518	33	0	551	
TOTAL	1846	406	265	2517	

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

TABLE 106
BIRTH DEFECTS AMONG SPONTANEOUS ABORTIONS, TERMINATIONS OF PREGNANCY AND UNKNOWN OUTCOME OF PREGNANCY BY DIAGNOSTIC CATEGORY, NSW 1995–2001

Diagnostic category	1995–1999			Year 2000			2001			1995–2001		
	Spont. abortion No.	Termination of pregnancy less than 20 weeks gestation No.	Unknown outcome No.	Spont. abortion No.	Termination of pregnancy less than 20 weeks gestation No.	Unknown outcome No.	Spont. abortion No.	Termination of pregnancy less than 20 weeks gestation No.	Unknown outcome No.	Spont. abortion No.	Termination of pregnancy less than 20 weeks gestation No.	Unknown outcome No.
Defects of nervous system												
Neural tube defects	9	197	7	1	38	2	3	33	13	268	9	
Other nervous system defects	3	101	11	3	25	4	0	20	6	146	15	
TOTAL	12	298	18	4	63	6	3	53	19	414	24	
Defects of eye	0	3	1	0	0	0	0	1	0	4	1	
Defects of ear, face and neck	0	11	1	0	2	0	0	2	0	15	1	
Defects of cardiovascular system	3	155	38	4	35	3	1	17	8	207	41	
Defects of respiratory system	0	29	4	0	0	1	0	1	0	30	5	
Defects of gastrointestinal system	3	84	8	2	28	2	0	12	5	124	10	
Defects of genitourinary system	10	148	16	2	43	2	2	18	14	209	18	
Defects of musculoskeletal system	19	320	22	6	67	2	9	33	34	420	24	
Defects of the integumentary system	1	2	1	0	0	0	0	0	1	2	1	
Cystic hygroma	9	75	23	1	15	0	1	4	11	94	23	
Chromosomal defects												
Trisomy 21	35	254	185	8	93	7	6	33	49	380	192	
Trisomy 13	15	36	25	11	12	5	3	6	29	54	30	
Trisomy 18	24	110	73	4	30	2	8	12	36	152	75	
Turner syndrome	36	41	31	13	18	4	8	9	57	68	35	
Other chromosomal defects	249	115	139	84	34	8	115	14	448	163	147	
TOTAL	359	556	453	120	187	26	140	74	619	817	479	
Situs inversus	0	2	0	0	1	0	0	1	0	4	0	
Congenital malformation syndromes	0	21	2	0	2	0	2	3	2	26	2	
Non-immune hydrops foetalis	5	39	7	1	12	0	0	3	6	54	7	
Other and unspecified birth defects	1	33	19	2	1	1	0	2	3	36	20	
TOTAL	422	1776	613	142	456	43	158	224	722	2456	656	

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

TABLE 107
TRENDS IN REPORTED TERMINATIONS OF PREGNANCY ASSOCIATED WITH BIRTH DEFECTS BY MATERNAL AGE, 1995–2001

Year	Maternal age (years)																TOTAL No %	
	15–19		20–24		25–29		30–34		35–39		40–44		45+		Not stated			
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1995	6	3.9	19	12.3	31	20.0	38	24.5	33	21.3	23	14.8	2	1.3	3	1.9	155	100.0
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	55	21.7	46	18.2	64	25.3	52	20.6	4	1.6	10	4.0	253	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	5.6	40	15.9	63	25.1	75	29.9	43	17.1	3	1.2	11	4.4	251	100.0
2001	9	7.4	10	8.3	20	16.5	35	28.9	22	18.2	12	9.9	1	0.8	12	9.9	121	100.0
1995–2001	32	2.4	111	8.4	259	19.6	308	23.3	335	25.4	196	14.8	15	1.1	64	4.8	1320	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 108 and Figures 15 to 22. For 1995–2000, malformations reported up to one year of age are included; for 2001, malformations reported during pregnancy or at birth are included.

The reported number of infants born with neural tube was 45 in 1995 and 41 in 2000, and 33 have been reported for 2001 to date. The number of reported terminations of pregnancy was 38 in 1995, 34 in 2000, and 32 in 2001.

Over the period 1995–2001, the number of cases of isolated cleft palate ranged from 53 in 2001 to 91 in 1995, and for total cleft lip (including cases of cleft lip and cleft palate) from 71 in 2000 to 101 in 1995 (Figures 16 and 17). 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 134 in 2001 to 224 in 1995 (Figure 18), and cases of limb

reduction defects varied from 38 in 2001 to 61 in 1997 and 2000 (Figure 19).

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 20 and 21). The reported number of infants born with chromosomal defects rose from 176 in 1995 to 216 in 2000, and the number of reported terminations of pregnancy associated with chromosomal defects rose from 73 in 1995 to 221 in 1999. The number of infants born with Down syndrome was 113 in 1995 and 118 in 2000, while the number of reported terminations of pregnancy associated with Down syndrome rose from 27 in 1995 to 106 in 1999 and 93 in 2000.

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 22).

TABLE 108

SELECTED BIRTH DEFECTS BY YEAR, NSW 1995–2001[#]

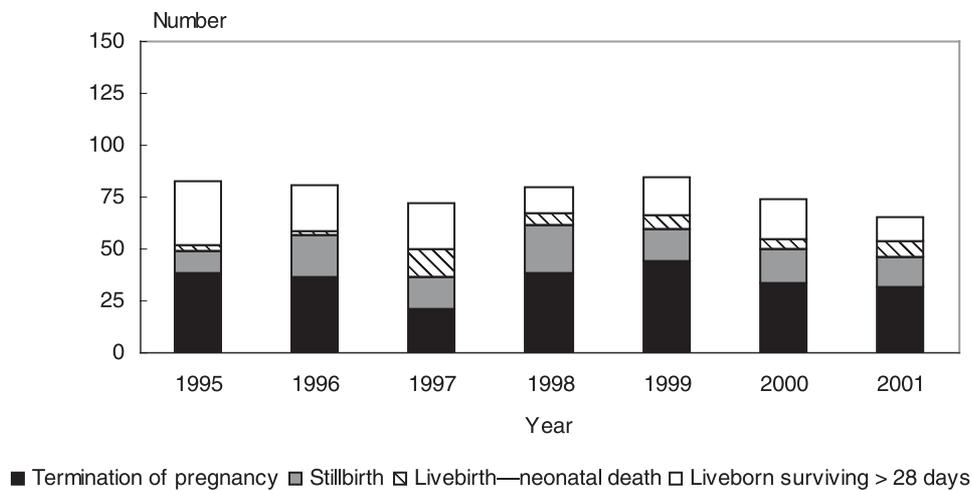
Birth defect	Year													
	1995		1996		1997		1998		1999		2000		2001	
	No.	Rate/ 1,000												
Neural tube defects	83	1.0	81	0.9	72	0.8	80	0.9	85	1.0	75	0.9	65	0.8
Cleft palate	91	1.1	71	0.8	65	0.7	68	0.8	67	0.8	79	0.9	53	0.6
Total cleft lip	101	1.2	87	1.0	86	1.0	89	1.0	84	1.0	71	0.8	77	0.9
Hypospadias	224	2.6	186	2.2	163	1.9	191	2.2	199	2.3	191	2.2	134	1.6
Limb reduction defects	55	0.6	44	0.5	61	0.7	54	0.6	56	0.6	61	0.7	38	0.4
Chromosomal abnormalities	249	2.9	232	2.7	235	2.7	357	4.2	413	4.8	401	4.6	184	2.2
Down syndrome	140	1.6	132	1.5	139	1.6	185	2.2	199	2.3	211	2.4	101	1.2
Renal agenesis and dysgenesis	56	0.6	66	0.8	85	1.0	99	1.2	80	0.9	82	0.9	45	0.5

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

[#] 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 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, cases reported during pregnancy or at birth are reported.

FIGURE 15

NEURAL TUBE DEFECTS: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1995–2001#

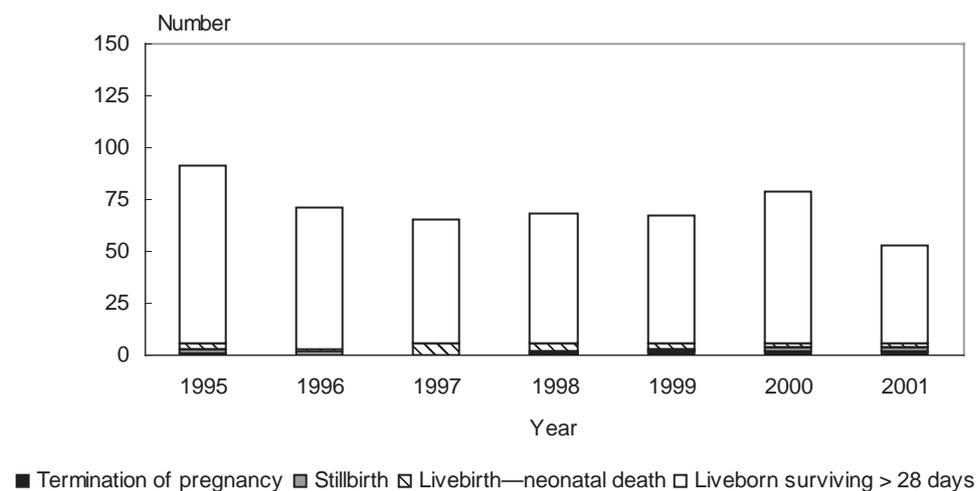


Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.

For 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, cases reported during pregnancy or at birth are reported.

FIGURE 16

CLEFT PALATE: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1995–2001#

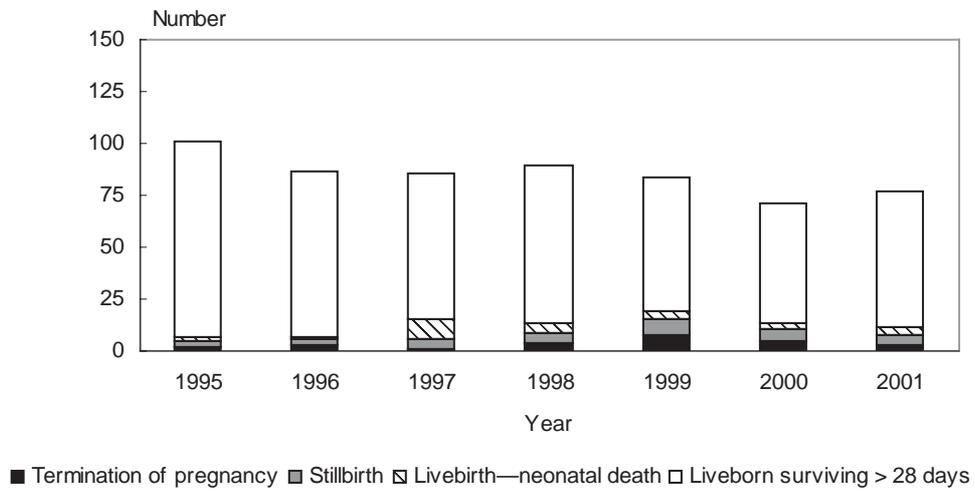


Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.

For 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, cases reported during pregnancy or at birth are reported.

FIGURE 17

TOTAL CLEFT LIP: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1995–2001#

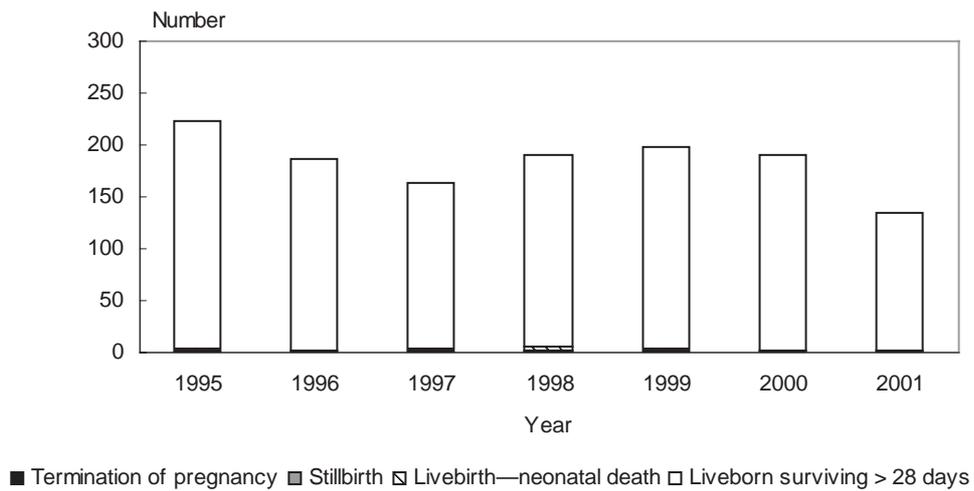


Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.

For 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, cases reported during pregnancy or at birth are reported.

FIGURE 18

HYPOSPADIAS: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1995–2001#

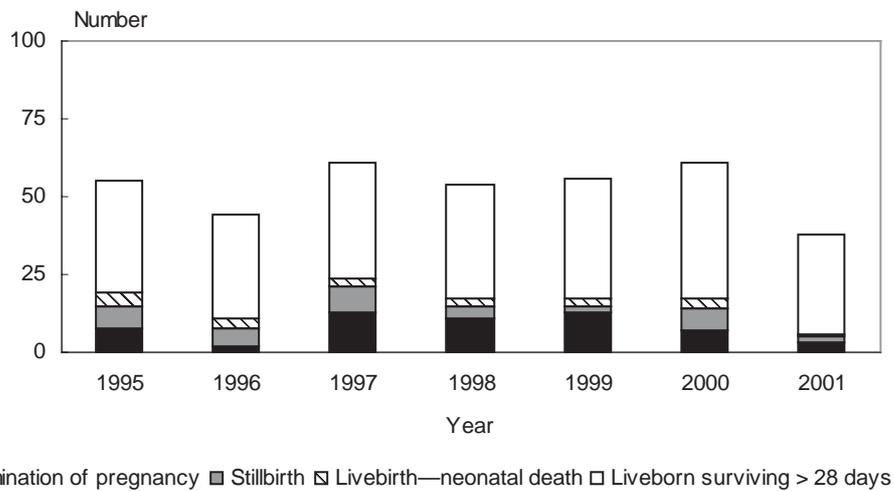


Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.

For 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, cases reported during pregnancy or at birth are reported.

FIGURE 19

LIMB REDUCTION DEFECTS: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1995–2001#

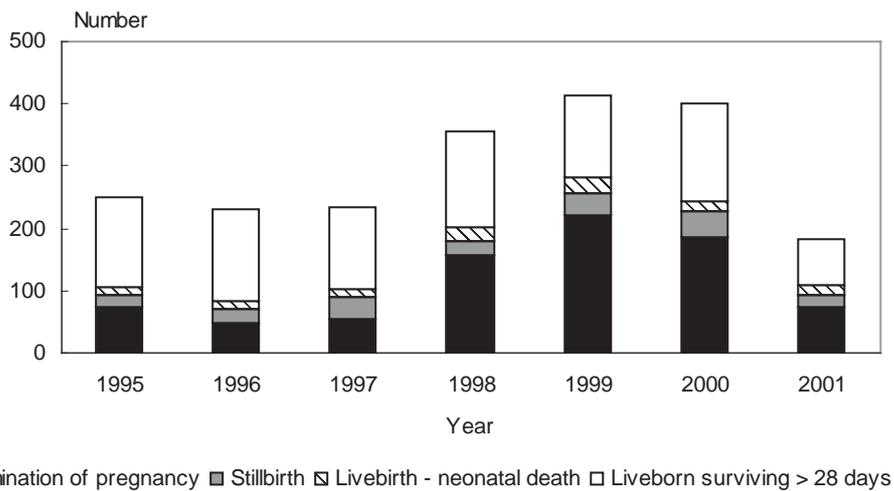


Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.

For 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, cases reported during pregnancy or at birth are reported.

FIGURE 20

CHROMOSOMAL ABNORMALITIES: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1995–2001#

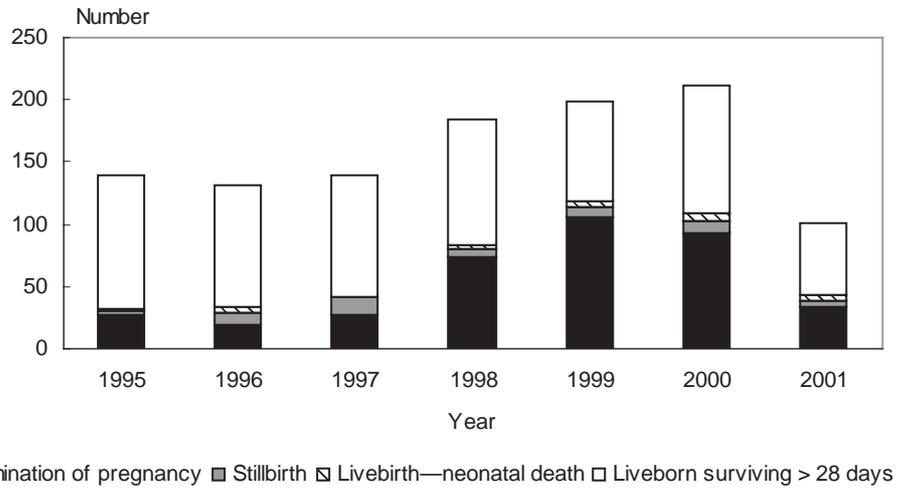


Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.

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 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, cases reported during pregnancy or at birth are reported.

FIGURE 21

DOWN SYNDROME: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1995–2001[#]

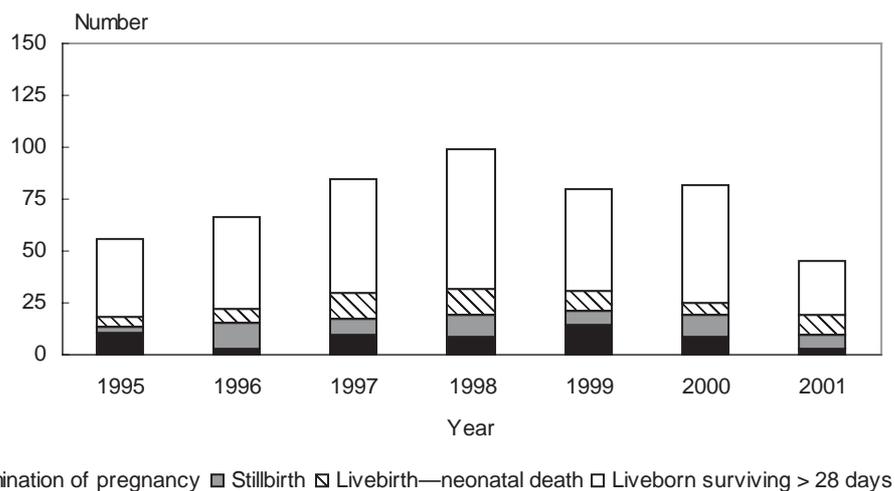


Source: NSW Birth Defects Register. Centre for Epidemiology and Research, NSW Department of Health.

[#] 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 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, cases reported during pregnancy or at birth are reported.

FIGURE 22

RENAL AGENESIS AND DYSGENESIS: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1995–2001[#]



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 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, 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 109. 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 104). 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 1995–2001, standardised rates of reported birth defects were lowest in the Central Sydney Health Area and highest in the Hunter Health Area. Review of cases showed slightly increased reported rates of several birth defects in the Hunter Area compared to NSW overall. Higher rates of neural tube defects and chromosomal abnormalities were reported in the Hunter Area, which is related to the relatively higher rates of notification of terminations of pregnancy for these conditions. In addition, higher rates of unstable hips (but not dislocated hips), and isolated atrial septal defect and ventricular septal defect, were reported. The higher rate of hypospadias in the Hunter Area that was reported in previous years has not persisted. The 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 109

BIRTH DEFECTS IN NSW HEALTH AREAS, 1995–2001[#]

Health Area	1995–1999			2000			2001			1995–2001			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	731	21.7	20.0	171	24.7	22.9	86	12.8	13.8	988	20.9	19.5	17.7	21.4
Northern Sydney	1120	24.9	24.2	235	24.5	22.4	108	11.5	13.6	1463	22.9	22.2	20.1	24.4
Western Sydney	1259	23.8	23.1	273	24.9	24.2	146	13.3	13.3	1678	22.4	21.8	20.4	23.3
Wentworth	633	25.8	25.5	115	23.0	22.5	63	13.2	13.0	811	23.7	23.3	21.2	25.5
South Western														
Sydney	1453	23.5	22.8	291	22.8	21.9	133	10.7	11.1	1877	21.6	21.0	19.7	22.3
Central Coast	478	25.2	25.2	84	21.9	20.6	40	10.9	11.0	602	22.8	22.5	20.2	25.1
Hunter	978	27.6	27.3	184	25.9	25.3	121	17.7	18.0	1283	26.0	25.7	23.9	27.7
Illawarra	481	21.5	21.0	110	24.5	24.4	49	11.3	11.6	640	20.5	20.1	18.1	22.3
South Eastern														
Sydney	1216	26.4	24.5	237	24.0	21.4	104	10.9	10.2	1557	23.8	22.0	20.4	23.8
Northern Rivers	307	20.6	20.9	56	20.0	20.6	42	15.0	14.7	405	19.7	20.0	17.5	22.7
Mid North Coast	359	23.6	23.3	77	27.0	26.2	46	16.2	16.5	482	23.0	22.8	20.1	25.7
New England	284	23.0	23.4	47	20.5	20.5	40	17.7	17.8	371	21.9	22.3	19.4	25.5
Macquarie	199	24.0	24.0	38	23.4	21.4	24	15.2	15.1	261	22.7	22.4	18.9	26.3
Mid Western	251	20.9	20.5	56	24.2	22.4	31	13.6	13.4	338	20.3	19.8	17.1	22.8
Far West	68	23.5	22.9	8	15.0	14.2	9	15.7	16.3	85	21.2	21.0	15.1	28.2
Greater Murray	332	20.6	20.2	45	17.6	17.2	26	10.1	10.4	403	19.0	18.6	16.3	21.2
Southern	218	23.4	20.7	41	23.0	20.0	15	8.9	9.4	274	21.4	19.2	16.1	22.6
TOTAL NSW	10367	24.0	23.2	2068	23.7	22.7	1083	12.7	13.0	13518	22.4	21.6	21.1	22.1

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 1995–2000, cases reported during pregnancy and up to one year of age are included. For 2001, 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 110 gives onset or augmentation of labour for individual hospitals where the number of reported deliveries exceeded 200 in 2001, totals for all hospitals within each health area and the NSW total.

