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New South Wales Mothers and Babies 2000

NSW DEPARTMENT OF HEALTH

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TABLE OF CONTENTS

New South Wales Mothers and Babies 2000	9
Introduction	9
Summary	9
Data sources	12
Definitions	13
Explanatory notes	15
Method for calculation of risk-adjusted caesarean section rates	16
Acknowledgements	17
Further information	17
Part 1: Trends in New South Wales	18
1.1 Confinements and births by plurality	18
Table 1: Births and confinements by plurality, NSW 1996–2000	18
1.2 Health area of residence	18
Table 2: Confinements by health area of residence, NSW 1996–2000	18
1.3 Maternal age	19
Figure 1: Confinements among mothers aged less than 20 years and 35 years and over, NSW 1996–2000	19
Table 3: Confinements by maternal age, NSW 1996–2000	19
1.4 Maternal country of birth	20
Table 4: Confinements by maternal country of birth, NSW 1996–2000	20
1.5 Maternal Aboriginality	21
Table 5: Confinements by maternal Aboriginality, NSW 1996–2000	21
1.6 Number of previous pregnancies	21
Table 6: Confinements by number of previous pregnancies, NSW 1996–2000	21
1.7 Duration of pregnancy at first antenatal visit	22
Table 7: Confinements by duration of pregnancy at first antenatal visit, NSW 1996–2000	22
1.8 Smoking in pregnancy	22
Table 8: Mothers who smoked at all during pregnancy by number of cigarettes smoked in the second half of pregnancy, NSW 1996–2000	22
1.9 Place of birth	23
Table 9: Confinements by place of birth, NSW 1996–2000	23
Figure 2: Confinements by planned place of birth, NSW 1996–2000	23
1.10 Labour and delivery	24
Table 10: Confinements by onset and augmentation of labour, NSW 1996–2000	24
Table 11: Confinements by type of delivery, NSW 1996–2000	24
Table 12: Confinements by health insurance status and type of delivery, NSW 1995–1999	25
1.11 Pain relief	25
Table 13: Confinements by type of pain relief, NSW 1998–2000	25
1.12 Baby sex	26
1.13 Gestational age	26
Table 14: Births by gestational age, NSW 1996–2000	26
1.14 Birthweight	26
Table 15: Births by birthweight, NSW 1996–2000	26
1.15 Apgar score	27
Table 16: Births by apgar score at five minutes, NSW 1996–2000	27
1.16 Perinatal outcomes	27
Table 17: Births by perinatal outcome, NSW 1996–2000	27
1.17 Maternal deaths	28
Table 18: Maternal deaths by year, NSW 1990–2000	28
Table 19: Maternal deaths by cause, NSW 1998	28

Part 2: Area Health Services	29
2.1 Confinements	29
2.2 Maternal age	29
2.3 Maternal country of birth	29
2.4 Maternal Aboriginality	29
2.5 Place of birth	29
2.6 Labour and delivery	29
Table 20: Confinements by maternal age and health area of residence, NSW 2000	30
Table 21: Confinements by maternal country of birth and health area of residence, NSW 2000	30
Table 22: Confinements by maternal Aboriginality and health area of residence, NSW 2000	31
Table 23: Confinements by place of birth and health area of residence, NSW 2000	31
Table 24: Confinements by onset and augmentation of labour and health area of residence, NSW 2000	32
Table 25: Confinements by type of delivery and health area of residence, NSW 2000	32
2.7 Birthweight	33
Table 26: Births by birthweight and health area of residence, NSW 2000	33
2.8 Gestational age	33
Table 27: Births by gestational age and health area of residence, NSW 2000	33
2.9 Perinatal outcomes	34
Table 28: Perinatal outcomes by health area of residence, NSW 2000	34
Part 3: Aboriginal and Torres Strait Islander Mothers and Babies	35
3.1 Reporting of Aboriginality	35
Table 29: Births to Aboriginal and Torres Strait Islander mothers by source of birth report, year of birth and urban-rural health area of hospital, NSW 1994–1999	35
Figure 3: Births to Aboriginal and Torres Strait Islander mothers by year of birth and urban-rural health area of hospital, NSW 1994–1999	36
3.2 Trends in births	36
Table 30: Aboriginal and Torres Strait Islander mothers and babies by plurality, NSW 1996–2000	36
3.3 Previous pregnancies	37
Table 31: Number of previous pregnancies among Aboriginal and Torres Strait Islander mothers, NSW 1996–2000	37
3.4 Maternal age	37
Table 32: Age of Aboriginal and Torres Strait Islander mothers, NSW 1996–2000	37
3.5 Health area of residence	38
Table 33: Health area of residence of Aboriginal and Torres Strait Islander mothers, NSW 1996–2000	38
Table 34: Health area of residence of Aboriginal and Torres Strait Islander mothers by age, NSW 2000	38
3.6 Booking status	39
3.7 Duration of pregnancy at first antenatal visit	39
Table 35: Duration of pregnancy at first antenatal visit among Aboriginal and Torres Strait Islander mothers by health area of residence, NSW 2000	39
3.8 Smoking in pregnancy	40
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 2000	40

3.9	Medical conditions and obstetric complications	41
	Table 36: Maternal medical conditions and obstetric complications by Aboriginality, NSW 2000	41
3.10	Labour and delivery	41
	Table 37: Labour onset for Aboriginal and Torres Strait Islander mothers, NSW 1996–2000	41
	Table 38: Type of delivery among Aboriginal and Torres Strait Islander mothers, NSW 1996–2000	41
3.11	Birthweight	42
	Table 39: Weight of Aboriginal and Torres Strait Islander babies, NSW 1996–2000	42
	Table 40: Weight of Aboriginal and Torres Strait Islander babies by health area of residence, NSW 2000	42
3.12	Gestational age	43
	Table 41: Gestational age of Aboriginal and Torres Strait Islander babies, NSW 1996–2000	43
	Table 42: Gestational age of Aboriginal and Torres Strait Islander babies by health area of residence, NSW 2000	43
3.13	Apgar score	44
	Table 43: Apgar score of Aboriginal and Torres Strait Islander babies, NSW 1996–2000	44
3.14	Perinatal mortality	44
	Table 44: Perinatal deaths among Aboriginal and Torres Strait Islander babies, NSW 1996–2000	44

Part 4: Maternal Country of Birth **45**

4.1	Trends in confinements	45
	Table 45: Confinements and births by country of birth group, NSW 1996–2000	45
4.2	Maternal age	46
	Table 46: Age of mother by country of birth group, NSW 2000	46
	Figure 5: Age of mother by country of birth group, NSW 2000	46
4.3	Health Area of residence	47
	Table 47: Health area of residence by maternal country of birth group, NSW 2000	47
4.4	Booking status	48
4.5	Duration of pregnancy at first antenatal visit	48
	Table 48: Confinements by country of birth group and duration of pregnancy at first antenatal visit, NSW 2000	48
4.6	Smoking in pregnancy	48
	Table 49: Confinements by country of birth group and smoking in pregnancy, NSW 2000	48
	Table 50: Mothers who smoked at all during pregnancy by number of cigarettes smoked in the second half of pregnancy and country of birth group, NSW 2000	49
4.7	Medical conditions and obstetric complications	49
	Table 51: Maternal medical conditions and obstetric complications by country of birth group, NSW 2000	49
4.8	Labour and delivery	50
	Table 52: Labour onset by country of birth group, NSW 2000	50
	Table 53: Type of delivery by country of birth group, NSW 2000	50
4.9	Birthweight	51
	Table 54: Birthweight by maternal country of birth group, NSW 2000	51
4.10	Gestational age	51
	Table 55: Gestational age by maternal country of birth group, NSW 2000	51
4.11	Apgar score	52
	Table 56: Births by country of birth group and Apgar score at five minutes, NSW 2000	52
4.12	Perinatal outcomes	52
	Table 57: Perinatal outcomes by country of birth group, NSW 2000	52

Part 5: Neonatal Intensive Care	53
5.1 Registration rate	53
Table 58: NICUS registrations by health area of residence, NSW & ACT 2000	53
Table 59: Confinements by health area of residence and Aboriginality, NSW & ACT 2000	54
5.2 Maternal characteristics	53
Table 60: Confinements by health area of residence and maternal age, NSW & ACT 2000	54
Figure 6: Confinements by antenatal corticosteroid administration and gestational age, NSW & ACT 1996–2000	55
Table 61: Confinements by antenatal corticosteroid administration and gestational age, NSW & ACT 1996–2000	55
5.3 Transfer status, labour and delivery	56
Figure 7: NICUS registrants by place of birth (level of obstetric hospital) and gestational age, NSW and ACT 2000	56
Table 62: Births by booking status, transfer status and gestational age, NSW & ACT 2000	57
Table 63: Births by place of birth (level of obstetric hospital) and gestational age, NSW & ACT 2000	57
Table 64: Births by booking status, transfer status and birthweight, NSW & ACT 2000	57
Table 65: Births by place of birth (level of obstetric hospital) and birthweight, NSW & ACT 2000	57
Table 66: Confinements by onset of labour and gestational age, NSW & ACT 2000	58
Table 67: Confinements by onset of labour and birthweight, NSW & ACT 2000	58
Table 68: Births by duration of rupture of membranes and gestational age, NSW & ACT 2000	58
Table 69: Births by type of delivery and gestational age, NSW & ACT 2000	58
Table 70: Births by type of delivery and birthweight, NSW & ACT 2000	59
5.4 Infant characteristics	59
Table 71: Births by gestational age, NSW & ACT 1996–2000	59
Figure 8: Births by gestational age, NSW & ACT 2000	60
Table 72: Births by NICUS registration and gestational age, NSW & ACT 2000	60
Table 73: Births by birthweight, NSW & ACT 2000	61
Table 74: Births by NICUS registration and birthweight, NSW & ACT 2000	61
Table 75: Births by gender and gestational age, NSW & ACT 2000	61
Table 76: Births by congenital anomalies and gestational age, NSW & ACT 2000	62
Table 77: Births by plurality and gestational age, NSW & ACT 2000	62
Table 78: Births by Apgar score and gestational age, NSW & ACT 2000	62
Table 79: Births by Apgar score at one and five minutes, NSW & ACT 1996–2000	62
Table 80: Assisted ventilation and gestational age, NSW & ACT 1996–2000	63
Figure 9: Births by main indication for assisted ventilation, NSW & ACT 2000	64
Table 81: Main indication for assisted ventilation of babies by gestational age, NSW & ACT 2000	64
Table 82: Proven systemic infection by gestational age, NSW & ACT 2000	64
Table 83: Surfactant administration by gestational age, NSW & ACT 1996–2000	65
Table 84: Treated patent ductus arteriosus (PDA) by gestational age, NSW & ACT 2000	65
Table 85: Necrotising enterocolitis (NEC) by gestational age, NSW & ACT 2000	65
Table 86: Major surgery by gestational age, NSW & ACT 2000	66
Table 87: Intraventricular haemorrhage (IVH) by gestational age, NSW & ACT 2000	66
Table 88: Retinopathy of prematurity by gestational age, NSW & ACT 2000	66
5.5 Service utilisation	67
Figure 10: Median number of days in hospital, oxygen therapy and assisted ventilation by gestational age, NSW & ACT 2000	67

	Figure 11: Total number of days in hospital, oxygen therapy and assisted ventilation by gestational age, NSW & ACT 2000	67
	Table 89: Service utilisation indicators by gestational age, NSW & ACT 2000	68
	Table 90: Home oxygen administration by gestational age, NSW & ACT 1996–2000	69
5.6	Survival	70
	Table 91: Duration of survival of babies by gestational age, NSW & ACT 2000	69
	Table 92: Duration of survival by birthweight, NSW & ACT 2000	70
	Table 93: Duration of survival by place of birth and gestational age, NSW & ACT 2000	71
	Table 94: Duration of survival by major congenital anomaly and gestational age, NSW & ACT 2000	71
	Figure 12: Deaths by post-mortem examination and gestational age, NSW & ACT 1996–2000	72
	Table 95: Post-mortem examination by gestational age, NSW & ACT 2000	72

Part 6: Birth Defects **73**

6.1	Birth defects among stillborn and liveborn infants	73
6.1.1	Trends in reported birth defects	73
6.1.2	Birth defects by diagnostic category	73
	Table 96: Birth defect cases, NSW 1994–2000	73
	Table 97: Birth defects among stillbirths and live births by diagnostic category, NSW 1994–2000	73
6.1.3	Infant characteristics	75
	Table 98: Birth defect cases by gestational age, NSW 1994–2000	75
	Table 99: Birth defect cases by pregnancy outcome, NSW 1994–2000	75
6.1.4	Maternal characteristics	76
6.2	Birth defects among terminations of pregnancy, spontaneous abortions and unknown outcomes of pregnancy	76
	Table 100: Birth defect cases by maternal age, NSW 1994–2000	76
	Table 101: Pregnancies with fetuses affected by birth defects and resulting in spontaneous abortion, termination of pregnancy or unknown outcome, NSW 1994–2000	76
	Table 102: Birth defects among spontaneous abortions, terminations of pregnancy and unknown outcome of pregnancy by diagnostic category, NSW 1994–2000	77
	Table 103: Trends in reported terminations of pregnancy associated with birth7 defects by maternal age, 1994–2000	77
6.3	Trends in selected birth defects	78
	Figure 13: Neural tube defects: cases by year and pregnancy outcome, NSW 1994–2000	78
	Figure 14: Cleft palate: cases by year and pregnancy outcome, NSW 1994–2000	79
	Figure 15: Total cleft lip: cases by year and pregnancy outcome, NSW 1994–2000	79
	Figure 16: Hypospadias: cases by year and pregnancy outcome, NSW 1994–2000	80
	Figure 17: Limb reduction defects: cases by year and pregnancy outcome, NSW 1994–2000	80
	Figure 18: Chromosomal abnormalities cases by year and pregnancy outcome, NSW 1994–2000	81
	Figure 19: Down syndrome: cases by year and pregnancy outcome, NSW 1994–2000	81
	Figure 20: Renal agenesis and dysgenesis: cases by year and pregnancy outcome, NSW 1994–2000	82
6.4	Birth defects by NSW health areas	83
	Table 104: Birth defects in NSW health areas, 1994–2000	83

Part 7: NSW Hospitals **84**

7.1	Onset and augmentation of labour in selected hospitals	84
	Table 105: Confinements by onset and augmentation of labour and hospital, NSW 2000	84
7.2	Type of delivery in selected hospitals	86
	Table 106: Confinements by type of delivery and hospital, NSW 2000	86
7.3	Pain relief in selected hospitals	88
	Table 107: Confinements by type of pain relief and hospital, NSW 2000	88
7.4	Perineal status in selected hospitals	90
	Table 108: Confinements with vaginal deliveries by perineal status and hospital, NSW 2000	90
7.5	Birthweight in selected hospitals	92
	Table 109: Births by birthweight and hospital, NSW 2000	92
7.6	Gestational age in selected hospitals	94
	Table 110: Births by gestational age and hospital, NSW 2000	94
7.7	Baby discharge status in selected hospitals	96
	Table 111: Births by baby discharge status and hospital, NSW 2000	96
7.8	Postnatal length of stay in selected hospitals	98
	Table 112: Average maternal postnatal length of stay in hospital of birth, NSW 1995–1999	98
7.9	Indicators of obstetric care	99
	Table 113: Clinical indicators for obstetrics, NSW and Australia 2000	99

Part 8: Review of Perinatal Deaths 2000 **100**

8.1	Introduction	100
8.2	Perinatal death reviews, 2000	100
8.3	Obstetric causes of perinatal death	100
	Table 114: Perinatal deaths by obstetric cause and gestational age, NSW 2000	101
8.4	Obstetric causes of perinatal death by hospital size	103
	Table 115: Perinatal deaths by obstetric cause and hospital size	103
8.5	Neonatal cause of death	103
	Table 116: Neonatal deaths by cause and gestational age, NSW 2000	104
8.6	Perinatal deaths associated with maternal drug dependency/abuse	103
8.7	Postmortem examination	103
8.8	Survey of perinatal death review procedures in NSW hospitals	105
	Table 117: Type of perinatal death review by hospital size, NSW 2000	106
	Table 118: Coverage of births and perinatal deaths by type of perinatal death review, NSW 2000	106

Part 9: Risk-adjusted caesarean section rates in NSW hospitals **107**

9.1	Introduction	107
9.2	Methods	107
9.3	Results	107
9.4	Discussion	107
	Table 119: Crude and adjusted odds ratios for caesarean section by clinical risk factors found to be significant on logistic modelling	108
	Table 120: Crude and adjusted caesarean section rates by hospital, NSW July-December 2000	109

Appendices

Appendix 1: Description of selected birth defects	111
Appendix 2: Birth defect exclusion list	111
Appendix 3: Maternal countries of birth and country of birth groups	112
Appendix 4: Map of NSW health areas	113
Appendix 5: NSW Midwives Data Collection form	114

NEW SOUTH WALES MOTHERS AND BABIES 2000

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INTRODUCTION

This is the fourth 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 and the NSW Birth Defects Register. Information on causes of maternal deaths in NSW was obtained through the work of the NSW Maternal and Perinatal Committee and is also included.

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 Part 7 of this report.

From 1 January 2000, confidential reviews of perinatal deaths among babies of at least 22 weeks gestation or 500 grams birthweight are carried out by the NSW Maternal and Perinatal Committee. Part 8 describes the results of the review for deaths occurring in 2000, and the results of a survey of hospital perinatal death review practices in NSW.

In response to continuing concerns about rising caesarean section rates in NSW, a study was carried out to produce caesarean section rates for NSW hospitals adjusted for clinical risk factors. The results are described in Part 9.

SUMMARY

Trends in NSW

There were 87,922 babies born to 86,460 mothers in 2000. The number of births in NSW remained stable at about 86,000 to 88,000 between 1996 and 2000. The number of teenage mothers decreased from 4,295 (5.0 per cent of all mothers) in 1996 to 3,853 (4.5 per cent) in 2000; while the number of mothers aged 35 years and over increased from 12,712 in 1996 to 15,334 in 2000, an increase from 14.9 to 17.7 per cent of all confinements.

The reported number of Aboriginal and Torres Strait Islander mothers giving birth increased from 1,712 in 1996 (2.0 per cent of all mothers) to 2,105 in 2000 (2.4 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.

Patterns of maternal country of birth have remained fairly stable over the five year period with about one in four mothers born overseas in 2000, most commonly in the United Kingdom (3.0 per cent), China (2.5 per cent), Vietnam (2.4 per cent) and New Zealand (2.3 per cent).

The proportion of mothers planning to give birth in a birth centre reached a peak in 1996 (4.2 per cent) and subsequently fell slightly to 3.7 per cent in 2000, while the reported number of mothers planning a home birth decreased from 247 to 146 over the five year period.

The rate of normal vaginal birth fell slightly from 70.7 per cent in 1996 to 67.1 per cent in 2000. Over the five years, the caesarean section rate increased from 17.6 to 21.3 per cent and the rate of instrumental delivery remained steady at about 10.5 per cent.

Since 1995, the rate of low birthweight (less than 2,500 grams) was steady at about 6 per cent. The rate was 6.4 per cent in 2000.

There was a slight increase in the percentage of babies born prematurely at 32–36 weeks gestation, and a decrease in the percentage born at 42 weeks or more. The overall rate of premature births (less than 37 weeks gestation) rose from 6.7 per cent in 1996 to 7.3 per cent in 2000. There was no substantial change in the proportion of babies who were very premature (less than 32 weeks) or extremely premature (less than 28 weeks).

The perinatal mortality rate varied from 8.9 to 9.7 per 1,000. About two-thirds of all perinatal deaths were stillbirths and one third were neonatal deaths.

In the period 1990–1998, 106 deaths were reported among pregnant women or women who gave birth less than six weeks previously. Seventy of these were classified as directly or indirectly associated with the pregnant state.

Area Health Services

In 2000, the largest numbers of births occurred among mothers resident in the Western Sydney and South Western Sydney Health Areas. These two areas contributed over one quarter of the state's births.

In 2000, as in previous years, there were large variations between health areas in the age distribution of women giving birth. The proportion of women giving birth at less than 20 years of age varied from 0.8 per cent in the Northern Sydney Health Area to 12.0 per cent in the Far West Health Area, while the proportion of mothers giving birth at 35 years of age or more ranged from 10.7 per cent in the Far West Health Area to 29.1 per cent in the Northern Sydney Health Area.

The proportion of Aboriginal or Torres Strait Islander mothers varied from 0.1 per cent in the Northern Sydney Health Area to 26.8 per cent in the Far West Health Area.