TABLE 110

CONFINEMENTS BY ONSET AND AUGMENTATION OF LABOUR AND HOSPITAL, NSW 2001*

Health Area and Hospital	Onset and augmentation of labour																				
	Spontaneous		Spontaneous augmented with ARM		Spontaneous augmented oxytocics-prostagl.		No labour		Induced-oxytocics-prostagl.		Induced-ARM only		Induced-ARM+ oxytocics-prostagl.		Induced-other**		Not stated		TOTAL		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Central Sydney																					
Canterbury	919	60.7	0	0.0	179	11.8	100	6.6	298	19.7	17	1.1	0	0.0	1	0.1	0	0.0	1514	100.0	
King George V	1814	51.5	0	0.0	476	13.5	489	13.9	714	20.3	26	0.7	0	0.0	1	0.0	0	0.0	3520	100.0	
ALL HOSPITALS	2733	54.3	0	0.0	655	13.0	589	11.7	1012	20.1	43	0.9	0	0.0	2	0.0	0	0.0	5034	100.0	
Northern Sydney																					
Hornsby	410	44.9	41	4.5	83	9.1	121	13.2	62	6.8	4	0.4	193	21.1	0	0.0	0	0.0	914	100.0	
Manly	383	47.9	30	3.8	57	7.1	98	12.3	60	7.5	32	4.0	140	17.5	0	0.0	0	0.0	800	100.0	
Mona Vale	281	44.9	13	2.1	85	13.6	76	12.1	42	6.7	2	0.3	127	20.3	0	0.0	0	0.0	626	100.0	
Royal North Shore	627	44.7	61	4.4	184	13.1	210	15.0	109	7.8	16	1.1	195	13.9	0	0.0	0	0.0	1402	100.0	
Ryde	315	56.3	14	2.5	48	8.6	46	8.2	37	6.6	2	0.4	98	17.5	0	0.0	0	0.0	560	100.0	
Mater, North Sydney	640	29.6	214	9.9	260	12.0	468	21.6	184	8.5	74	3.4	321	14.8	2	0.1	0	0.0	2163	100.0	
North Shore Private	658	34.7	59	3.1	187	9.9	445	23.4	103	5.4	42	2.2	384	20.2	20	1.1	0	0.0	1898	100.0	
Sydney Adventist	463	20.1	281	12.2	323	14.0	431	18.7	164	7.1	21	0.9	624	27.0	0	0.0	0	0.0	2307	100.0	
ALL HOSPITALS	3777	35.4	713	6.7	1227	11.5	1895	17.8	761	7.1	193	1.8	2082	19.5	22	0.2	0	0.0	10670	100.0	
Western Sydney																					
Auburn	746	59.3	58	4.6	116	9.2	114	9.1	67	5.3	2	0.2	152	12.1	4	0.3	0	0.0	1259	100.0	
Blacktown	1112	41.9	411	15.5	217	8.2	227	8.6	177	6.7	22	0.8	482	18.2	5	0.2	0	0.0	2653	100.0	
Westmead	1903	50.5	239	6.3	466	12.4	435	11.5	139	3.7	17	0.5	560	14.9	9	0.2	0	0.0	3768	100.0	
The Hills Private	314	24.9	125	9.9	171	13.5	185	14.7	82	6.5	14	1.1	371	29.4	0	0.0	0	0.0	1262	100.0	
Westmead Private	354	31.6	133	11.9	176	15.7	148	13.2	100	8.9	10	0.9	187	16.7	9	0.8	4	0.4	1121	100.0	
Other Area hospitals	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	
ALL HOSPITALS	4430	44.0	966	9.6	1146	11.4	1109	11.0	565	5.6	65	0.6	1752	17.4	27	0.3	4	0.0	10064	100.0	
Wentworth																					
Blue Mountains	246	64.4	11	2.9	20	5.2	32	8.4	25	6.5	21	5.5	25	6.5	2	0.5	0	0.0	382	100.0	
Nepean	1688	52.7	75	2.3	187	5.8	411	12.8	200	6.2	36	1.1	577	18.0	28	0.9	0	0.0	3202	100.0	
Hawkesbury	444	46.0	138	14.3	63	6.5	84	8.7	108	11.2	19	2.0	109	11.3	0	0.0	0	0.0	965	100.0	
Nepean Private	221	28.8	103	13.4	51	6.6	128	16.7	89	11.6	11	1.4	151	19.7	13	1.7	1	0.1	768	100.0	
ALL HOSPITALS	2599	48.9	327	6.2	321	6.0	655	12.3	422	7.9	87	1.6	862	16.2	43	0.8	1	0.0	5317	100.0	
South Western Sydney																					
Fairfield	1067	57.9	49	2.7	175	9.5	181	9.8	91	4.9	4	0.2	270	14.7	6	0.3	0	0.0	1843	100.0	
Liverpool	1445	48.5	209	7.0	337	11.3	259	8.7	239	8.0	40	1.3	421	14.1	30	1.0	0	0.0	2980	100.0	
Campbelltown	1332	51.5	185	7.1	163	6.3	256	9.9	117	4.5	33	1.3	481	18.6	21	0.8	0	0.0	2588	100.0	
Bankstown/Lidcombe	1117	62.4	56	3.1	103	5.8	170	9.5	148	8.3	11	0.6	176	9.8	10	0.6	0	0.0	1791	100.0	
Sydney Southwest Private	237	28.4	66	7.9	81	9.7	131	15.7	111	13.3	17	2.0	190	22.8	1	0.1	0	0.0	834	100.0	
Bowral	423	60.9	9	1.3	28	4.0	64	9.2	55	7.9	20	2.9	90	12.9	6	0.9	0	0.0	695	100.0	
ALL HOSPITALS	5621	52.4	574	5.3	887	8.3	1061	9.9	761	7.1	125	1.2	1628	15.2	74	0.7	0	0.0	10731	100.0	
Central Coast																					
Gosford	712	33.2	299	13.9	367	17.1	227	10.6	196	9.1	10	0.5	336	15.6	0	0.0	0	0.0	2147	100.0	
Wyangong	229	62.6	104	28.4	22	6.0	2	0.5	4	1.1	1	0.3	4	1.1	0	0.0	0	0.0	366	100.0	
North Gosford Private	239	26.9	88	9.9	85	9.6	203	22.8	69	7.8	26	2.9	177	19.9	2	0.2	0	0.0	889	100.0	
ALL HOSPITALS	1180	34.7	491	14.4	474	13.9	432	12.7	269	7.9	37	1.1	517	15.2	2	0.1	0	0.0	3402	100.0	
Hunter																					
Maitland	750	59.0	18	1.4	50	3.9	167	13.1	97	7.6	32	2.5	156	12.3	1	0.1	0	0.0	1271	100.0	
Muswellbrook	105	51.2	21	10.2	7	3.4	14	6.8	36	17.6	3	1.5	19	9.3	0	0.0	0	0.0	205	100.0	
Belmont	382	56.9	28	4.2	30	4.5	54	8.0	49	7.3	4	0.6	122	18.2	2	0.3	0	0.0	671	100.0	
Singleton	92	45.3	24	11.8	15	7.4	16	7.9	37	18.2	3	1.5	15	7.4	1	0.5	0	0.0	203	100.0	
John Hunter	1819	56.4	152	4.7	178	5.5	356	11.0	225	7.0	81	2.5	384	11.9	33	1.0	0	0.0	3228	100.0	
Christo Road Private	435	43.9	45	4.5	37	3.7	183	18.4	87	8.8	24	2.4	178	17.9	3	0.3	0	0.0	992	100.0	
Other Area hospitals	126	43.6	31	10.7	11	3.8	95	32.9	16	5.5	1	0.3	8	2.8	1	0.3	0	0.0	289	100.0	
ALL HOSPITALS	3709	54.1	319	4.7	328	4.8	885	12.9	547	8.0	148	2.2	882	12.9	41	0.6	0	0.0	6859	100.0	
Illawarra																					
Shoalhaven	425	61.2	18	2.6	27	3.9	84	12.1	76	10.9	4	0.6	56	8.1	5	0.7	0	0.0	695	100.0	
Wollongong	622	32.5	337	17.6	232	12.1	185	9.7	131	6.8	25	1.3	378	19.7	6	0.3	0	0.0	1916	100.0	
Shellharbour	158	41.3	68	17.8	59	15.4	24	6.3	22	5.7	3	0.8	49	12.8	0	0.0	0	0.0	383	100.0	
Illawarra Private	256	28.8	117	13.1	82	9.2	134	15.1	48	5.4	8	0.9	244	27.4	1	0.1	0	0.0	890	100.0	
Other Area hospitals	37	28.7	10	7.8	1	0.8	39	30.2	17	13.2	3	2.3	22	17.1	0	0.0	0	0.0	129	100.0	
ALL HOSPITALS	1498	37.3	550	13.7	401	10.0	466	11.6	294	7.3	43	1.1	749	18.7	12	0.3	0	0.0	4013	100.0	

TABLE 110 (continued)
CONFINEMENTS BY ONSET AND AUGMENTATION OF LABOUR AND HOSPITAL, NSW 2001#

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	1646	45.1	103	2.8	664	18.2	469	12.9	253	6.9	30	0.8	471	12.9	11	0.3	0	0.0	3647	100.0
St. George	1274	55.8	142	6.2	219	9.6	226	9.9	214	9.4	22	1.0	184	8.1	4	0.2	0	0.0	2285	100.0
Sutherland	314	43.2	54	7.4	98	13.5	72	9.9	45	6.2	13	1.8	127	17.5	4	0.6	0	0.0	727	100.0
Hurstville Community	256	21.2	127	10.5	202	16.7	230	19.0	85	7.0	7	0.6	299	24.8	2	0.2	0	0.0	1208	100.0
Kareena Private	108	18.4	32	5.4	71	12.1	155	26.4	80	13.6	7	1.2	135	23.0	0	0.0	0	0.0	588	100.0
St. George Private	467	32.3	105	7.3	202	14.0	257	17.7	172	11.9	21	1.5	224	15.5	0	0.0	0	0.0	1448	100.0
Prince of Wales Private	527	29.2	230	12.7	213	11.8	423	23.4	165	9.1	31	1.7	215	11.9	3	0.2	0	0.0	1807	100.0
ALL HOSPITALS	4592	39.2	793	6.8	1669	14.3	1832	15.6	1014	8.7	131	1.1	1655	14.1	24	0.2	0	0.0	11710	100.0
Northern Rivers																				
Grafton Base	165	39.1	43	10.2	38	9.0	69	16.4	43	10.2	8	1.9	56	13.3	0	0.0	0	0.0	422	100.0
Lismore Base	694	52.3	147	11.1	94	7.1	107	8.1	116	8.7	30	2.3	135	10.2	5	0.4	0	0.0	1328	100.0
Murwillumbah	161	39.9	48	11.9	50	12.4	50	12.4	53	13.1	3	0.7	39	9.7	0	0.0	0	0.0	404	100.0
Tweed Heads	292	43.8	81	12.1	59	8.8	75	11.2	32	4.8	11	1.6	117	17.5	0	0.0	0	0.0	667	100.0
Other Area hospitals	226	67.9	38	11.4	14	4.2	38	11.4	3	0.9	6	1.8	8	2.4	0	0.0	0	0.0	333	100.0
ALL HOSPITALS	1538	48.8	357	11.3	255	8.1	339	10.7	247	7.8	58	1.8	355	11.3	5	0.2	0	0.0	3154	100.0
Mid North Coast																				
Coffs Harbour	295	41.0	57	7.9	52	7.2	117	16.3	64	8.9	14	1.9	120	16.7	0	0.0	0	0.0	719	100.0
Kempsey	127	44.9	48	17.0	17	6.0	20	7.1	37	13.1	3	1.1	31	11.0	0	0.0	0	0.0	283	100.0
Port Macquarie Base	276	36.8	94	12.6	63	8.4	114	15.2	95	12.7	10	1.3	97	13.0	0	0.0	0	0.0	749	100.0
Manning Base	331	49.6	75	11.2	38	5.7	66	9.9	51	7.6	10	1.5	96	14.4	0	0.0	0	0.0	667	100.0
Other Area hospitals	149	55.4	38	14.1	16	5.9	21	7.8	8	3.0	3	1.1	34	12.6	0	0.0	0	0.0	269	100.0
ALL HOSPITALS	1178	43.8	312	11.6	186	6.9	338	12.6	255	9.5	40	1.5	378	14.1	0	0.0	0	0.0	2687	100.0
New England																				
Armidale	122	26.1	72	15.4	60	12.8	71	15.2	57	12.2	8	1.7	75	16.1	2	0.4	0	0.0	467	100.0
Inverell	80	30.9	46	17.8	26	10.0	38	14.7	28	10.8	6	2.3	35	13.5	0	0.0	0	0.0	259	100.0
Moree	127	54.3	17	7.3	14	6.0	13	5.6	14	6.0	3	1.3	39	16.7	7	3.0	0	0.0	234	100.0
Tamworth Base	195	32.2	106	17.5	42	6.9	94	15.5	40	6.6	14	2.3	114	18.8	1	0.2	0	0.0	606	100.0
Other Area hospitals	274	39.3	76	10.9	37	5.3	98	14.1	133	19.1	9	1.3	70	10.0	0	0.0	0	0.0	697	100.0
ALL HOSPITALS	798	35.3	317	14.0	179	7.9	314	13.9	272	12.0	40	1.8	333	14.7	10	0.4	0	0.0	2263	100.0
Macquarie																				
Dubbo Base	425	34.1	161	12.9	125	10.0	129	10.3	142	11.4	38	3.0	226	18.1	2	0.2	0	0.0	1248	100.0
Mudgee	117	53.4	24	11.0	10	4.6	22	10.0	25	11.4	5	2.3	16	7.3	0	0.0	0	0.0	219	100.0
Other Area hospitals	87	61.7	18	12.8	3	2.1	27	19.1	2	1.4	0	0.0	4	2.8	0	0.0	0	0.0	141	100.0
ALL HOSPITALS	629	39.1	203	12.6	138	8.6	178	11.1	169	10.5	43	2.7	246	15.3	2	0.1	0	0.0	1608	100.0
Mid Western																				
Bathurst Base	289	50.3	61	10.6	22	3.8	103	17.9	73	12.7	3	0.5	23	4.0	1	0.2	0	0.0	575	100.0
Orange Base	278	36.2	137	17.8	59	7.7	106	13.8	38	4.9	25	3.3	125	16.3	1	0.1	0	0.0	769	100.0
Other Area hospitals	330	42.4	104	13.4	47	6.0	114	14.7	113	14.5	12	1.5	57	7.3	1	0.1	0	0.0	778	100.0
ALL HOSPITALS	897	42.3	302	14.2	128	6.0	323	15.2	224	10.6	40	1.9	205	9.7	3	0.1	0	0.0	2122	100.0
Far West																				
Broken Hill Base	200	66.4	18	6.0	17	5.6	21	7.0	19	6.3	4	1.3	22	7.3	0	0.0	0	0.0	301	100.0
Other Area hospitals	43	57.3	7	9.3	8	10.7	4	5.3	10	13.3	0	0.0	2	2.7	1	1.3	0	0.0	75	100.0
ALL HOSPITALS	243	64.6	25	6.6	25	6.6	25	6.6	29	7.7	4	1.1	24	6.4	1	0.3	0	0.0	376	100.0
Greater Murray																				
Griffith Base	265	54.8	45	9.3	20	4.1	60	12.4	53	11.0	15	3.1	26	5.4	0	0.0	0	0.0	484	100.0
Wagga Wagga Base	371	44.5	74	8.9	78	9.4	106	12.7	98	11.8	11	1.3	86	10.3	9	1.1	0	0.0	833	100.0
Calvary, Wagga Wagga	167	33.1	24	4.8	31	6.1	97	19.2	123	24.4	20	4.0	43	8.5	0	0.0	0	0.0	505	100.0
Other Area hospitals	343	43.1	94	11.8	18	2.3	85	10.7	158	19.8	20	2.5	78	9.8	0	0.0	0	0.0	796	100.0
ALL HOSPITALS	1146	43.8	237	9.1	147	5.6	348	13.3	432	16.5	66	2.5	233	8.9	9	0.3	0	0.0	2618	100.0
Southern																				
Goulburn Base	190	58.6	32	9.9	30	9.3	45	13.9	18	5.6	0	0.0	9	2.8	0	0.0	0	0.0	324	100.0
Queanbeyan	178	55.3	21	6.5	25	7.8	42	13.0	44	13.7	0	0.0	12	3.7	0	0.0	0	0.0	322	100.0
Other Area hospitals	415	43.2	144	15.0	76	7.9	110	11.5	85	8.9	17	1.8	111	11.6	0	0.0	2	0.2	960	100.0
ALL HOSPITALS	783	48.8	197	12.3	131	8.2	197	12.3	147	9.2	17	1.1	132	8.2	0	0.0	2	0.1	1606	100.0
TOTAL NSW	37492	44.4	6684	7.9	8297	9.8	10986	13.0	7422	8.8	1181	1.4	12033	14.3	277	0.3	7	0.0	84379	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.

* King George V and Canterbury Hospitals supply data electronically and report augmentation by oxytocin-prostaglandin only.

Type of delivery in selected hospitals

Table 111 gives type of delivery for individual hospitals where the number of reported confinements exceeded 200 in 2001, totals for all hospitals within each health area and the NSW total.

TABLE 111

CONFINEMENTS BY TYPE OF DELIVERY AND HOSPITAL, NSW 2001*

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	1140	75.3	32	2.1	107	7.1	3	0.2	100	6.6	132	8.7	0	0.0	1514	100.0
King George V	2315	65.8	69	2.0	237	6.7	17	0.5	489	13.9	393	11.2	0	0.0	3520	100.0
ALL HOSPITALS	3455	68.6	101	2.0	344	6.8	20	0.4	589	11.7	525	10.4	0	0.0	5034	100.0
Northern Sydney																
Hornsby	616	67.4	28	3.1	69	7.5	1	0.1	121	13.2	79	8.6	0	0.0	914	100.0
Manly	537	67.1	32	4.0	59	7.4	1	0.1	98	12.3	73	9.1	0	0.0	800	100.0
Mona Vale	389	62.1	36	5.8	56	8.9	6	1.0	76	12.1	63	10.1	0	0.0	626	100.0
Royal North Shore	870	62.1	60	4.3	83	5.9	7	0.5	210	15.0	172	12.3	0	0.0	1402	100.0
Ryde	410	73.2	30	5.4	22	3.9	2	0.4	46	8.2	50	8.9	0	0.0	560	100.0
Mater, North Sydney	905	41.8	104	4.8	349	16.1	2	0.1	468	21.6	335	15.5	0	0.0	2163	100.0
North Shore Private	890	46.9	70	3.7	232	12.2	4	0.2	445	23.4	257	13.5	0	0.0	1898	100.0
Sydney Adventist	1324	57.4	166	7.2	146	6.3	2	0.1	431	18.7	238	10.3	0	0.0	2307	100.0
ALL HOSPITALS	5941	55.7	526	4.9	1016	9.5	25	0.2	1895	17.8	1267	11.9	0	0.0	10670	100.0
Western Sydney																
Auburn	985	78.2	48	3.8	29	2.3	11	0.9	114	9.1	72	5.7	0	0.0	1259	100.0
Blacktown	1898	71.5	142	5.4	96	3.6	9	0.3	227	8.6	281	10.6	0	0.0	2653	100.0
Westmead	2542	67.5	279	7.4	74	2.0	43	1.1	435	11.5	395	10.5	0	0.0	3768	100.0
The Hills Private	754	59.7	120	9.5	60	4.8	3	0.2	185	14.7	140	11.1	0	0.0	1262	100.0
Westmead Private	600	53.5	130	11.6	77	6.9	1	0.1	148	13.2	159	14.2	6	0.5	1121	100.0
Other Area hospitals	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0
ALL HOSPITALS	6780	67.4	719	7.1	336	3.3	67	0.7	1109	11.0	1047	10.4	6	0.1	10064	100.0
Wentworth																
Blue Mountains	277	72.5	6	1.6	29	7.6	0	0.0	32	8.4	38	9.9	0	0.0	382	100.0
Nepean	2159	67.4	74	2.3	162	5.1	19	0.6	411	12.8	377	11.8	0	0.0	3202	100.0
Hawkesbury	694	71.9	66	6.8	36	3.7	3	0.3	84	8.7	82	8.5	0	0.0	965	100.0
Nepean Private	467	60.8	51	6.6	12	1.6	2	0.3	128	16.7	105	13.7	3	0.4	768	100.0
ALL HOSPITALS	3597	67.7	197	3.7	239	4.5	24	0.5	655	12.3	602	11.3	3	0.1	5317	100.0
South Western Sydney																
Fairfield	1434	77.8	24	1.3	95	5.2	8	0.4	181	9.8	101	5.5	0	0.0	1843	100.0
Liverpool	2156	72.3	59	2.0	207	6.9	30	1.0	259	8.7	269	9.0	0	0.0	2980	100.0
Campbelltown	1954	75.5	23	0.9	137	5.3	8	0.3	256	9.9	210	8.1	0	0.0	2588	100.0
Bankstown/Lidcombe	1342	74.9	27	1.5	93	5.2	11	0.6	170	9.5	148	8.3	0	0.0	1791	100.0
Sydney Southwest Private	469	56.2	35	4.2	104	12.5	0	0.0	131	15.7	95	11.4	0	0.0	834	100.0
Bowral	450	64.7	47	6.8	80	11.5	4	0.6	64	9.2	50	7.2	0	0.0	695	100.0
ALL HOSPITALS	7805	72.7	215	2.0	716	6.7	61	0.6	1061	9.9	873	8.1	0	0.0	10731	100.0
Central Coast																
Gosford	1419	66.1	25	1.2	218	10.2	4	0.2	227	10.6	254	11.8	0	0.0	2147	100.0
Wyong	332	90.7	3	0.8	14	3.8	1	0.3	2	0.5	14	3.8	0	0.0	366	100.0
North Gosford Private	444	49.9	21	2.4	120	13.5	2	0.2	203	22.8	99	11.1	0	0.0	889	100.0
ALL HOSPITALS	2195	64.5	49	1.4	352	10.3	7	0.2	432	12.7	367	10.8	0	0.0	3402	100.0
Hunter																
Maitland	857	67.4	37	2.9	87	6.8	1	0.1	167	13.1	122	9.6	0	0.0	1271	100.0
Muswellbrook	164	80.0	0	0.0	9	4.4	1	0.5	14	6.8	17	8.3	0	0.0	205	100.0
Belmont	522	77.8	13	1.9	34	5.1	1	0.1	54	8.0	47	7.0	0	0.0	671	100.0
Singleton	142	70.0	2	1.0	31	15.3	2	1.0	16	7.9	10	4.9	0	0.0	203	100.0
John Hunter	2237	69.3	73	2.3	219	6.8	27	0.8	356	11.0	316	9.8	0	0.0	3228	100.0
Christo Road Private	529	53.3	48	4.8	111	11.2	2	0.2	183	18.4	119	12.0	0	0.0	992	100.0
Other Area hospitals	166	57.4	7	2.4	9	3.1	2	0.7	95	32.9	10	3.5	0	0.0	289	100.0
ALL HOSPITALS	4617	67.3	180	2.6	500	7.3	36	0.5	885	12.9	641	9.3	0	0.0	6859	100.0
Illawarra																
Shoalhaven	492	70.8	35	5.0	0	0.0	3	0.4	84	12.1	81	11.7	0	0.0	695	100.0
Wollongong	1344	70.1	31	1.6	128	6.7	9	0.5	185	9.7	219	11.4	0	0.0	1916	100.0
Shellharbour	288	75.2	13	3.4	23	6.0	3	0.8	24	6.3	32	8.4	0	0.0	383	100.0
Illawarra Private	495	55.6	8	0.9	162	18.2	2	0.2	134	15.1	89	10.0	0	0.0	890	100.0
Other Area hospitals	76	58.9	2	1.6	9	7.0	0	0.0	39	30.2	3	2.3	0	0.0	129	100.0
ALL HOSPITALS	2695	67.2	89	2.2	322	8.0	17	0.4	466	11.6	424	10.6	0	0.0	4013	100.0

TABLE 111 (continued)

CONFINEMENTS BY TYPE OF DELIVERY AND HOSPITAL, NSW 2001*

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	2178	59.7	174	4.8	311	8.5	17	0.5	469	12.9	498	13.7	0	0.0	3647	100.0
St. George	1545	67.6	74	3.2	143	6.3	6	0.3	226	9.9	291	12.7	0	0.0	2285	100.0
Sutherland	486	66.9	31	4.3	46	6.3	3	0.4	72	9.9	89	12.2	0	0.0	727	100.0
Hurstville Community	577	47.8	119	9.9	117	9.7	5	0.4	230	19.0	160	13.2	0	0.0	1208	100.0
Kareena Private	223	37.9	79	13.4	44	7.5	2	0.3	155	26.4	85	14.5	0	0.0	588	100.0
St. George Private	723	49.9	135	9.3	136	9.4	3	0.2	257	17.7	194	13.4	0	0.0	1448	100.0
Prince of Wales Private	876	48.5	82	4.5	229	12.7	2	0.1	423	23.4	195	10.8	0	0.0	1807	100.0
ALL HOSPITALS	6608	56.4	694	5.9	1026	8.8	38	0.3	1832	15.6	1512	12.9	0	0.0	11710	100.0
Northern Rivers																
Grafton Base	270	64.0	25	5.9	6	1.4	2	0.5	69	16.4	50	11.8	0	0.0	422	100.0
Lismore Base	943	71.0	66	5.0	41	3.1	6	0.5	107	8.1	165	12.4	0	0.0	1328	100.0
Murwillumbah	289	71.5	4	1.0	13	3.2	1	0.2	50	12.4	47	11.6	0	0.0	404	100.0
Tweed Heads	483	72.4	13	1.9	38	5.7	4	0.6	75	11.2	54	8.1	0	0.0	667	100.0
Other Area hospitals	281	84.4	6	1.8	5	1.5	3	0.9	38	11.4	0	0.0	0	0.0	333	100.0
ALL HOSPITALS	2266	71.8	114	3.6	103	3.3	16	0.5	339	10.7	316	10.0	0	0.0	3154	100.0
Mid North Coast																
Coffs Harbour	457	63.6	28	3.9	28	3.9	3	0.4	117	16.3	86	12.0	0	0.0	719	100.0
Kempsey	239	84.5	2	0.7	1	0.4	2	0.7	20	7.1	19	6.7	0	0.0	283	100.0
Port Macquarie Base	495	66.1	30	4.0	17	2.3	6	0.8	114	15.2	87	11.6	0	0.0	749	100.0
Manning Base	499	74.8	2	0.3	33	4.9	10	1.5	66	9.9	57	8.5	0	0.0	667	100.0
Other Area hospitals	219	81.4	6	2.2	13	4.8	0	0.0	21	7.8	10	3.7	0	0.0	269	100.0
ALL HOSPITALS	1909	71.0	68	2.5	92	3.4	21	0.8	338	12.6	259	9.6	0	0.0	2687	100.0
New England																
Armidale	343	73.4	7	1.5	8	1.7	3	0.6	71	15.2	35	7.5	0	0.0	467	100.0
Inverell	191	73.7	12	4.6	1	0.4	0	0.0	38	14.7	17	6.6	0	0.0	259	100.0
Moree	180	76.9	6	2.6	7	3.0	2	0.9	13	5.6	25	10.7	1	0.4	234	100.0
Tamworth Base	366	60.4	19	3.1	50	8.3	3	0.5	94	15.5	74	12.2	0	0.0	606	100.0
Other Area hospitals	472	67.7	36	5.2	32	4.6	3	0.4	98	14.1	56	8.0	0	0.0	697	100.0
ALL HOSPITALS	1552	68.6	80	3.5	98	4.3	11	0.5	314	13.9	207	9.1	1	0.0	2263	100.0
Macquarie																
Dubbo Base	914	73.2	76	6.1	22	1.8	7	0.6	129	10.3	100	8.0	0	0.0	1248	100.0
Mudgee	153	69.9	0	0.0	23	10.5	2	0.9	22	10.0	19	8.7	0	0.0	219	100.0
Other Area hospitals	101	71.6	4	2.8	7	5.0	1	0.7	27	19.1	1	0.7	0	0.0	141	100.0
ALL HOSPITALS	1168	72.6	80	5.0	52	3.2	10	0.6	178	11.1	120	7.5	0	0.0	1608	100.0
Mid Western																
Bathurst Base	330	57.4	13	2.3	30	5.2	2	0.3	103	17.9	97	16.9	0	0.0	575	100.0
Orange Base	529	68.8	25	3.3	32	4.2	2	0.3	106	13.8	75	9.8	0	0.0	769	100.0
Other Area hospitals	520	66.8	9	1.2	38	4.9	2	0.3	114	14.7	95	12.2	0	0.0	778	100.0
ALL HOSPITALS	1379	65.0	47	2.2	100	4.7	6	0.3	323	15.2	267	12.6	0	0.0	2122	100.0
Far West																
Broken Hill Base	219	72.8	10	3.3	2	0.7	3	1.0	21	7.0	46	15.3	0	0.0	301	100.0
Other Area hospitals	63	84.0	1	1.3	1	1.3	1	1.3	4	5.3	4	5.3	1	1.3	75	100.0
ALL HOSPITALS	282	75.0	11	2.9	3	0.8	4	1.1	25	6.6	50	13.3	1	0.3	376	100.0
Greater Murray																
Griffith Base	326	67.4	23	4.8	17	3.5	2	0.4	60	12.4	56	11.6	0	0.0	484	100.0
Wagga Wagga Base	543	65.2	57	6.8	36	4.3	5	0.6	106	12.7	86	10.3	0	0.0	833	100.0
Calvary, Wagga Wagga	258	51.1	53	10.5	51	10.1	1	0.2	97	19.2	45	8.9	0	0.0	505	100.0
Other Area hospitals	561	70.5	35	4.4	27	3.4	4	0.5	85	10.7	84	10.6	0	0.0	796	100.0
ALL HOSPITALS	1688	64.5	168	6.4	131	5.0	12	0.5	348	13.3	271	10.4	0	0.0	2618	100.0
Southern																
Goulburn Base	218	67.3	28	8.6	1	0.3	0	0.0	45	13.9	32	9.9	0	0.0	324	100.0
Queanbeyan	241	74.8	6	1.9	7	2.2	2	0.6	42	13.0	24	7.5	0	0.0	322	100.0
Other Area hospitals	668	69.6	26	2.7	61	6.4	3	0.3	110	11.5	90	9.4	2	0.2	960	100.0
ALL HOSPITALS	1127	70.2	60	3.7	69	4.3	5	0.3	197	12.3	146	9.1	2	0.1	1606	100.0
TOTAL NSW	55206	65.4	3398	4.0	5499	6.5	383	0.5	10986	13.0	8894	10.5	13	0.0	84379	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 112 gives type of pain relief provided to women for individual hospitals where the number of reported confinements exceeded 200 in 2001, totals for all hospitals within each health area and the NSW total. In

addition to the types of pain relief listed a further 21,536 (25.1 per cent) women were reported to have received local anaesthetic to the perineum, and 802 (0.9 per cent) received a pudendal block.

TABLE 112

CONFINEMENTS BY TYPE OF PAIN RELIEF AND HOSPITAL, NSW 2001*

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	229	15.1	88	5.8	531	35.1	765	50.5	85	5.6	250	16.5	1514	100.0
King George V	1204	34.2	251	7.1	1277	36.3	1162	33.0	112	3.2	480	13.6	3520	100.0
ALL HOSPITALS	1433	28.5	339	6.7	1808	35.9	1927	38.3	197	3.9	730	14.5	5034	100.0
Northern Sydney														
Hornsby	346	37.9	38	4.2	247	27.0	476	52.1	28	3.1	62	6.8	914	100.0
Manly	249	31.1	22	2.8	254	31.8	386	48.3	105	13.1	62	7.8	800	100.0
Mona Vale	236	37.7	13	2.1	267	42.7	227	36.3	87	13.9	54	8.6	626	100.0
Royal North Shore	512	36.5	66	4.7	359	25.6	748	53.4	237	16.9	59	4.2	1402	100.0
Ryde	117	20.9	32	5.7	123	22.0	323	57.7	50	8.9	53	9.5	560	100.0
Mater, North Sydney	1357	62.7	53	2.5	368	17.0	905	41.8	49	2.3	39	1.8	2163	100.0
North Shore Private	1118	58.9	46	2.4	222	11.7	724	38.1	263	13.9	56	3.0	1898	100.0
Sydney Adventist	1273	55.2	92	4.0	286	12.4	755	32.7	99	4.3	71	3.1	2307	100.0
ALL HOSPITALS	5208	48.8	362	3.4	2126	19.9	4544	42.6	918	8.6	456	4.3	10670	100.0
Western Sydney														
Auburn	118	9.4	96	7.6	329	26.1	662	52.6	61	4.8	239	19.0	1259	100.0
Blacktown	619	23.3	202	7.6	467	17.6	1471	55.4	151	5.7	504	19.0	2653	100.0
Westmead	1433	38.0	263	7.0	629	16.7	1723	45.7	176	4.7	399	10.6	3768	100.0
The Hills Private	659	52.2	49	3.9	208	16.5	471	37.3	27	2.1	78	6.2	1262	100.0
Westmead Private	435	38.8	78	7.0	235	21.0	571	50.9	98	8.7	88	7.9	1121	100.0
Other Area hospitals	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	1	100.0
ALL HOSPITALS	3264	32.4	688	6.8	1868	18.6	4898	48.7	513	5.1	1309	13.0	10064	100.0
Wentworth														
Blue Mountains	93	24.3	17	4.5	119	31.2	174	45.5	32	8.4	61	16.0	382	100.0
Nepean	796	24.9	287	9.0	1079	33.7	1851	57.8	263	8.2	357	11.1	3202	100.0
Hawkesbury	64	6.6	62	6.4	300	31.1	587	60.8	98	10.2	160	16.6	965	100.0
Nepean Private	192	25.0	55	7.2	236	30.7	440	57.3	119	15.5	66	8.6	768	100.0
ALL HOSPITALS	1145	21.5	421	7.9	1734	32.6	3052	57.4	512	9.6	644	12.1	5317	100.0
South Western Sydney														
Fairfield	101	5.5	224	12.2	507	27.5	976	53.0	32	1.7	332	18.0	1843	100.0
Liverpool	507	17.0	244	8.2	1105	37.1	1639	55.0	154	5.2	293	9.8	2980	100.0
Campbelltown	262	10.1	206	8.0	1056	40.8	1642	63.4	209	8.1	275	10.6	2588	100.0
Bankstown/Lidcombe	159	8.9	132	7.4	441	24.6	1049	58.6	144	8.0	230	12.8	1791	100.0
Sydney Southwest Private	215	25.8	55	6.6	287	34.4	462	55.4	78	9.4	41	4.9	834	100.0
Bowral	178	25.6	22	3.2	261	37.6	328	47.2	45	6.5	93	13.4	695	100.0
ALL HOSPITALS	1422	13.3	883	8.2	3657	34.1	6096	56.8	662	6.2	1264	11.8	10731	100.0
Central Coast														
Gosford	544	25.3	124	5.8	836	38.9	1077	50.2	273	12.7	19	0.9	2147	100.0
Wyong	0	0.0	14	3.8	80	21.9	161	44.0	3	0.8	6	1.6	366	100.0
North Gosford Private	362	40.7	24	2.7	213	24.0	376	42.3	149	16.8	46	5.2	889	100.0
ALL HOSPITALS	906	26.6	162	4.8	1129	33.2	1614	47.4	425	12.5	71	2.1	3402	100.0
Hunter														
Maitland	121	9.5	96	7.6	403	31.7	735	57.8	188	14.8	156	12.3	1271	100.0
Muswellbrook	5	2.4	3	1.5	47	22.9	108	52.7	30	14.6	58	28.3	205	100.0
Belmont	38	5.7	30	4.5	297	44.3	423	63.0	64	9.5	81	12.1	671	100.0
Singleton	19	9.4	7	3.4	53	26.1	130	64.0	18	8.9	36	17.7	203	100.0
John Hunter	635	19.7	203	6.3	814	25.2	1550	48.0	415	12.9	470	14.6	3228	100.0
Christo Road Private	322	32.5	36	3.6	190	19.2	384	38.7	139	14.0	130	13.1	992	100.0
Other Area hospitals	28	9.7	24	8.3	40	13.8	111	38.4	56	19.4	48	16.6	289	100.0
ALL HOSPITALS	1168	17.0	399	5.8	1844	26.9	3441	50.2	910	13.3	979	14.3	6859	100.0
Illawarra														
Shoalhaven	69	9.9	33	4.7	140	20.1	283	40.7	121	17.4	126	18.1	695	100.0
Wollongong	369	19.3	136	7.1	525	27.4	1281	66.9	148	7.7	192	10.0	1916	100.0
Shellharbour	70	18.3	14	3.7	123	32.1	260	67.9	18	4.7	43	11.2	383	100.0
Illawarra Private	289	32.5	56	6.3	162	18.2	544	61.1	55	6.2	30	3.4	890	100.0
Other Area hospitals	10	7.8	4	3.1	33	25.6	43	33.3	38	29.5	19	14.7	129	100.0
ALL HOSPITALS	807	20.1	243	6.1	983	24.5	2411	60.1	380	9.5	410	10.2	4013	100.0

TABLE 112 (continued)
CONFINEMENTS BY TYPE OF PAIN RELIEF AND HOSPITAL, NSW 2001#

Health Area and Hospital	Epidural		General anaesthetic		Type of pain relief				Spinal		Nil		TOTAL	
	No.	%	No.	%	IM narcotics		Nitrous oxide		No.	%	No.	%	No.	%
					No.	%	No.	%						
South Eastern Sydney														
Royal Hospital for Women	1731	47.5	78	2.1	786	21.6	1446	39.6	298	8.2	298	8.2	3647	100.0
St. George	637	27.9	110	4.8	480	21.0	1157	50.6	214	9.4	346	15.1	2285	100.0
Sutherland	261	35.9	19	2.6	51	7.0	338	46.5	90	12.4	98	13.5	727	100.0
Hurstville Community	788	65.2	44	3.6	91	7.5	324	26.8	31	2.6	87	7.2	1208	100.0
Kareena Private	449	76.4	14	2.4	52	8.8	157	26.7	33	5.6	15	2.6	588	100.0
St. George Private	889	61.4	48	3.3	265	18.3	654	45.2	49	3.4	58	4.0	1448	100.0
Prince of Wales Private	1374	76.0	11	0.6	91	5.0	508	28.1	70	3.9	51	2.8	1807	100.0
ALL HOSPITALS	6129	52.3	324	2.8	1816	15.5	4584	39.1	785	6.7	953	8.1	11710	100.0
Northern Rivers														
Grafton Base	102	24.2	61	14.5	85	20.1	190	45.0	23	5.5	64	15.2	422	100.0
Lismore Base	424	31.9	36	2.7	351	26.4	545	41.0	88	6.6	211	15.9	1328	100.0
Murwillumbah	52	12.9	66	16.3	110	27.2	210	52.0	5	1.2	64	15.8	404	100.0
Tweed Heads	123	18.4	26	3.9	260	39.0	346	51.9	46	6.9	94	14.1	667	100.0
Other Area hospitals	26	7.8	.	.	53	15.9	109	32.7	12	3.6	140	42.0	333	100.0
ALL HOSPITALS	727	23.1	189	6.0	859	27.2	1400	44.4	174	5.5	573	18.2	3154	100.0
Mid North Coast														
Coffs Harbour	122	17.0	85	11.8	199	27.7	371	51.6	72	10.0	112	15.6	719	100.0
Kempsey	40	14.1	9	3.2	99	35.0	169	59.7	17	6.0	63	22.3	283	100.0
Port Macquarie Base	176	23.5	72	9.6	167	22.3	417	55.7	39	5.2	87	11.6	749	100.0
Manning Base	83	12.4	37	5.5	319	47.8	411	61.6	79	11.8	66	9.9	667	100.0
Other Area hospitals	22	8.2	3	1.1	59	21.9	102	37.9	21	7.8	93	34.6	269	100.0
ALL HOSPITALS	443	16.5	206	7.7	843	31.4	1470	54.7	228	8.5	421	15.7	2687	100.0
New England														
Armidale	21	4.5	46	9.9	102	21.8	198	42.4	52	11.1	20	4.3	467	100.0
Inverell	2	0.8	10	3.9	57	22.0	112	43.2	46	17.8	64	24.7	259	100.0
Moree	24	10.3	9	3.8	40	17.1	124	53.0	24	10.3	60	25.6	234	100.0
Tamworth Base	160	26.4	85	14.0	164	27.1	340	56.1	12	2.0	49	8.1	606	100.0
Other Area hospitals	98	14.1	76	10.9	183	26.3	355	50.9	46	6.6	123	17.6	697	100.0
ALL HOSPITALS	305	13.5	226	10.0	546	24.1	1129	49.9	180	8.0	316	14.0	2263	100.0
Macquarie														
Dubbo Base	232	18.6	75	6.0	427	34.2	736	59.0	98	7.9	174	13.9	1248	100.0
Mudgee	5	2.3	25	11.4	64	29.2	122	55.7	16	7.3	37	16.9	219	100.0
Other Area hospitals	13	9.2	4	2.8	18	12.8	42	29.8	14	9.9	57	40.4	141	100.0
ALL HOSPITALS	250	15.5	104	6.5	509	31.7	900	56.0	128	8.0	268	16.7	1608	100.0
Mid Western														
Bathurst Base	187	32.5	47	8.2	85	14.8	302	52.5	5	0.9	84	14.6	575	100.0
Orange Base	220	28.6	26	3.4	164	21.3	426	55.4	31	4.0	136	17.7	769	100.0
Other Area hospitals	144	18.5	54	6.9	168	21.6	374	48.1	64	8.2	161	20.7	778	100.0
ALL HOSPITALS	551	26.0	127	6.0	417	19.7	1102	51.9	100	4.7	381	18.0	2122	100.0
Far West														
Broken Hill Base	29	9.6	13	4.3	82	27.2	182	60.5	45	15.0	47	15.6	301	100.0
Other Area hospitals	0	0.0	4	5.3	14	18.7	35	46.7	5	6.7	27	36.0	75	100.0
ALL HOSPITALS	29	7.7	17	4.5	96	25.5	217	57.7	50	13.3	74	19.7	376	100.0
Greater Murray														
Griffith Base	53	11.0	16	3.3	194	40.1	272	56.2	89	18.4	60	12.4	484	100.0
Wagga Wagga Base	216	25.9	29	3.5	271	32.5	426	51.1	92	11.0	122	14.6	833	100.0
Calvary, Wagga Wagga	177	35.0	7	1.4	117	23.2	201	39.8	90	17.8	52	10.3	505	100.0
Other Area hospitals	84	10.6	25	3.1	254	31.9	456	57.3	112	14.1	134	16.8	796	100.0
ALL HOSPITALS	530	20.2	77	2.9	836	31.9	1355	51.8	383	14.6	368	14.1	2618	100.0
Southern														
Goulburn Base	80	24.7	35	10.8	47	14.5	191	59.0	2	0.6	36	11.1	324	100.0
Queanbeyan	61	18.9	20	6.2	52	16.1	130	40.4	17	5.3	96	29.8	322	100.0
Other Area hospitals	114	11.9	44	4.6	281	29.3	503	52.4	113	11.8	191	19.9	960	100.0
ALL HOSPITALS	255	15.9	99	6.2	380	23.7	824	51.3	132	8.2	323	20.1	1606	100.0
TOTAL	24572	29.1	4866	5.8	21451	25.4	40964	48.5	6677	7.9	9674	11.5	84379	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 113 show the perineal status in vaginal deliveries for individual hospitals where the number of reported confinements exceeded 200 in 2001, totals for all hospitals within each health area and the NSW total.