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 and South East Asia (12.2 and 10.7 per cent of all confinements respectively). In South Western Sydney, the majority of mothers born in non-English speaking countries were born in South East Asia (17.0 per cent of all confinements).

The highest rate of normal vaginal birth was among residents of Far West Health Area (76.4 per cent), while the highest rate of instrumental delivery was in South Eastern Sydney Health Area (15.0 per cent).

The caesarean section rate varied from 16.0 per cent among mothers resident in the South Western Sydney Health Area to 26.5 per cent in the Northern Sydney and Mid Western Health Areas.

The highest rates of low birthweight occurred in the Macquarie Health Area (8.1 per cent) and the lowest rate occurred in the Southern Health Area (4.4 per cent). The highest rate of preterm birth was in the Mid Western Health Area (9.0 per cent). The lowest rate of preterm birth was 4.5 per cent in the Southern Health Area, which may result from referral of high risk pregnancies to the ACT.

The perinatal mortality rate in NSW in 2000 was 9.7 per 1,000 births. The rate varied from 5.6 per 1,000 in the Southern Health Area to 13.2 per 1,000 in the Hunter Health Area.

Aboriginal and Torres Strait Islander mothers and babies

In 2000, there were 2,122 babies reported to be born to Aboriginal and Torres Strait Islander mothers, 2.4 per cent of all babies born in NSW. About two thirds of Aboriginal and Torres Strait Islander mothers who gave birth in 2000 lived in rural areas. Almost one quarter lived in the New England or Macquarie Health Areas. About one in five Aboriginal and Torres Strait Islander mothers were teenagers. In 2000, 87.5 per cent of Aboriginal and Torres Strait Islander mothers were booked into the hospital of birth. This is lower than the 98.1 per cent of non-Aboriginal or Torres Strait Islander mothers who were booked into the hospital of birth in 2000.

In 2000, 67.6 per cent of Aboriginal and Torres Strait Islander mothers commenced antenatal care before 20 weeks gestation compared with 87.0 per cent of non-Aboriginal and Torres Strait Islander mothers.

Following statewide trends, the rate of induction of labour among Aboriginal or Torres Strait Islander mothers increased from 16.6 to 17.7 per cent between 1996 and 2000, while the rate of spontaneous onset of labour decreased from 76.8 to 72.5 per cent. However, the rate of induction of labour among Aboriginal and Torres Strait Islander mothers (17.7 per cent) continued to be lower than the statewide rate (23.6 per cent) in 1999. Also following statewide trends, the caesarean section rate among Aboriginal and Torres Strait Islander mothers rose from 16.0 to 18.2 per cent between 1996 and 2000.

Since 1996, 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 17.9 per 1,000 in 2000, over one and half times the rate of 9.7 per 1,000 for NSW overall.

Maternal country of birth

Between 1996 and 2000, about 20 per cent of mothers were born in non-English speaking countries. The proportion of mothers from Asian countries increased slightly from 10.5 to 11.6 per cent, while the proportion of mothers from Southern European countries decreased slightly from 1.8 to 1.4 per cent.

In 2000, the proportion of mothers born in non-English speaking countries was highest in the Central Sydney Health Area (44.7 per cent), followed by the South Western Sydney and Western Sydney Areas (40.3 and 36.0 per cent respectively).

Births to teenage mothers were less common among mothers born in non-English speaking countries than among mothers born in English speaking countries, as was smoking in pregnancy.

In 2000, 86.5 per cent of all mothers commenced antenatal care before 20 weeks gestation. There was some variation between country of birth groups, with 89.0 per cent of mothers born in English speaking countries commencing antenatal care before 20 weeks gestation, compared with 55.9 per cent of mothers born in Melanesia, Micronesia and Polynesia and 67.8 per cent of mothers born in the Middle East and Africa.

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.

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. The highest caesarean section rates were among mothers born in Southern Asia (25.6 per cent) and Central and South America (25.1 per cent).

The highest rate of low birthweight was in babies of mothers born in Southern Asian countries (9.9 per cent). Babies of mothers born in North East Asia and Central and South America were least likely to be low birthweight.

The highest rate of prematurity was in babies of mothers born in Western and Northern Europe (8.9 per cent). Babies of mothers born in North East Asia or Central and South America were least likely to be premature.

Perinatal mortality rates varied substantially between country of birth groups, from 3.7 per 1,000 among babies of mothers born in North East Asia to 20.8 per 1,000 in babies of mothers born in Melanesia, Micronesia and Polynesia.

Neonatal Intensive Care

There were 2,003 infants registered in the Neonatal Intensive Care Units' Data Collection in 2000 representing a registration rate of 21.8 per 1,000 live births. Seventy nine (3.9 per cent) infants registered in 2000 were born to Aboriginal and Torres Strait Islander mothers.

The 2,003 infants were born to 1,841 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 53 years with a mean age of 28.9 years. Antenatal complications were reported for 87.3 per cent of mothers. The proportion of women receiving antenatal corticosteroids for lung maturation has increased each year since 1992, with 70.0 per cent of mothers receiving steroids in 2000.

Thirty six per cent of infants registered in 2000 were born following a booked tertiary centre birth and 34.1 per cent were born following maternal transfer. Thirty per cent were transferred to a tertiary centre following birth and 4.7 per cent were transferred from one tertiary centre to another immediately after birth.

Nearly three quarters (74.7 per cent) of the infants registered in 2000 were born in a tertiary centre. There is an inverse relationship between gestational age and birth in a tertiary centre.

Boys comprised 58.6 per cent of the 2000 cohort and girls 41.4 per cent. Most infants (79.1 per cent) were from a singleton pregnancy, 18.8 per cent were from a twin pregnancy, 2.0 per cent were from a triplet pregnancy.

Seventy four per cent of infants registered during 2000 were preterm (less than 37 weeks gestation), 43.9 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 (19.6 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 2000 (88.7 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 14.4 per cent of infants, necrotising enterocolitis in 2.2 per cent, intraventricular haemorrhage in 15.2 per cent, treated patent ductus arteriosus in 15.4 per cent, and major surgery in 3.0 per cent. Severe grades (Grade 3 or 4) of retinopathy of prematurity were present in 4.8 per cent of infants less than 32 weeks gestation, of whom 75.0 per cent had either cryo or laser therapy to prevent retinal detachment. Surfactant was given to 42.6 per cent of infants; the majority (66.7 per cent) of ventilated infants with a diagnosis of Respiratory Distress Syndrome received surfactant.

Overall, 92.5 per cent of infants without a major congenital anomaly survived to six-months of age. Survival improved with gestational age up to 32 weeks after which it

decreased slightly. Of the infants who died, most (67.5 per cent) died at less than one week of age and a further 17.5 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 non-tertiary centre (90.5 per cent) compared with those born in a tertiary centre (73.1 per cent). This result should be interpreted with extreme caution. 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, and for about half of these infants the malformation is detected after birth. In 1994–2000, 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 1999, the overall rate of defects was slightly lower than the previous five years combined (39.1 versus 42.9 per 1,000), due to a decrease in the number of babies with multiple malformations. The proportion of reported cases with three or more malformations fell from 21.4 to 18.90 per cent between 1994 and 1999.

In the period 1994–1998, about 150 terminations of pregnancy per year were reported to the NSW Birth Defects Register. 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 and 308 for 1999.

Of the total 1,222 terminations of pregnancy reported in 1994–2000, 706 (57.8 per cent) were associated with a chromosomal abnormality, the most common of which was Down syndrome, and 276 (22.6 per cent) were associated with a neural tube defect.

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.

DATA SOURCES

The New South Wales Midwives Data Collection

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

The MDC relies on the attending midwife or doctor to complete a notification form when a birth occurs. The form, a copy of which is shown at Appendix 4, includes demographic items and items on maternal health, the pregnancy, labour, delivery and perinatal outcomes. Completed forms are sent to the Patient Data Management Unit of the Information Management and Clinical Systems Branch of the NSW Health Department, where they are compiled into the MDC database.

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;
- birth weight 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 2000 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 (joined 12/10/94), Nepean Hospital, Royal Hospital for Women, Royal North Shore Hospital, The Canberra Hospital—Woden Valley (joined 1/1/95), Westmead Hospital, and at the two paediatric hospitals: Sydney Children's Hospital and Royal Alexandra Hospital for Children (The Children's Hospital at Westmead).

The neonatal, maternal and perinatal data which 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 Epidemiology and Surveillance Branch of the NSW Health Department.

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, Epidemiology and Surveillance Branch. Requests for data concerning individuals for sufficiently important research purposes will be referred to the Statewide Health Confidentiality and Ethics Committee. Procedures for release of personal information are described in the Department's *Information Privacy Code of Practice*, copies of which are available through the NSW Health Department'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 Health Department'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.

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. Descriptions of some of the birth defects included in this report are shown in Appendix 1, and a list of common exclusions used by the NSW Birth Defects Register is shown in Appendix 2. 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: birth weight less than 2,500 grams.

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

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

Caesarean section

Delivery of the fetus through an abdominal incision.

Elective caesarean section: a caesarean section (planned or unplanned) performed before the onset of labour.

Emergency caesarean section: a caesarean section performed after the onset of labour, whether or not the onset of labour was spontaneous.

Confinement

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

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.

Live birth

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

Major surgery

Any surgery that requires opening of a body cavity.

Mechanical ventilation

Use of a mechanical ventilator to provide intermittent positive pressure respiration for a baby for 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 live born infant within 28 days of birth.

Neonatal period

The first 28 completed days of life.

Neonatal mortality rate

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

Patent ductus arteriosus (PDA)

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

Parity

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

Perinatal death

A stillbirth or neonatal death.

Perinatal mortality rate

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

METHOD FOR ESTIMATING LEVEL OF REPORTING OF MATERNAL ABORIGINALITY (PART 3)

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 trends in the quality of reporting for both these groups.

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 six-year period 1994–1999. 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 96.6 per cent of MDC records (97.8 per cent of birth registration records).

Capture–recapture methods are used to adjust estimates of counts to reflect ascertainment level or undercounting. Capture–recapture was carried out using the method described by McCarty et al.¹ Analysis was carried out using SAS version 8.02. Analyses concerning geographic location were based on health area of hospital of birth as reported to the MDC. Home births and births for which the hospital of birth was not stated were excluded from the analysis.

References

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

METHOD FOR CALCULATION OF RISK-ADJUSTED CAESAREAN SECTION RATES (PART 9)

Data were obtained from the MDC for the year 2000. The data set was divided into two parts based on baby's date of birth. Logistic regression models were developed on records of babies born between 1 January and 30 June. The model was then validated using the data on births occurring in the second half of the year.

Originally logistic models were developed using data for 1999. We found some differences in caesarean rates by gestational age in 1999 compared to 2000. Caesarean rates were higher at 28 weeks gestation and much lower after 40 weeks gestation in 2000 compared to 1999. As there was sufficient power in half a year of data to both develop and validate the logistic model, we decided to use only the 2000 data for the study.

Cases selected were mothers who had confinements in NSW hospitals. Records with values recorded as not stated in variables that were risk factors for caesarean

section were excluded from the analysis, as were records of mothers who delivered at less than 20 weeks gestation.

Crude odds ratios were calculated for clinical risk factors. Multiple logistic regression models were developed. In the logistic regression models, the outcome was the probability of having a caesarean section and risk factors were maternal age, presentation (categorised as breech, other malpresentation and vertex), parity (primiparous mothers or multiparous mothers), multiple birth, diabetes mellitus, essential hypertension, gestational diabetes, pregnancy induced hypertension, previous caesarean section and gestational age (categorised as 20–28 weeks, 29–39 weeks and 40+ weeks). Age was included in the model as a proxy measure for medical conditions and obstetric complications for which specific information was not available. The choice of variables to include in the models was based on a *p*-value of 0.05 for main effects and *p*-value of 0.001 for interaction terms. The referent levels were vertex presentation, multiparous mothers, singleton births, absence of diabetes mellitus or essential hypertension or gestational diabetes or pregnancy induced hypertension, mothers who did not have a previous caesarean section and 40+ weeks gestational age.

Departures from linearity for age and gestational age were tested using the Box-Tidwell Transformation.¹ Adequacy of the logistic regression models was assessed using likelihood ratio tests, *c* statistic (model discriminatory performance) and Hosmer-Lemeshow goodness of fit test.¹ The *c* statistic is equivalent to the area under the Receiving Operating Characteristic (ROC) curve.

The Box-Tidwell transformation on age indicated that the relationship between age and the logit of caesarean section was linear. Box-Tidwell transformation on gestational age showed that the logit of caesarean section is a non-linear function of gestational age. Age was entered as a continuous variable and gestational age was entered as a categorical variable in the logistic regression models.

Variables found to have an independent significant association with the probability of having a caesarean section (as opposed to other type of delivery) were age, presentation, multiple births, diabetes mellitus, essential hypertension, pregnancy induced hypertension, previous caesarean section and gestational age. The choice between competing statistical models gives preference to models that are simple to interpret and which adequately describe the data. In this situation the model with significant interactions gave a better fit (Hosmer-Lemeshow goodness of fit statistic with 8 *df*=3.65, *p*=0.8872). The *c* statistic (area under the ROC curve) for the model was 0.852.

Significant interaction terms in the final model were primiparous mothers by age, presentation by gestational age, primiparous mothers by gestational age, essential hypertension by gestational age, previous caesarean section by gestational age, and previous caesarean section by presentation.

The logistic regression model was validated on the second half of MDC 2000 data. We constructed ROC curves by calculating model sensitivity and specificity for predicted probabilities across the range 0 to 1 and calculating the Hosmer-Lemeshow goodness of fit statistic. Area under the ROC curve is a measure of refinement, that is, how well the model can discriminate between positive and negative outcomes.² We used the Hosmer-Lemeshow statistic as a measure of calibration. Calibration or reliability shows how well the predicted probabilities agree with responses in the validation data.

The generated ROC curve indicated that the model shows good predictive power and a good measure of refinement in the validation data (area under the ROC curve=0.853). Results of the Hosmer-Lemeshow goodness-of-fit test indicated a poor fit to the validation data (Hosmer-Lemeshow statistic=48.77 with 10 df, $p=0.000$). This is most likely due to incomplete calibration because of a lower prevalence of caesarean section in the development data compared to the validation data. We then applied Cox's approach to assessing measures of calibration and refinement.² This approach uses a logistic model on the logit of predicted probabilities from the development data set. The overall test for reliability of prediction is $H_0: \alpha=0$ and $\beta=1$. The estimates for the model we developed were $\alpha = 0.098$ and $\beta = 1.013$ (95% confidence interval 0.99–1.03). Based on these results the model is adequate for predicting caesarean section rates in NSW hospitals for the period July–December 2000.

Predicted probabilities from the final logistic model were applied to individual records for hospitals with 100 or more births during July–December 2000, resulting in each confinement being allocated a probability of caesarean section. The probabilities were summed for each hospital to give the expected number of caesarean sections by hospital, adjusted for the risk factors in the model. Standardised caesarean ratios were calculated for hospitals by calculating the ratio of observed to expected number of caesarean sections. The risk-adjusted caesarean section rate for each hospital was calculated by multiplying its standardised caesarean ratio with the caesarean section rate in the standard population of births (20.8 per cent for the first six months of 2000).

References

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2. Miller ME, Hui SL, Tierney WM. Validation techniques for logistic regression models. *Statistics in Medicine* 1991;10:1213–1226.

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The NSW Birth Defects Register is dependent on families, health care institutions, and individual health care providers, for the supply of information about birth defects. We thank health information managers in hospitals throughout NSW for their cooperation and assistance. The staff of the medical record departments at The Children's Hospital at Westmead, The Sydney Children's Hospital and The John Hunter Hospital have also provided invaluable assistance.

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PART 1: TRENDS IN NEW SOUTH WALES

1.1 CONFINEMENTS AND BIRTHS BY PLURALITY

The number of births per year has remained fairly stable over the past five years (Table 1). There were 87,922 births to 86,460 women reported to the MDC for 2000. Of the 86,460 confinements reported in 2000, 1,404 (1.6 per cent) were for twins and 29 for triplets.

TABLE 1

BIRTHS AND CONFINEMENTS BY PLURALITY, NSW 1996–2000

Plurality	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
Confinements										
Singleton	84201	98.7	85740	98.6	83869	98.6	84676	98.5	85027	98.3
Twins	1076	1.3	1147	1.3	1174	1.4	1261	1.5	1404	1.6
Triplets	24	0.0	32	0.0	28	0.0	30	0.0	29	0.0
Quadruplets	1	0.0	1	0.0	1	0.0	0.0	0.0	0.0	0.0
Total	85302	100.0	86920	100.0	85072	100.0	85967	100.0	86460	100.0
Births										
Singleton	84201	97.4	85740	97.3	83869	97.2	84676	97.0	85027	96.7
Twins	2152	2.5	2293	2.6	2348	2.7	2523	2.9	2808	3.2
Triplets	72	0.1	96	0.1	84	0.1	90	0.1	87	0.1
Quadruplets	4	0.0	4	0.0	4	0.0	0.0	0.0	0.0	0.0
Total	86429	100.0	88133	100.0	86305	100.0	87289	100.0	87922	100.0

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

1.2 HEALTH AREA OF RESIDENCE

Over the last five years, there was an increase in mothers giving birth in the Northern Sydney and South Eastern Sydney health areas, accompanied by a slight decline in most rural health areas (Table 2). Births reported in the Greater Murray Health Area decreased from 1998 due to

the closure of the obstetric unit at the Mercy Care Centre Albury in June 1998, and referral of women to Wodonga Hospital in Victoria.

TABLE 2

CONFINEMENTS BY HEALTH AREA OF RESIDENCE, NSW 1996–2000

HealthArea	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney	6839	8.0	6657	7.7	6574	7.7	6625	7.7	6775	7.8
Northern Sydney	8552	10.0	8985	10.3	8824	10.4	9242	10.8	9432	10.9
Western Sydney	10250	12.0	10559	12.1	10541	12.4	10712	12.5	10794	12.5
Wentworth	4836	5.7	4827	5.6	4825	5.7	4851	5.6	4921	5.7
South Western Sydney	12034	14.1	12511	14.4	12050	14.2	12219	14.2	12541	14.5
Central Coast	3677	4.3	3792	4.4	3736	4.4	3665	4.3	3772	4.4
Hunter	6997	8.2	7034	8.1	6875	8.1	6965	8.1	6981	8.1
Illawarra	4320	5.1	4434	5.1	4350	5.1	4413	5.1	4407	5.1
South Eastern Sydney	8706	10.2	9148	10.5	9135	10.7	9428	11.0	9697	11.2
Northern Rivers	2956	3.5	2963	3.4	2941	3.5	2903	3.4	2766	3.2
Mid North Coast	3038	3.6	3073	3.5	2954	3.5	2906	3.4	2802	3.2
New England	2472	2.9	2463	2.8	2381	2.8	2348	2.7	2265	2.6
Macquarie	1734	2.0	1595	1.8	1589	1.9	1596	1.9	1590	1.8
Mid Western	2355	2.8	2437	2.8	2339	2.7	2297	2.7	2264	2.6
Far West	568	0.7	600	0.7	556	0.7	533	0.6	533	0.6
Greater Murray	3440	4.0	3357	3.9	2946	3.5	2603	3.0	2517	2.9
Southern	1812	2.1	1776	2.0	1782	2.1	1845	2.1	1766	2.0
Other–Not stated	716	0.8	709	0.8	674	0.8	816	0.9	637	0.7
TOTAL	85302	100.0	86920	100.0	85072	100.0	85967	100.0	86460	100.0

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

1.3 MATERNAL AGE

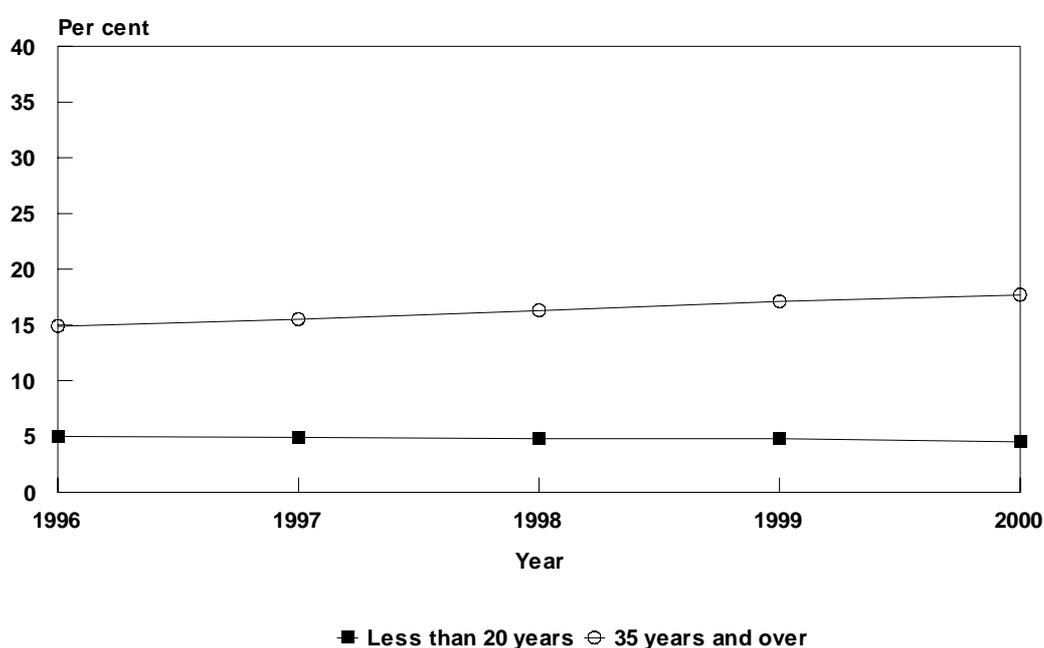
The number of teenage mothers decreased from 4,295 in 1996 to 3,853 in 2000 (Figure 1, Table 3). The mean maternal age rose slightly from 29.2 to 29.8 years over the same period.