TABLE 113

CONFINEMENTS WITH VAGINAL DELIVERIES BY PERINEAL STATUS AND HOSPITAL, NSW 2001#

Health Area and Hospital	Perineal status																TOTAL	
	Intact		1st degree tear-graze		2nd degree tear		3rd or 4th degree tear		Episiotomy		Comined tear and episiotomy		Other		Not stated			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Central Sydney																		
Canterbury	300	23.4	480	37.4	359	28.0	32	2.5	83	6.5	2	0.2	26	2.0	0	0.0	1282	100.0
King George V	451	17.1	1053	39.9	856	32.4	77	2.9	185	7.0	4	0.2	12	0.5	0	0.0	2638	100.0
ALL HOSPITALS	751	19.2	1533	39.1	1215	31.0	109	2.8	268	6.8	6	0.2	38	1.0	0	0.0	3920	100.0
Northern Sydney																		
Hornsby	122	17.1	202	28.3	222	31.1	16	2.2	74	10.4	6	0.8	72	10.1	0	0.0	714	100.0
Manly	134	21.3	211	33.5	137	21.8	4	0.6	60	9.5	0	0.0	83	13.2	0	0.0	629	100.0
Mona Vale	133	27.3	175	35.9	91	18.7	3	0.6	50	10.3	0	0.0	35	7.2	0	0.0	487	100.0
Royal North Shore	154	15.1	280	27.5	320	31.4	32	3.1	115	11.3	2	0.2	117	11.5	0	0.0	1020	100.0
Ryde	86	18.5	149	32.1	116	25.0	9	1.9	67	14.4	4	0.9	33	7.1	0	0.0	464	100.0
Mater, North Sydney	175	12.9	281	20.7	397	29.2	16	1.2	411	30.2	44	3.2	36	2.6	0	0.0	1360	100.0
North Shore Private	182	15.2	260	21.7	360	30.1	39	3.3	300	25.1	9	0.8	46	3.8	0	0.0	1196	100.0
Sydney Adventist	299	18.3	438	26.7	340	20.8	7	0.4	494	30.2	43	2.6	17	1.0	0	0.0	1638	100.0
ALL HOSPITALS	1285	17.1	1996	26.6	1983	26.4	126	1.7	1571	20.9	108	1.4	439	5.8	0	0.0	7508	100.0
Western Sydney																		
Auburn	382	35.6	283	26.4	190	17.7	16	1.5	130	12.1	1	0.1	71	6.6	0	0.0	1073	100.0
Blacktown	591	27.6	474	22.1	456	21.3	23	1.1	439	20.5	60	2.8	102	4.8	0	0.0	2145	100.0
Westmead	645	22.0	949	32.3	586	19.9	22	0.7	532	18.1	8	0.3	196	6.7	0	0.0	2938	100.0
The Hills Private	253	27.0	177	18.9	225	24.0	4	0.4	237	25.3	13	1.4	28	3.0	0	0.0	937	100.0
Westmead Private	160	19.8	172	21.3	166	20.5	3	0.4	268	33.2	19	2.4	19	2.4	1	0.1	808	100.0
Other Area hospitals	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0
ALL HOSPITALS	2031	25.7	2056	26.0	1623	20.5	68	0.9	1606	20.3	101	1.3	416	5.3	1	0.0	7902	100.0
Wentworth																		
Blue Mountains	89	28.5	115	36.9	60	19.2	7	2.2	31	9.9	1	0.3	9	2.9	0	0.0	312	100.0
Nepean	738	30.6	825	34.2	409	16.9	34	1.4	216	8.9	3	0.1	189	7.8	0	0.0	2414	100.0
Hawkesbury	327	40.9	162	20.3	205	25.7	11	1.4	68	8.5	7	0.9	19	2.4	0	0.0	799	100.0
Nepean Private	128	24.1	51	9.6	146	27.4	3	0.6	181	34.0	21	3.9	1	0.2	1	0.2	532	100.0
ALL HOSPITALS	1282	31.6	1153	28.4	820	20.2	55	1.4	496	12.2	32	0.8	218	5.4	1	0.0	4057	100.0
South Western Sydney																		
Fairfield	470	30.1	385	24.7	324	20.8	20	1.3	314	20.1	3	0.2	45	2.9	0	0.0	1561	100.0
Liverpool	696	28.4	594	24.2	497	20.3	56	2.3	445	18.1	4	0.2	160	6.5	0	0.0	2452	100.0
Campbelltown	733	34.5	523	24.6	395	18.6	23	1.1	275	13.0	9	0.4	164	7.7	0	0.0	2122	100.0
Bankstown/Lidcombe	369	25.1	458	31.1	311	21.1	12	0.8	218	14.8	12	0.8	93	6.3	0	0.0	1473	100.0
Sydney Southwest Private	151	24.8	110	18.1	150	24.7	6	1.0	180	29.6	2	0.3	9	1.5	0	0.0	608	100.0
Bowral	189	32.5	163	28.1	158	27.2	5	0.9	42	7.2	1	0.2	23	4.0	0	0.0	581	100.0
ALL HOSPITALS	2608	29.6	2233	25.4	1835	20.9	122	1.4	1474	16.8	31	0.4	494	5.6	0	0.0	8797	100.0
Central Coast																		
Gosford	363	21.8	523	31.4	544	32.7	48	2.9	87	5.2	20	1.2	81	4.9	0	0.0	1666	100.0
Wyong	139	39.7	117	33.4	63	18.0	3	0.9	13	3.7	2	0.6	13	3.7	0	0.0	350	100.0
North Gosford Private	132	22.5	119	20.3	190	32.4	8	1.4	109	18.6	16	2.7	12	2.0	1	0.2	587	100.0
ALL HOSPITALS	634	24.4	759	29.2	797	30.6	59	2.3	209	8.0	38	1.5	106	4.1	1	0.0	2603	100.0
Hunter																		
Maitland	302	30.8	394	40.1	150	15.3	14	1.4	73	7.4	2	0.2	47	4.8	0	0.0	982	100.0
Muswellbrook	90	51.7	41	23.6	27	15.5	3	1.7	7	4.0	2	1.1	4	2.3	0	0.0	174	100.0
Belmont	216	37.9	184	32.3	100	17.5	7	1.2	45	7.9	1	0.2	17	3.0	0	0.0	570	100.0
Singleton	83	46.9	35	19.8	44	24.9	0	0.0	13	7.3	2	1.1	0	0.0	0	0.0	177	100.0
John Hunter	720	28.2	993	38.8	524	20.5	39	1.5	144	5.6	6	0.2	130	5.1	0	0.0	2556	100.0
Christo Road Private	179	25.9	183	26.5	212	30.7	9	1.3	104	15.1	0	0.0	3	0.4	0	0.0	690	100.0
Other Area hospitals	88	47.8	49	26.6	24	13.0	1	0.5	18	9.8	4	2.2	0	0.0	0	0.0	184	100.0
ALL HOSPITALS	1678	31.5	1879	35.2	1081	20.3	73	1.4	404	7.6	17	0.3	201	3.8	0	0.0	5333	100.0
Illawarra																		
Shoalhaven	162	30.6	220	41.5	71	13.4	2	0.4	43	8.1	3	0.6	29	5.5	0	0.0	530	100.0
Wollongong	506	33.5	501	33.1	343	22.7	10	0.7	141	9.3	3	0.2	8	0.5	0	0.0	1512	100.0
Shellharbour	96	29.4	118	36.1	60	18.3	6	1.8	46	14.1	1	0.3	0	0.0	0	0.0	327	100.0
Illawarra Private	149	22.3	91	13.6	203	30.4	2	0.3	200	30.0	18	2.7	4	0.6	0	0.0	667	100.0
Other Area hospitals	37	42.5	21	24.1	17	19.5	1	1.1	10	11.5	1	1.1	0	0.0	0	0.0	87	100.0
ALL HOSPITALS	950	30.4	951	30.5	694	22.2	21	0.7	440	14.1	26	0.8	41	1.3	0	0.0	3123	100.0

TABLE 113 (continued)
CONFINEMENTS WITH VAGINAL DELIVERIES BY PERINEAL STATUS AND HOSPITAL, NSW 2001#

Health Area and Hospital	Intact		1st degree tear-graze		2nd degree tear		Perineal status 3rd or 4th degree tear		Episiotomy		Comined tear and episiotomy		Other		Not stated		TOTAL		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
South Eastern Sydney																			
Royal Hospital for Women	591	22.1	653	24.4	829	30.9	61	2.3	520	19.4	25	0.9	0	0.0	1	0.0	2680	100.0	
St. George	469	26.5	541	30.6	466	26.4	31	1.8	153	8.7	12	0.7	96	5.4	0	0.0	1768	100.0	
Sutherland	169	29.9	139	24.6	137	24.2	14	2.5	56	9.9	3	0.5	48	8.5	0	0.0	566	100.0	
Hurstville Community	156	19.1	179	21.9	180	22.0	3	0.4	274	33.5	17	2.1	9	1.1	0	0.0	818	100.0	
Kareena Private	78	22.4	72	20.7	44	12.6	3	0.9	123	35.3	17	4.9	11	3.2	0	0.0	348	100.0	
St. George Private	209	21.0	206	20.7	316	31.7	12	1.2	196	19.7	32	3.2	26	2.6	0	0.0	997	100.0	
Prince of Wales Private	211	17.7	321	27.0	268	22.5	2	0.2	319	26.8	34	2.9	34	2.9	0	0.0	1189	100.0	
ALL HOSPITALS	1883	22.5	2111	25.2	2240	26.8	126	1.5	1641	19.6	140	1.7	224	2.7	1	0.0	8366	100.0	
Northern Rivers																			
Grafton Base	114	37.6	61	20.1	56	18.5	3	1.0	41	13.5	9	3.0	19	6.3	0	0.0	303	100.0	
Lismore Base	420	39.8	227	21.5	233	22.1	6	0.6	115	10.9	11	1.0	44	4.2	0	0.0	1056	100.0	
Murwillumbah	108	35.2	58	18.9	67	21.8	0	0.0	50	16.3	6	2.0	18	5.9	0	0.0	307	100.0	
Tweed Heads	217	40.3	150	27.9	95	17.7	4	0.7	37	6.9	3	0.6	32	5.9	0	0.0	538	100.0	
Other Area hospitals	121	41.0	99	33.6	43	14.6	3	1.0	22	7.5	3	1.0	4	1.4	0	0.0	295	100.0	
ALL HOSPITALS	980	39.2	595	23.8	494	19.8	16	0.6	265	10.6	32	1.3	117	4.7	0	0.0	2499	100.0	
Mid North Coast																			
Coffs Harbour	199	38.6	141	27.3	77	14.9	1	0.2	68	13.2	8	1.6	22	4.3	0	0.0	516	100.0	
Kempsey	126	51.6	54	22.1	49	20.1	0	0.0	13	5.3	2	0.8	0	0.0	0	0.0	244	100.0	
Port Macquarie Base	215	39.2	99	18.1	133	24.3	13	2.4	53	9.7	10	1.8	25	4.6	0	0.0	548	100.0	
Manning Base	250	46.0	138	25.4	93	17.1	3	0.6	27	5.0	9	1.7	24	4.4	0	0.0	544	100.0	
Other Area hospitals	100	42.0	61	25.6	42	17.6	0	0.0	30	12.6	1	0.4	4	1.7	0	0.0	238	100.0	
ALL HOSPITALS	890	42.6	493	23.6	394	18.9	17	0.8	191	9.1	30	1.4	75	3.6	0	0.0	2090	100.0	
New England																			
Armidale	110	30.5	82	22.7	80	22.2	6	1.7	66	18.3	9	2.5	8	2.2	0	0.0	361	100.0	
Inverell	74	36.3	70	34.3	27	13.2	3	1.5	28	13.7	2	1.0	0	0.0	0	0.0	204	100.0	
Moree	102	52.3	45	23.1	31	15.9	2	1.0	9	4.6	3	1.5	2	1.0	1	0.5	195	100.0	
Tamworth Base	127	29.0	113	25.8	111	25.3	7	1.6	58	13.2	10	2.3	12	2.7	0	0.0	438	100.0	
Other Area hospitals	192	35.4	146	26.9	87	16.0	2	0.4	100	18.4	10	1.8	6	1.1	0	0.0	543	100.0	
ALL HOSPITALS	605	34.8	456	26.2	336	19.3	20	1.1	261	15.0	34	2.0	28	1.6	1	0.1	1741	100.0	
Macquarie																			
Dubbo Base	312	30.6	348	34.2	135	13.2	10	1.0	168	16.5	22	2.2	24	2.4	0	0.0	1019	100.0	
Mudgee	67	37.6	41	23.0	36	20.2	2	1.1	28	15.7	4	2.2	0	0.0	0	0.0	178	100.0	
Other Area hospitals	58	51.3	25	22.1	17	15.0	0	0.0	11	9.7	2	1.8	0	0.0	0	0.0	113	100.0	
ALL HOSPITALS	437	33.4	414	31.6	188	14.4	12	0.9	207	15.8	28	2.1	24	1.8	0	0.0	1310	100.0	
Mid Western																			
Bathurst Base	129	34.4	126	33.6	64	17.1	1	0.3	45	12.0	3	0.8	7	1.9	0	0.0	375	100.0	
Orange Base	215	36.6	119	20.2	152	25.9	14	2.4	55	9.4	11	1.9	22	3.7	0	0.0	588	100.0	
Other Area hospitals	228	40.1	135	23.7	95	16.7	4	0.7	92	16.2	12	2.1	3	0.5	0	0.0	569	100.0	
ALL HOSPITALS	572	37.3	380	24.8	311	20.3	19	1.2	192	12.5	26	1.7	32	2.1	0	0.0	1532	100.0	
Far West																			
Broken Hill Base	129	55.1	62	26.5	27	11.5	2	0.9	10	4.3	1	0.4	3	1.3	0	0.0	234	100.0	
Other Area hospitals	26	39.4	23	34.8	10	15.2	3	4.5	3	4.5	0	0.0	1	1.5	0	0.0	66	100.0	
ALL HOSPITALS	155	51.7	85	28.3	37	12.3	5	1.7	13	4.3	1	0.3	4	1.3	0	0.0	300	100.0	
Greater Murray																			
Griffith Base	159	43.2	145	39.4	25	6.8	3	0.8	34	9.2	2	0.5	0	0.0	0	0.0	368	100.0	
Wagga Wagga Base	260	40.6	184	28.7	102	15.9	12	1.9	68	10.6	5	0.8	10	1.6	0	0.0	641	100.0	
Calvary, Wagga Wagga	103	28.4	73	20.1	97	26.7	8	2.2	56	15.4	23	6.3	3	0.8	0	0.0	363	100.0	
Other Area hospitals	252	40.2	153	24.4	100	15.9	4	0.6	104	16.6	12	1.9	2	0.3	0	0.0	627	100.0	
ALL HOSPITALS	774	38.7	555	27.8	324	16.2	27	1.4	262	13.1	42	2.1	15	0.8	0	0.0	1999	100.0	
Southern																			
Goulburn Base	85	34.4	30	12.1	49	19.8	1	0.4	65	26.3	9	3.6	8	3.2	0	0.0	247	100.0	
Queanbeyan	120	46.9	68	26.6	59	23.0	0	0.0	7	2.7	2	0.8	0	0.0	0	0.0	256	100.0	
Other Area hospitals	330	43.5	180	23.7	122	16.1	1	0.1	100	13.2	13	1.7	11	1.5	1	0.1	758	100.0	
ALL HOSPITALS	535	42.4	278	22.0	230	18.2	2	0.2	172	13.6	24	1.9	19	1.5	1	0.1	1261	100.0	
TOTAL NSW	18130	28.1	17961	27.9	14630	22.7	877	1.4	9674	15.0	716	1.1	2492	3.9	6	0.0	64486	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. There were 93 cases of 4th degree tear reported in 2001.

Birthweight in selected hospitals

Table 114 shows the birthweight among live born babies for individual hospitals where the number of reported confinements exceeded 200 in 2001, totals for all hospitals within each health area and the NSW total.

TABLE 114

BIRTHS BY BIRTHWEIGHT AND HOSPITAL, NSW 2001*

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.	%	No.	%	No.	%
Central Sydney												
Canterbury	5	0.3	2	0.1	53	3.5	1458	96.0	0	0.0	1518	100.0
King George V	76	2.1	84	2.3	253	7.0	3215	88.6	1	0.0	3629	100.0
ALL HOSPITALS	81	1.6	86	1.7	306	5.9	4673	90.8	1	0.0	5147	100.0
Northern Sydney												
Hornsby	3	0.3	2	0.2	30	3.2	889	96.2	0	0.0	924	100.0
Manly	1	0.1	0	0.0	22	2.7	789	97.0	1	0.1	813	100.0
Mona Vale	3	0.5	1	0.2	13	2.1	616	97.3	0	0.0	633	100.0
Royal North Shore	46	3.2	49	3.4	129	8.9	1224	84.5	1	0.1	1449	100.0
Ryde	3	0.5	0	0.0	14	2.5	547	97.0	0	0.0	564	100.0
Mater, North Sydney	4	0.2	0	0.0	75	3.4	2124	96.4	0	0.0	2203	100.0
North Shore Private	11	0.6	3	0.2	85	4.3	1856	94.9	0	0.0	1955	100.0
Sydney Adventist	1	0.0	5	0.2	65	2.8	2277	96.9	1	0.0	2349	100.0
ALL HOSPITALS	72	0.7	60	0.6	433	4.0	10322	94.8	3	0.0	10890	100.0
Western Sydney												
Auburn	6	0.5	1	0.1	44	3.5	1220	96.0	0	0.0	1271	100.0
Blacktown	12	0.4	5	0.2	149	5.5	2523	93.8	1	0.0	2690	100.0
Westmead	69	1.8	76	2.0	316	8.1	3427	88.1	0	0.0	3888	100.0
The Hills Private	0	0.0	2	0.2	51	4.0	1237	95.9	0	0.0	1290	100.0
Westmead Private	0	0.0	0	0.0	50	4.4	1093	95.5	1	0.1	1144	100.0
Other Area hospitals	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	1	100.0
ALL HOSPITALS	87	0.8	84	0.8	610	5.9	9500	92.4	3	0.0	10284	100.0
Wentworth												
Blue Mountains	2	0.5	2	0.5	8	2.1	374	96.9	0	0.0	386	100.0
Nepean	46	1.4	54	1.6	240	7.3	2934	89.6	0	0.0	3274	100.0
Hawkesbury	6	0.6	1	0.1	36	3.7	934	95.6	0	0.0	977	100.0
Nepean Private	2	0.3	0	0.0	13	1.7	754	96.5	12	1.5	781	100.0
ALL HOSPITALS	56	1.0	57	1.1	297	5.5	4996	92.2	12	0.2	5418	100.0
South Western Sydney												
Fairfield	6	0.3	0	0.0	70	3.8	1780	95.9	0	0.0	1856	100.0
Liverpool	66	2.2	55	1.8	228	7.5	2703	88.6	0	0.0	3052	100.0
Campbelltown	16	0.6	3	0.1	111	4.2	2486	95.0	1	0.0	2617	100.0
Bankstown/Lidcombe	8	0.4	5	0.3	72	4.0	1732	95.3	0	0.0	1817	100.0
Sydney Southwest Private	0	0.0	1	0.1	31	3.7	810	96.1	1	0.1	843	100.0
Bowral	4	0.6	0	0.0	11	1.6	686	97.9	0	0.0	701	100.0
ALL HOSPITALS	100	0.9	64	0.6	523	4.8	10197	93.7	2	0.0	10886	100.0
Central Coast												
Gosford	5	0.2	2	0.1	107	4.9	2063	94.7	1	0.0	2178	100.0
Wyang	1	0.3	0	0.0	9	2.5	356	97.3	0	0.0	366	100.0
North Gosford Private	3	0.3	0	0.0	32	3.6	866	96.1	0	0.0	901	100.0
ALL HOSPITALS	9	0.3	2	0.1	148	4.3	3285	95.4	1	0.0	3445	100.0
Hunter												
Maitland	2	0.2	1	0.1	68	5.3	1209	94.5	0	0.0	1280	100.0
Muswellbrook	0	0.0	0	0.0	5	2.4	202	97.6	0	0.0	207	100.0
Belmont	1	0.1	1	0.1	23	3.4	651	96.3	0	0.0	676	100.0
Singleton	0	0.0	0	0.0	4	2.0	200	98.0	0	0.0	204	100.0
John Hunter	76	2.3	57	1.7	286	8.6	2896	87.3	1	0.0	3316	100.0
Christo Road Private	4	0.4	1	0.1	49	4.9	953	94.5	1	0.1	1008	100.0
Other Area hospitals	0	0.0	0	0.0	4	1.4	282	97.2	4	1.4	290	100.0
ALL HOSPITALS	83	1.2	60	0.9	439	6.3	6393	91.6	6	0.1	6981	100.0
Illawarra												
Shoalhaven	3	0.4	0	0.0	34	4.8	666	94.7	0	0.0	703	100.0
Wollongong	12	0.6	8	0.4	157	8.0	1788	91.0	0	0.0	1965	100.0
Shellharbour	1	0.3	0	0.0	4	1.0	378	98.7	0	0.0	383	100.0
Illawarra Private	2	0.2	0	0.0	24	2.6	882	97.1	0	0.0	908	100.0
Other Area hospitals	0	0.0	0	0.0	1	0.8	129	99.2	0	0.0	130	100.0
ALL HOSPITALS	18	0.4	8	0.2	220	5.4	3843	94.0	0	0.0	4089	100.0

TABLE 114 (continued)
BIRTHS BY BIRTHWEIGHT AND HOSPITAL, NSW 2001*

Health Area and Hospital	Less than 1,000		Birthweight (grams)				2,500+		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
South Eastern Sydney												
Royal Hospital for Women	44	1.2	54	1.4	221	5.9	3406	91.4	1	0.0	3726	100.0
St. George	15	0.6	3	0.1	114	4.9	2186	94.3	0	0.0	2318	100.0
Sutherland	3	0.4	1	0.1	26	3.5	707	95.9	0	0.0	737	100.0
Hurstville Community	5	0.4	0	0.0	52	4.2	1184	95.4	0	0.0	1241	100.0
Kareena Private	2	0.3	0	0.0	22	3.7	576	96.0	0	0.0	600	100.0
St. George Private	3	0.2	2	0.1	67	4.5	1413	95.2	0	0.0	1485	100.0
Prince of Wales Private	3	0.2	1	0.1	60	3.3	1776	96.5	1	0.1	1841	100.0
ALL HOSPITALS	75	0.6	61	0.5	562	4.7	11248	94.1	2	0.0	11948	100.0
Northern Rivers												
Grafton Base	3	0.7	2	0.5	16	3.8	405	95.1	0	0.0	426	100.0
Lismore Base	6	0.4	4	0.3	106	7.8	1241	91.5	0	0.0	1357	100.0
Murwillumbah	1	0.2	3	0.7	16	3.9	391	95.1	0	0.0	411	100.0
Tweed Heads	7	1.0	0	0.0	34	5.0	634	93.8	1	0.1	676	100.0
Other Area hospitals	0	0.0	0	0.0	7	2.1	325	97.6	1	0.3	333	100.0
ALL HOSPITALS	17	0.5	9	0.3	179	5.6	2996	93.5	2	0.1	3203	100.0
Mid North Coast												
Coffs Harbour	4	0.5	1	0.1	35	4.8	691	94.5	0	0.0	731	100.0
Kempsey	3	1.1	0	0.0	17	6.0	264	93.0	0	0.0	284	100.0
Port Macquarie Base	8	1.1	2	0.3	35	4.6	711	94.0	0	0.0	756	100.0
Manning Base	5	0.7	1	0.1	42	6.2	626	92.9	0	0.0	674	100.0
Other Area hospitals	0	0.0	0	0.0	7	2.6	265	97.4	0	0.0	272	100.0
ALL HOSPITALS	20	0.7	4	0.1	136	5.0	2557	94.1	0	0.0	2717	100.0
New England												
Armidale	3	0.6	4	0.8	28	5.9	438	92.6	0	0.0	473	100.0
Inverell	0	0.0	0	0.0	8	3.1	254	96.9	0	0.0	262	100.0
Moree	1	0.4	1	0.4	12	5.1	219	93.2	2	0.9	235	100.0
Tamworth Base	4	0.6	3	0.5	37	6.0	572	92.6	2	0.3	618	100.0
Other Area hospitals	2	0.3	3	0.4	17	2.4	677	96.6	2	0.3	701	100.0
ALL HOSPITALS	10	0.4	11	0.5	102	4.5	2160	94.4	6	0.3	2289	100.0
Macquarie												
Dubbo Base	4	0.3	6	0.5	61	4.8	1192	94.4	0	0.0	1263	100.0
Mudgee	0	0.0	0	0.0	1	0.5	218	99.5	0	0.0	219	100.0
Other Area hospitals	0	0.0	0	0.0	8	5.7	133	94.3	0	0.0	141	100.0
ALL HOSPITALS	4	0.2	6	0.4	70	4.3	1543	95.1	0	0.0	1623	100.0
Mid Western												
Bathurst Base	1	0.2	2	0.3	34	5.8	546	93.7	0	0.0	583	100.0
Orange Base	6	0.8	0	0.0	46	5.9	732	93.4	0	0.0	784	100.0
Other Area hospitals	0	0.0	0	0.0	20	2.6	758	97.4	0	0.0	778	100.0
ALL HOSPITALS	7	0.3	2	0.1	100	4.7	2036	94.9	0	0.0	2145	100.0
Far West												
Broken Hill Base	2	0.7	0	0.0	22	7.2	281	92.1	0	0.0	305	100.0
Other Area hospitals	3	3.9	1	1.3	6	7.9	65	85.5	1	1.3	76	100.0
ALL HOSPITALS	5	1.3	1	0.3	28	7.3	346	90.8	1	0.3	381	100.0
Greater Murray												
Griffith Base	2	0.4	1	0.2	17	3.5	471	95.9	0	0.0	491	100.0
Wagga Wagga Base	7	0.8	8	0.9	55	6.5	774	91.5	2	0.2	846	100.0
Calvary, Wagga Wagga	1	0.2	2	0.4	19	3.7	491	95.7	0	0.0	513	100.0
Other Area hospitals	0	0.0	0	0.0	14	1.8	784	98.2	0	0.0	798	100.0
ALL HOSPITALS	10	0.4	11	0.4	105	4.0	2520	95.2	2	0.1	2648	100.0
Southern												
Goulburn Base	1	0.3	0	0.0	22	6.7	305	93.0	0	0.0	328	100.0
Queanbeyan	0	0.0	0	0.0	12	3.7	312	96.3	0	0.0	324	100.0
Other Area hospitals	4	0.4	0	0.0	33	3.4	930	96.2	0	0.0	967	100.0
ALL HOSPITALS	5	0.3	0	0.0	67	4.1	1547	95.6	0	0.0	1619	100.0
TOTAL NSW	659	0.8	526	0.6	4326	5.0	80304	93.5	43	0.1	85858	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 115 shows the gestational age among live born babies for individual hospitals where the number of reported confinements exceeded 200 in 2001, totals for all hospitals within each health area and the NSW total.

TABLE 115

BIRTHS BY GESTATIONAL AGE AND HOSPITAL, NSW 2001#

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												
Canterbury	6	0.4	1	0.1	65	4.3	1446	95.3	0	0.0	1518	100.0
King George V	179	4.9	70	1.9	207	5.7	3173	87.4	0	0.0	3629	100.0
ALL HOSPITALS	185	3.6	71	1.4	272	5.3	4619	89.7	0	0.0	5147	100.0
Northern Sydney												
Hornsby	4	0.4	1	0.1	33	3.6	886	95.9	0	0.0	924	100.0
Manly	1	0.1	0	0.0	26	3.2	786	96.7	0	0.0	813	100.0
Mona Vale	4	0.6	4	0.6	15	2.4	610	96.4	0	0.0	633	100.0
Royal North Shore	106	7.3	55	3.8	86	5.9	1202	83.0	0	0.0	1449	100.0
Ryde	3	0.5	0	0.0	17	3.0	544	96.5	0	0.0	564	100.0
Mater, North Sydney	5	0.2	9	0.4	89	4.0	2100	95.3	0	0.0	2203	100.0
North Shore Private	11	0.6	7	0.4	100	5.1	1837	94.0	0	0.0	1955	100.0
Sydney Adventist	3	0.1	11	0.5	100	4.3	2235	95.1	0	0.0	2349	100.0
ALL HOSPITALS	137	1.3	87	0.8	466	4.3	10200	93.7	0	0.0	10890	100.0
Western Sydney												
Auburn	6	0.5	4	0.3	32	2.5	1229	96.7	0	0.0	1271	100.0
Blacktown	18	0.7	11	0.4	124	4.6	2537	94.3	0	0.0	2690	100.0
Westmead	158	4.1	88	2.3	200	5.1	3442	88.5	0	0.0	3888	100.0
The Hills Private	2	0.2	8	0.6	66	5.1	1214	94.1	0	0.0	1290	100.0
Westmead Private	0	0.0	3	0.3	53	4.6	1087	95.0	1	0.1	1144	100.0
Other Area hospitals	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	1	100.0
ALL HOSPITALS	184	1.8	115	1.1	475	4.6	9509	92.5	1	0.0	10284	100.0
Wentworth												
Blue Mountains	4	1.0	1	0.3	8	2.1	373	96.6	0	0.0	386	100.0
Nepean	102	3.1	59	1.8	205	6.3	2908	88.8	0	0.0	3274	100.0
Hawkesbury	9	0.9	6	0.6	39	4.0	923	94.5	0	0.0	977	100.0
Nepean Private	3	0.4	0	0.0	26	3.3	748	95.8	4	0.5	781	100.0
ALL HOSPITALS	118	2.2	66	1.2	278	5.1	4952	91.4	4	0.1	5418	100.0
South Western Sydney												
Fairfield	7	0.4	3	0.2	63	3.4	1783	96.1	0	0.0	1856	100.0
Liverpool	127	4.2	73	2.4	153	5.0	2699	88.4	0	0.0	3052	100.0
Campbelltown	21	0.8	9	0.3	133	5.1	2454	93.8	0	0.0	2617	100.0
Bankstown/Lidcombe	13	0.7	5	0.3	71	3.9	1728	95.1	0	0.0	1817	100.0
Sydney Southwest Private	1	0.1	3	0.4	40	4.7	799	94.8	0	0.0	843	100.0
Bowral	3	0.4	1	0.1	12	1.7	685	97.7	0	0.0	701	100.0
ALL HOSPITALS	172	1.6	94	0.9	472	4.3	10148	93.2	0	0.0	10886	100.0
Central Coast												
Gosford	12	0.6	18	0.8	150	6.9	1998	91.7	0	0.0	2178	100.0
Wyangong	1	0.3	1	0.3	12	3.3	352	96.2	0	0.0	366	100.0
North Gosford Private	3	0.3	0	0.0	44	4.9	854	94.8	0	0.0	901	100.0
ALL HOSPITALS	16	0.5	19	0.6	206	6.0	3204	93.0	0	0.0	3445	100.0
Hunter												
Maitland	4	0.3	5	0.4	65	5.1	1206	94.2	0	0.0	1280	100.0
Muswellbrook	0	0.0	0	0.0	8	3.9	199	96.1	0	0.0	207	100.0
Belmont	4	0.6	0	0.0	31	4.6	641	94.8	0	0.0	676	100.0
Singleton	0	0.0	0	0.0	3	1.5	201	98.5	0	0.0	204	100.0
John Hunter	164	4.9	79	2.4	228	6.9	2845	85.8	0	0.0	3316	100.0
Christo Road Private	6	0.6	1	0.1	78	7.7	923	91.6	0	0.0	1008	100.0
Other Area hospitals	1	0.3	0	0.0	8	2.8	279	96.2	2	0.7	290	100.0
ALL HOSPITALS	179	2.6	85	1.2	421	6.0	6294	90.2	2	0.0	6981	100.0
Illawarra												
Shoalhaven	4	0.6	3	0.4	33	4.7	663	94.3	0	0.0	703	100.0
Wollongong	24	1.2	29	1.5	154	7.8	1757	89.4	1	0.1	1965	100.0
Shellharbour	1	0.3	1	0.3	3	0.8	378	98.7	0	0.0	383	100.0
Illawarra Private	2	0.2	0	0.0	6	0.7	900	99.1	0	0.0	908	100.0
Other Area hospitals	0	0.0	0	0.0	2	1.5	128	98.5	0	0.0	130	100.0
ALL HOSPITALS	31	0.8	33	0.8	198	4.8	3826	93.6	1	0.0	4089	100.0

TABLE 115 (continued)
BIRTHS BY GESTATIONAL AGE AND HOSPITAL, NSW 2001#

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	110	3.0	58	1.6	203	5.4	3354	90.0	1	0.0	3726	100.0
St. George	17	0.7	18	0.8	97	4.2	2186	94.3	0	0.0	2318	100.0
Sutherland	3	0.4	3	0.4	27	3.7	704	95.5	0	0.0	737	100.0
Hurstville Community	5	0.4	5	0.4	72	5.8	1159	93.4	0	0.0	1241	100.0
Kareena Private	3	0.5	2	0.3	30	5.0	565	94.2	0	0.0	600	100.0
St. George Private	6	0.4	2	0.1	92	6.2	1385	93.3	0	0.0	1485	100.0
Prince of Wales Private	5	0.3	5	0.3	76	4.1	1755	95.3	0	0.0	1841	100.0
ALL HOSPITALS	149	1.2	93	0.8	597	5.0	11108	93.0	1	0.0	11948	100.0
Northern Rivers												
Grafton Base	5	1.2	0	0.0	23	5.4	398	93.4	0	0.0	426	100.0
Lismore Base	8	0.6	16	1.2	99	7.3	1234	90.9	0	0.0	1357	100.0
Murwillumbah	3	0.7	1	0.2	17	4.1	390	94.9	0	0.0	411	100.0
Tweed Heads	8	1.2	1	0.1	38	5.6	629	93.0	0	0.0	676	100.0
Other Area hospitals	0	0.0	0	0.0	6	1.8	327	98.2	0	0.0	333	100.0
ALL HOSPITALS	24	0.7	18	0.6	183	5.7	2978	93.0	0	0.0	3203	100.0
Mid North Coast												
Coffs Harbour	3	0.4	3	0.4	35	4.8	690	94.4	0	0.0	731	100.0
Kempsey	4	1.4	1	0.4	11	3.9	268	94.4	0	0.0	284	100.0
Port Macquarie Base	8	1.1	2	0.3	41	5.4	705	93.3	0	0.0	756	100.0
Manning Base	7	1.0	3	0.4	25	3.7	639	94.8	0	0.0	674	100.0
Other Area hospitals	0	0.0	1	0.4	9	3.3	262	96.3	0	0.0	272	100.0
ALL HOSPITALS	22	0.8	10	0.4	121	4.5	2564	94.4	0	0.0	2717	100.0
New England												
Armidale	5	1.1	8	1.7	16	3.4	444	93.9	0	0.0	473	100.0
Inverell	0	0.0	0	0.0	12	4.6	250	95.4	0	0.0	262	100.0
Moree	2	0.9	1	0.4	9	3.8	221	94.0	2	0.9	235	100.0
Tamworth Base	9	1.5	3	0.5	49	7.9	557	90.1	0	0.0	618	100.0
Other Area hospitals	3	0.4	1	0.1	15	2.1	682	97.3	0	0.0	701	100.0
ALL HOSPITALS	19	0.8	13	0.6	101	4.4	2154	94.1	2	0.1	2289	100.0
Macquarie												
Dubbo Base	12	1.0	7	0.6	66	5.2	1178	93.3	0	0.0	1263	100.0
Mudgee	0	0.0	0	0.0	3	1.4	216	98.6	0	0.0	219	100.0
Other Area hospitals	0	0.0	0	0.0	5	3.5	136	96.5	0	0.0	141	100.0
ALL HOSPITALS	12	0.7	7	0.4	74	4.6	1530	94.3	0	0.0	1623	100.0
Mid Western												
Bathurst Base	3	0.5	0	0.0	39	6.7	541	92.8	0	0.0	583	100.0
Orange Base	8	1.0	4	0.5	39	5.0	733	93.5	0	0.0	784	100.0
Other Area hospitals	4	0.5	0	0.0	18	2.3	756	97.2	0	0.0	778	100.0
ALL HOSPITALS	15	0.7	4	0.2	96	4.5	2030	94.6	0	0.0	2145	100.0
Far West												
Broken Hill Base	2	0.7	3	1.0	19	6.2	281	92.1	0	0.0	305	100.0
Other Area hospitals	4	5.3	2	2.6	2	2.6	67	88.2	1	1.3	76	100.0
ALL HOSPITALS	6	1.6	5	1.3	21	5.5	348	91.3	1	0.3	381	100.0
Greater Murray												
Griffith Base	3	0.6	4	0.8	25	5.1	459	93.5	0	0.0	491	100.0
Wagga Wagga Base	14	1.7	15	1.8	45	5.3	772	91.3	0	0.0	846	100.0
Calvary, Wagga Wagga	2	0.4	5	1.0	24	4.7	482	94.0	0	0.0	513	100.0
Other Area hospitals	1	0.1	0	0.0	17	2.1	779	97.6	1	0.1	798	100.0
ALL HOSPITALS	20	0.8	24	0.9	111	4.2	2492	94.1	1	0.0	2648	100.0
Southern												
Goulburn Base	1	0.3	2	0.6	14	4.3	311	94.8	0	0.0	328	100.0
Queanbeyan	1	0.3	0	0.0	4	1.2	319	98.5	0	0.0	324	100.0
Other Area hospitals	4	0.4	4	0.4	28	2.9	931	96.3	0	0.0	967	100.0
ALL HOSPITALS	6	0.4	6	0.4	46	2.8	1561	96.4	0	0.0	1619	100.0
TOTAL NSW	1295	1.5	750	0.9	4140	4.8	79659	92.8	14	0.0	85858	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 116 shows the discharge status of babies born in hospitals where the number of reported confinements exceeded 200 in 2001, totals for all hospitals within each health area and the NSW total.

TABLE 116

BIRTHS BY BABY DISCHARGE STATUS AND HOSPITAL, NSW 2001*

Health Area and Hospital	Baby discharge status											
	Discharged		Stillborn		Neonatal death		Transferred		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney												
Canterbury	1495	98.5	8	0.5	2	0.1	13	0.9	0	0.0	1518	100.0
King George V	3400	93.7	28	0.8	30	0.8	171	4.7	0	0.0	3629	100.0
ALL HOSPITALS	4895	95.1	36	0.7	32	0.6	184	3.6	0	0.0	5147	100.0
Northern Sydney												
Hornsby	912	98.7	3	0.3	1	0.1	8	0.9	0	0.0	924	100.0
Manly	800	98.4	2	0.2	2	0.2	9	1.1	0	0.0	813	100.0
Mona Vale	612	96.7	5	0.8	0	0.0	16	2.5	0	0.0	633	100.0
Royal North Shore	1301	89.8	14	1.0	18	1.2	116	8.0	0	0.0	1449	100.0
Ryde	552	97.9	1	0.2	2	0.4	9	1.6	0	0.0	564	100.0
Mater, North Sydney	2184	99.1	5	0.2	0	0.0	14	0.6	0	0.0	2203	100.0
North Shore Private	1930	98.7	12	0.6	3	0.2	10	0.5	0	0.0	1955	100.0
Sydney Adventist	2333	99.3	7	0.3	0	0.0	9	0.4	0	0.0	2349	100.0
ALL HOSPITALS	10624	97.6	49	0.4	26	0.2	191	1.8	0	0.0	10890	100.0
Western Sydney												
Auburn	1250	98.3	9	0.7	1	0.1	11	0.9	0	0.0	1271	100.0
Blacktown	2638	98.1	16	0.6	7	0.3	29	1.1	0	0.0	2690	100.0
Westmead	3558	91.5	48	1.2	38	1.0	244	6.3	0	0.0	3888	100.0
The Hills Private	1272	98.6	2	0.2	1	0.1	15	1.2	0	0.0	1290	100.0
Westmead Private	1129	98.7	5	0.4	0	0.0	10	0.9	0	0.0	1144	100.0
Other Area hospitals	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	1	100.0
ALL HOSPITALS	9847	95.8	80	0.8	47	0.5	310	3.0	0	0.0	10284	100.0
Wentworth												
Blue Mountains	373	96.6	2	0.5	0	0.0	11	2.8	0	0.0	386	100.0
Nepean	3120	95.3	25	0.8	16	0.5	113	3.5	0	0.0	3274	100.0
Hawkesbury	949	97.1	7	0.7	1	0.1	20	2.0	0	0.0	977	100.0
Nepean Private	771	98.7	3	0.4	0	0.0	6	0.8	1	0.1	781	100.0
ALL HOSPITALS	5213	96.2	37	0.7	17	0.3	150	2.8	1	0.0	5418	100.0
South Western Sydney												
Fairfield	1833	98.8	8	0.4	0	0.0	15	0.8	0	0.0	1856	100.0
Liverpool	2827	92.6	23	0.8	31	1.0	171	5.6	0	0.0	3052	100.0
Campbelltown	2429	92.8	17	0.6	8	0.3	163	6.2	0	0.0	2617	100.0
Bankstown/Lidcombe	1779	97.9	15	0.8	2	0.1	21	1.2	0	0.0	1817	100.0
Sydney Southwest Private	834	98.9	3	0.4	0	0.0	6	0.7	0	0.0	843	100.0
Bowral	628	89.6	5	0.7	1	0.1	67	9.6	0	0.0	701	100.0
ALL HOSPITALS	10330	94.9	71	0.7	42	0.4	443	4.1	0	0.0	10886	100.0
Central Coast												
Gosford	1708	78.4	13	0.6	1	0.0	456	20.9	0	0.0	2178	100.0
Wyong	355	97.0	0	0.0	1	0.3	10	2.7	0	0.0	366	100.0
North Gosford Private	890	98.8	5	0.6	2	0.2	4	0.4	0	0.0	901	100.0
ALL HOSPITALS	2953	85.7	18	0.5	4	0.1	470	13.6	0	0.0	3445	100.0
Hunter												
Maitland	1193	93.2	4	0.3	2	0.2	81	6.3	0	0.0	1280	100.0
Muswellbrook	201	97.1	0	0.0	0	0.0	6	2.9	0	0.0	207	100.0
Belmont	647	95.7	1	0.1	0	0.0	28	4.1	0	0.0	676	100.0
Singleton	197	96.6	0	0.0	0	0.0	7	3.4	0	0.0	204	100.0
John Hunter	2765	83.4	50	1.5	21	0.6	480	14.5	0	0.0	3316	100.0
Christo Road Private	943	93.6	5	0.5	1	0.1	59	5.9	0	0.0	1008	100.0
Other Area hospitals	284	97.9	0	0.0	0	0.0	6	2.1	0	0.0	290	100.0
ALL HOSPITALS	6230	89.2	60	0.9	24	0.3	667	9.6	0	0.0	6981	100.0
Illawarra												
Shoalhaven	644	91.6	3	0.4	0	0.0	56	8.0	0	0.0	703	100.0
Wollongong	1586	80.7	9	0.5	7	0.4	363	18.5	0	0.0	1965	100.0
Shellharbour	375	97.9	1	0.3	0	0.0	7	1.8	0	0.0	383	100.0
Illawarra Private	892	98.2	1	0.1	2	0.2	13	1.4	0	0.0	908	100.0
Other Area hospitals	124	95.4	1	0.8	0	0.0	5	3.8	0	0.0	130	100.0
ALL HOSPITALS	3621	88.6	15	0.4	9	0.2	444	10.9	0	0.0	4089	100.0

TABLE 116 (continued)
BIRTHS BY BABY DISCHARGE STATUS AND HOSPITAL, NSW 2001#

Health Area and Hospital	Discharged		Stillborn		Baby discharge status		Transferred		Not stated		TOTAL	
	No.	%	No.	%	Neonatal death		No.	%	No.	%	No.	%
					No.	%						
South Eastern Sydney												
Royal Hospital for Women	3568	95.8	23	0.6	23	0.6	112	3.0	0	0.0	3726	100.0
St. George	2276	98.2	18	0.8	4	0.2	20	0.9	0	0.0	2318	100.0
Sutherland	726	98.5	3	0.4	2	0.3	6	0.8	0	0.0	737	100.0
Hurstville Community	1215	97.9	7	0.6	0	0.0	19	1.5	0	0.0	1241	100.0
Kareena Private	586	97.7	0	0.0	0	0.0	14	2.3	0	0.0	600	100.0
St. George Private	1472	99.1	3	0.2	1	0.1	9	0.6	0	0.0	1485	100.0
Prince of Wales Private	1814	98.5	5	0.3	1	0.1	21	1.1	0	0.0	1841	100.0
ALL HOSPITALS	11657	97.6	59	0.5	31	0.3	201	1.7	0	0.0	11948	100.0
Northern Rivers												
Grafton Base	408	95.8	1	0.2	3	0.7	14	3.3	0	0.0	426	100.0
Lismore Base	1035	76.3	8	0.6	2	0.1	311	22.9	1	0.1	1357	100.0
Murwillumbah	399	97.1	2	0.5	0	0.0	10	2.4	0	0.0	411	100.0
Tweed Heads	655	96.9	8	1.2	2	0.3	11	1.6	0	0.0	676	100.0
Other Area hospitals	308	92.5	0	0.0	0	0.0	25	7.5	0	0.0	333	100.0
ALL HOSPITALS	2805	87.6	19	0.6	7	0.2	371	11.6	1	0.0	3203	100.0
Mid North Coast												
Coffs Harbour	653	89.3	6	0.8	1	0.1	71	9.7	0	0.0	731	100.0
Kempsey	270	95.1	5	1.8	0	0.0	9	3.2	0	0.0	284	100.0
Port Macquarie Base	711	94.0	3	0.4	4	0.5	38	5.0	0	0.0	756	100.0
Manning Base	627	93.0	6	0.9	0	0.0	41	6.1	0	0.0	674	100.0
Other Area hospitals	260	95.6	0	0.0	0	0.0	12	4.4	0	0.0	272	100.0
ALL HOSPITALS	2521	92.8	20	0.7	5	0.2	171	6.3	0	0.0	2717	100.0
New England												
Armidale	422	89.2	4	0.8	2	0.4	45	9.5	0	0.0	473	100.0
Inverell	244	93.1	1	0.4	0	0.0	17	6.5	0	0.0	262	100.0
Moree	220	93.6	3	1.3	0	0.0	11	4.7	1	0.4	235	100.0
Tamworth Base	533	86.2	7	1.1	2	0.3	76	12.3	0	0.0	618	100.0
Other Area hospitals	661	94.3	4	0.6	0	0.0	36	5.1	0	0.0	701	100.0
ALL HOSPITALS	2080	90.9	19	0.8	4	0.2	185	8.1	1	0.0	2289	100.0
Macquarie												
Dubbo Base	780	61.8	10	0.8	0	0.0	473	37.5	0	0.0	1263	100.0
Mudgee	207	94.5	1	0.5	0	0.0	11	5.0	0	0.0	219	100.0
Other Area hospitals	127	90.1	0	0.0	0	0.0	14	9.9	0	0.0	141	100.0
ALL HOSPITALS	1114	68.6	11	0.7	0	0.0	498	30.7	0	0.0	1623	100.0
Mid Western												
Bathurst Base	451	77.4	1	0.2	0	0.0	131	22.5	0	0.0	583	100.0
Orange Base	633	80.7	4	0.5	1	0.1	146	18.6	0	0.0	784	100.0
Other Area hospitals	757	97.3	1	0.1	0	0.0	20	2.6	0	0.0	778	100.0
ALL HOSPITALS	1841	85.8	6	0.3	1	0.0	297	13.8	0	0.0	2145	100.0
Far West												
Broken Hill Base	295	96.7	3	1.0	1	0.3	6	2.0	0	0.0	305	100.0
Other Area hospitals	64	84.2	3	3.9	1	1.3	7	9.2	1	1.3	76	100.0
ALL HOSPITALS	359	94.2	6	1.6	2	0.5	13	3.4	1	0.3	381	100.0
Greater Murray												
Griffith Base	470	95.7	8	1.6	0	0.0	13	2.6	0	0.0	491	100.0
Wagga Wagga Base	758	89.6	15	1.8	1	0.1	72	8.5	0	0.0	846	100.0
Calvary, Wagga Wagga	499	97.3	1	0.2	0	0.0	13	2.5	0	0.0	513	100.0
Other Area hospitals	764	95.7	0	0.0	0	0.0	33	4.1	1	0.1	798	100.0
ALL HOSPITALS	2491	94.1	24	0.9	1	0.0	131	4.9	1	0.0	2648	100.0
Southern												
Goulburn Base	311	94.8	2	0.6	0	0.0	15	4.6	0	0.0	328	100.0
Queanbeyan	310	95.7	0	0.0	0	0.0	14	4.3	0	0.0	324	100.0
Other Area hospitals	908	93.9	5	0.5	0	0.0	54	5.6	0	0.0	967	100.0
ALL HOSPITALS	1529	94.4	7	0.4	0	0.0	83	5.1	0	0.0	1619	100.0
TOTAL NSW	80249	93.5	538	0.6	252	0.3	4813	5.6	6	0.0	85858	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 117 shows the mother's postnatal length of stay in the hospital of birth for hospitals where the number of reported confinements exceeded 200 in 2000, totals for all hospitals within each health area and the NSW total.