The number of mothers 35 years of age or over giving birth increased from 12,712 in 1996 to 15,334 in 2000, an increase from 14.9 to 17.7 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 8.1 to 11.1 per cent over the five year period, and the proportion of multiparous mothers increased from 19.5 to 22.5 per cent.

FIGURE 1

CONFINEMENTS AMONG MOTHERS AGED LESS THAN 20 YEARS AND 35 YEARS AND OVER, NSW 1996–2000



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

TABLE 3

CONFINEMENTS BY MATERNAL AGE, NSW 1996–2000

Maternal age (years)	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
12–19	4295	5.0	4291	4.9	4118	4.8	4099	4.8	3853	4.5
20–34	68239	80.0	69114	79.5	67034	78.8	67171	78.1	67249	77.8
35+	12712	14.9	13465	15.5	13839	16.3	14668	17.1	15334	17.7
Not stated	56	0.1	50	0.1	81	0.1	29	0.0	24	0.0
TOTAL	85302	100.0	86920	100.0	85072	100.0	85967	100.0	86460	100.0

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

1.4 MATERNAL COUNTRY OF BIRTH

In the period 1996–2000, almost three-quarters of confinements were to mothers who were born in Australia. Numbers of confinements to mothers born in Southern European countries continued to decline while confinements to mothers born in Pacific Island countries increased over the five year period (Table 4). For Asian countries, the number of confinements increased primarily

among mothers born in China, Vietnam, North Korea and South Korea and decreased for mothers born in Hong Kong. Further information on maternal country of birth is shown in Part 4.

TABLE 4

CONFINEMENTS BY MATERNAL COUNTRY OF BIRTH, NSW 1996–2000[#]

Country of birth	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
Australia	62309	73.0	63292	72.8	62606	73.6	62555	72.8	62368	72.1
United Kingdom	2707	3.2	2593	3.0	2471	2.9	2627	3.1	2557	3.0
China	1950	2.3	2111	2.4	1892	2.2	2015	2.3	2163	2.5
Vietnam	1865	2.2	1853	2.1	1462	1.7	1804	2.1	2053	2.4
New Zealand	1790	2.1	1826	2.1	1762	2.1	1966	2.3	1962	2.3
Lebanon	2042	2.4	1983	2.3	1942	2.3	1788	2.1	1766	2.0
Philippines	1266	1.5	1275	1.5	1308	1.5	1319	1.5	1315	1.5
Fiji	602	0.7	603	0.7	640	0.8	604	0.7	688	0.8
India	576	0.7	673	0.8	634	0.7	635	0.7	643	0.7
Former Yugoslavia	689	0.8	714	0.8	659	0.8	662	0.8	627	0.7
Indonesia	381	0.4	398	0.5	424	0.5	460	0.5	566	0.7
Iraq	234	0.3	326	0.4	360	0.4	414	0.5	455	0.5
South Korea	261	0.3	308	0.4	370	0.4	370	0.4	426	0.5
South Africa	310	0.4	349	0.4	329	0.4	386	0.4	387	0.4
United States of America	322	0.4	330	0.4	340	0.4	372	0.4	377	0.4
Hong Kong	659	0.8	531	0.6	433	0.5	409	0.5	357	0.4
Turkey	376	0.4	364	0.4	340	0.4	314	0.4	335	0.4
Cambodia	311	0.4	305	0.4	238	0.3	303	0.4	326	0.4
Western Samoa	280	0.3	312	0.4	349	0.4	318	0.4	320	0.4
Malaysia	308	0.4	307	0.4	259	0.3	286	0.3	319	0.4
Sri Lanka	274	0.3	279	0.3	276	0.3	295	0.3	304	0.4
Tonga	263	0.3	292	0.3	312	0.4	308	0.4	296	0.3
Ireland	276	0.3	275	0.3	280	0.3	287	0.3	273	0.3
Japan	215	0.3	226	0.3	239	0.3	264	0.3	252	0.3
Pakistan	137	0.2	202	0.2	200	0.2	192	0.2	224	0.3
Germany	208	0.2	213	0.2	187	0.2	226	0.3	204	0.2
Chile	220	0.3	209	0.2	214	0.3	224	0.3	202	0.2
Thailand	166	0.2	186	0.2	194	0.2	207	0.2	199	0.2
Egypt	254	0.3	253	0.3	202	0.2	218	0.3	196	0.2
Italy	285	0.3	272	0.3	230	0.3	221	0.3	191	0.2
Bangladesh	94	0.1	125	0.1	140	0.2	134	0.2	179	0.2
Canada	170	0.2	155	0.2	177	0.2	185	0.2	177	0.2
Iran	134	0.2	147	0.2	139	0.2	140	0.2	153	0.2
North Korea	59	0.1	53	0.1	71	0.1	90	0.1	140	0.2
Syria	154	0.2	141	0.2	143	0.2	145	0.2	138	0.2
Laos	140	0.2	133	0.2	126	0.1	118	0.1	136	0.2
Papua New Guinea	130	0.2	150	0.2	131	0.2	136	0.2	132	0.2
Greece	174	0.2	178	0.2	140	0.2	109	0.1	119	0.1
France	93	0.1	85	0.1	114	0.1	108	0.1	113	0.1
Uruguay	105	0.1	102	0.1	123	0.1	91	0.1	111	0.1
Netherlands	84	0.1	94	0.1	92	0.1	102	0.1	109	0.1
Poland	125	0.1	120	0.1	100	0.1	123	0.1	104	0.1
Singapore	109	0.1	89	0.1	102	0.1	101	0.1	104	0.1
Portugal	145	0.2	121	0.1	136	0.2	120	0.1	101	0.1
Taiwan	75	0.1	89	0.1	85	0.1	73	0.1	101	0.1
Cook Islands	59	0.1	107	0.1	86	0.1	92	0.1	100	0.1
Other–Not stated	1916	2.2	2171	2.5	2015	2.4	2051	2.4	2092	2.4
TOTAL	85302	100.0	86920	100.0	85072	100.0	85967	100.0	86460	100.0

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

[#] Countries of birth for which there were 100 or more confinements in 2000.

1.5 MATERNAL ABORIGINALITY

The reported number of Aboriginal or Torres Strait Islander mothers giving birth increased from 1,712 in 1996 (2.0 per cent of all mothers) to 2,105 in 2000 (2.4 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 Part 3.

TABLE 5

CONFINEMENTS BY MATERNAL ABORIGINALITY, NSW 1996–2000

Aboriginality	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
Aboriginal or Torres Strait Islander	1712	2.0	1842	2.1	2043	2.4	2059	2.4	2105	2.4
Non-Aboriginal or Torres Strait Islander	83486	97.9	84854	97.6	82787	97.3	83899	97.6	84306	97.5
Not stated	104	0.1	224	0.3	242	0.3	9	0.0	49	0.1
TOTAL	85302	100.0	86920	100.0	85072	100.0	85967	100.0	86460	100.0

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

1.6 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). About 41 per cent of mothers gave birth for the first time, about 57 per cent gave birth to a second to fourth baby and less than 2 per cent reported more than five previous births.

TABLE 6

CONFINEMENTS BY NUMBER OF PREVIOUS PREGNANCIES, NSW 1996–2000

Number of previous pregnancies (>20 weeks gestation)	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
0	34267	40.2	34984	40.2	34376	40.4	35311	41.1	35953	41.6
1–4	49692	58.3	50451	58.0	49462	58.1	49432	57.5	49146	56.8
5+	1237	1.5	1267	1.5	1184	1.4	1206	1.4	1331	1.5
Not stated	106	0.1	218	0.3	50	0.1	18	0.0	30	0.0
TOTAL	85302	100.0	86920	100.0	85072	100.0	85967	100.0	86460	100.0

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

1.7 DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT

Since 1996, 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 1996–2000										
Duration of pregnancy (weeks)	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
0–19	72726	85.3	73666	84.8	72257	84.9	74077	86.2	74803	86.5
20–plus	10972	12.9	11549	13.3	11410	13.4	10979	12.8	10748	12.4
Not stated	1604	1.9	1705	2.0	1405	1.7	911	1.1	909	1.1
TOTAL	85302	100.0	86920	100.0	85072	100.0	85967	100.0	86460	100.0

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

1.8 SMOKING IN PREGNANCY

The proportion of mothers reporting any smoking during pregnancy declined between 1996 and 2000: in 1996, 17,957 (21.1 per cent) mothers reported smoking in pregnancy, compared to, 17,871 (20.6 per cent) in 1997, 16,859 (19.8 per cent) in 1998, 16,302 (19.0 per cent) in 1999, and 15,001 (17.4 per cent) in 2000.

Of mothers who smoked during pregnancy in 2000, about 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 1996–2000										
Cigarettes smoked in the second half of pregnancy	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
None	556	3.1	570	3.2	690	4.1	739	4.5	622	4.1
More than ten per day	8842	49.2	8574	48.0	8171	48.5	7966	48.9	7005	46.7
1–10 per day	7925	44.1	7872	44.0	7634	45.3	7303	44.8	7092	47.3
Smoked, amount not stated	623	3.5	833	4.7	358	2.1	294	1.8	282	1.9
Not stated	11	0.1	22	0.1	6	0.0	0	0.0	0	0.0
TOTAL	17957	100.0	17871	100.0	16859	100.0	16302	100.0	15001	100.0

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

1.9 PLACE OF BIRTH

In 2000, the majority of mothers planned to give birth in a hospital labour ward, and about four per cent of mothers planned to give birth in a birth centre (Table 9, Figure 2). About one third of mothers who planned to give birth in a birth centre actually did so.

Over the five year period 1996–2000, there was a slight increase in the numbers of births in hospital and a decline in the numbers of births reported in birth centres and at home.

TABLE 9

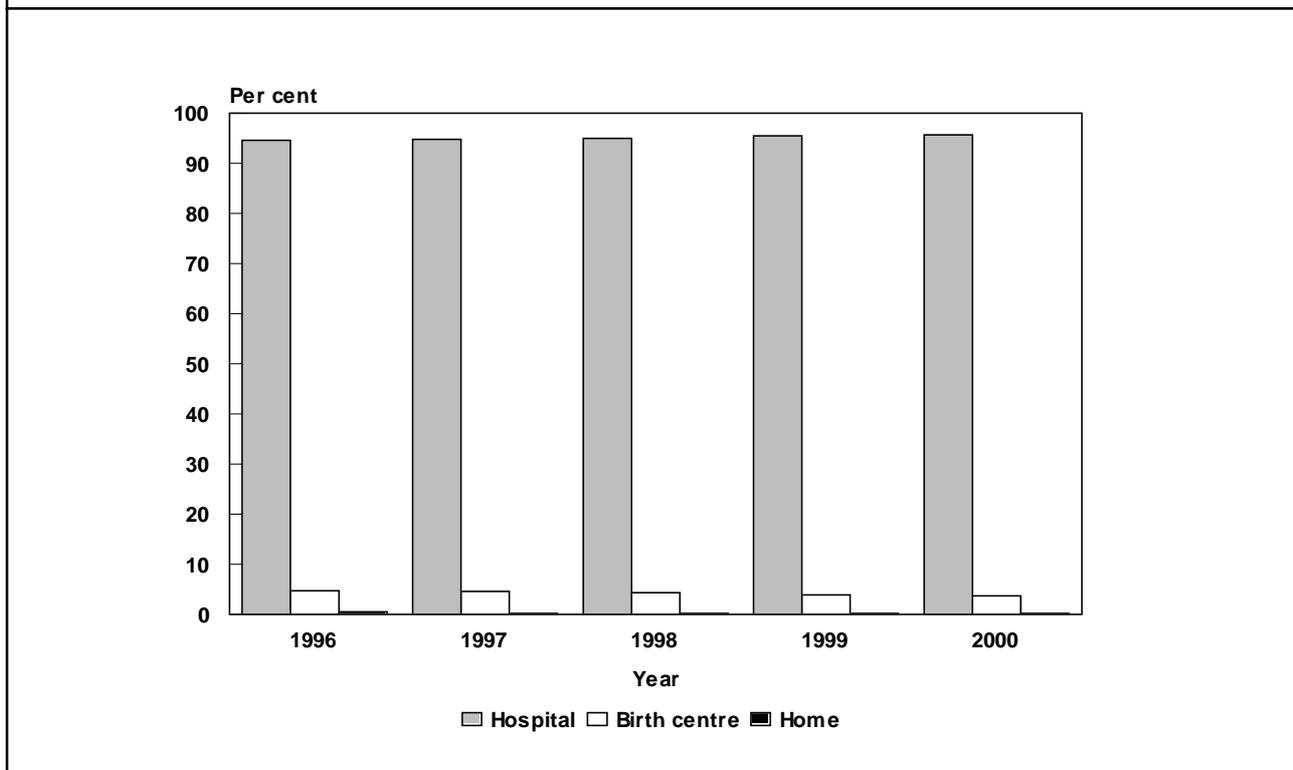
CONFINEMENTS BY PLACE OF BIRTH, NSW 1996–2000

Place of birth	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
Hospital	80714	94.6	82410	94.8	80835	95.0	82103	95.5	82782	95.7
Birth centre	2899	3.4	2795	3.2	2514	3.0	2249	2.6	2205	2.6
Planned birth centre– hospital admission	1116	1.3	1188	1.4	1154	1.4	1070	1.2	959	1.1
Planned homebirth– hospital admission	192	0.2	159	0.2	147	0.2	139	0.2	108	0.1
Born before arrival	55	0.1	43	0.0	55	0.1	43	0.1	38	0.0
Not stated	324	0.4	297	0.3	366	0.4	363	0.4	366	0.4
TOTAL	85302	100.0	86920	100.0	85072	100.0	85967	100.0	86460	100.0

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

FIGURE 2

CONFINEMENTS BY PLANNED PLACE OF BIRTH, NSW 1996–2000



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

1.10 LABOUR AND DELIVERY

The rate of induction of labour rose slightly from 20.5 per cent in 1996 to 23.6 per cent in 2000. About one in 10 labours were augmented with oxytocics or prostaglandins in 2000. The rate of spontaneous onset of labour fell from 70.0 to 64.9 per cent (Table 10).

The rate of normal vaginal birth decreased from 70.7 per cent in 1996 to 67.1 per cent in 2000 (Table 11). The caesarean section rate increased from 17.6 to 21.3 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 3.9 to 6.2 per cent and the rate of forceps delivery declined from 6.7 to 4.5 per cent.

While operative and instrumental deliveries continue to be more common among privately than publicly insured mothers, the changing pattern in type of delivery is evident in both groups (Table 12).

TABLE 10

CONFINEMENTS BY ONSET AND AUGMENTATION OF LABOUR, NSW 1996–2000

Onset of labour	1996		1997		Year 1998		1999		2000	
	No.	%								
Spontaneous	39891	46.8	39839	45.8	39281	46.2	39706	46.2	40042	46.3
Spontaneous augmented with ARM	10564	12.4	9764	11.2	7997	9.4	7844	9.1	7014	8.1
Spontaneous augmented with oxytocics–prostaglandins	9222	10.8	9622	11.1	8411	9.9	8657	10.1	9050	10.5
No labour	8052	9.4	8616	9.9	8800	10.3	9147	10.6	9926	11.5
Induced–oxytocics–prostaglandins	5644	6.6	5934	6.8	7893	9.3	7626	8.9	7493	8.7
Induced– ARM only	1211	1.4	1238	1.4	1462	1.7	1305	1.5	1196	1.4
Induced– ARM+oxytocics–prostaglandins	10601	12.4	11722	13.5	11069	13.0	11527	13.4	11516	13.3
Induced– othe [#]	67	0.1	87	0.1	138	0.2	154	0.2	215	0.2
Not stated	50	0.1	98	0.1	21	0.0	1	0.0	8	0.0
TOTAL	85302	100.0	86920	100.0	85072	100.0	85967	100.0	86460	100.0

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

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

TABLE 11

CONFINEMENTS BY TYPE OF DELIVERY, NSW 1996–2000

Type of delivery	1996		1997		Year 1998		1999		2000	
	No.	%								
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: NSW Midwives Data Collection (HOIST). Epidemiology and Surveillance Branch, 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 1995–1999**

Insurance status– type of delivery	Year									
	1995		1996		1997		1998		1999	
	No.	%								
Public										
Normal vaginal	42004	75.7	43495	75.4	45183	75.1	42967	73.8	44151	72.8
Forceps	2970	5.4	3019	5.2	2643	4.4	2268	3.9	2385	3.9
Vacuum extraction	1528	2.8	1587	2.8	2295	3.8	2593	4.5	3157	5.2
Vaginal breech	630	1.1	680	1.2	733	1.2	611	1.0	596	1.0
Elective caesarean section	4184	7.5	4408	7.6	4684	7.8	4890	8.4	5193	8.6
Emergency caesarean section [#]	4133	7.4	4472	7.7	4610	7.7	4870	8.4	5198	8.6
Not stated	36	0.1	47	0.1	45	0.1	13	0.0	0	0.0
TOTAL	55485	100.0	57708	100.0	60193	100.0	58212	100.0	60680	100.0
Private										
Normal vaginal	19194	62.4	16834	61.0	15929	59.8	15325	59.4	14206	58.1
Forceps	3112	10.1	2705	9.8	2368	8.9	2167	8.4	1780	7.3
Vacuum extraction	1415	4.6	1697	6.2	1621	6.1	1818	7.0	1969	8.0
Vaginal breech	288	0.9	194	0.7	185	0.7	162	0.6	139	0.6
Elective caesarean section	4046	13.2	3642	13.2	3927	14.7	3835	14.9	3859	15.8
Emergency caesarean section [#]	2685	8.7	2482	9.0	2581	9.7	2482	9.6	2508	10.3
Not stated	17	0.1	25	0.1	34	0.1	10	0.0	0	0.0
TOTAL	30757	100.0	27579	100.0	26645	100.0	25799	100.0	24461	100.0
TOTAL^{##}										
Normal vaginal	61215	71.0	60339	70.7	61175	70.4	59097	69.5	58951	68.6
Forceps	6083	7.1	5724	6.7	5014	5.8	4478	5.3	4190	4.9
Vacuum extraction	2943	3.4	3286	3.9	3919	4.5	4453	5.2	5152	6.0
Vaginal breech	918	1.1	874	1.0	921	1.1	805	0.9	762	0.9
Elective caesarean section ⁸²³¹	9.5	8052	9.4	8616	9.9	8800	10.3	9147	10.6	
Emergency caesarean section [#]	6818	7.9	6955	8.2	7195	8.3	7416	8.7	7765	9.0
Not stated	55	0.1	72	0.1	80	0.1	23	0.0	0	0.0
TOTAL	86263	100.0	85302	100.0	86920	100.0	85072	100.0	85967	100.0

Source: 1995–1997: NSW Midwives Data Collection (HOIST). 1998–1999: Linked data of the NSW Midwives Data Collection and NSW Inpatient Statistics Collection. Epidemiology and Surveillance Branch, 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.