TABLE 117

AVERAGE MATERNAL POSTNATAL LENGTH OF STAY IN HOSPITAL OF BIRTH, NSW 1996–2000[#]

Health Area and Hospital	Average postnatal length of stay (days)					Health Area and Hospital	Average postnatal length of stay (days)				
	1996	1997	1998	1999	2000		1996	1997	1998	1999	2000
Central Sydney						South Eastern Sydney					
Canterbury	3.1	–	2.8	2.9	2.8	Royal Hospital for Women	4.2	4.1	3.8	3.6	3.8
King George V	3.7	3.9	3.9	4.0	3.7	St. George	3.8	3.9	3.6	3.5	3.6
NSW Private	5.4	5.4	4.6	5.0	5.1	Sutherland	4.1	3.8	3.8	3.6	3.2
ALL HOSPITALS	3.8	4.0	3.9	3.8	3.5	Hurstville Community	6.5	6.6	6.4	5.5	4.5
Northern Sydney						Northern Rivers					
Hornsby	4.1	3.7	3.8	3.7	3.6	Kareena Private	6.4	6.3	5.9	5.9	5.6
Manly	3.9	3.8	3.7	3.8	3.8	St. George Private	6.2	6.2	5.5	5.3	5.1
Mona Vale	4.2	3.9	3.8	3.7	4.1	Prince of Wales Private	–	6.3	5.6	5.2	4.9
Royal North Shore	4.3	3.9	4.1	4.3	4.2	Other Area hospitals	5.8	5.8	5.6	.	.
Ryde	4.3	3.6	3.3	3.4	3.7	ALL HOSPITALS	4.8	4.8	4.5	4.2	4.1
Mater, North Sydney	5.3	5.3	5.2	5.4	5.2	Mid North Coast					
North Shore Private	–	–	4.8	4.8	4.8	Coffs Harbour	4.4	3.9	4.0	3.9	4.1
Sydney Adventist	5.9	5.6	5.3	5.5	5.2	Kempsey	4.6	4.1	3.9	3.8	3.7
ALL HOSPITALS	4.8	4.5	4.5	4.6	4.5	Port Macquarie Base	3.9	3.7	3.8	4.1	3.9
Western Sydney						New England					
Auburn	3.4	3.0	2.8	2.8	3.5	Manning Base	4.3	4.5	3.9	4.1	4.1
Blacktown	3.3	3.1	3.1	3.0	3.2	Other Area hospitals	4.4	4.5	4.8	4.4	4.1
Westmead	–	–	3.3	3.4	3.3	ALL HOSPITALS	4.3	4.1	4.0	4.0	4.0
The Hills Private	5.8	5.8	5.6	5.5	5.3	Macquarie					
Other Area hospitals	3.5	3.5	–	–	4.9	Dubbo Base	3.2	3.0	3.0	2.9	3.0
ALL HOSPITALS	3.7	3.6	3.5	3.5	3.6	Mudgee	3.6	3.3	3.5	3.2	3.2
Wentworth						Mid Western					
Blue Mountains	3.6	3.6	3.7	3.5	3.6	Bathurst Base	3.7	3.2	3.3	3.4	3.2
Nepean	3.4	3.5	3.2	3.3	3.5	Lithgow	5.3	4.5	4.4	4.4	3.6
Jamison Private	5.3	5.5	5.3	5.0	4.6	Orange Base	3.1	3.4	3.1	3.4	3.8
Hawkesbury	3.8	3.8	3.5	3.4	3.3	Parkes	4.2	3.9	3.9	3.7	3.8
Other Area hospitals	3.5	–	–	–	4.3	Other Area hospitals	4.7	4.1	3.8	4.0	5.3
ALL HOSPITALS	3.7	3.9	3.6	3.6	3.6	ALL HOSPITALS	3.9	3.7	3.5	3.6	4.0
South Western Sydney						Far West					
Fairfield	3.0	2.9	2.9	2.8	3.0	Broken Hill Base	4.1	3.8	4.1	4.4	3.5
Liverpool	3.1	3.1	2.9	3.0	2.9	Other Area hospitals	3.8	2.9	2.8	3.6	3.5
Campbelltown	2.8	2.7	2.6	2.6	2.9	ALL HOSPITALS	4.1	3.6	3.8	4.2	3.5
Bankstown/Lidcombe	3.0	2.8	2.8	2.9	2.8	Greater Murray					
Bankstown Private	5.0	5.4	4.9	4.7	4.4	Deniliquin	5.3	4.8	4.4	4.4	4.6
Bowral	3.2	3.0	3.0	3.0	2.7	Griffith Base	3.6	3.4	3.4	3.1	3.2
Other Area hospitals	3.4	3.8	3.3	4.2	6.5	Wagga Wagga Base	3.7	3.4	3.3	3.8	3.3
ALL HOSPITALS	3.2	3.1	3.0	2.9	3.1	Calvary, Wagga Wagga	6.3	6.5	5.5	5.2	4.7
Central Coast						Southern					
Gosford	3.5	3.1	2.4	2.5	2.5	Bega	4.2	4.2	4.0	3.5	3.9
Wyong	–	3.2	2.5	2.4	2.3	Goulburn Base	3.6	3.8	3.3	3.5	3.5
North Gosford Private	6.2	5.9	5.9	5.6	5.4	Queanbeyan	3.2	3.2	3.4	3.4	3.3
ALL HOSPITALS	4.1	3.7	3.1	3.1	3.0	Other Area hospitals	4.1	3.8	3.9	3.8	3.7
Hunter						TOTAL NSW					
Maitland	3.2	3.1	3.2	3.4	3.5	4.0	3.9	3.7	3.7	3.7	
Muswellbrook	3.9	3.8	3.5	3.5	3.7						
Belmont	3.3	3.5	3.5	3.6	3.2						
Singleton	3.7	3.3	3.5	3.3	2.9						
John Hunter	3.7	4.0	3.9	3.6	3.6						
Christo Road Private	5.7	5.8	5.5	5.3	5.0						
Other Area hospitals	4.8	4.7	4.8	4.1	3.9						
ALL HOSPITALS	3.9	4.1	4.0	3.8	3.7						
Illawarra											
Shoalhaven	2.7	2.3	2.5	2.7	2.6						
Shellharbour	3.8	3.3	3.0	2.8	2.7						
Wollongong	2.4	2.4	2.6	2.8	2.5						
Illawarra Private	5.6	6.3	5.6	5.6	5.6						
Other Area hospitals	4.4	3.8	3.7	3.6	4.0						
ALL HOSPITALS	2.7	2.5	3.0	3.2	3.1						

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

[#] 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 118 shows aggregate information for these indicators for all NSW hospitals and comparative information for all participating hospitals in Australia.

TABLE 118

CLINICAL INDICATORS FOR OBSTETRICS, NSW AND AUSTRALIA, 2001

Indicator description	NSW	Australia		
	%	%	20th Centile	80th Centile
Indicator 1: Induction of labour for other than defined indications.#				
1.1 Mothers undergoing induction of labour for other than defined indications as a percentage of all mothers undergoing induction of labour for any reason.	31.7	33.1	21.2	47.3
1.2 Mothers undergoing induction of labour for other than defined indications as a percentage of all mothers giving birth.	7.9	8.9	4.9	14.3
Indicator 2: The rate of vaginal delivery after primary caesarean section.				
2.1 Mothers delivering vaginally at the birth immediately following primary caesarean section as a percentage of all mothers delivering at the birth immediately following primary caesarean section.	18.4	20.0	14.0	26.6
Indicator 3: Primary caesarean section for failure to progress.				
3.1 Mothers 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 all mothers undergoing primary non-elective caesarean section.	10.2	11.3	8.4	21.2
3.2 Mothers 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 all mothers undergoing primary non-elective caesarean section.	31.9	31.4	28.3	38.7
Indicator 4: Primary caesarean section for fetal distress.				
4.1 Mothers undergoing primary caesarean section for fetal distress as a percentage of total mothers delivering.	3.3	3.5	2.3	4.0
4.2 Mothers undergoing primary caesarean section for fetal distress as a percentage of mothers delivering by primary caesarean section.	19.2	22.1	16.1	26.5
Indicator 5: Incidence of intact lower genital tract in vaginal deliveries.				
5.1 Primiparous mothers not requiring surgical repair of the lower genital tract as a percentage of all primiparous mothers delivering vaginally.	29.7	30.5	19.3	43.7
Indicator 6: Apgar score.				
6.1 Infants born with an Apgar score of four or less at five minutes post delivery as a percentage of all infants born.##	0.45	0.66	0.35	0.76
6.2 Infants born with an Apgar score of six or less at ten minutes post delivery as a percentage of all infants born.###	–	0.36	0.21	0.48
Indicator 7: Term infants transferred or admitted to a neonatal intensive care unit for reasons other than congenital abnormality.####				
7.1 Term infants admitted to a neonatal intensive care unit for reasons other than congenital abnormality as a percentage of all term live infants born.	0.7	1.0	0.36	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. 3rd Edition, ACHS Clinical Indicator Results for Australia and New Zealand 1998–2001.* Sydney: The Australian Council on Healthcare Standards, 2002.

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 denominator includes live births only.

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 2001

Introduction

This chapter presents the results of perinatal death reviews carried out by the NSW Maternal and Perinatal Committee for deaths among babies born in 2001. The 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 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. Under this policy, 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 occurring in 2001 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 655 perinatal deaths of at least 22 weeks gestation or at least 500 grams birthweight reported to the NSW Midwives Data Collection in 2001, confidential reports on 597 (91.1 per cent) were reviewed and classified. Of the 443 stillbirths and 212 neonatal deaths reported to the MDC, reviews were carried out on 412 (93.0 per cent) and 185 (87.3 per cent) respectively.

Obstetric causes of perinatal death

Overall, just under one third of all deaths reviewed (31.2 per cent) were unexplained (Table 119). Among term infants 41.0 per cent were unexplained. The proportion of unexplained deaths has declined compared to 2000, when 34.8 per cent of all perinatal deaths and 56.8 per cent of term perinatal deaths were unexplained.

1. Congenital abnormality

Eighty-eight deaths were found to be due to congenital abnormalities. Chromosomal abnormalities were most common ($n=19$, 21.6 per cent). Of these, 6 were trisomy 18, 6 were trisomy 21, 2 were trisomy 13, and 5 were other chromosomal abnormalities.

Fourteen deaths were associated with abnormalities of the central nervous system (15.9 per cent), of which 13 were neural tube defects, and 14 deaths occurred among babies who had multiple abnormalities not associated with a chromosomal abnormality.

2. Perinatal infection

Twenty-seven deaths were found to be due to infection, of which 10 were stillbirths and 17 were neonatal deaths. In 18 deaths there was an associated chorioamnionitis.

The most common infective organism identified was *E. Coli*, which caused 8 neonatal deaths. Group B streptococcal infection was considered responsible for 5 neonatal deaths and 1 stillbirth. One stillbirth followed *Listeria Monocytogenes* infection, another stillbirth followed cytomegalovirus infection and a third followed syphilis infection. One neonatal death was attributed to *Candida Albicans* infection.

3. Hypertension

Thirty-eight (6.4 per cent) deaths were considered to be due to maternal hypertension, with the majority ($n=27$, 71.1 per cent) of deaths occurring in mothers with pre-eclampsia.

Twenty-nine deaths were stillbirths and 9 were neonatal deaths. Three deaths were among babies of twin pregnancies.

Four deaths in this group were associated with placental abruption. Three deaths were associated with maternal diabetes and one mother had antiphospholipid antibodies.

4. Antepartum haemorrhage

Forty-seven deaths were due to antepartum haemorrhage, of which 35 were due to placental abruption, 3 due to placenta praevia and 3 due to vasa praevia.

Thirty-two deaths were stillborn babies, of whom 6 died during labour, and 15 were neonatal deaths.

Two cases of placental abruption were associated with maternal hypertension, and one with a twin pregnancy. One mother who suffered a placental abruption also had a history of intravenous amphetamine use.

5. Maternal disease

Thirteen deaths were attributed to other maternal diseases including: diabetes (5), motor vehicle accidents (2), acute myeloid leukemia and chemotherapy (1), cardiac surgery (1), nephrotic syndrome (1), termination of pregnancy for oligohydramnios following early preterm rupture of membranes (1), genetic disorder of the mother (1), and maternal anticardiolipin antibodies (1).

TABLE 119

PERINATAL DEATHS BY OBSTETRIC CAUSE AND PERINATAL OUTCOME AGE, NSW 2001

Obstetric cause	Stillbirth		Perinatal outcome Neonatal death		TOTAL	
	No.	%	No.	%	No.	%
1. Fetal abnormality						
Central nervous system	8	1.9	6	3.2	14	2.3
Cardiovascular system	4	1.0	6	3.2	10	1.7
Urinary tract	1	0.2	6	3.2	7	1.2
Gastrointestinal system	1	0.2	1	0.5	2	0.3
Chromosomal	16	3.9	3	1.6	19	3.2
Metabolic	0	0.0	2	1.1	2	0.3
Multiple	8	1.9	6	3.2	14	2.3
Other	8	1.9	11	5.9	19	3.2
Unspecified	1	0.2	0	0.0	1	0.2
Total	47	11.4	41	22.2	88	14.7
2. Perinatal infection						
Group B Streptococcus	1	0.2	5	2.7	6	1.0
E Coli	0	0.0	8	4.3	8	1.3
Listeria Monocytogenes	1	0.2	0	0.0	1	0.2
Other bacterial	3	0.7	2	1.1	5	0.8
Cytomegalovirus	1	0.2	0	0.0	1	0.2
Unspecified viral	1	0.2	0	0.0	1	0.2
Spirochaetal eg syphilis	1	0.2	0	0.0	1	0.2
Fungal	0	0.0	1	0.5	1	0.2
Unspecified organism	2	0.5	1	0.5	3	0.5
Total	10	2.4	17	9.2	27	4.5
3. Hypertension						
Chronic: Essential	3	0.7	0	0.0	3	0.5
Chronic: Secondary eg renal	0	0.0	1	0.5	1	0.2
Chronic: Unspecified	0	0.0	1	0.5	1	0.2
Gestational	3	0.7	1	0.5	4	0.7
Pre-eclampsia	21	5.1	5	2.7	26	4.4
Pre-eclampsia superimposed on pre-existing	0	0.0	1	0.5	1	0.2
Unspecified	2	0.5	0	0.0	2	0.3
Total	29	7.0	9	4.9	38	6.4
4. Antepartum haemorrhage						
Placental abruption	28	6.8	7	3.8	35	5.9
Placenta praevia	2	0.5	1	0.5	3	0.5
Vasa praevia	1	0.2	2	1.1	3	0.5
Undetermined origin	1	0.2	3	1.6	4	0.7
Other	0	0.0	2	1.1	2	0.3
Total	32	7.8	15	8.1	47	7.9
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	0	0.0	5	0.8
Maternal injury: accidental	2	0.5	0	0.0	2	0.3
Other	5	1.2	0	0.0	5	0.8
Total	13	3.2	0	0.0	13	2.2
6. Specific perinatal conditions						
Twin-to-twin transfusion	11	2.7	8	4.3	19	3.2
Fetomaternal haemorrhage	6	1.5	1	0.5	7	1.2
Antepartum cord complications	6	1.5	2	1.1	8	1.3
Uterine abnormality	3	0.7	0	0.0	3	0.5
Birth trauma	0	0.0	3	1.6	3	0.5
Haemolytic disease	1	0.2	0	0.0	1	0.2
Idiopathic hydrops	5	1.2	3	1.6	8	1.3
Other	2	0.5	0	0.0	2	0.3
Total	34	8.3	17	9.2	51	8.5
7. Hypoxic peripartum death						
Uterine rupture	2	0.5	0	0.0	2	0.3
Cord prolapse	1	0.2	1	0.5	2	0.3
Shoulder dystocia	1	0.2	0	0.0	1	0.2
Other intrapartum complication	3	0.7	1	0.5	4	0.7
No intrapartum complication	7	1.7	1	0.5	8	1.3
Unspecified	2	0.5	3	1.6	5	0.8
Total	16	3.9	6	3.2	22	3.7

TABLE 119 (continued)
PERINATAL DEATHS BY OBSTETRIC CAUSE AND PERINATAL OUTCOME, NSW 2001

Obstetric cause	Stillbirth		Perinatal outcome Neonatal death		TOTAL	
	No.	%	No.	%	No.	%
8. Fetal growth restriction						
With evidence of uteroplacental insufficiency	2	0.5	0	0.0	2	0.3
Without the above placental pathology	0	0.0	2	1.1	2	0.3
Total	2	0.5	2	1.1	4	0.7
9. Spontaneous preterm						
Intact membranes or membrane rupture less than 24 hours:						
with chorioamnionitis	7	1.7	23	12.4	30	5.0
without chorioamnionitis	7	1.7	10	5.4	17	2.8
no placental examination	2	0.5	9	4.9	11	1.8
Membrane rupture 24 hours or more:						
with chorioamnionitis	6	1.5	14	7.6	20	3.4
without chorioamnionitis	1	0.2	6	3.2	7	1.2
no placental examination	1	0.2	3	1.6	4	0.7
Membrane rupture unknown duration:						
with chorioamnionitis	7	1.7	7	3.8	14	2.3
without chorioamnionitis	9	2.2	1	0.5	10	1.7
no placental examination	1	0.2	2	1.1	3	0.5
Total	41	10.0	75	40.5	116	19.4
10. Unexplained antepartum death						
With evidence of uteroplacental insufficiency	28	6.8	0	0.0	28	4.7
With chronic villitis	5	1.2	0	0.0	5	0.8
Without the above placental pathology	105	25.5	0	0.0	105	17.6
No placental examination	35	8.5	0	0.0	35	5.9
Unspecified placental examination	13	3.2	0	0.0	13	2.2
Total	186	45.1	0	0.0	186	31.2
11. No obstetric antecedent						
Total	2	0.5	3	1.6	5	0.8
TOTAL	412	100.0	185	100.0	597	100.0

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

6. Specific perinatal conditions

Of the 51 deaths in this group, twin-twin transfusion was most common accounting for 19 deaths, followed by idiopathic hydrops and antepartum cord complications, each accounting for 8 deaths. The remaining causes included: fetomaternal haemorrhage (7), uterine abnormalities comprising cervical incompetence (2) and double uterus (1), birth trauma (3), platelet alloimmune thrombocytopenia (1), haemolytic disease (1), and maternal refusal of treatment (1).

7. Hypoxic peripartum death

There were 22 deaths associated with peripartum hypoxia. One death occurred prior to the onset of labour following umbilical cord entanglement that was confirmed at post-mortem examination.

Thirteen deaths occurred during labour, the causes including: uterine rupture (2), cord prolapse (1), shoulder dystocia (1), obstructed labour due to shoulder presentation (1), asphyxia during vaginal breech delivery (1), and the death of a second twin following obstructed labour due to

a transverse lie. In the remaining 6 cases, intrapartum complications were not specified or not known.

Two deaths occurred prior to birth, but it was not known whether the deaths occurred before or after the onset of labour. Evidence of asphyxia was found on post-mortem examination, but the cause of the asphyxia was not determined.

Six deaths occurred in the neonatal period. One death followed umbilical cord prolapse. The remaining 5 deaths were among term infants and the underlying cause of the hypoxia was not reported or not determined.

8. Fetal growth restriction

Fetal growth restriction (FGR) is defined as less than the 10th 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.

In 4 cases, the main obstetric cause of death was considered to be FGR. Of these, 2 were neonatal deaths and 2 were stillbirths, both of whom died during labour.

In all 4 deaths, placental histopathology was carried out. In 2 cases, there was evidence of uteroplacental insufficiency.

9. Spontaneous preterm

There were 116 perinatal deaths associated with spontaneous preterm birth, which comprises normally formed babies born before 37 weeks gestation.

Of these deaths, 41 (35.3 per cent) were stillbirths and 75 (64.7 per cent) were neonatal deaths. Ninety-five (81.9 per cent) deaths were at 22–25 weeks gestation, 4 (3.4 per cent) were at 20–21 weeks, and 17 (14.7 per cent) occurred between 26 and 36 weeks gestation.

Chorioamnionitis was reported to be present in 64 deaths (55.2 per cent). Thirty-one deaths (26.7 per cent) were associated with membrane rupture of 24 hours or more, 58 (50.0 per cent) with membrane rupture of less than 24 hours, and in the remaining 27 deaths (23.3 per cent) the duration of rupture of membranes was not known or not reported.

10. Unexplained antepartum death

The cause of death could not be adequately explained in 186 stillbirths. Of these, 130 (69.9 per cent) were low birthweight and 131 (70.4 per cent) were premature.

There were a variety of associated maternal conditions reported in this group, including: multiple pregnancy

(20 deaths), maternal hypertension (11), diabetes (4), hypothyroidism (3), hyperthyroidism (1), history of drug dependency or abuse (1), nonalcoholic steato-hepatitis (1), and cholestasis (1).

Results of placental histopathology were provided for 132 unexplained antepartum deaths (71.4 per cent), and evidence of uteroplacental insufficiency was found in 28.