1.11 PAIN RELIEF

Information on pain relief was collected by the MDC from 1998. Over the three years 1998 to 2000 there was a trend towards increased use of epidural and spinal anaesthetics.

In 2000, almost one half (48.9 per cent) of all mothers used nitrous oxide for pain relief, 29.8 per cent had an epidural anaesthetic, 26.2 per cent received intra-muscular narcotics, and no pain relief was reported for 12.2 per cent of mothers (Table 13).

TABLE 13**CONFINEMENTS BY TYPE OF PAIN RELIEF, NSW 1998–2000**

Type of pain relief [#]	Year					
	1998		1999		2000	
	No.	%	No.	%	No.	%
Epidural	22917	26.9	24289	28.3	25728	29.8
General anaesthetic	5004	5.9	4735	5.5	4753	5.5
IM Narcotics	22274	26.2	22800	26.5	22654	26.2
Nitrous Oxide	41273	48.5	42361	49.3	42303	48.9
Spinal	3314	3.9	4179	4.9	5248	6.1
Nil	12656	14.9	11468	13.3	10518	12.2
TOTAL CONFINEMENTS	85072	100.0	85967	100.0	86460	100.0

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

More than one type of pain relief may be used.

1.12 BABY SEX

There were no significant changes in the pattern of baby sex since 1996, with slightly more male babies born than females in each year. In 2000, 45,346 (51.6 per cent) of babies were male, 42,539 (48.4 per cent) were female, 15 were of indeterminate sex, and the sex was not reported for 22 babies. This compares with babies born in 1996, when 44,520 (51.5 per cent) were male, 41,841 (48.4 per cent) were female, 18 were of indeterminate sex, and the sex was not reported for 50 babies.

1.13 GESTATIONAL AGE

Since 1996 there has been a slight increase in the percentage of babies born at 32–36 weeks gestation, and a decrease in the percentage born at 42 weeks or more (Table 14). The overall rate of premature births (less than 37 weeks gestation) rose from 6.7 per cent in 1996 to 7.3 per cent in 2000. There was no substantial change in the proportion of babies who were very premature (less than 32 weeks) or extremely premature (less than 28 weeks).

TABLE 14

BIRTHS BY GESTATIONAL AGE, NSW 1996–2000

Gestational age (weeks)	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
20–27	531	0.6	562	0.6	588	0.7	585	0.7	623	0.7
28–31	574	0.7	596	0.7	607	0.7	625	0.7	663	0.8
32–36	4689	5.4	4852	5.5	4758	5.5	5026	5.8	5114	5.8
37–41	78406	90.7	79987	90.8	78463	90.9	79114	90.6	79368	90.3
42+	2187	2.5	2091	2.4	1871	2.2	1932	2.2	2148	2.4
Not stated	42	0.0	45	0.1	18	0.0	7	0.0	6	0.0
TOTAL	86429	100.0	88133	100.0	86305	100.0	87289	100.0	87922	100.0

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

1.14 BIRTHWEIGHT

Since 1996, the rate of low birthweight (less than 2,500 grams) was constant at about six per cent (Table 15). The rate was 6.4 per cent in 2000.

TABLE 15

BIRTHS BY BIRTHWEIGHT, NSW 1996–2000

Birthweight (grams)	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 500	158	0.2	182	0.2	190	0.2	212	0.2	228	0.3
500–999	362	0.4	414	0.5	398	0.5	391	0.4	425	0.5
1000–1499	454	0.5	467	0.5	481	0.6	509	0.6	546	0.6
1500–1999	906	1.0	1033	1.2	1017	1.2	1076	1.2	1079	1.2
2000–2499	3158	3.7	3318	3.8	3147	3.6	3353	3.8	3383	3.8
2500–2999	13098	15.2	13487	15.3	12810	14.8	12942	14.8	12819	14.6
3000–3499	31378	36.3	31863	36.2	30974	35.9	30978	35.5	30647	34.9
3500–3999	26793	31.0	26957	30.6	26818	31.1	27173	31.1	27483	31.3
4000–4499	8593	9.9	8816	10.0	8807	10.2	9002	10.3	9454	10.8
4500+	1477	1.7	1535	1.7	1597	1.9	1629	1.9	1811	2.1
Not stated	52	0.1	61	0.1	66	0.1	24	0.0	47	0.1
TOTAL	86429	100.0	88133	100.0	86305	100.0	87289	100.0	87922	100.0

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

1.15 APGAR SCORE

In 2000, 2.3 per cent of babies were born with an Apgar score of less than seven at five minutes and 1.2 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 1996–2000#

Apgar score	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
0–4	989	1.1	1065	1.2	1001	1.2	996	1.1	1043	1.2
5–6	1127	1.3	1116	1.3	990	1.1	1098	1.3	956	1.1
7+	84153	97.4	85788	97.3	84114	97.5	85028	97.4	85756	97.5
Not stated	160	0.2	164	0.2	200	0.2	167	0.2	167	0.2
TOTAL	86429	100.0	88133	100.0	86305	100.0	87289	100.0	87922	100.0

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

Includes stillbirths and live births.

1.16 PERINATAL OUTCOMES

In the period 1996–2000 the perinatal mortality rate varied from 8.8 to 9.4 per 1,000 (Table 17). In 2000, about two-thirds of all perinatal deaths were stillbirths and one quarter were neonatal deaths.

In 2000, of the 852 perinatal deaths in NSW, 825 (96.8 per cent) were reported among planned hospital births, 9 (1.1 per cent) among planned birth centre births, none among planned home births, and 18 were among babies born before arrival at hospital.

TABLE 17

BIRTHS BY PERINATAL OUTCOME, NSW 1996–2000#

Year	Liveborn surviving		Stillborn		Perinatal Outcome Neonatal death		Not stated		Total births		Perinatal mortality rate/1,000 births
	No.	%	No.	%	No.	%	No.	%	No.	%	
1996	85627	99.1	545	0.6	227	0.3	30	0.0	86429	100.0	8.9
1997	87200	98.9	587	0.7	262	0.3	84	0.1	88133	100.0	9.6
1998	85376	98.9	595	0.7	216	0.3	118	0.1	86305	100.0	9.4
1999	86468	99.1	533	0.6	271	0.3	17	0.0	87289	100.0	9.2
2000	87066	99.0	595	0.7	257	0.3	4	0.0	87922	100.0	9.7

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

1.17 MATERNAL DEATHS

In the period 1990–1998, 106 deaths were reported among pregnant women or women who gave birth less than six weeks previously. Of these, 36 (34.0 per cent) died of incidental causes not related to the pregnancy or its management; 51 (48.1 per cent) deaths were found to be directly due to pregnancy or its management; and 19 (17.9 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 (Table 18).

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 ^{##}									12	14.0
2000 ^{##}									10	11.6

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

Classification incomplete for 1999 and 2000.

TABLE 19

MATERNAL DEATHS BY CAUSE, NSW 1998

Classification	Cause	No.
Direct	Amniotic fluid embolism	1
Direct	Brainstem haemorrhage following pre-eclampsia	1
Direct	Ruptured ectopic pregnancy	1
Direct	Haemorrhage associated with disseminated intravascular coagulopathy following delivery of stillborn fetus	1
Indirect	Pulmonary hypertension and thrombotic thrombocytopenic purpura	1
Indirect	Cardiac and renal failure following sub-acute bacterial endocarditis	1
Indirect	Aortic valve disease	1
Indirect	Suicide following acute reactive depression	1
Incidental	Complications of Crohn disease	1
Incidental	Intracerebral haemorrhage	1
Incidental	Acute hepatitis B infection	1
TOTAL		11

Source: NSW Maternal and Perinatal Committee.

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

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

Indirect deaths include those resulting from 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.

PART 2: 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 Parts 3 and 4 respectively.

2.1 CONFINEMENTS

Continuing the pattern of recent years, the largest numbers of confinements in 2000 were among mothers resident in the South Western Sydney (12,541, 14.5 per cent) and Western Sydney Health Areas (10,794, 12.5 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 19.1 per cent were to mothers resident in rural areas (Table 20).

2.2 MATERNAL AGE

The proportion of women giving birth at less than 20 years of age varied from 0.8 per cent in the Northern Sydney Health Area to 12.0 per cent in the Far West Health Area, while the proportion of mothers giving birth at 35 years of age or more ranged from 10.7 per cent in the Far West Health Area to 29.1 per cent in the Northern Sydney Health Area.

2.3 MATERNAL COUNTRY OF BIRTH

Seventy-nine per cent of women who gave birth in NSW in 2000 were born in English speaking countries, 11.6 per cent were born in Asian countries and 4.3 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 (12.2 per cent) and South East Asia (10.7 per cent). In South Western Sydney, the majority of mothers born in non-English speaking countries were born in South East Asia (17.0 per cent).

2.4 MATERNAL ABORIGINALITY

In 2000, 2.4 per cent of mothers were reported to be Aboriginal or Torres Strait Islander (Table 22). The proportion of Aboriginal or Torres Strait Islander mothers varied from 0.1 per cent in the Northern Sydney Area to 26.8 per cent in the Far West Area.

2.5 PLACE OF BIRTH

Ninety-six per cent of mothers chose to deliver in a hospital labour ward in 2000, compared to 3.7 per cent who planned a birth centre birth and 0.2 per cent who planned a homebirth (Table 23). 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.

2.6 LABOUR AND DELIVERY

In 2000, the onset of labour was spontaneous in 64.9 per cent of confinements (Table 24). Labour was induced in 23.6 per cent of confinements and no labour (elective caesarean section) was reported in 11.5 per cent of confinements.

The rate of spontaneous onset of labour was highest among residents of the Southern Health Area (71.5 per cent). The highest rate of induction of labour was among residents of the Greater Murray Health Area (28.4 per cent).

About two-thirds of confinements were by normal vaginal birth, 10.7 per cent were instrumental and 21.3 per cent were by caesarean section (Table 25). The highest rate of normal vaginal birth was among residents of Far West Health Area (76.4 per cent), while the highest rate of instrumental delivery was among residents of South Eastern Sydney Health Area (15.0 per cent). The caesarean section rate varied from 16.0 per cent among mothers resident in the South Western Sydney Health Area to 26.5 per cent in the Northern Sydney and Mid Western Health Areas.

TABLE 20

CONFINEMENTS BY MATERNAL AGE AND HEALTH AREA OF RESIDENCE, NSW 2000

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	157	2.3	740	10.9	1807	26.7	2331	34.4	1422	21.0	295	4.4	17	0.3	6	0.1	6775	100.0
Northern Sydney	80	0.8	506	5.4	2176	23.1	3922	41.6	2308	24.5	425	4.5	14	0.1	1	0.0	9432	100.0
Western Sydney	431	4.0	1767	16.4	3561	33.0	3316	30.7	1435	13.3	272	2.5	9	0.1	3	0.0	10794	100.0
Wentworth	275	5.6	921	18.7	1750	35.6	1301	26.4	577	11.7	92	1.9	4	0.1	1	0.0	4921	100.0
South Western																		
Sydney	548	4.4	2363	18.8	4408	35.1	3450	27.5	1492	11.9	267	2.1	13	0.1	0	0.0	12541	100.0
Central Coast	182	4.8	634	16.8	1243	33.0	1154	30.6	467	12.4	88	2.3	4	0.1	0	0.0	3772	100.0
Hunter	409	5.9	1284	18.4	2440	35.0	1930	27.6	777	11.1	133	1.9	7	0.1	1	0.0	6981	100.0
Illawarra	222	5.0	761	17.3	1525	34.6	1238	28.1	558	12.7	98	2.2	4	0.1	1	0.0	4407	100.0
South Eastern																		
Sydney	151	1.6	890	9.2	2755	28.4	3654	37.7	1906	19.7	331	3.4	10	0.1	0	0.0	9697	100.0
Northern Rivers	210	7.6	527	19.1	879	31.8	703	25.4	374	13.5	71	2.6	2	0.1	0	0.0	2766	100.0
Mid North Coast	246	8.8	594	21.2	886	31.6	699	24.9	309	11.0	65	2.3	3	0.1	0	0.0	2802	100.0
New England	205	9.1	466	20.6	786	34.7	538	23.8	233	10.3	30	1.3	2	0.1	5	0.2	2265	100.0
Macquarie	162	10.2	352	22.1	513	32.3	380	23.9	159	10.0	22	1.4	1	0.1	1	0.1	1590	100.0
Mid Western	179	7.9	468	20.7	753	33.3	572	25.3	251	11.1	39	1.7	2	0.1	0	0.0	2264	100.0
Far West	64	12.0	128	24.0	158	29.6	126	23.6	50	9.4	6	1.1	1	0.2	0	0.0	533	100.0
Greater Murray	156	6.2	476	18.9	837	33.3	705	28.0	286	11.4	52	2.1	3	0.1	2	0.1	2517	100.0
Southern	133	7.5	332	18.8	614	34.8	440	24.9	209	11.8	37	2.1	1	0.1	0	0.0	1766	100.0
Other-Not stated	43	6.8	107	16.8	202	31.7	181	28.4	81	12.7	19	3.0	1	0.2	3	0.5	637	100.0
TOTAL	3853	4.5	13316	15.4	27293	31.6	26640	30.8	12894	14.9	2342	2.7	98	0.1	24	0.0	86460	100.0

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

TABLE 21

CONFINEMENTS BY MATERNAL COUNTRY OF BIRTH AND HEALTH AREA OF RESIDENCE, NSW 2000*

Health Area	Country of birth group																		TOTAL			
	English speaking		Central & South America		Melanesia, Micronesia & Polynesia		Southern Europe		Western Europe Northern Europe		Eastern & Russia, Central Asian & Baltic States		Middle East Europe, & Africa		South East Asia		North East Asia			Southern Asia		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	
Central Sydney	3745	55.3	74	1.1	245	3.6	204	3.0	71	1.0	57	0.8	592	8.7	724	10.7	824	12.2	237	3.5	6773	100.0
Northern Sydney	7367	78.1	89	0.9	111	1.2	102	1.1	189	2.0	71	0.8	227	2.4	381	4.0	685	7.3	209	2.2	9431	100.0
Western Sydney	6892	64.0	105	1.0	445	4.1	169	1.6	50	0.5	50	0.5	1039	9.6	815	7.6	683	6.3	527	4.9	10775	100.0
Wentworth	4471	90.9	20	0.4	67	1.4	54	1.1	36	0.7	14	0.3	65	1.3	110	2.2	28	0.6	55	1.1	4920	100.0
South Western																						
Sydney	7489	59.7	237	1.9	449	3.6	320	2.6	56	0.4	75	0.6	1220	9.7	2129	17.0	370	3.0	194	1.5	12539	100.0
Central Coast	3632	96.3	12	0.3	13	0.3	7	0.2	25	0.7	7	0.2	7	0.2	42	1.1	20	0.5	6	0.2	3771	100.0
Hunter	6741	96.6	12	0.2	33	0.5	23	0.3	16	0.2	7	0.1	16	0.2	84	1.2	38	0.5	11	0.2	6981	100.0
Illawarra	4074	92.4	33	0.7	30	0.7	98	2.2	35	0.8	4	0.1	40	0.9	61	1.4	25	0.6	7	0.2	4407	100.0
South Eastern																						
Sydney	7089	73.1	109	1.1	145	1.5	210	2.2	119	1.2	122	1.3	442	4.6	597	6.2	688	7.1	176	1.8	9697	100.0
Northern Rivers	2661	96.2	3	0.1	9	0.3	3	0.1	24	0.9	4	0.1	1	0.0	35	1.3	20	0.7	6	0.2	2766	100.0
Mid North Coast	2718	97.0	5	0.2	2	0.1	4	0.1	9	0.3	6	0.2	3	0.1	25	0.9	16	0.6	13	0.5	2801	100.0
New England	2211	97.7	1	0.0	8	0.4	3	0.1	7	0.3	0	0.0	6	0.3	17	0.8	9	0.4	2	0.1	2264	100.0
Macquarie	1562	98.2	1	0.1	2	0.1	2	0.1	3	0.2	4	0.3	4	0.3	5	0.3	6	0.4	1	0.1	1590	100.0
Mid Western	2219	98.0	0	0.0	4	0.2	4	0.2	7	0.3	3	0.1	2	0.1	14	0.6	6	0.3	5	0.2	2264	100.0
Far West	518	97.2	1	0.2	2	0.4	2	0.4	3	0.6	0	0.0	0	0.0	4	0.8	2	0.4	1	0.2	533	100.0
Greater Murray	2421	96.2	3	0.1	28	1.1	2	0.1	5	0.2	2	0.1	7	0.3	13	0.5	14	0.6	22	0.9	2517	100.0
Southern	1697	96.1	2	0.1	10	0.6	7	0.4	13	0.7	1	0.1	9	0.5	15	0.8	8	0.5	4	0.2	1766	100.0
Other-Not stated	598	94.2	1	0.2	3	0.5	3	0.5	3	0.5	1	0.2	5	0.8	14	2.2	7	1.1	0	0.0	635	100.0
TOTAL	68105	78.8	708	0.8	1606	1.9	1217	1.4	671	0.8	428	0.5	3685	4.3	5085	5.9	3449	4.0	1476	1.7	86430	100.0

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

Excludes 30 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 MATERNAL ABORIGINALITY AND HEALTH AREA OF RESIDENCE, NSW 2000**

Health Area	Aboriginality								TOTAL
	Aboriginal Torres Strait Islander		Non-Aboriginal Torres Strait Islander		Not stated				
	No.	%	No.	%	No.	%	No.	%	
Central Sydney	69	1.0	6704	99.0	2	0.0	6775	100.0	
Northern Sydney	9	0.1	9421	99.9	2	0.0	9432	100.0	
Western Sydney	134	1.2	10625	98.4	35	0.3	10794	100.0	
Wentworth	64	1.3	4854	98.6	3	0.1	4921	100.0	
South Western Sydney	99	0.8	12441	99.2	1	0.0	12541	100.0	
Central Coast	72	1.9	3700	98.1	0	0.0	3772	100.0	
Hunter	156	2.2	6825	97.8	0	0.0	6981	100.0	
Illawarra	138	3.1	4269	96.9	0	0.0	4407	100.0	
South Eastern Sydney	35	0.4	9662	99.6	0	0.0	9697	100.0	
Northern Rivers	175	6.3	2591	93.7	0	0.0	2766	100.0	
Mid North Coast	218	7.8	2583	92.2	1	0.0	2802	100.0	
New England	255	11.3	2008	88.7	2	0.1	2265	100.0	
Macquarie	222	14.0	1367	86.0	1	0.1	1590	100.0	
Mid Western	124	5.5	2140	94.5	0	0.0	2264	100.0	
Far West	143	26.8	390	73.2	0	0.0	533	100.0	
Greater Murray	107	4.3	2410	95.7	0	0.0	2517	100.0	
Southern	69	3.9	1697	96.1	0	0.0	1766	100.0	
Other-Not stated	16	2.5	619	97.2	2	0.3	637	100.0	
TOTAL	2105	2.4	84306	97.5	49	0.1	86460	100.0	

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

TABLE 23**CONFINEMENTS BY PLACE OF BIRTH AND HEALTH AREA OF RESIDENCE, NSW 2000**

Health Area	Place of birth														TOTAL	
	Hospital		Birth centre		Planned birth centre-hospital admission		Planned home birth		Planned home birth-hospital admission		Born before arrival		Not stated		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney	6147	90.7	406	6.0	174	2.6	10	0.1	1	0.0	37	0.5	0	0.0	6775	100.0
Northern Sydney	9290	98.5	82	0.9	28	0.3	17	0.2	1	0.0	14	0.1	0	0.0	9432	100.0
Western Sydney	10145	94.0	297	2.8	279	2.6	8	0.1	2	0.0	62	0.6	1	0.0	10794	100.0
Wentworth	4828	98.1	28	0.6	42	0.9	6	0.1	2	0.0	14	0.3	1	0.0	4921	100.0
South Western Sydney	12292	98.0	155	1.2	39	0.3	4	0.0	0	0.0	51	0.4	0	0.0	12541	100.0
Central Coast	3734	99.0	13	0.3	1	0.0	1	0.0	1	0.0	22	0.6	0	0.0	3772	100.0
Hunter	6185	88.6	668	9.6	91	1.3	5	0.1	1	0.0	31	0.4	0	0.0	6981	100.0
Illawarra	4362	99.0	10	0.2	3	0.1	8	0.2	4	0.1	20	0.5	0	0.0	4407	100.0
South Eastern Sydney	8907	91.9	492	5.1	252	2.6	16	0.2	4	0.0	26	0.3	0	0.0	9697	100.0
Northern Rivers	2707	97.9	9	0.3	10	0.4	11	0.4	11	0.4	18	0.7	0	0.0	2766	100.0
Mid North Coast	2764	98.6	16	0.6	10	0.4	0	0.0	1	0.0	11	0.4	0	0.0	2802	100.0
New England	2248	99.2	5	0.2	0	0.0	0	0.0	2	0.1	10	0.4	0	0.0	2265	100.0
Macquarie	1562	98.2	7	0.4	10	0.6	1	0.1	5	0.3	5	0.3	0	0.0	1590	100.0
Mid Western	2232	98.6	4	0.2	11	0.5	2	0.1	2	0.1	13	0.6	0	0.0	2264	100.0
Far West	526	98.7	0	0.0	0	0.0	1	0.2	0	0.0	6	1.1	0	0.0	533	100.0
Greater Murray	2501	99.4	1	0.0	5	0.2	1	0.0	0	0.0	9	0.4	0	0.0	2517	100.0
Southern	1732	98.1	9	0.5	3	0.2	9	0.5	1	0.1	12	0.7	0	0.0	1766	100.0
Other-Not stated	620	97.3	3	0.5	1	0.2	8	1.3	0	0.0	5	0.8	0	0.0	637	100.0
TOTAL	82782	95.7	2205	2.6	959	1.1	108	0.1	38	0.0	366	0.4	2	0.0	86460	100.0

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

TABLE 24

CONFINEMENTS BY ONSET AND AUGMENTATION OF LABOUR AND HEALTH AREA OF RESIDENCE, NSW 2000

Health Area	Spontaneous		Spontaneous augmented with ARM		Spontaneous augmented with oxytocics prostaglandins		No labour		Induced-oxytocics prostaglandins		Onset of labour Induced ARM only		Induced-ARM+ oxytocics prostaglandins		Induced-other#		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	Central Sydney	3419	50.5	223	3.3	914	13.5	777	11.5	1033	15.2	67	1.0	338	5.0	4	0.1	0	0.0	6775
Northern Sydney	3886	41.2	514	5.4	1145	12.1	1473	15.6	656	7.0	144	1.5	1595	16.9	17	0.2	2	0.0	9432	100.0
Western Sydney	5073	47.0	918	8.5	1256	11.6	1085	10.1	692	6.4	69	0.6	1673	15.5	25	0.2	3	0.0	10794	100.0
Wentworth	2407	48.9	365	7.4	401	8.1	542	11.0	358	7.3	78	1.6	754	15.3	15	0.3	1	0.0	4921	100.0
South Western Sydney	6523	52.0	794	6.3	1203	9.6	1094	8.7	867	6.9	134	1.1	1856	14.8	70	0.6	0	0.0	12541	100.0
Central Coast	1406	37.3	514	13.6	539	14.3	419	11.1	298	7.9	51	1.4	540	14.3	5	0.1	0	0.0	3772	100.0
Hunter	3946	56.5	325	4.7	328	4.7	779	11.2	555	8.0	161	2.3	858	12.3	29	0.4	0	0.0	6981	100.0
Illawarra	1839	41.7	525	11.9	398	9.0	472	10.7	361	8.2	57	1.3	744	16.9	11	0.2	0	0.0	4407	100.0
South Eastern Sydney	3920	40.4	789	8.1	1493	15.4	1244	12.8	923	9.5	107	1.1	1210	12.5	11	0.1	0	0.0	9697	100.0
Northern Rivers	1286	46.5	320	11.6	274	9.9	284	10.3	255	9.2	51	1.8	292	10.6	4	0.1	0	0.0	2766	100.0
Mid North Coast	1166	41.6	353	12.6	199	7.1	393	14.0	242	8.6	30	1.1	415	14.8	4	0.1	0	0.0	2802	100.0
New England	782	34.5	349	15.4	229	10.1	278	12.3	240	10.6	38	1.7	342	15.1	7	0.3	0	0.0	2265	100.0
Macquarie	752	47.3	181	11.4	140	8.8	166	10.4	124	7.8	43	2.7	182	11.4	2	0.1	0	0.0	1590	100.0
Mid Western	964	42.6	281	12.4	168	7.4	338	14.9	216	9.5	59	2.6	237	10.5	0	0.0	1	0.0	2264	100.0
Far West	303	56.8	50	9.4	27	5.1	53	9.9	38	7.1	16	3.0	46	8.6	0	0.0	0	0.0	533	100.0
Greater Murray	1134	45.1	254	10.1	134	5.3	281	11.2	411	16.3	68	2.7	225	8.9	10	0.4	0	0.0	2517	100.0
Southern	924	52.3	191	10.8	147	8.3	176	10.0	179	10.1	19	1.1	128	7.2	1	0.1	1	0.1	1766	100.0
Other-Not stated	312	49.0	68	10.7	55	8.6	72	11.3	45	7.1	4	0.6	81	12.7	0	0.0	0	0.0	637	100.0
TOTAL	40042	46.3	7014	8.1	9050	10.5	9926	11.5	7493	8.7	1196	1.4	11516	13.3	215	0.2	8	0.0	86460	100.0

Source: NSW Midwives Data Collection (HOIST). Epidemiology and Surveillance Branch, NSW Department of Health.
 # This category includes other forms of induction such as Foley's catheter.

TABLE 25

CONFINEMENTS BY TYPE OF DELIVERY AND HEALTH AREA OF RESIDENCE, NSW 2000

Health Area	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.	%
	Central Sydney	4325	63.8	301	4.4	560	8.3	54	0.8	777	11.5	758	11.2	0	0.0	6775
Northern Sydney	5525	58.6	540	5.7	824	8.7	39	0.4	1473	15.6	1029	10.9	2	0.0	9432	100.0
Western Sydney	7512	69.6	684	6.3	415	3.8	97	0.9	1085	10.1	992	9.2	9	0.1	10794	100.0
Wentworth	3460	70.3	194	3.9	208	4.2	30	0.6	542	11.0	485	9.9	2	0.0	4921	100.0
South Western Sydney	9265	73.9	362	2.9	783	6.2	119	0.9	1094	8.7	918	7.3	0	0.0	12541	100.0
Central Coast	2457	65.1	97	2.6	349	9.3	22	0.6	419	11.1	428	11.3	0	0.0	3772	100.0
Hunter	4797	68.7	191	2.7	440	6.3	75	1.1	779	11.2	699	10.0	0	0.0	6981	100.0
Illawarra	3066	69.6	135	3.1	310	7.0	31	0.7	472	10.7	393	8.9	0	0.0	4407	100.0
South Eastern Sydney	5685	58.6	643	6.6	817	8.4	61	0.6	1244	12.8	1246	12.8	1	0.0	9697	100.0
Northern Rivers	1978	71.5	103	3.7	84	3.0	22	0.8	284	10.3	295	10.7	0	0.0	2766	100.0
Mid North Coast	1963	70.1	94	3.4	83	3.0	24	0.9	393	14.0	245	8.7	0	0.0	2802	100.0
New England	1565	69.1	115	5.1	101	4.5	19	0.8	278	12.3	187	8.3	0	0.0	2265	100.0
Macquarie	1151	72.4	92	5.8	59	3.7	11	0.7	166	10.4	111	7.0	0	0.0	1590	100.0
Mid Western	1478	65.3	82	3.6	91	4.0	14	0.6	338	14.9	261	11.5	0	0.0	2264	100.0
Far West	407	76.4	15	2.8	13	2.4	9	1.7	53	9.9	36	6.8	0	0.0	533	100.0
Greater Murray	1697	67.4	156	6.2	126	5.0	23	0.9	281	11.2	234	9.3	0	0.0	2517	100.0
Southern	1265	71.6	82	4.6	83	4.7	8	0.5	176	10.0	151	8.6	1	0.1	1766	100.0
Other-Not stated	453	71.1	18	2.8	21	3.3	11	1.7	72	11.3	62	9.7	0	0.0	637	100.0
TOTAL	58049	67.1	3904	4.5	5367	6.2	669	0.8	9926	11.5	8530	9.9	15	0.0	86460	100.0

Source: NSW Midwives Data Collection (HOIST). Epidemiology and Surveillance Branch, NSW Department of Health.
 # Emergency caesarean section includes caesarean sections where the onset of labour was not stated.

2.7 BIRTHWEIGHT

In 2000, 6.4 per cent of births were low birthweight (less than 2,500 grams). These comprised 0.7 per cent of birthweight less than 1,000 grams, 0.6 per cent in the 1,000 to 1,499 gram range, and 5.1 per cent in the 1,500 to 2,499 gram range (Table 26). The highest rate of low birthweight was in the Macquarie Health Area (8.1 per cent) and the lowest rate was in the Southern Health Area (4.4 per cent).

2.8 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 5.8 per cent at 32–36 weeks. The highest rate of preterm birth was in the Mid Western Health Area (9.0 per cent), while the lowest rate was 4.5 per cent in the Southern Health Area (Table 27).

TABLE 26

BIRTHS BY BIRTHWEIGHT AND HEALTH AREA OF RESIDENCE, NSW 2000

Health Area	Birthweight (grams)																		TOTAL No. %					
	Less than 500		500–999		1000–1499		1500–1999		2000–2499		2500–2999		3000–3499		3500–3999		4000–4499			4500+		Not stated No. %		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%			
Central Sydney	26	0.4	43	0.6	49	0.7	97	1.4	280	4.0	1106	16.0	2446	35.4	2104	30.4	649	9.4	112	1.6	4	0.1	6916	100.0
Northern Sydney	26	0.3	34	0.4	48	0.5	84	0.9	308	3.2	1206	12.6	3341	34.8	3230	33.6	1140	11.9	181	1.9	2	0.0	9600	100.0
Western Sydney	23	0.2	58	0.5	88	0.8	115	1.0	398	3.6	1660	15.2	3902	35.6	3329	30.4	1133	10.3	238	2.2	12	0.1	10956	100.0
Wentworth	13	0.3	30	0.6	28	0.6	65	1.3	176	3.5	660	13.2	1684	33.6	1664	33.2	568	11.3	116	2.3	1	0.0	5005	100.0
South Western																								
Sydney	24	0.2	50	0.4	82	0.6	165	1.3	538	4.2	2038	16.0	4685	36.8	3726	29.2	1185	9.3	254	2.0	1	0.0	12748	100.0
Central Coast	13	0.3	14	0.4	29	0.8	48	1.3	138	3.6	504	13.1	1207	31.5	1280	33.4	498	13.0	103	2.7	2	0.1	3836	100.0
Hunter	31	0.4	47	0.7	62	0.9	98	1.4	267	3.8	978	13.8	2315	32.6	2227	31.4	886	12.5	182	2.6	2	0.0	7095	100.0
Illawarra	12	0.3	27	0.6	21	0.5	57	1.3	173	3.9	612	13.6	1535	34.2	1467	32.7	496	11.0	88	2.0	1	0.0	4489	100.0
South Eastern																								
Sydney	21	0.2	44	0.4	48	0.5	123	1.2	368	3.7	1432	14.5	3605	36.5	3058	31.0	993	10.1	183	1.9	5	0.1	9880	100.0
Northern Rivers	6	0.2	8	0.3	8	0.3	39	1.4	112	4.0	427	15.3	944	33.8	879	31.4	319	11.4	51	1.8	2	0.1	2795	100.0
Mid North Coast	7	0.2	15	0.5	15	0.5	50	1.8	133	4.7	440	15.4	955	33.4	840	29.4	334	11.7	67	2.3	1	0.0	2857	100.0
New England	7	0.3	16	0.7	19	0.8	29	1.3	101	4.4	369	16.1	828	36.0	655	28.5	236	10.3	36	1.6	2	0.1	2298	100.0
Macquarie	2	0.1	6	0.4	12	0.7	20	1.2	92	5.7	219	13.5	548	33.7	517	31.8	173	10.7	33	2.0	2	0.1	1624	100.0
Mid Western	4	0.2	14	0.6	17	0.7	35	1.5	103	4.5	355	15.4	766	33.1	757	32.7	220	9.5	39	1.7	2	0.1	2312	100.0
Far West	0	0.0	5	0.9	1	0.2	5	0.9	28	5.2	74	13.8	200	37.4	153	28.6	53	9.9	14	2.6	2	0.4	535	100.0
Greater Murray	5	0.2	10	0.4	10	0.4	24	0.9	84	3.3	372	14.6	864	33.9	832	32.6	292	11.4	57	2.2	1	0.0	2551	100.0
Southern	4	0.2	2	0.1	3	0.2	14	0.8	56	3.1	274	15.4	587	32.9	584	32.8	209	11.7	46	2.6	3	0.2	1782	100.0
Other–Not stated	4	0.6	2	0.3	6	0.9	11	1.7	28	4.4	93	14.5	235	36.5	181	28.1	70	10.9	11	1.7	2	0.3	643	100.0
TOTAL	228	0.3	425	0.5	546	0.6	1079	1.2	3383	3.8	12819	14.6	30647	34.9	27483	31.3	9454	10.8	1811	2.1	47	0.1	87922	100.0

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

TABLE 27

BIRTHS BY GESTATIONAL AGE AND HEALTH AREA OF RESIDENCE, NSW 2000

Health Area	Gestational age (weeks)										Not stated		TOTAL	
	20–27		28–31		32–36		37–41		42+		No.	%	No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%				
Central Sydney	68	1.0	58	0.8	424	6.1	6261	90.5	105	1.5	0	0.0	6916	100.0
Northern Sydney	59	0.6	47	0.5	499	5.2	8680	90.4	315	3.3	0	0.0	9600	100.0
Western Sydney	74	0.7	94	0.9	567	5.2	9958	90.9	258	2.4	5	0.0	10956	100.0
Wentworth	42	0.8	33	0.7	272	5.4	4520	90.3	138	2.8	0	0.0	5005	100.0
South Western														
Sydney	68	0.5	90	0.7	748	5.9	11449	89.8	393	3.1	0	0.0	12748	100.0
Central Coast	25	0.7	33	0.9	273	7.1	3472	90.5	33	0.9	0	0.0	3836	100.0
Hunter	68	1.0	78	1.1	452	6.4	6121	86.3	376	5.3	0	0.0	7095	100.0
Illawarra	39	0.9	31	0.7	251	5.6	4053	90.3	115	2.6	0	0.0	4489	100.0
South Eastern														
Sydney	62	0.6	73	0.7	626	6.3	9022	91.3	97	1.0	0	0.0	9880	100.0
Northern Rivers	15	0.5	9	0.3	165	5.9	2527	90.4	79	2.8	0	0.0	2795	100.0
Mid North Coast	21	0.7	21	0.7	190	6.7	2567	89.8	58	2.0	0	0.0	2857	100.0
New England	25	1.1	24	1.0	127	5.5	2103	91.5	19	0.8	0	0.0	2298	100.0
Macquarie	10	0.6	11	0.7	90	5.5	1490	91.7	23	1.4	0	0.0	1624	100.0
Mid Western	13	0.6	31	1.3	163	7.1	2072	89.6	33	1.4	0	0.0	2312	100.0
Far West	5	0.9	2	0.4	25	4.7	498	93.1	5	0.9	0	0.0	535	100.0
Greater Murray	14	0.5	16	0.6	123	4.8	2362	92.6	35	1.4	1	0.0	2551	100.0
Southern	6	0.3	5	0.3	69	3.9	1651	92.6	51	2.9	0	0.0	1782	100.0
Other–Not stated	9	1.4	7	1.1	50	7.8	562	87.4	15	2.3	0	0.0	643	100.0
TOTAL	623	0.7	663	0.8	5114	5.8	79368	90.3	2148	2.4	6	0.0	87922	100.0

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

2.9 PERINATAL OUTCOMES

The perinatal mortality rate in 2000 was 9.7 per 1,000 births. This rate includes all births and deaths of babies of at least 400 grams birthweight or at least 20 weeks gestation (Table 28). The rate varied from 5.6 per 1,000 in the Southern Health Area to 13.2 per 1,000 in the Hunter Health Area.

TABLE 28

PERINATAL OUTCOMES BY HEALTH AREA OF RESIDENCE, NSW 2000#

Health Area	Liveborn surviving		Stillborn		Perinatal outcome Neonatal death		Not stated		Total births		Perinatal mortality rate/1,000 births
	No.	%	No.	%	No.	%	No.	%	No.	%	
Central Sydney	6827	98.7	67	1.0	22	0.3	0	0.0	6916	100.0	12.9
Northern Sydney	9516	99.1	54	0.6	30	0.3	0	0.0	9600	100.0	8.8
Western Sydney	10854	99.1	75	0.7	25	0.2	2	0.0	10956	100.0	9.1
Wentworth	4951	98.9	37	0.7	17	0.3	0	0.0	5005	100.0	10.8
South Western Sydney	12641	99.2	77	0.6	29	0.2	1	0.0	12748	100.0	8.3
Central Coast	3792	98.9	34	0.9	10	0.3	0	0.0	3836	100.0	11.5
Hunter	7001	98.7	65	0.9	29	0.4	0	0.0	7095	100.0	13.2
Illawarra	4452	99.2	21	0.5	16	0.4	0	0.0	4489	100.0	8.2
South Eastern Sydney	9805	99.2	48	0.5	27	0.3	0	0.0	9880	100.0	7.6
Northern Rivers	2769	99.1	19	0.7	7	0.3	0	0.0	2795	100.0	9.3
Mid North Coast	2827	98.9	18	0.6	12	0.4	0	0.0	2857	100.0	10.5
New England	2269	98.7	17	0.7	11	0.5	1	0.0	2298	100.0	12.2
Macquarie	1612	99.3	9	0.6	3	0.2	0	0.0	1624	100.0	7.4
Mid Western	2294	99.2	13	0.6	5	0.2	0	0.0	2312	100.0	7.8
Far West	529	98.9	4	0.7	2	0.4	0	0.0	535	100.0	11.2
Greater Murray	2527	99.1	18	0.7	6	0.2	0	0.0	2551	100.0	9.4
Southern	1772	99.4	9	0.5	1	0.1	0	0.0	1782	100.0	5.6
Other-Not stated	628	97.7	10	1.6	5	0.8	0	0.0	643	100.0	23.3
TOTAL	87066	99.0	595	0.7	257	0.3	4	0.0	87922	100.0	9.7

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

PART 3: ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS AND BABIES

3.1 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 Birth 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 1 (page 16).

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 (Table 29). Reporting was better in rural hospitals than urban hospitals: it is estimated that in 1999 44.9 per cent of births to Aboriginal mothers in urban hospitals were correctly reported as Aboriginal compared to 88.5 per cent in rural hospitals.

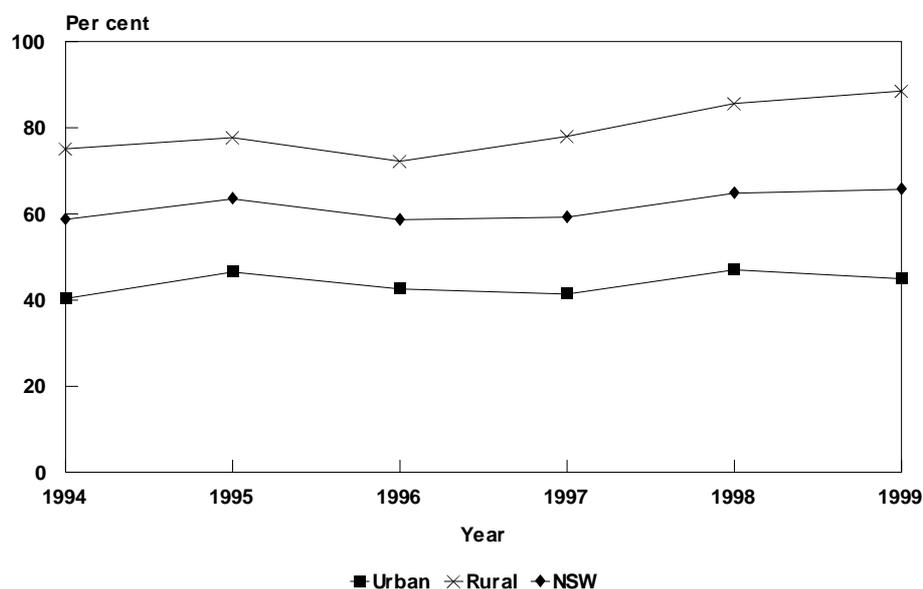
TABLE 29

BIRTHS TO ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY SOURCE OF BIRTH REPORT, YEAR OF BIRTH AND URBAN–RURAL HEALTH AREA OF HOSPITAL, NSW 1994–1999

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
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
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

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**BIRTHS TO ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY YEAR OF BIRTH AND URBAN-RURAL HEALTH AREA OF HOSPITAL, NSW 1994-1999***

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.