11. No obstetric antecedent

Five deaths were considered not to have an obstetric antecedent. One stillbirth followed haemorrhagic infarction of abdominal organs as a result of a volvulus. A second stillbirth was attributed to maternal drug abuse. There were three neonatal deaths. One followed intra-abdominal haemorrhage associated with a mesoblastic nephroma of the kidney, the second was due to myotonic dystrophy and the third was a term infant where the cause of death was not certain.

Obstetric cause of perinatal death by hospital size

The majority of perinatal deaths occurred in hospitals with more than 2000 births in 2001 (Table 120). The proportion of unexplained intrauterine deaths was substantially higher in hospitals with less than 2000 births per year compared with larger hospitals, possibly due to difficulties with access to perinatal postmortem services. Conversely, the proportion of deaths associated with congenital abnormalities was highest in hospitals with greater than 2000 births per year, reflecting patterns of referral for diagnosis and treatment.

TABLE 120

PERINATAL DEATHS BY OBSTETRIC CAUSE AND HOSPITAL SIZE, NSW 2001

Obstetric cause	Hospital size (No. births per year)										TOTAL	
	0–499		500–999		1000–1499		1500–1999		2000+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
1. Fetal abnormality	7	17.1	5	6.5	9	12.7	7	13.2	60	16.9	88	14.7
2. Perinatal infection	0	0.0	4	5.2	4	5.6	2	3.8	17	4.8	27	4.5
3. Hypertension	2	4.9	6	7.8	5	7.0	2	3.8	23	6.5	38	6.4
4. Antepartum haemorrhage	4	9.8	7	9.1	8	11.3	4	7.5	24	6.8	47	7.9
5. Maternal disease	2	4.9	2	2.6	0	0.0	0	0.0	9	2.5	13	2.2
6. Specific perinatal conditions	2	4.9	4	5.2	3	4.2	8	15.1	34	9.6	51	8.5
7. Hypoxic peripartum death	0	0.0	8	10.4	2	2.8	1	1.9	11	3.1	22	3.7
8. Fetal growth restriction	0	0.0	1	1.3	0	0.0	0	0.0	3	0.8	4	0.7
9. Spontaneous preterm	10	24.4	7	9.1	14	19.7	11	20.8	74	20.8	116	19.4
10. Unexplained antepartum death	14	34.1	32	41.6	26	36.6	18	34.0	96	27.0	186	31.2
11. No obstetric antecedent	0	0.0	1	1.3	0	0.0	0	0.0	4	1.1	5	0.8
TOTAL	41	100.0	77	100.0	71	100.0	53	100.0	355	100.0	597	100.0

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

Neonatal cause of death

Of the 185 neonatal deaths, 157 (84.9 per cent) were less than 37 weeks gestation (Table 121). The most common neonatal cause of death, was extreme prematurity ($n=82$, 44.3 per cent). Forty-three infants died from a congenital abnormality. There were 10 deaths due to intracranial haemorrhage and 8 deaths from hyaline membrane disease.

Perinatal deaths associated with maternal drug dependency/abuse

One perinatal death was attributed to maternal drug abuse. A further 6 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

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 2001, postmortem examinations were carried out in 160 (26.8 per cent) cases of perinatal death. There were 127 postmortems carried out among stillborn infants (30.8 per cent of all stillbirths), and 33 postmortems among babies who died in the neonatal period (17.8 per cent of all neonatal deaths). Placental histopathology was carried out in 450 perinatal deaths (75.4 per cent).

TABLE 121

NEONATAL DEATHS BY CAUSE AND GESTATIONAL AGE, NSW 2001

Neonatal cause	Less than 37		Gestational age (weeks) 37+		TOTAL	
	No.	%	No.	%	No.	%
1. Congenital abnormality						
Central nervous system	3	1.9	3	10.7	6	3.2
Cardiovascular system	5	3.2	3	10.7	8	4.3
Urinary tract	4	2.5	1	3.6	5	2.7
Gastrointestinal tract	2	1.3	0	0.0	2	1.1
Chromosomal	3	1.9	0	0.0	3	1.6
Multiple	3	1.9	2	7.1	5	2.7
Other	11	7.0	3	10.7	14	7.6
Total	31	19.7	12	42.9	43	23.2
2. Extreme prematurity						
Not resuscitated	33	21.0	0	0.0	33	17.8
Unsuccessful resuscitation	33	21.0	0	0.0	33	17.8
Resuscitation unspecified or unknown	16	10.2	0	0.0	16	8.6
Total	82	52.2	0	0.0	82	44.3
3. Cardio-respiratory disorders						
Hyaline membrane disease / respiratory distress syndrome	8	5.1	0	0.0	8	4.3
Meconium aspiration syndrome	0	0.0	1	3.6	1	0.5
Primary persistent pulmonary hypertension	2	1.3	0	0.0	2	1.1
Pulmonary hypoplasia	5	3.2	0	0.0	5	2.7
Other	3	1.9	3	10.7	6	3.2
Total	18	11.5	4	14.3	22	11.9
4. Infection						
Congenital bacterial	2	1.3	0	0.0	2	1.1
Acquired bacterial	4	2.5	0	0.0	4	2.2
Unspecified organism	2	1.3	0	0.0	2	1.1
Total	8	5.1	0	0.0	8	4.3
5. Neurological						
Hypoxic ischaemic encephalopathy / perinatal asphyxia	1	0.6	7	25.0	8	4.3
Intracranial haemorrhage	8	5.1	2	7.1	10	5.4
Total	9	5.7	9	32.1	18	9.7
6. Gastrointestinal						
Necrotising enterocolitis	2	1.3	0	0.0	2	1.1
Other	1	0.6	0	0.0	1	0.5
Total	3	1.9	0	0.0	3	1.6
Other	6	3.8	3	10.7	9	4.9
TOTAL	157	100.0	28	100.0	185	100.0

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

12. CHROMOSOMAL ABNORMALITIES DETECTED ON PRENATAL DIAGNOSIS BY CHORIONIC VILLUS SAMPLING AND AMNIOCENTESIS, NSW 1998—2000

Introduction

About 250 pregnancies are affected by chromosomal abnormalities each year in NSW (See Chapter 9). Over 7,000 chromosomal tests for prenatal diagnosis of congenital abnormalities by amniocentesis or chorionic villus sampling (CVS) were carried out in NSW in 2000, having increased from 3,869 in 1990.¹ Amniocentesis is the most common test used in NSW for prenatal diagnosis of chromosomal abnormalities, and is used twice as frequently as CVS.

Prenatal diagnosis services should be made available to women with an increased risk of a genetic or chromosomal disorder.² Risk factors for chromosomal abnormalities include family history and maternal age of 35 years or over. Screening tests such as maternal serum screening and ultrasound screening for nuchal translucency or other physical signs may also indicate an increased risk of chromosomal abnormality in the fetus.

In NSW information on congenital abnormalities detected during pregnancy, at birth, or up to one year of age is included in the NSW Birth Defects Register (BDR). From 1 January 1998, doctors, hospitals and laboratories in NSW are required to notify congenital abnormalities to the BDR under the *NSW Public Health Act 1991*. The BDR receives reports of abnormal chromosomal tests from all six chromosomal laboratories in NSW. These are located at: Prince of Wales Hospital, The Children's Hospital at Westmead, Hunter Area Pathology Service, Royal North Shore Hospital, St Vincents Hospital, and Sydney Genetics. Since 1998, the BDR has followed up

pregnancies reported with chromosomal abnormalities to obtain the results of any follow-up chromosomal testing.

This chapter presents information on chromosomal abnormalities detected on prenatal testing by amniocentesis or CVS and reported to the BDR in the period 1998–2000. We describe the chromosomal abnormalities found on initial testing, the types and results of follow-up tests, and discuss the reasons for differences found between initial and final test results.

Methods

Cases were defined by the following criteria: chromosomal abnormalities detected on samples obtained by amniocentesis or CVS, notified to the BDR by a chromosomal laboratory, and final diagnosis made in the years 1998–2000. Cases were excluded if a chromosomal diagnosis, such as trisomy 21, was made on clinical grounds or where chromosomal testing was carried out interstate and the test results were not available to the BDR.

Information on initial prenatal diagnosis test and karyotype and follow-up test and karyotype (where available) was entered into a Microsoft Access database. If more than one follow-up test was carried out, only information on the final test was included. The data were analysed using SAS version 8.02.³

Definitions of terms used in this Chapter are shown in Table 122; an explanation of symbols and abbreviations used in descriptions of karyotypes is shown in Table 123.

TABLE 122

DESCRIPTION OF TERMS

Term	Description
Aneuploidy	Having more or less than the normal number of chromosomes
Autosome	Any ordinary paired chromosome as distinguished from a sex chromosome. In humans there are 22 pairs of autosomes plus the two sex chromosomes
Cytogenetic	Pertaining to chromosomes
Karyotype	Chromosomal constitution of the nucleus of a cell which represents the chromosomal pattern found in an individual.
Maternal serum screening	A test on the mother's blood that gives a measure of risk for the baby having certain problems such as Down syndrome.
Mosaic	An individual having two or more distinct cell lines.
Nuchal translucency	Nuchal (neck) translucency refers to fluid behind the neck of the baby that appears translucent by ultrasound. When the baby has a chromosomal disorder, this fluid tends to be increased.
Polyploidy	Having more than two full sets of homologous (same) chromosomes.
Pseudomosaicism	The presence of multiple cell lines in a tissue or cell culture which do not reflect the true karyotype of the individual.
Rearrangement	Any event which moves chromosomal material from its normal position
Sex chromosome	The pair of chromosomes associated with sex determination. Females have two X chromosomes while males have an X and a Y
Supernumerary	Usually refers to an extra 'marker' chromosome of unknown origin which is additional to the normal chromosome constitution
Translocation	The exchange of material between two or more chromosomes
Trisomy	The presence of an additional third chromosome of one type in an otherwise normal cell.

TABLE 123

SYMBOLS AND ABBREVIATIONS USED IN DESCRIPTIONS OF KARYOTYPES

Symbol	Description
add	Additional material of unknown origin
arrow (→)	From-to
brackets, square ([])	Surround the number of cells
cen	Centromere
colon, single (:)	Break
colon, double (::)	Break and reunion
comma (,)	Separates chromosome numbers, sex chromosomes, and chromosome abnormalities
decimal point (.)	Denotes sub-bands
del	Deletion
de novo	Designates a chromosome abnormality that has not been inherited
der	Derivative chromosome
dup	Duplication
fis	Fission, at the centromere
inv	Inversion or inverted
ish	In situ hybridisation
mar	Marker chromosome
mat	Maternal origin
minus sign (-)	Loss
p	Short arm of the chromosome
pat	Paternal origin
pter	Terminal end of the short arm of the chromosome
r	Unidentified ring maker
rob	Robertsonian translocation
q	Long arm of the chromosome
qter	Terminal end of the long arm of the chromosome
question mark (?)	Questionable identification of chromosome or chromosome structure
semicolon (;)	Separates altered chromosomes and breakpoints in structural rearrangements involving more than one chromosome
slant line (/)	Separates clones
t	Translocation
ter	Terminal (end of chromosome)

Source: Mitelman F (editor). *An International System for Human Cytogenetic Nomenclature*. Memphis, Tenn: S Karger, Basel, 1995.

Results

Over the three years 1998–2000, 785 chromosomal abnormalities following initial prenatal diagnosis by CVS or amniocentesis were reported to the BDR. In 454 (57.8 per cent) cases the initial test was amniocentesis, and in 331 (42.2 per cent) cases the initial test was CVS (Table 124).

Of the 785 cases reported, 675 (83.7 per cent) were non-mosaic chromosomal abnormalities and 128 (16.3 per cent) were mosaic abnormalities.

Among non-mosaic abnormalities, the most common group of abnormalities were cases of trisomy ($n=487$, 62.0 per cent), followed by sex chromosome aneuploidies ($n=75$, 9.6 per cent). The most frequent trisomy was Trisomy 21 (Down syndrome), followed by Trisomy 18 (Edward syndrome), and Trisomy 13 (Patau syndrome). The most common sex chromosome aneuploidy was 45,X (Turner syndrome). Mosaic abnormalities most commonly involved a trisomy (56 cases) or 45,X (30 cases).

There were 114 (14.5 per cent) cases where a follow-up test was carried out. Of these, the majority of initial tests were carried out on amniotic fluid (31), followed by infant blood (26), products of conception (21), fetal tissue (15), fetal blood (12), cord blood (6), and placenta (2) and fetal membranes (1). Of the 114 cases that had confirmatory tests, 76 confirmed a chromosomal abnormality (Table 125). In 58 (76.3 per cent) cases the confirmatory test result was exactly the same as the initial test result. In 18 (23.7 per cent) cases, the results were very similar.

Thirty-eight follow-up test results did not confirm the initial test result (Table 126). Of these, three were non-mosaic abnormalities detected in CVS and 35 were mosaic abnormalities. The majority ($n=29$, 76.3 per cent) of initial test results that did not confirm the initial test were obtained from CVS samples and nine (23.7 per cent) were obtained from amniotic fluid samples.

Continued on page 120

TABLE 124

CHROMOSOME ABNORMALITIES BY TYPE OF PRENATAL DIAGNOSIS PROCEDURE, NSW 1998-2000

Karyotype	Amniocentesis		CVS		TOTAL	
	No.	%	No.	%	No.	%
Non-Mosaic						
Autosomal trisomy						
Trisomy 5	0	0.0	1	0.5	1	0.2
Trisomy 8	1	0.4	2	1.0	3	0.6
Trisomy 9	1	0.4	1	0.5	2	0.4
Trisomy 13	24	8.5	22	10.8	46	9.4
Trisomy 18	94	33.2	48	23.5	142	29.2
Trisomy 20	0	0.0	1	0.5	1	0.2
Trisomy 21	163	57.6	127	62.3	290	59.5
Trisomy 22	0	0.0	2	1.0	2	0.4
TOTAL	283	100.0	204	100.0	487	100.0
Sex chromosome aneuploidy						
45,X	20	45.5	13	41.9	33	44.0
47,XXX	7	15.9	6	19.4	13	17.3
47,XXY	11	25.0	10	32.3	21	28.0
47,XYY	5	11.4	2	6.5	7	9.3
48,XXYY	1	2.3	0	0.0	1	1.3
TOTAL	44	100.0	31	100.0	75	100.0
Polyploidy						
69,XXX	11	78.6	6	66.7	17	73.9
69,XXY	3	21.4	3	33.3	6	26.1
TOTAL	14	100.0	9	100.0	23	100.0
Structural rearrangement						
45,XY,der(1)t(1;13)(p36.3;q12.1),-13pat	0	0.0	1	6.3	1	2.1
46,X,add(X),(p22)	1	3.1	0	0.0	1	2.1
46,X,del(Y)(?q11).ishYcen(DY23x1)	1	3.1	0	0.0	1	2.1
46,X,del(Y)(q11.22)	1	3.1	0	0.0	1	2.1
46,XX,del(13)	1	3.1	0	0.0	1	2.1
46,XX,del(13)(q31)	1	3.1	0	0.0	1	2.1
46,XX,del(18)(pter->q21.33):de novo	1	3.1	0	0.0	1	2.1
46,XX,del(4)(p16.1)	0	0.0	1	6.3	1	2.1
46,XX,der(13;14)(q10;q10)pat,+18	0	0.0	1	6.3	1	2.1
46,XX,der(14;21)(q10;q10),+21	1	3.1	0	0.0	1	2.1
46,XX,der(14;21)(q10q10),+21	1	3.1	0	0.0	1	2.1
46,XX,der(21)t(21;?)(q?22.3;?)	0	0.0	1	6.3	1	2.1
46,XX,der(21)t(4;21)(p14;q22.3)	1	3.1	0	0.0	1	2.1
46,XX,der(3)(3qter->3p26.2::5p13.1->5pter)mat	0	0.0	1	6.3	1	2.1
46,XX,der(5)t(5;10)(p13;q23.2)pat	1	3.1	0	0.0	1	2.1
46,XX,der(9)t(9;17)(p24.3;p13.)mat	1	3.1	0	0.0	1	2.1
46,XX,dup(16)(q11.3q24)de novo	1	3.1	0	0.0	1	2.1
46,XX,i(21)(q10)	1	3.1	0	0.0	1	2.1
46,XX,inv(2)(?p15?q13)	1	3.1	0	0.0	1	2.1
46,XY,-9,+der(9)t(5;9)(p13.3;22.2)mat	0	0.0	1	6.3	1	2.1
46,XY,?dup(1)(q12-q21)	1	3.1	0	0.0	1	2.1
46,XY,add(10)(q26.1)de novo	0	0.0	1	6.3	1	2.1
46,XY,add(4)(p15.2)	1	3.1	0	0.0	1	2.1
46,XY,add(4)(pter-q32::?)	1	3.1	0	0.0	1	2.1
46,XY,del(1)(q25.3q32.1)	1	3.1	0	0.0	1	2.1
46,XY,der(11)t(7;11)(p13;q24)	1	3.1	0	0.0	1	2.1
46,XY,der(13;21),+21	1	3.1	0	0.0	1	2.1
46,XY,der(14;21)(q10;q10),+21	0	0.0	1	6.3	1	2.1
46,XY,der(14;21)(q10;q10),+21	2	6.3	0	0.0	2	4.2
46,XY,der(18)t(13;18)(q21.3;p11.32)pat	1	3.1	0	0.0	1	2.1
46,XY,der(21)t(12;21)(p10;p10)mat	1	3.1	0	0.0	1	2.1
46,XY,der(21)t(18;21)(q11.2;p11.2)	1	3.1	0	0.0	1	2.1
46,XY,der(21)t(4;21)(p14;q22.3)pat	0	0.0	1	6.3	1	2.1
46,XY,der(5)t(3;5)(q23;p15.3)mat	0	0.0	1	6.3	1	2.1
46,XY,der(5)t(5;9)(5pter->5p15.1::9p12->9pter;	1	3.1	0	0.0	1	2.1
9pter->9p12::5p15.1->5pter)mat	1	3.1	0	0.0	1	2.1
46,XY,der(8)t(3;8)(q13.3;p23)pat	1	3.1	0	0.0	1	2.1
46,XY,dup(2)(q13q31)	0	0.0	1	6.3	1	2.1
46,XY,inv(10)(p11.2q21.2),der(13;14)(q10;q10),+13	1	3.1	0	0.0	1	2.1
46,XY,t(4;15)(q25;q26.3)pat	1	3.1	0	0.0	1	2.1
46,XY,t(8;7;10)(q13.3;p15;p15)	1	3.1	0	0.0	1	2.1
46,XY,der(13;14)(q10;q10)	0	0.0	1	6.3	1	2.1
47,X,der(X)(Xqter->p22.3::Xq11.2->Xqter)mat,Y	0	0.0	1	6.3	1	2.1
47,X,i(Y)(p10),+18	0	0.0	1	6.3	1	2.1
47,XX,del(7)(q21.1q22.1)	1	3.1	0	0.0	1	2.1
47,XX,t(3;6)(q27;p21.1),+21	0	0.0	1	6.3	1	2.1
47,XX,t(8;14)(q13;q22),+21	1	3.1	0	0.0	1	2.1
47,XY,t(15;16)(q13;p12)mat,+21	0	0.0	1	6.3	1	2.1
TOTAL	32	100.0	16	100.0	48	100.0

TABLE 124 continued

CHROMOSOME ABNORMALITIES BY TYPE OF PRENATAL DIAGNOSIS PROCEDURE, NSW 1998-2000 #

Karyotype	Amniocentesis		CVS		TOTAL	
	No.	%	No.	%	No.	%
Extra structurally abnormal chromosome						
46,XX,+21,der(21:21)(q10;q10)	1	6.7	0	0.0	1	5.9
46,XY,+13,der(13;13)	1	6.7	0	0.0	1	5.9
46,XY,+13,der(13;13)(q10;q10)	1	6.7	0	0.0	1	5.9
46,XY,+13,der(13;13)(q10;q10]	1	6.7	0	0.0	1	5.9
46,XY,+13,der(13;14)(q10;q10)	0	0.0	1	50.0	1	5.9
46,XY,+21,der(21;21)(q10;q10)	1	6.7	0	0.0	1	5.9
46,XY,+21,der(21;21)(q10;q10)	1	6.7	0	0.0	1	5.9
47,XX,+der(22)t(11;22)(23;q11)mat	0	0.0	1	50.0	1	5.9
47,XX,+fis(10)(p10)mat	1	6.7	0	0.0	1	5.9
47,XX,+mar	1	6.7	0	0.0	1	5.9
47,XY,+del(15)(q11.2)de novo	1	6.7	0	0.0	1	5.9
47,XY,+der(15)(q11.2)de novo	1	6.7	0	0.0	1	5.9
47,XY,+mar	3	20.0	0	0.0	3	17.6
47,XY,+mar(pat)	1	6.7	0	0.0	1	5.9
47,XY,+r.ishr (DXZ1-,DYZ3-,D18Z1-)	1	6.7	0	0.0	1	5.9
TOTAL	15	100.0	2	100.0	17	100.0
Other						
46,X,Yqs	0	0.0	1	20.0	1	14.3
46,XX,i(21;21)(q10q19),+21	1	50.0	0	0.0	1	14.3
46,XY,der(21;21),+21	0	0.0	1	20.0	1	14.3
46,fra(X)(q27.3)Y	0	0.0	1	20.0	1	14.3
47,XY,inv(12)(q13.3q24.1)mat,+18	0	0.0	1	20.0	1	14.3
48,XXX,+18	1	50.0	0	0.0	1	14.3
48,XY,+16,+20	0	0.0	1	20.0	1	14.3
TOTAL	2	100.0	5	100.0	7	100.0
Mosaic						
45,X/46,XY	3	4.7	6	9.4	9	7.0
45,X/46,XX	9	14.1	6	9.4	15	11.7
45,XX,-14/46,XX,r(14)	1	1.6	0	0.0	1	0.8
45,X/46,X,r(Y)	1	1.6	0	0.0	1	0.8
45,X/46,X,add(X)(q28)	1	1.6	0	0.0	1	0.8
45,X/47,XXX	1	1.6	0	0.0	1	0.8
45,X/46,X,+?inv dup(Y)(q12)	0	0.0	1	1.6	1	0.8
45,X/46,XX,der(21)t(21;?)q10;?)	0	0.0	1	1.6	1	0.8
45,X/47,XY	1	1.6	0	0.0	1	0.8
46,X,del(Y)(q11.1).ishdel(Y).(WCPY+,DY73+)/45,X	0	0.0	1	1.6	1	0.8
46,X,del(Y)(q11.2)de novo.ish del(Y)(wcpY+)/45,X	1	1.6	0	0.0	1	0.8
46,XX,add(14)(p11.2)/46,XX	0	0.0	1	1.6	1	0.8
46,XX,i(21q)/46,XX	1	1.6	0	0.0	1	0.8
46,XX,r(13)(p1?1q3?4)/45,XX,-r(13)	1	1.6	0	0.0	1	0.8
46,XX/46,XY	1	1.6	4	6.3	5	3.9
46,XY,del(16)(q22)/46,XY	1	1.6	0	0.0	1	0.8
46,XY,dup(17)(q11.2q25)/46,XY	0	0.0	1	1.6	1	0.8
46,XY,t(7;7)(q22;q31.3)/46,XY	1	1.6	0	0.0	1	0.8
46,XY/46,XX	1	1.6	0	0.0	1	0.8
47,XX,+2/46,XX	0	0.0	2	3.1	2	1.6
47,XY,+2/46,XY	0	0.0	2	3.1	2	1.6
47,XX,+7/46,XX	0	0.0	2	3.1	2	1.6
47,XY,+7/46,XY	1	1.6	1	1.6	2	1.6
47,XX,+8/46,XX	2	3.1	0	0.0	2	1.6
47,XY,+8/46,XY	0	0.0	1	1.6	1	0.8
47,XY,+10/46,XY	0	0.0	2	3.1	2	1.6
47,XX,+12/46,XX	0	0.0	1	1.6	1	0.8
47,XX,+12/46,XX	1	1.6	1	1.6	2	1.6
47,XX,+13/46,XX	1	1.6	0	0.0	1	0.8
47,XX,+13/49,XX,+13,+13,18	0	0.0	1	1.6	1	0.8
47,XY,+13/46,XY	0	0.0	1	1.6	1	0.8
47,XX,+14/46,XX	0	0.0	1	1.6	1	0.8
47,XX,+15/46,XX	1	1.6	0	0.0	1	0.8
47,XY,+15/46,XY	0	0.0	1	1.6	1	0.8
47,XX,+16/46,XX	1	1.6	1	1.6	2	1.6
47,XX,+16/47,XX	1	1.6	0	0.0	1	0.8
47,XY,+16/69,XXY	1	1.6	0	0.0	1	0.8
47,XX,+17/46,XX	0	0.0	1	1.6	1	0.8
47,XX,+18/46,XX	2	3.1	3	4.7	5	3.9
47,XY,+18/46,XY	1	1.6	3	4.7	4	3.1
47,XY,+18/48,XY,+8,+18	0	0.0	1	1.6	1	0.8
47,XX,+20/46,XX	2	3.1	0	0.0	2	1.6
47,XY,+20/46,XY	2	3.1	0	0.0	2	1.6