3.2 TRENDS IN BIRTHS

Between 1996 and 2000, the reported number of babies born to Aboriginal and Torres Strait Islander mothers increased from 1,724 to 2,122 (Table 30), an increase from 2.0 to 2.4 per cent of all babies born in NSW. Multiple pregnancies (twins, triplets etc.) were reported for about one per cent of mothers.

TABLE 30**ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS AND BABIES BY PLURALITY, NSW 1996-2000**

Plurality	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
Confinements										
Singleton	1700	99.3	1828	99.2	2017	98.7	2040	99.1	2089	99.2
Multiple	12	0.7	14	0.8	26	1.3	19	0.9	16	0.8
TOTAL	1712	100.0	1842	100.0	2043	100.0	2059	100.0	2105	100.0
Births										
Singleton	1700	98.6	1828	98.6	2017	97.5	2040	98.2	2089	98.4
Multiple	24	1.4	26	1.4	51	2.5	38	1.8	33	1.6
TOTAL	1724	100.0	1854	100.0	2068	100.0	2078	100.0	2122	100.0

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

3.3 PREVIOUS PREGNANCIES

In 2000, about 30 per cent of Aboriginal and Torres Strait Islander mothers gave birth for the first time, and 61 per cent gave birth to their second to fourth baby (Table 31). Eight per cent of mothers had given birth to five or more babies. This pattern has not changed substantially since 1996.

TABLE 31

NUMBER OF PREVIOUS PREGNANCIES AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1996–2000

No. previous pregnancies (>20 weeks)	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
0	510	29.8	554	30.1	599	29.3	613	29.8	645	30.6
1–4	1065	62.2	1147	62.3	1280	62.7	1301	63.2	1285	61.0
5+	134	7.8	139	7.5	161	7.9	144	7.0	174	8.3
Not stated	3	0.2	2	0.1	3	0.1	1	0.0	1	0.0
TOTAL	1712	100.0	1842	100.0	2043	100.0	2059	100.0	2105	100.0

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

3.4 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 2000. 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 4.8 in 1996 to 7.4 per cent in 2000 (Table 32).

TABLE 32

AGE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1996–2000

Maternal age (years)	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
12–19	374	21.8	398	21.6	389	19.0	443	21.5	459	21.8
20–34	1255	73.3	1352	73.4	1536	75.2	1492	72.5	1491	70.8
35+	83	4.8	92	5.0	113	5.5	124	6.0	155	7.4
Not stated	0.0	0.0	0.0	0.0	5	0.2	0.0	0.0	0.0	0.0
TOTAL	1712	100.0	1842	100.0	2043	100.0	2059	100.0	2105	100.0

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

3.5 HEALTH AREA OF RESIDENCE

The reported number of Aboriginal and Torres Strait Islander mothers who gave birth in 2000 ranged from nine (0.4 per cent) in the Northern Sydney Area to 255 (12.1 per cent) in the New England Area (Table 33). Over one-third (36.9 per cent) of mothers were resident in urban health

areas and about two-thirds were resident in rural health areas (62.4 per cent).

In 2000, over one quarter of Aboriginal and Torres Strait Islander mothers in the Mid North Coast, Far West and Southern Areas were teenagers (Table 34).

TABLE 33

HEALTH AREA OF RESIDENCE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1996–2000

Health Area	1996		1997		Year 1998		1999		2000	
	No.	%								
Central Sydney	66	3.9	70	3.8	71	3.5	61	3.0	69	3.3
Northern Sydney	9	0.5	7	0.4	10	0.5	9	0.4	9	0.4
Western Sydney	108	6.3	105	5.7	172	8.4	139	6.8	134	6.4
Wentworth	43	2.5	47	2.6	77	3.8	74	3.6	64	3.0
South Western Sydney	93	5.4	89	4.8	108	5.3	91	4.4	99	4.7
Central Coast	27	1.6	37	2.0	42	2.1	50	2.4	72	3.4
Hunter	100	5.8	107	5.8	103	5.0	98	4.8	156	7.4
Illawarra	101	5.9	125	6.8	119	5.8	104	5.1	138	6.6
South Eastern Sydney	30	1.8	36	2.0	47	2.3	45	2.2	35	1.7
Northern Rivers	132	7.7	146	7.9	161	7.9	162	7.9	175	8.3
Mid North Coast	157	9.2	181	9.8	167	8.2	230	11.2	218	10.4
New England	238	13.9	255	13.8	267	13.1	273	13.3	255	12.1
Macquarie	171	10.0	202	11.0	212	10.4	230	11.2	222	10.5
Mid Western	111	6.5	99	5.4	113	5.5	123	6.0	124	5.9
Far West	157	9.2	172	9.3	169	8.3	162	7.9	143	6.8
Greater Murray	120	7.0	100	5.4	120	5.9	116	5.6	107	5.1
Southern	39	2.3	51	2.8	64	3.1	68	3.3	69	3.3
Other–Not stated	10	0.6	13	0.7	21	1.0	24	1.2	16	0.8
TOTAL	1712	100.0	1842	100.0	2043	100.0	2059	100.0	2105	100.0

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

TABLE 34

HEALTH AREA OF RESIDENCE OF ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY AGE, NSW 2000

Health Area	Maternal age (years)					
	Less than 20		20+		TOTAL	
	No.	%	No.	%	No.	%
Central Sydney	16	23.2	53	76.8	69	100.0
Northern Sydney [#]	–	–	8	88.9	9	100.0
Western Sydney	38	28.4	96	71.6	134	100.0
Wentworth	8	12.5	56	87.5	64	100.0
South Western Sydney	22	22.2	77	77.8	99	100.0
Central Coast	13	18.1	59	81.9	72	100.0
Hunter	44	28.2	112	71.8	156	100.0
Illawarra	24	17.4	114	82.6	138	100.0
South Eastern Sydney [#]	–	–	31	88.6	35	100.0
Northern Rivers	28	16.0	147	84.0	175	100.0
Mid North Coast	48	22.0	170	78.0	218	100.0
New England	58	22.7	197	77.3	255	100.0
Macquarie	55	24.8	167	75.2	222	100.0
Mid Western	26	21.0	98	79.0	124	100.0
Far West	36	25.2	107	74.8	143	100.0
Greater Murray	21	19.6	86	80.4	107	100.0
Southern	14	20.3	55	79.7	69	100.0
Other–Not stated	3	18.8	13	81.3	16	100.0
TOTAL	459	21.8	1646	78.2	2105	100.0

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

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

3.6 BOOKING STATUS

Between 1996 and 2000, there was no substantial change in the proportion of mothers who were booked into the hospital of birth—88.3 per cent in 1996 and 87.5 per cent in 2000.

This compares with 98.1 per cent of non-Aboriginal or Torres Strait Islander mothers who were booked into the hospital of birth in 2000.

3.7 DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT

Between 1996 and 2000, there was a slight increase in the proportion of mothers who commenced antenatal care at less than 20 weeks gestation—from 61.0 per cent in 1996 to 67.6 per cent in 2000. This compares with 87.0 per cent of non-Aboriginal and Torres Strait Islander mothers who commenced antenatal care at less than 20 weeks gestation in 2000.

In 2000, the proportion of Aboriginal and Torres Strait Islander mothers who commenced antenatal care at less than 20 weeks gestation varied from 46.3 per cent in the Western Sydney Area to 86.1 per cent in the Central Coast Area (Table 35).

TABLE 35

DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS BY HEALTH AREA OF RESIDENCE, NSW 2000

Health Area	Duration of pregnancy at first antenatal visit (weeks)						TOTAL	
	0-19		20+		Not stated		No.	%
	No.	%	No.	%	No.	%	No.	%
Central Sydney	42	60.9	25	36.2	2	2.9	69	100.0
Northern Sydney [#]	—	—	—	—	—	—	9	100.0
Western Sydney	62	46.3	59	44.0	13	9.7	134	100.0
Wentworth	42	65.6	20	31.3	2	3.1	64	100.0
South Western Sydney	51	51.5	44	44.4	4	4.0	99	100.0
Central Coast	62	86.1	10	13.9	0	0.0	72	100.0
Hunter	113	72.4	38	24.4	5	3.2	156	100.0
Illawarra	97	70.3	37	26.8	4	2.9	138	100.0
South Eastern Sydney	21	60.0	11	31.4	3	8.6	35	100.0
Northern Rivers	113	64.6	52	29.7	10	5.7	175	100.0
Mid North Coast	165	75.7	32	14.7	21	9.6	218	100.0
New England	198	77.6	46	18.0	11	4.3	255	100.0
Macquarie	144	64.9	57	25.7	21	9.5	222	100.0
Mid Western	83	66.9	27	21.8	14	11.3	124	100.0
Far West	82	57.3	43	30.1	18	12.6	143	100.0
Greater Murray	81	75.7	24	22.4	2	1.9	107	100.0
Southern	48	69.6	15	21.7	6	8.7	69	100.0
Other—Not stated	12	75.0	3	18.8	1	6.3	16	100.0
TOTAL	1422	67.6	546	25.9	137	6.5	2105	100.0

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

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

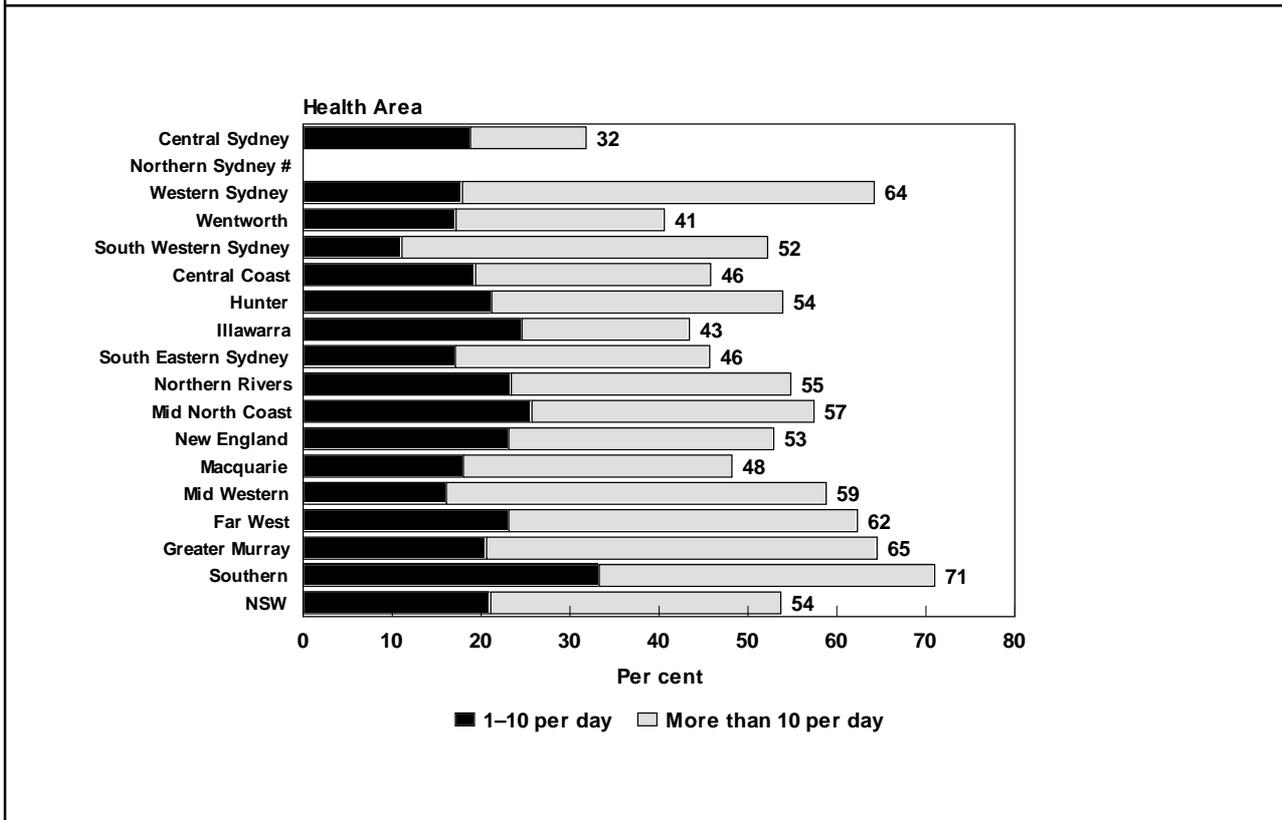
3.8 SMOKING IN PREGNANCY

In 2000, 55.9 per cent of Aboriginal and Torres Strait Islander mothers reported smoking at some time during pregnancy, compared to 61.4 per cent in 1996. This compares with 17.4 per cent of all mothers who reported smoking at some time during pregnancy in 2000 (see Section 1.8, page 21).

Smoking in the second half of pregnancy poses the greatest risk to the health of both mother and baby. In 2000, 55.2 per cent of Aboriginal and Torres Strait Islander mothers reported smoking in the second half of pregnancy. This percentage varied from 31.9 per cent in the Central Sydney Area to 71.0 per cent in the Southern 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 2000



Source: NSW Midwives Data Collection (HOIST). Epidemiology and Surveillance Branch, NSW Department of Health.
 # Information not shown for Health Areas where the number of mothers is less than five in a group.

3.9 MEDICAL CONDITIONS AND OBSTETRIC COMPLICATIONS

In 2000, there were similar rates of diabetes and essential hypertension reported among Aboriginal and Torres Strait

Islander mothers and non-Aboriginal or Torres Strait Islander mothers, and slightly lower rates of gestational diabetes and pregnancy-induced hypertension (Table 36).

TABLE 36

MATERNAL MEDICAL CONDITIONS AND OBSTETRIC COMPLICATIONS BY ABORIGINALITY, NSW 2000

Condition	Aboriginality					
	Aboriginal and Torres Strait Islander		Non-Aboriginal or Torres Strait Islander		TOTAL	
	No.	%	No.	%	No.	%
Diabetes mellitus	17	0.8	374	0.4	392	0.5
Gestational diabetes	60	2.9	3326	3.9	3386	3.9
Essential hypertension	23	1.1	834	1.0	858	1.0
Pregnancy- induced hypertension	114	5.4	5967	7.1	6082	7.0
TOTAL CONFINEMENTS	2105	100.0	84306	100.0	86460	100.0

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

Total confinements include 49 confinements where maternal Aboriginality was not stated.

3.10 LABOUR AND DELIVERY

The rate of induction of labour among Aboriginal and Torres Strait Islander mothers increased from 16.6 to 17.7 per cent between 1996 and 2000, while the rate of spontaneous onset of labour decreased from 76.8 to 72.5 per cent (Table 37).

These trends follow statewide trends (Section 1.10, page 24). However, the rate of induction of labour among

Aboriginal and Torres Strait Islander mothers continued to be lower than the NSW rate, which was 23.6 per cent in 2000.

Since 1996, the rate of normal vaginal birth fell slightly from 77.5 to 74.7 per cent. The caesarean section rate rose from 16.0 to 18.2 per cent (Table 38). Over the five year period, the percentage of deliveries by vacuum extraction almost doubled from 1.8 to 3.2 per cent.

TABLE 37

LABOUR ONSET FOR ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1996–2000

Labour onset	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
Spontaneous	1315	76.8	1377	74.8	1467	71.8	1512	73.4	1527	72.5
No labour [#]	112	6.5	153	8.3	176	8.6	172	8.4	206	9.8
Induced	284	16.6	311	16.9	400	19.6	375	18.2	372	17.7
Not stated	1	0.1	1	0.1	0	0.0	0	0.0	0	0.0
TOTAL	1712	100.0	1842	100.0	2043	100.0	2059	100.0	2105	100.0

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

No labour indicates elective caesarean section.

TABLE 38

TYPE OF DELIVERY AMONG ABORIGINAL AND TORRES STRAIT ISLANDER MOTHERS, NSW 1996–2000

Type of delivery	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal vaginal	1327	77.5	1423	77.3	1563	76.5	1586	77.0	1573	74.7
Forceps	51	3.0	47	2.6	56	2.7	64	3.1	51	2.4
Vacuum extraction	31	1.8	45	2.4	43	2.1	54	2.6	67	3.2
Vaginal breech	28	1.6	15	0.8	27	1.3	25	1.2	31	1.5
Elective caesarean section	112	6.5	153	8.3	176	8.6	172	8.4	206	9.8
Emergency caesarean section [#]	162	9.5	159	8.6	177	8.7	158	7.7	177	8.4
Not stated	1	0.1	0	0.0	1	0.0	0	0.0	0	0.0
TOTAL	1712	100.0	1842	100.0	2043	100.0	2059	100.0	2105	100.0

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

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

3.11 BIRTHWEIGHT

Since 1996, 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 11.9 per cent in 2000 (Table 39). This is almost twice the rate for NSW overall, which was 6.4 per cent in 2000. In 2000, the highest rate of low birthweight was 19.4 per cent in Mid Western Health Areas (Table 40).

TABLE 39

WEIGHT OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 1996–2000

Birthweight (grams)	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 1,000	25	1.5	30	1.6	24	1.2	20	1.0	33	1.6
1,000–1,499	15	0.9	18	1.0	19	0.9	24	1.2	20	0.9
1,500–2,499	143	8.3	175	9.4	174	8.4	217	10.4	199	9.4
2,500+	1538	89.2	1631	88.0	1850	89.5	1816	87.4	1866	87.9
Not stated	3	0.2	0	0.0	1	0.0	1	0.0	4	0.2
TOTAL	1724	100.0	1854	100.0	2068	100.0	2078	100.0	2122	100.0

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

TABLE 40

WEIGHT OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES BY HEALTH AREA OF RESIDENCE, NSW 2000

Health Area	Less than 2,500		Birthweight (grams) 2,500+		Not stated		No.	TOTAL %
	No.	%	No.	%	No.	%		
Central Sydney	7	10.1	62	89.9	0	0.0	69	100.0
Northern Sydney [#]	–	–	–	–	–	–	9	100.0
Western Sydney	23	16.8	114	83.2	0	0.0	137	100.0
Wentworth	5	7.7	60	92.3	0	0.0	65	100.0
South Western Sydney	10	10.1	89	89.9	0	0.0	99	100.0
Central Coast	10	13.7	63	86.3	0	0.0	73	100.0
Hunter	20	12.7	137	87.3	0	0.0	157	100.0
Illawarra	12	8.7	126	91.3	0	0.0	138	100.0
South Eastern Sydney [#]	–	–	–	–	–	0.0	36	100.0
Northern Rivers	20	11.4	155	88.1	1	0.6	176	100.0
Mid North Coast	19	8.7	200	91.3	0	0.0	219	100.0
New England	26	10.1	231	89.9	0	0.0	257	100.0
Macquarie	30	13.5	191	85.7	2	0.9	223	100.0
Mid Western	24	19.4	100	80.6	0	0.0	124	100.0
Far West	17	11.8	126	87.5	1	0.7	144	100.0
Greater Murray	11	9.9	100	90.1	0	0.0	111	100.0
Southern	8	11.6	61	88.4	0	0.0	69	100.0
Other–Not stated	5	31.3	11	68.8	0	0.0	16	100.0
TOTAL	252	11.9	1866	87.9	4	0.2	2122	100.0

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

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

3.12 GESTATIONAL AGE

Since 1996, 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 11.6 per cent in 2000 (Table 41)—about one and a half times higher than the rate of 7.3 per cent for NSW overall. In 2000, the highest rates of prematurity were in the Mid Western (18.5 per cent) and Western Sydney Areas (15.3 per cent) (Table 42).

TABLE 41

GESTATIONAL AGE OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 1996–2000

Gestational age (weeks)	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
20–27	25	1.5	29	1.6	26	1.3	18	0.9	33	1.6
28–31	17	1.0	18	1.0	26	1.3	29	1.4	29	1.4
32–36	139	8.1	182	9.8	167	8.1	209	10.1	185	8.7
37–41	1508	87.5	1584	85.4	1822	88.1	1780	85.7	1839	86.7
42+	33	1.9	40	2.2	27	1.3	42	2.0	36	1.7
Not stated	2	0.1	1	0.1	0	0.0	0	0.0	0	0.0
TOTAL	1724	100.0	1854	100.0	2068	100.0	2078	100.0	2122	100.0

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

TABLE 42

GESTATIONAL AGE OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES BY HEALTH AREA OF RESIDENCE, NSW 2000

Health Area	Less than 37		Gestational age (weeks) 37+		TOTAL	
	No.	%	No.	%	No.	%
Central Sydney	8	11.6	61	88.4	69	100.0
Northern Sydney [#]	—	—	—	—	9	100.0
Western Sydney	21	15.3	116	84.7	137	100.0
Wentworth	7	10.8	58	89.2	65	100.0
South Western Sydney	14	14.1	85	85.9	99	100.0
Central Coast	11	15.1	62	84.9	73	100.0
Hunter	22	14.0	135	86.0	157	100.0
Illawarra	18	13.0	120	87.0	138	100.0
South Eastern Sydney	5	13.9	31	86.1	36	100.0
Northern Rivers	22	12.5	154	87.5	176	100.0
Mid North Coast	16	7.3	203	92.7	219	100.0
New England	27	10.5	230	89.5	257	100.0
Macquarie	18	8.1	205	91.9	223	100.0
Mid Western	23	18.5	101	81.5	124	100.0
Far West	14	9.7	130	90.3	144	100.0
Greater Murray	12	10.8	99	89.2	111	100.0
Southern	7	10.1	62	89.9	69	100.0
Other—Not stated	1	6.3	15	93.8	16	100.0
TOTAL	247	11.6	1875	88.4	2122	100.0

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

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

3.13 APGAR SCORE

In 2000, 3.2 per cent of Aboriginal and Torres Strait Islander babies were born with an Apgar score less than seven (Table 43). This rate is slightly higher than the rate of 2.3 per cent for NSW overall (Section 1.15, page 27).

TABLE 43

APGAR SCORE OF ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 1996–2000

Apgar score at 5 minutes	1996		1997		Year 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
0–4	33	1.9	42	2.3	38	1.8	36	1.7	41	1.9
5–6	34	2.0	34	1.8	28	1.4	24	1.2	26	1.2
7+	1652	95.8	1770	95.5	1989	96.2	2003	96.4	2045	96.4
Not stated	5	0.3	8	0.4	13	0.6	15	0.7	10	0.5
TOTAL	1724	100.0	1854	100.0	2068	100.0	2078	100.0	2122	100.0

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

3.14 PERINATAL MORTALITY

Since 1996, the perinatal mortality rate among Aboriginal and Torres Strait Islander babies has varied from 14.0 to 20.0 per 1,000 births (Table 44). The rate of 17.9 per 1,000 in 2000 is almost twice the rate of 9.7 per 1,000 for NSW overall (Section 1.16, page 27).

TABLE 44

PERINATAL DEATHS AMONG ABORIGINAL AND TORRES STRAIT ISLANDER BABIES, NSW 1996–2000#

Perinatal deaths	1996		1997		Year 1998		1999		2000	
	No.	Rate/1,000	No.	Rate/1,000	No.	Rate/1,000	No.	Rate/1,000	No.	Rate/1,000
Stillbirth	20	11.6	24	12.9	21	10.2	21	10.1	24	11.3
Neonatal death	10	5.8	13	7.0	11	5.3	8	3.8	14	6.6
TOTAL PERINATAL DEATHS	30	17.4	37	20.0	32	15.5	29	14.0	38	17.9

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

PART 4: 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).

4.1 TRENDS IN CONFINEMENTS

Between 1996 and 2000, about 20 per cent of mothers were born in non-English speaking countries (Table 45). The proportion of mothers from Asian countries increased slightly from 10.5 to 11.6 per cent, while the proportion of mothers from southern European countries continued to decrease slightly from 1.8 to 1.4 per cent.

TABLE 45

CONFINEMENTS AND BIRTHS BY COUNTRY OF BIRTH GROUP, NSW 1996–2000

Plurality	1996		1997		Year 1998		1999		2000	
	No.	%								
Confinements										
English speaking	67889	79.6	68827	79.2	67971	79.9	68381	79.5	68105	78.8
Central & South America	756	0.9	687	0.8	683	0.8	725	0.8	708	0.8
Melanesia, Micronesia & Polynesia	1410	1.7	1561	1.8	1590	1.9	1540	1.8	1606	1.9
Southern Europe	1530	1.8	1516	1.7	1380	1.6	1337	1.6	1217	1.4
Western & Northern Europe	614	0.7	627	0.7	646	0.8	690	0.8	671	0.8
Eastern Europe, Russia, Central Asian & Baltic States	364	0.4	393	0.5	362	0.4	421	0.5	428	0.5
Middle East & Africa	3676	4.3	3793	4.4	3670	4.3	3579	4.2	3685	4.3
South East Asia	4587	5.4	4599	5.3	4157	4.9	4659	5.4	5085	5.9
North East Asia	3226	3.8	3325	3.8	3097	3.6	3225	3.8	3449	4.0
Southern Asia	1170	1.4	1407	1.6	1349	1.6	1398	1.6	1476	1.7
Other–Not stated	80	0.1	185	0.2	167	0.2	12	0.0	30	0.0
TOTAL	85302	100.0	86920	100.0	85072	100.0	85967	100.0	86460	100.0
Births										
English speaking	68816	79.6	69843	79.2	69008	80.0	69460	79.6	69300	78.8
Central & South America	761	0.9	693	0.8	689	0.8	730	0.8	716	0.8
Melanesia, Micronesia & Polynesia	1431	1.7	1585	1.8	1610	1.9	1555	1.8	1636	1.9
Southern Europe	1559	1.8	1532	1.7	1412	1.6	1361	1.6	1256	1.4
Western & Northern Europe	625	0.7	633	0.7	652	0.8	710	0.8	688	0.8
Eastern Europe, Russia, Central Asian & Baltic States	366	0.4	398	0.5	365	0.4	423	0.5	439	0.5
Middle East & Africa	3722	4.3	3854	4.4	3731	4.3	3644	4.2	3747	4.3
South East Asia	4624	5.4	4636	5.3	4181	4.8	4707	5.4	5127	5.8
North East Asia	3260	3.8	3355	3.8	3118	3.6	3266	3.7	3483	4.0
Southern Asia	1182	1.4	1416	1.6	1360	1.6	1420	1.6	1499	1.7
Other–Not stated	83	0.1	188	0.2	179	0.2	13	0.0	31	0.0
TOTAL	86429	100.0	88133	100.0	86305	100.0	87289	100.0	87922	100.0

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

4.2 MATERNAL AGE

Births to teenage mothers were more common among mothers born in English-speaking countries than non-English speaking countries (Table 46, Figure 5), while the largest proportions of mothers aged 35 years and over were born in North East Asia (33.4 per cent) and Western and Northern Europe (30.3 per cent).

TABLE 46

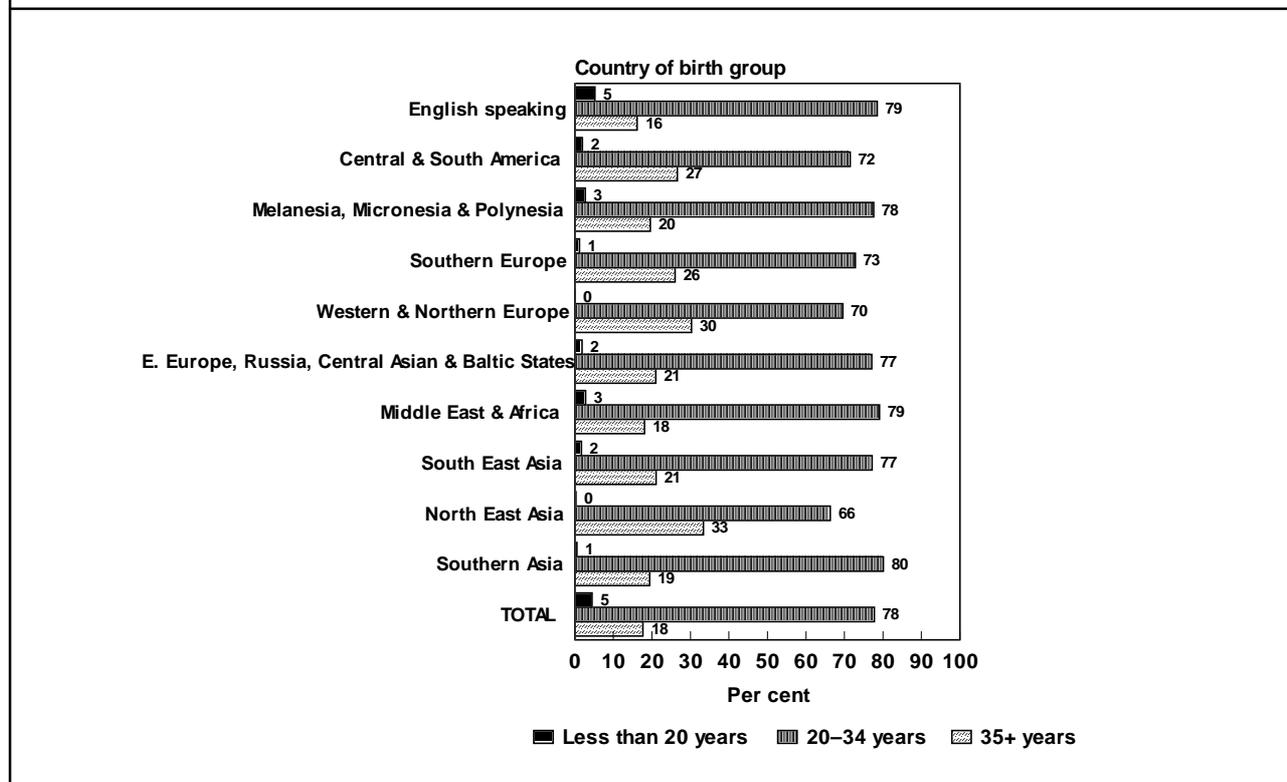
AGE OF MOTHER BY COUNTRY OF BIRTH GROUP, NSW 2000

Country of birth group	12-19		20-34		Maternal age (years) 35+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
English speaking	3565	5.2	53481	78.5	11038	16.2	21	0.0	68105	100.0
Central & South America	14	2.0	506	71.5	188	26.6	0	0.0	708	100.0
Melanesia, Micronesia & Polynesia	44	2.7	1247	77.6	315	19.6	0	0.0	1606	100.0
Southern Europe	14	1.2	886	72.8	317	26.0	0	0.0	1217	100.0
Western & Northern Europe	0	0.0	467	69.6	203	30.3	1	0.1	671	100.0
Eastern Europe, Russia, Central Asian & Baltic States	8	1.9	330	77.1	90	21.0	0	0.0	428	100.0
Middle East & Africa	102	2.8	2915	79.1	668	18.1	0	0.0	3685	100.0
South East Asia	87	1.7	3925	77.2	1072	21.1	1	0.0	5085	100.0
North East Asia	11	0.3	2286	66.3	1152	33.4	0	0.0	3449	100.0
Southern Asia	8	0.5	1182	80.1	286	19.4	0	0.0	1476	100.0
Other-Not stated	0	0.0	24	80.0	5	16.7	1	3.3	30	100.0
TOTAL	3853	4.5	67249	77.8	15334	17.7	24	0.0	86460	100.0

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

FIGURE 5

AGE OF MOTHER BY COUNTRY OF BIRTH GROUP, NSW 2000



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

4.3 HEALTH AREA OF RESIDENCE

In 2000, the proportion of mothers born in non-English speaking countries was highest in the Central Sydney Area (44.7 per cent), followed by the South Western Sydney and Western Sydney Areas (40.3 and 36.0 per cent respectively). Six per cent of mothers were born in South East Asian countries, 41.9 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 61.3 per cent of these mothers were resident in the South Western or Western Sydney Areas. A further 4.0 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 47).

TABLE 47

HEALTH AREA OF RESIDENCE BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2000*

Health Area	English speaking		Central & South America		Melanesia & Micronesia & Polynesia		Southern Europe		Western & Northern Europe		Eastern Europe Russia, Central Asian & Baltic States		Middle East & Africa		South East Asia		North East Asia		Southern Asia		Other-Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney	3745	55.3	74	1.1	245	3.6	204	3.0	71	1.0	57	0.8	592	8.7	724	10.7	824	12.2	237	3.5	2	0.0	6775	100.0
Northern Sydney	7367	78.1	89	0.9	111	1.2	102	1.1	189	2.0	71	0.8	227	2.4	381	4.0	685	7.3	209	2.2	1	0.0	9432	100.0
Western Sydney	6892	63.9	105	1.0	445	4.1	169	1.6	50	0.5	50	0.5	1039	9.6	815	7.6	683	6.3	527	4.9	19	0.2	10794	100.0
Wentworth South	4471	90.9	20	0.4	67	1.4	54	1.1	36	0.7	14	0.3	65	1.3	110	2.2	28	0.6	55	1.1	1	0.0	4921	100.0
Western Sydney	7489	59.7	237	1.9	449	3.6	320	2.6	56	0.4	75	0.6	1220	9.7	2129	17.0	370	3.0	194	1.5	2	0.0	12541	100.0
Central Coast	3632	96.3	12	0.3	13	0.3	7	0.2	25	0.7	7	0.2	7	0.2	42	1.1	20	0.5	6	0.2	1	0.0	3772	100.0
Hunter	6741	96.6	12	0.2	33	0.5	23	0.3	16	0.2	7	0.1	16	0.2	84	1.2	38	0.5	11	0.2	0	0.0	6981	100.0
Illawarra	4074	92.4	33	0.7	30	0.7	98	2.2	35	0.8	-	-	40	0.9	61	1.4	25	0.6	7	0.2	-	-	4407	100.0
South Eastern Sydney	7089	73.1	109	1.1	145	1.5	210	2.2	119	1.2	122	1.3	442	4.6	597	6.2	688	7.1	176	1.8	0	0.0	9697	100.0
Northern Rivers	2661	96.2	-	-	9	0.3	-	-	24	0.9	-	-	-	-	35	1.3	20	0.7	6	0.2	0	0.0	2766	100.0
Mid North Coast	2718	97.0	5	0.2	-	-	-	-	9	0.3	6	0.2	-	-	25	0.9	16	0.6	13	0.5	1	0.0	2802	100.0
New England	2211	97.6	-	-	8	0.4	-	-	7	0.3	0	0.0	6	0.3	17	0.8	9	0.4	-	-	1	0.0	2265	100.0
Macquarie	1562	98.2	-	-	-	-	-	-	-	-	-	-	-	-	5	0.3	6	0.4	-	-	0	0.0	1590	100.0
Mid Western	2219	98.0	0	0.0	-	-	-	-	7	0.3	-	-	-	-	14	0.6	6	0.3	5	0.2	0	0.0	2264	100.0
Far West	518	97.2	-	-	-	-	-	-	-	-	0	0.0	0	0.0	-	-	-	-	-	-	0	0.0	533	100.0
Greater Murray	2421	96.2	-	-	28	1.1	-	-	5	0.2	-	-	7	0.3	13	0.5	14	0.6	22	0.9	0	0.0	2517	100.0
Southern	1697	96.1	-	-	10	0.6	7	0.4	13	0.7	-	-	9	0.5	15	0.8	8	0.5	-	-	0	0.0	1766	100.0
Other-Not stated	598	93.9	1	0.2	3	0.5	3	0.5	3	0.5	1	0.2	5	0.8	-	-	-	-	0	0.0	-	-	637	100.0
TOTAL	68105	78.8	708	0.8	1606	1.9	1217	1.4	671	0.8	428	0.5	3685	4.3	5085	5.9	3449	4.0	1476	1.7	30	0.0	86460	100.0

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

4.4 BOOKING STATUS

In 2000, 97.9 per cent of all mothers were booked at the hospital of birth. The lowest rate (94.5 per cent) was in mothers born in Melanesia, Micronesia and Polynesia. This compared with 97.7 per cent of mothers born in English speaking countries and over 98 per cent of mothers in other country of birth groups.

4.5 DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT

In 2000, 86.5 per cent of all mothers commenced antenatal care before 20 weeks gestation. There was some variation between country of birth groups, with 89.0 per cent of mothers born in English speaking countries commencing antenatal care before 20 weeks gestation, compared with 55.9 per cent of mothers born in Melanesia, Micronesia and Polynesia and 67.8 per cent of mothers born in the Middle East and Africa (Table 48).

TABLE 48

CONFINEMENTS BY COUNTRY OF BIRTH GROUP AND DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT, NSW 2000

Country of birth group	Duration of pregnancy at first antenatal visit (weeks)						TOTAL	
	0-19		20+		Not stated		No.	%
	No.	%	No.	%	No.	%	No.	%
English speaking	60647	89.0	6703	9.8	755	1.1	68105	100.0
Central & South America	593	83.8	112	15.8	3	0.4	708	100.0
Melanesia, Micronesia & Polynesia	897	55.9	662	41.2	47	2.9	1606	100.0
Southern Europe	1053	86.5	158	13.0	6	0.5	1217	100.0
Western & Northern Europe	593	88.4	69	10.3	9	1.3	671	100.0
Eastern Europe, Russia, Central Asian & Baltic States	343	80.1	81	18.9	4	0.9	428	100.0
Middle East & Africa	2499	67.8	1162	31.5	24	0.7	3685	100.0
South East Asia	4162	81.8	884	17.4	39	0.8	5085	100.0
North East Asia	2767	80.2	670	19.4	12	0.3	3449	100.0
Southern Asia	1228	83.2	242	16.4	6	0.4	1476	100.0
Other-Not stated	21	70.0	5	16.7	4	13.3	30	100.0
TOTAL	74803	86.5	10748	12.4	909	1.1	86460	100.0

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

4.6 SMOKING IN PREGNANCY

In 2000, 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 49). About one in five mothers born in English speaking countries smoked at some time during pregnancy, followed by one in six mothers born in Southern European countries and less than one in ten mothers born in other non-English speaking countries.

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 50).

TABLE 49

CONFINEMENTS BY COUNTRY OF BIRTH GROUP AND SMOKING IN PREGNANCY, NSW 2000

Country of birth group	Smoking in pregnancy						TOTAL	
	No		Yes		Not stated		No.	%
	No.	%	No.	%	No.	%	No.	%
English speaking	54055	79.4	14032	20.6	18	0.0	68105	100.0
Central & South America	669	94.5	39	5.5	0	0.0	708	100.0
Melanesia, Micronesia & Polynesia	1458	90.8	148	9.2	0	0.0	1606	100.0
Southern Europe	1038	85.3	179	14.7	0	0.0	1217	100.0
Western & Northern Europe	609	90.8	62	9.2	0	0.0	671	100.0
Eastern Europe, Russia, Central Asian & Baltic States	386	90.2	42	9.8	0	0.0	428	100.0
Middle East & Africa	3360	91.2	325	8.8	0	0.0	3685	100.0
South East Asia	4967	97.7	117	2.3	1	0.0	5085	100.0
North East Asia	3411	98.9	38	1.1	0	0.0	3449	100.0
Southern Asia	1460	98.9	16	1.1	0	0.0	1476	100.0
Other-Not stated	24	80.0	3	10.0	3	10.0	30	100.0
TOTAL	71437	82.6	15001	17.4	22	0.0	86460	100.0

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

TABLE 50**MOTHERS WHO SMOKED AT ALL DURING PREGNANCY BY NUMBER OF CIGARETTES SMOKED IN THE SECOND HALF OF PREGNANCY AND COUNTRY OF BIRTH GROUP, NSW 2000**

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	571	4.1	6654	47.4	6549	46.7	258	1.8	14032	100.0
Central & South America	5	12.8	10	25.6	23	59.0	1	2.6	39	100.0
Melanesia, Micronesia & Polynesia	11	7.4	43	29.1	89	60.1	5	3.4	148	100.0
Southern Europe	3	1.7	67	37.4	107	59.8	2	1.1	179	100.0
Western & Northern Europe	2	3.2	30	48.4	29	46.8	1	1.6	62	100.0
Eastern Europe, Russia, Central Asian & Baltic States	3	7.1	18	42.9	20	47.6	1	2.4	42	100.0
Middle East & Africa	10	3.1	142	43.7	168	51.7	5	1.5	325	100.0
South East Asia	15	12.8	28	23.9	66	56.4	8	6.8	117	100.0
North East Asia	1	2.6	7	18.4	30	78.9	0	0.0	38	100.0
Southern Asia	1	6.3	4	25.0	10	62.5	1	6.3	16	100.0
Other-Not stated	0	0.0	2	66.7	1	33.3	0	0.0	3	100.0
TOTAL	622	4.1	7005	46.7	7092	47.3	282	1.9	15001	100.0

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

4.7 MEDICAL CONDITIONS AND OBSTETRIC COMPLICATIONS

In 2000, 1.0 per cent mothers born in Melanesia, Micronesia and Polynesia were reported to have diabetes mellitus, three times the rate for all mothers in NSW, though the number of mothers is small. The rates of gestational diabetes in mothers born in Asian countries and Melanesia, Micronesia and Polynesia were over 8 per cent, and were more than twice the rate for all mothers in NSW (Table 51).