TABLE 124 continued
CHROMOSOME ABNORMALITIES BY TYPE OF PRENATAL DIAGNOSIS PROCEDURE, NSW 1998–2000 #

Karyotype	Amniocentesis		CVS		TOTAL	
	No.	%	No.	%	No.	%
47,XX,+21/46,XX	1	1.6	4	6.3	5	3.9
47,XY,+21/46,X,-Y,+21	1	1.6	0	0.0	1	0.8
47,XY,+21/46,XX	1	1.6	0	0.0	1	0.8
47,XY,+21/46,XY	4	6.3	2	3.1	6	4.7
47,XY,+22/46,XY	0	0.0	2	3.1	2	1.6
47,XX,+22/46,XX	1	1.6	1	1.6	2	1.6
47,XX,+mar/46,XX	3	4.7	0	0.0	3	2.3
47,XXX,+8/46,XX	0	0.0	1	1.6	1	0.8
47,XXX/46,XX	1	1.6	1	1.6	2	1.6
47,XXX/45,X	0	0.0	1	1.6	1	0.8
47,XXY/46,XX	0	0.0	1	1.6	1	0.8
47,XXY/46,XY	4	6.3	0	0.0	4	3.1
47,XY,+i(12p)/46,XY	0	0.0	1	1.6	1	0.8
47,XY,+mar/46,XY	2	3.1	1	1.6	3	2.3
47,XY,+mar/46,XY de novo	1	1.6	0	0.0	1	0.8
47,XY,+psu dic(15;15)(q11.2,q11.2)/46,XY	0	0.0	1	1.6	1	0.8
47,XY,del(4)(q32/33)	1	1.6	0	0.0	1	0.8
47,XY,t(18)(p10)/46,XY	1	1.6	0	0.0	1	0.8
47,XXY/46,XY	2	3.1	0	0.0	2	1.6
47~49,XX,+2,-15,-16,-18,-19,+20,+22/46,XX	0	0.0	1	1.6	1	0.8
49,XY,+7,+9,+21/46,XY	0	0.0	1	1.6	1	0.8
69,XXY/46,XX	1	1.6	0	0.0	1	0.8
TOTAL	64	100.0	64	100.0	128	100.0
TOTAL	454	100.0	331	100.0	785	100.0

Includes only results reported to the NSW Birth Defects Register.

TABLE 125

CONFIRMED CHROMOSOME ABNORMALITIES BY TYPE OF PRENATAL DIAGNOSIS PROCEDURE, NSW 1998–2000

Initial procedure/ Initial karyotype	Final tissue tested	Final karyotype	No.
Amniocentesis			
Trisomy 13	Placenta	Trisomy 13	1
Trisomy 13	Products of conception	Trisomy 13	1
Trisomy 13	Fetal Tissue	Trisomy 13	1
Trisomy 18	Fetal Tissue	Trisomy 18	1
Trisomy 18	Cartilage	Trisomy 18	2
Trisomy 18	Products of Conception	Trisomy 18	1
Trisomy 18	Blood–Fetal	Trisomy 18	1
Trisomy 18	Blood–Cord	Trisomy 18	1
Trisomy 21	Fetal Tissue	Trisomy 21	2
Trisomy 21	Products of Conception	Trisomy 21	3
Trisomy 21	Blood–Fetal	Trisomy 21	3
Trisomy 21	Blood–Cord	Trisomy 21	1
Trisomy 21	Blood–Infant	Trisomy 21	7
45,X	Fetal Tissue	45,X	1
45,X	Cartilage	45,X	1
45,X	Products of Conception	45,X	1
45,X	Blood–Infant	45,X/46,XX	1
45,X	Blood–Infant	45,X/46,X,i(Xq)	1
47,XXX	Products of Conception	45,X/47,XXX	1
47,XYY	Blood–Infant	47,XYY	2
48,XXYY	Products of Conception	48,XXYY	1
69,XXX	Fetal Tissue	69,XXX	1
69,XXY	Products of Conception	69,XXY	1
46,XX,der(14;21)(q10;q10),+21	Fetal Tissue	46,XX,der(14;21)(14qter->13q10::21q10->21qter	1
46,XX,der(21)t(4;21)(p14;q22.3)	Blood–Infant	46,XX,der(21)t(4;21)(p14;q22.3)	1
46,XY,del(1)(q25.3q32.1)	Cartilage	46,XY,del(1)(pter-q41:)	1
46,XY,der(14;21)(q10;q10),+21	Products of conception	46,XY,der(14)rob(14;21)(q10;q10)	1
46,XY,+13,der(13;13)	Fetal Tissue	46,XY,+13,der(13;13)(q10;q10)	1
47,XY,+mar	Fetal Tissue	47,XY,+mar	1
47,XY,+mar(pat)	Blood–Infant	47,XY,+mar(pat)	1
47,XY,+r.ishr (DXZ1-,DYZ3-,D18Z1-)	Cartilage	47,XY,+mar/46,XY	1
45,X/46,X,r(Y)	Blood–Infant	46,X,?r(Y)	1
45,X/46,XX	Blood–Infant	45,X/46,XX	2
46,X,del(Y)(q11.2)de novo.ish del(Y)(wcpY+)/45,X	Blood–Infant	46,X,del(Y)(q11.2)	1
46,XY,del(16)(q22)/46,XY	Fetal Tissue	46,XY,del(16)(q22)/46,XY	1
47,XX,+mar/46,XX	Blood–Infant	47,XX,+ring.ish(r1)/46,XX	1
47,XX,+mar/46,XX	Blood–Infant	47,XX,+mar/46,XX	1
47,XXY/46,XY	Blood–Infant	47,XXY/46,XY	1
47,XY,+21/46,XY	Blood–Infant	47,XY,+21/46,XY	1
47,XY,+21/46,XY	Amniotic fluid	47,XY,+21	1
47,XXY/46,XY	Blood–Infant	47,XXY/46,XY	1
69,XXY/46,XX	Products of Conception	69,XXY	1
TOTAL			56
CVS			
Trisomy 13	Products of Conception	Trisomy 13	2
Trisomy 21	Products of Conception	Trisomy 21	3
Trisomy 21	Amniotic fluid	Trisomy 21	1
Trisomy 21	Fetal membranes	Trisomy 21	1
Trisomy 22	Amniotic fluid	Trisomy 22	1
Trisomy 9	Blood–Infant	47,XX,+9/46,XX	1
47,XXX	Amniotic fluid	47,XXX	1
47,XXY	Products of Conception	47,XXY	1
47,XXY	Blood–Infant	47,XXY	1
69,XXX	Products of Conception	69,XXX	1
69,XXY	Amniotic fluid	69,XXY	1
45,X/46,XX	Amniotic fluid	45,X/46,XX	1
46,X,del(Y)(q11.2).ishdel(Y).(- WCPY+,DY73+)/45,X	Products of Conception	46,X,del(Y)(q11.2)de novo/45,X	1
46,XX,add(14)(p11.2)/46,XX	Blood–Fetal	46,XX,der(14)t(9;14)(p10;q10)de novo/46,XX	1
47,XX,+14/46,XX	Amniotic fluid	47,XX,+14/46,XX	1
47,XY,+mar/46,XY	Amniotic fluid	47,XY,+mar/46,XY	1
47,XX,+21/46,XX	Amniotic fluid	47,XX,+21/46,X	1
TOTAL			20
TOTAL			76

Includes only results reported to the NSW Birth Defects Register.

TABLE 126
CHROMOSOMAL ABNORMALITIES NOT CONFIRMED ON FOLLOW-UP TESTING, BY TYPE OF PRENATAL DIAGNOSIS, NSW 1998–2000

Initial procedure/ Initial karyotype	Final tissue tested	Final karyotype	No.
Amniocentesis			
46,XX/46,XY	Blood–Cord	46,XX	1
47,XX,+15/46,XX	Blood–Fetal	46,XX	1
47,XX,+16/47,XX	Blood–Infant	46,XX	1
47,XX,+18/46,XX	Blood–Fetal	46,XX	2
47,XY,+18/46,XY	Amniotic fluid	46,XY	1
47,XX,+20/46,XX	Placenta	46,XX	1
47,XX,+21/46,XX	Blood–Fetal	46,XX	1
47,XY,+21/46,XY	Blood–Fetal	46,XY	1
TOTAL			9
CVS			
47,XY,+5	Amniotic fluid	46,XY	1
47,XX,+8	Amniotic fluid	46,XX	1
47,XX,+8	Blood–Cord	46,XX	1
45,X/46,XX	Amniotic fluid	46,XX	1
45,X/46,XY	Amniotic fluid	46,XY	2
46,XX/46,XY	Amniotic fluid	46,XY	3
46,XY,dup(17)(q11.2q25)/46,XY	Blood–Cord	46,XY	1
47,XX,+2/46,XX	Amniotic fluid	46,XX	1
47,XY,+2/46,XY	Amniotic fluid	46,XY	1
47,XY,+7/46,XY	Blood–Cord	46,XY	1
47,XY,+8/46,XY	Amniotic fluid	46,XY	1
47,XY,+15/46,XY	Blood–Fetal	46,XY	1
47,XX,+16/46,XX	Amniotic fluid	46,XX	1
47,XX,+17/46,XX	Amniotic fluid	46,XX	1
47,XX,+18/46,XX	Products of Conception	46,XX	1
47,XX,+18/46,XX	Amniotic fluid	46,XX	2
47,XY,+18/46,XY	Amniotic fluid	46,XY	2
47,XY,+21/46,XX	Products of Conception	46,XX	1
47,XX,+22/46,XX	Blood–Fetal	46,XX	1
47,XY,+22/46,XY	Amniotic fluid	46,XY	1
47,XXX/46,XX	Amniotic fluid	46,XX	1
47,XXX,+8/46,XX	Amniotic fluid	46,XX	1
47–49,XX,+2,-15,-16,-18,-19,+20,+22/46,XX	Blood–Infant	46,XX	1
49,XY,+7,+9,+21/46,XY	Amniotic fluid	46,XY	1
TOTAL			29
TOTAL			38

Includes only results reported to the NSW Birth Defects Register.

(continued from page 114)

Discussion

The results of this case review highlight the difficulties in the interpretation of mosaic karyotypes found on examination of amniotic fluid and CVS cells. Mosaicism detected at prenatal diagnosis may be explained by a variety of events:

- a major constitutional chromosome abnormality in the fetus;
- contamination of the cell cultures by maternal cells;
- an abnormality confined to the placenta:
If abnormal cell division leading to mosaicism occurs during early embryonic development, then both the fetus and the placenta may be affected. However, if it occurs later in development it is possible for the mosaicism to be confined to either the placenta or the embryo–fetus;
- an abnormality developing in the cells during cell culture:

The most reliable method of obtaining cells for karyotyping is by cell culture, and several independent cultures are usually established from each specimen received. Mosaicism is usually categorised as Level 1, 2 or 3, depending on the number and distribution of abnormal cells found. *Level 1* mosaicism refers to a single abnormal cell which is not confirmed by further analysis in the same or other cultures; *Level 2* mosaicism occurs when there are multiple cells with the same abnormality in a single culture flask; *Level 3* mosaicism occurs when two or more cells or colonies with the same chromosome abnormality, are found in multiple cultures. Level 1 is almost certainly a cultural artefact and is not considered to be of clinical significance. Level 2 is almost always a ‘pseudo-mosaicism’, that is, the abnormal cells arise from tissue which does not represent the actual fetus. Level 3 mosaicism is most likely to represent a true constitutional abnormality;

- unrecognised twin pregnancy with early death of the affected twin but persistence of abnormal fetal cells.

In NSW in 1998–2000, follow-up testing for chromosomal abnormalities found on prenatal diagnosis by amniocentesis or CVS was only carried out on 15 per cent of cases. This is likely to be because the majority of prenatal testing is performed on amniotic fluid, which is less prone than CVS to produce problematical results. In addition, the most common chromosomal abnormalities, such as non-mosaic autosomal trisomies, 45,X (Turner syndrome) and 47,XXY (Klinefelter syndrome), do not pose a diagnostic dilemma.

Of the 454 chromosomal abnormalities found on testing of amniotic fluid, 65 (14.3 per cent) had follow-up testing. In 56 cases an abnormality was confirmed. In nine cases follow-up testing revealed a normal karyotype and in all

nine cases the initial test result was a mosaic karyotype. It appears that in these cases, the abnormal cell line detected initially has arisen in tissue such as amnion which is external to the actual embryo–fetus.

Of the 331 chromosomal abnormalities found on testing of chorionic villi, 49 (14.8 per cent) had follow-up testing. In 20 (40.8 per cent) cases an abnormality was confirmed. In 29 (59.2 per cent) cases follow-up testing revealed a normal karyotype and in 26 of these the initial test result was a mosaic karyotype. Such cases presumably represent confined placental mosaicism (CPM).

In this series of cases, there was one instance where initial abnormal chromosome results included a mosaic karyotype with a trisomic male cell line and a normal female cell line (47,XY,+21/46,XX). Upon follow-up by testing on products of conception a normal female karyotype (46,XX) was found. This test result is likely to reflect maternal cell contamination in the initial prenatal sample and the culturing of maternal, rather than fetal tissue in the ‘products of conception’. In this case the initial diagnosis of trisomy 21 was unable to be confirmed.

The difficulties of interpreting mosaic karyotypes found on prenatal diagnosis have been described by Gardner and Sutherland as ‘the bane of cytogenetic prenatal diagnosis’,⁴ and are well described in the scientific literature. A European collaborative study of a series of 44,170 amniotic fluid samples found that the rate of Level 3 mosaicism was 0.1 per cent, Level 2 mosaicism was 0.6 per cent, and Level 1 mosaicism was 2.8 per cent.⁵ Twenty-nine of the 45 cases of Level 3 mosaicism were confirmed (64.4 per cent), seven were not confirmed (15.6 per cent), and there was no follow-up information for the remaining nine cases (20.0 per cent).

A Canadian collaborative study on 12,386 amniotic fluid samples found the rate of Level 3 mosaicism was 0.3 per cent, Level 2 mosaicism was 1.1 per cent, and Level 1 mosaicism was 7.1 per cent.⁶ Of the 20 cases of Level 3 mosaicism that had follow-up chromosomal tests, 12 (60 per cent) were confirmed and eight (40 per cent) were not confirmed.

In a follow-up study of 41 cases of mosaicism in amniotic fluid cell culture, Gosden et al. found that the fetus–infant was normal in 31 (76 per cent) cases.⁷ False positive results occurred regardless of the type of mosaicism but were most common in cases of autosomal trisomy and sex chromosome mosaicism. In the remaining cases, which involved translocations, rearrangements, and supernumerary markers, there was true mosaicism in about half the cases.

In relation to CVS, in a Canadian study of 62,865 CVS tests, Hahnemann et al. found mosaicism in 825 (1.3 per cent) samples.⁸ In 77 (9.3 per cent) cases, follow-up testing revealed a normal karyotype. Similarly, in a study of 4,860 CVS samples, Pittalis et al. reported a CVS mosaicism rate of 1.0 per cent,⁹ and found that the

percentage of abnormalities confirmed varied from 12.1 to 66.7 per cent, depending on the type of initial test carried out. In a US study of 6,008 CVS cases, Ledbetter et al. found 50 (0.8 per cent) cases of Level 3 mosaicism.¹⁰ Confirmatory tests were carried out in 30 cases, and the diagnosis was confirmed in only seven (23.3 per cent) cases. The Medical Research Council European Trial of chorion villus sampling followed up 1,609 women after CVS.¹¹ Eighteen (1.1 per cent) cases of mosaicism were found, 12 of which received follow-up testing, and in only one case was an abnormality confirmed.

Interestingly, while the majority of false positives in CVS are associated with mosaicism, there were three apparently non-mosaic CVS abnormalities in our series that were not confirmed (Table 126). These involved trisomies for chromosomes 5 and 8 that, being lethal, would not have been compatible with continuing pregnancies had they been constitutional in the fetus. The cases are thus mosaic to the extent that the abnormality is confined to the placental tissue.

The published studies, and our case series, indicate that true (or constitutional) mosaic chromosomal abnormalities occur in a minority of prenatal diagnoses by amniocentesis or CVS. When mosaic chromosomal abnormalities are found, a substantial number are false positives, and are more likely to be false positive on CVS examination than amniocentesis.

Nevertheless, mosaic chromosomal abnormalities form a clinically important group because, when present in the fetus, they can be associated with substantial risk of severe mental and physical handicap. There are a number of trisomies for the larger autosomes (for example, chromosome 8 and 9) that only survive as mosaics, and the isochromosome of chromosome 12p associated with the Pallister-Killian syndrome is typically mosaic.

Most cases of Level 2 mosaicism are not of clinical significance. However, clinically significant true mosaicism cannot always be excluded and it is advisable to discuss such chromosome results with a cytogeneticist and a clinical geneticist. While Level 3 mosaicism is more likely to be clinically significant, false positive results are common and additional tests to confirm the mosaic finding should be considered.

Acknowledgements

We wish to acknowledge the assistance and advice of Members of the NSW Birth Defects Register Advisory Committee, and staff of cytogenetic laboratories in NSW, in interpreting the findings of this review.

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13. APPENDICES

APPENDIX 1

DESCRIPTION OF SELECTED BIRTH DEFECTS

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

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

APPENDIX 2

BIRTH DEFECT EXCLUSION LIST

The following is a general list of minor defects and non-structural disorders which are excluded from the NSW Birth Defects Register. For further details, please contact the NSW Birth Defects Register (see Further Information, p.17).

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 <input type="text"/>	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"/>	LABOUR AND DELIVERY		
Country of birth Australia <input type="checkbox"/> 36 Other <input type="checkbox"/>	If labour induced, main indication: Diabetes <input type="checkbox"/> 1 Hypertensive disease <input type="checkbox"/> 2 Fetal distress <input type="checkbox"/> 3 Fetal death <input type="checkbox"/> 4 Chorioamnionitis <input type="checkbox"/> 5 Blood group isoimmunisation <input type="checkbox"/> 6 Prelabour rupture of membranes <input type="checkbox"/> 7 Prolonged pregnancy (41+ weeks) <input type="checkbox"/> 8 Suspected intrauterine growth restriction <input type="checkbox"/> 9 Other <input type="checkbox"/> 10		
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	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		
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"/>	Pain relief/ anaesthetics (tick 1 or more) None <input type="checkbox"/> Pudendal <input type="checkbox"/> Nitrous oxide <input type="checkbox"/> Spinal <input type="checkbox"/> IM narcotics <input type="checkbox"/> General anaesthetic <input type="checkbox"/> Local to perineum <input type="checkbox"/> Epidural/caudal <input type="checkbox"/> Other <input type="checkbox"/>		
THIS PREGNANCY			
Date of LMP <input type="text"/>	Presentation at birth: Vertex <input type="checkbox"/> 1 Face <input type="checkbox"/> 3 Breech <input type="checkbox"/> 2 Brow <input type="checkbox"/> 4 Other <input type="checkbox"/> 5		
Prenatal diagnosis (< 20 weeks gestation) CVS <input type="checkbox"/> Amniocentesis <input type="checkbox"/>	Type of delivery: Normal vaginal <input type="checkbox"/> 1 Vacuum extr. <input type="checkbox"/> 3 Forceps <input type="checkbox"/> 2 Vaginal breech <input type="checkbox"/> 4 Caesarean section <input type="checkbox"/> 5		
Antenatal care: Duration of pregnancy at first visit (weeks) <input type="text"/> Not booked <input type="checkbox"/>	If caesarean section, main indication: Failure to progress: - Cx dilatation unknown <input type="checkbox"/> 1 - Cx 3cm dilated or less <input type="checkbox"/> 2 - Cx dilated more than 3 cm <input type="checkbox"/> 3 Fetal distress <input type="checkbox"/> 4 Other <input type="checkbox"/> 5		
Medical conditions: Diabetes mellitus <input type="checkbox"/> Gestational diabetes <input type="checkbox"/> Chronic hypertension <input type="checkbox"/> Pre-eclampsia <input type="checkbox"/>	Perineal status: Intact <input type="checkbox"/> 1 4th deg. tear <input type="checkbox"/> 5 1st deg. tear/graze <input type="checkbox"/> 2 Episiotomy <input type="checkbox"/> 6 2nd deg. tear <input type="checkbox"/> 3 Both tear and episiotomy <input type="checkbox"/> 7 3rd deg. tear <input type="checkbox"/> 4 Other <input type="checkbox"/> 8		
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	Surgical repair of the vagina or perineum? Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0		
POSTNATAL CARE - BABY			
Birth defect? Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0 If yes, specify: 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			
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"/>	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"/>