TABLE 51**MATERNAL MEDICAL CONDITIONS AND OBSTETRIC COMPLICATIONS BY COUNTRY OF BIRTH GROUP, NSW 2000**

Condition	Country of birth group																								TOTAL
	English speaking		Central & South America		Melanesia & Polynesia		Southern Europe		Western & Northern Europe		Eastern Europe, Russia, Central Asian & Baltic States		Middle East & Africa		South East		North East Asia		Southern Asia		Other/ Not stated				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Diabetes mellitus	293	0.4	0	0.0	19	1.2	5	0.4	3	0.4	1	0.2	13	0.4	27	0.5	19	0.6	10	0.7	2	6.7	392	0.5	
Gestational diabetes	1881	2.8	36	5.1	136	8.5	55	4.5	19	2.8	18	4.2	226	6.1	473	9.3	379	11.0	162	11.0	1	3.3	3386	3.9	
Essential hypertension	733	1.1	3	0.4	17	1.1	9	0.7	3	0.4	5	1.2	23	0.6	38	0.7	16	0.5	10	0.7	1	3.3	858	1.0	
Pregnancy-induced hypertension	5138	7.5	47	6.6	115	7.2	74	6.1	47	7.0	31	7.2	143	3.9	257	5.1	126	3.7	104	7.0	0	0.0	6082	7.0	
TOTAL#	68105	100.0	708	100.0	1606	100.0	1217	100.0	671	100.0	428	100.0	3685	100.0	5085	100.0	3449	100.0	1476	100.0	30	100.0	86460	100.0	

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

Total refers to total confinements in NSW.

4.8 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 52).

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 53). The highest caesarean section rates were among mothers born in Southern Asia (25.6 per cent) and Central and South America (25.1 per cent).

TABLE 52

LABOUR ONSET BY COUNTRY OF BIRTH GROUP, NSW 2000

Country of birth group	Spontaneous		No labour [#]		Onset of labour Induced		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
English speaking	42857	62.9	8047	11.8	17193	25.2	8	0.0	68105	100.0
Central & South America	499	70.5	86	12.1	123	17.4	0	0.0	708	100.0
Melanesia, Micronesia & Polynesia	1181	73.5	127	7.9	298	18.6	0	0.0	1606	100.0
Southern Europe	802	65.9	144	11.8	271	22.3	0	0.0	1217	100.0
Western & Northern Europe	432	64.4	83	12.4	156	23.2	0	0.0	671	100.0
Eastern Europe, Russia, Central Asian & Baltic States	303	70.8	39	9.1	86	20.1	0	0.0	428	100.0
Middle East & Africa	2676	72.6	337	9.1	672	18.2	0	0.0	3685	100.0
South East Asia	3880	76.3	444	8.7	761	15.0	0	0.0	5085	100.0
North East Asia	2463	71.4	439	12.7	547	15.9	0	0.0	3449	100.0
Southern Asia	993	67.3	178	12.1	305	20.7	0	0.0	1476	100.0
Other–Not stated	20	66.7	2	6.7	8	26.7	0	0.0	30	100.0
TOTAL	56106	64.9	9926	11.5	20420	23.6	8	0.0	86460	100.0

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

No labour indicates elective caesarean section.

TABLE 53

TYPE OF DELIVERY BY COUNTRY OF BIRTH GROUP, NSW 2000

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	45600	67.0	3076	4.5	4167	6.1	515	0.8	8047	11.8	6689	9.8	11	0.0	68105	100.0
Central & South America	453	64.0	33	4.7	40	5.6	4	0.6	86	12.1	92	13.0	0	0.0	708	100.0
Melanesia, Micronesia & Polynesia	1215	75.7	50	3.1	63	3.9	15	0.9	127	7.9	136	8.5	0	0.0	1606	100.0
Southern Europe	835	68.6	56	4.6	57	4.7	13	1.1	144	11.8	112	9.2	0	0.0	1217	100.0
Western & Northern Europe	425	63.3	36	5.4	51	7.6	7	1.0	83	12.4	69	10.3	0	0.0	671	100.0
Eastern Europe, Russia, Central Asian & Baltic States	288	67.3	24	5.6	40	9.3	1	0.2	39	9.1	36	8.4	0	0.0	428	100.0
Middle East & Africa	2783	75.5	106	2.9	168	4.6	36	1.0	337	9.1	254	6.9	1	0.0	3685	100.0
South East Asia	3430	67.5	230	4.5	359	7.1	53	1.0	444	8.7	568	11.2	1	0.0	5085	100.0
North East Asia	2117	61.4	195	5.7	310	9.0	14	0.4	439	12.7	374	10.8	0	0.0	3449	100.0
Southern Asia	877	59.4	96	6.5	112	7.6	11	0.7	178	12.1	200	13.6	2	0.1	1476	100.0
Other–Not stated	26	86.7	2	6.7	0	0.0	0	0.0	2	6.7	0	0.0	0	0.0	30	100.0
TOTAL	58049	67.1	3904	4.5	5367	6.2	669	0.8	9926	11.5	8530	9.9	15	0.0	86460	100.0

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

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

4.9 BIRTHWEIGHT

The rate of low birthweight (less than 2,500 grams) in 2000 was 6.4 per cent in NSW. The highest rates of low birthweight were in babies of mothers born in Southern Asian countries (9.9 per cent) (Table 54). Babies of mothers born in North East Asia and Central and South America were least likely to be low birthweight.

TABLE 54

BIRTHWEIGHT BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2000

Country of birth group	Less than 2,500		Birthweight (grams)				TOTAL	
	No.	%	No.	2,500+ %	No.	Not stated %	No.	%
English speaking	4472	6.5	64789	93.5	39	0.1	69300	100.0
Central & South America	29	4.1	686	95.8	1	0.1	716	100.0
Melanesia, Micronesia & Polynesia	130	7.9	1506	92.1	0	0.0	1636	100.0
Southern Europe	94	7.5	1161	92.4	1	0.1	1256	100.0
Western & Northern Europe	52	7.6	636	92.4	0	0.0	688	100.0
Eastern Europe, Russia, Central Asian & Baltic States	32	7.3	407	92.7	0	0.0	439	100.0
Middle East & Africa	234	6.2	3512	93.7	1	0.0	3747	100.0
South East Asia	323	6.3	4801	93.6	3	0.1	5127	100.0
North East Asia	144	4.1	3337	95.8	2	0.1	3483	100.0
Southern Asia	149	9.9	1350	90.1	0	0.0	1499	100.0
Other-Not stated	2	6.5	29	93.5	0	0.0	31	100.0
TOTAL	5661	6.4	82214	93.5	47	0.1	87922	100.0

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

4.10 GESTATIONAL AGE

The rate of prematurity (less than 37 weeks gestation) in 2000 was 7.3 per cent in NSW. The highest rates of prematurity were in babies of mothers born in Western and Northern Europe (8.9 per cent). Babies of mothers born in North East Asia or Central and South America were least likely to be premature (Table 55).

TABLE 55

GESTATIONAL AGE BY MATERNAL COUNTRY OF BIRTH GROUP, NSW 2000

Country of birth group	Less than 37		Gestational age (weeks)				TOTAL	
	No.	%	No.	37+ %	No.	Not stated %	No.	%
English speaking	5126	7.4	64169	92.6	5	0.0	69300	100.0
Central & South America	45	6.3	671	93.7	0	0.0	716	100.0
Melanesia, Micronesia & Polynesia	143	8.7	1493	91.3	0	0.0	1636	100.0
Southern Europe	98	7.8	1158	92.2	0	0.0	1256	100.0
Western & Northern Europe	61	8.9	627	91.1	0	0.0	688	100.0
Eastern Europe, Russia, Central Asian & Baltic States	33	7.5	406	92.5	0	0.0	439	100.0
Middle East & Africa	255	6.8	3492	93.2	0	0.0	3747	100.0
South East Asia	345	6.7	4782	93.3	0	0.0	5127	100.0
North East Asia	176	5.1	3307	94.9	0	0.0	3483	100.0
Southern Asia	113	7.5	1386	92.5	0	0.0	1499	100.0
Other-Not stated	5	16.1	25	80.6	1	3.2	31	100.0
TOTAL	6400	7.3	81516	92.7	6	0.0	87922	100.0

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

4.11 APGAR SCORE

In 2000, 2.3 per cent of all babies (including stillborn babies) had an Apgar score of 7 or less at five minutes and 1.2 per cent had a score of less than 4 (Table 56). Low Apgar scores were most common among babies of mothers born in Melanesia, Micronesia and Polynesia (4.2 per cent).

TABLE 56

BIRTHS BY COUNTRY OF BIRTH GROUP AND APGAR SCORE AT FIVE MINUTES, NSW 2000[#]

Country of birth group	0-4		5-6		Apgar score 7+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
English speaking	816	1.2	761	1.1	67584	97.5	139	0.2	69300	100.0
Central & South America	4	0.6	10	1.4	701	97.9	1	0.1	716	100.0
Melanesia, Micronesia & Polynesia	39	2.4	29	1.8	1561	95.4	7	0.4	1636	100.0
Southern Europe	14	1.1	14	1.1	1228	97.8	0	0.0	1256	100.0
Western & Northern Europe	13	1.9	6	0.9	669	97.2	0	0.0	688	100.0
Eastern Europe, Russia, Central Asian & Baltic States	6	1.4	2	0.5	430	97.9	1	0.2	439	100.0
Middle East & Africa	51	1.4	38	1.0	3653	97.5	5	0.1	3747	100.0
South East Asia	58	1.1	54	1.1	5006	97.6	9	0.2	5127	100.0
North East Asia	23	0.7	26	0.7	3430	98.5	4	0.1	3483	100.0
Southern Asia	18	1.2	16	1.1	1464	97.7	1	0.1	1499	100.0
TOTAL	1043	1.2	956	1.1	85756	97.5	167	0.2	87922	100.0

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

Births include stillbirths.

4.12 PERINATAL OUTCOMES

In 2000, 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 57). Perinatal mortality was highest among babies of mothers born in Melanesia, Micronesia and Polynesia, and Western and Northern Europe.

TABLE 57

PERINATAL OUTCOMES BY COUNTRY OF BIRTH GROUP, NSW 2000[#]

Country of birth group	Liveborn surviving		Stillborn		Perinatal outcome Neonatal death		Not stated		Total births		Perinatal mortality rate/1,000 births
	No.	%	No.	%	No.	%	No.	%	No.	%	
English speaking	68627	99.0	473	0.7	198	0.3	2	0.0	69300	100.0	9.7
Central & South America	714	99.7	2	0.3	0	0.0	0	0.0	716	100.0	–
Melanesia, Micronesia & Polynesia	1601	97.9	22	1.3	12	0.7	1	0.1	1636	100.0	20.8
Southern Europe	1242	98.9	11	0.9	3	0.2	0	0.0	1256	100.0	11.1
Western & Northern Europe	678	98.5	6	0.9	4	0.6	0	0.0	688	100.0	14.5
Eastern Europe, Russia, Central Asian & Baltic States	437	99.5	0	0.0	2	0.5	0	0.0	439	100.0	–
Middle East & Africa	3708	99.0	27	0.7	12	0.3	0	0.0	3747	100.0	10.4
South East Asia	5080	99.1	32	0.6	14	0.3	1	0.0	5127	100.0	9.0
North East Asia	3470	99.6	9	0.3	4	0.1	0	0.0	3483	100.0	3.7
Southern Asia	1479	98.7	12	0.8	8	0.5	0	0.0	1499	100.0	13.3
Other–Not stated	30	96.8	1	3.2	0	0.0	0	0.0	31	100.0	–
TOTAL	87066	99.0	595	0.7	257	0.3	4	0.0	87922	100.0	9.7

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

PART 5: 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 Part 1 under Data Sources.

5.1 REGISTRATION RATE

There were 2,003 infants registered in NICUS in 2000. The most common reasons for registration of an infant were assisted ventilation for four hours or more (71.1 per cent) and gestational age less than 29 weeks (16.8 per cent). Infants generally met more than one of the registration criteria.

The NICUS registration rate in 2000 was 21.8 per 1,000 live births, which has increased slightly each year since 1992 (17.9 per 1,000 live births). Table 58 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 2,003 infants (3.9 per cent) registered in NICUS were born to Aboriginal and/or Torres Strait Islander mothers. There were 2,153 live births to Aboriginal and/or Torres Strait Islander women recorded by the NSW and ACT Midwives Data Collections for 2000. The registration rate for these infants was 36.7 per 1,000 live births and has increased since 1992. Seventy-six of the 1,841 mothers (4.1 per cent) were Aboriginal and Torres Strait Islander, of whom 28 (36.8 per cent) were residents of the Hunter and New England Health Areas (Table 59). Twenty of the 375 mothers (5.3 per cent) of infants less than 29 weeks and/or less than 1,000 grams were Aboriginal and Torres Strait Islander.

TABLE 58

NICUS REGISTRATIONS BY HEALTH AREA OF RESIDENCE, NSW & ACT 2000

Health Area	Total NICUS registrants		Total NSW & ACT live births No.	Registrants per 1,000 live births
	No.	%		
Central Sydney	138	6.9	6920	19.9
Northern Sydney	155	7.7	9527	16.3
South Eastern Sydney	181	9.0	9877	18.3
South Western Sydney	311	15.5	13095	23.7
Wentworth	96	4.8	4470	21.5
Western Sydney	253	12.6	10960	23.1
Central Coast	76	3.8	3830	19.8
Hunter	251	12.5	7048	35.6
Illawarra	89	4.4	4446	20.0
Far West	6	0.3	523	11.5
Greater Murray	34	1.7	2551	13.3
Macquarie	40	2.0	1613	24.8
Mid North Coast	76	3.8	2835	26.8
Mid Western	63	3.1	2298	27.4
New England	56	2.8	2286	24.5
Northern Rivers	11	0.5	2759	4.0
Southern	61	3.0	2196	27.8
ACT	96	4.8	4118	23.3
Interstate	2	0.1	574	3.5
Overseas	8	0.4	0	-
Not stated	0	0.0	47	-
TOTAL	2003	100.0	91973	21.8

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research. NSW Midwives Data Collection 2000. Epidemiology and Surveillance Branch, NSW Department of Health. ACT Maternal-Perinatal Data Collection, 1999.

5.2 MATERNAL CHARACTERISTICS

There were 1,841 mothers of the 2,003 infants registered in NICUS during 2000. 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 375 mothers of infants in this group just over half (52.3 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 53 years with a mean age of 28.9 years. The mean maternal age was similar across all gestational age groups and has remained constant since 1992. The proportion of mothers aged 35 years or more was 18.3 in 2000 (compared with 13.7 per cent in 1992 to 20.8 per cent in 1999). There were 6.8 per cent of mothers aged less than 20 years (Table 60). The health areas of residence with the highest proportion of teenage mothers were Far West, Macquarie, Mid Western, New England and Southern.

There were 1,607 mothers (87.3 per cent) who had an antenatal complication. The most common antenatal complications were threatened preterm labour (836/1,841; 45.4 per cent), fetal distress (413/1,841; 22.4 per cent), hypertensive disease of pregnancy (348/1,841; 18.9 per cent) and antepartum haemorrhage (317/1,841; 17.2 per cent). Antenatal complications were more frequent in mothers delivering at less than than 37 weeks compared with at term. Even so, 54.3 per cent (278/512) of mothers

giving birth at 37–41 weeks gestation had an antenatal complication.

In 2000, 81.5 per cent of mothers of infants born at less than 28 weeks received corticosteroids (Figure 6 and Table 61). Over three-quarters (87.5 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 72.5 per cent in 1999.

TABLE 59

CONFINEMENTS BY HEALTH AREA OF RESIDENCE AND ABORIGINALITY, NSW & ACT 2000

Health Area	Aboriginal		Non-Aboriginal		TOTAL	
	No.	%	No.	%	No.	%
Central Sydney	1	0.8	124	99.2	125	6.8
Northern Sydney	1	0.7	146	99.3	147	8.0
South East Sydney	2	1.2	165	98.8	167	9.1
South West Sydney	2	0.7	279	99.3	281	15.3
Wentworth	3	3.5	82	96.5	85	4.6
Western Sydney	3	1.3	229	98.7	232	12.6
Central Coast	0	0.0	72	100.0	72	3.9
Hunter	17	7.4	214	92.6	231	12.5
Illawarra	3	3.8	77	96.3	80	4.3
Far West	2	33.3	4	66.7	6	0.3
Greater Murray	4	12.5	28	87.5	32	1.7
Macquarie	5	13.2	33	86.8	38	2.1
Mid North Coast	7	9.7	65	90.3	72	3.9
Mid Western	5	8.6	53	91.4	58	3.2
New England	11	20.8	42	79.2	53	2.9
Northern Rivers	0	0.0	10	100.0	10	0.5
Southern	9	15.8	48	84.2	57	3.1
ACT	1	1.2	84	98.8	85	4.6
Interstate	0	0.0	2	100.0	2	0.1
Overseas	0	0.0	8	100.0	8	0.4
TOTAL	76	4.1	1765	95.9	1841	100.0

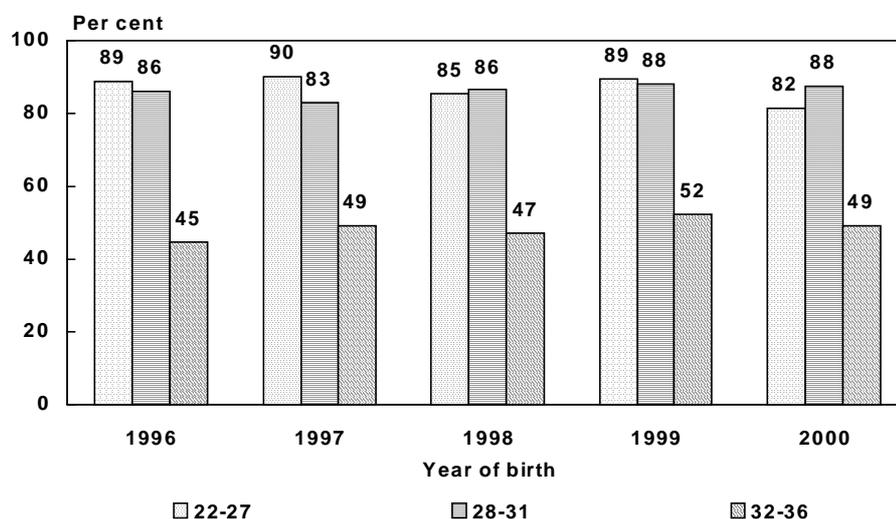
Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research.

TABLE 60

CONFINEMENTS BY HEALTH AREA OF RESIDENCE AND MATERNAL AGE, NSW & ACT 2000

Health Area	Maternal age (years)						TOTAL	
	Less than 20		20–34		35+		No.	%
	No.	%	No.	%	No.	%		
Central Sydney	8	6.4	78	62.4	39	31.2	125	6.8
Northern Sydney	0	0.0	104	70.7	43	29.3	147	8.0
South East Sydney	2	1.2	120	71.9	45	26.9	167	9.1
South West Sydney	25	8.9	220	78.3	36	12.8	281	15.3
Wentworth	8	9.4	61	71.8	16	18.8	85	4.6
Western Sydney	10	4.3	173	74.6	49	21.1	232	12.6
Central Coast	6	8.3	58	80.6	8	11.1	72	3.9
Hunter	20	8.7	182	78.8	29	12.6	231	12.5
Illawarra	5	6.3	61	76.3	14	17.5	80	4.3
Far West	1	16.7	5	83.3	0	0.0	6	0.3
Greater Murray	3	9.4	26	81.3	3	9.4	32	1.7
Macquarie	8	21.1	25	65.8	5	13.2	38	2.1
Mid North Coast	7	9.7	58	80.6	7	9.7	72	3.9
Mid Western	7	12.1	41	70.7	10	17.2	58	3.2
New England	6	11.3	43	81.1	4	7.5	53	2.9
Northern Rivers	0	0.0	10	100.0	0	0.0	10	0.5
Southern	7	12.3	43	75.4	7	12.3	57	3.1
ACT	3	3.5	62	72.9	20	23.5	85	4.6
Interstate	0	0.0	1	50.0	1	50.0	2	0.1
Overseas	0	0.0	8	100.0	0	0.0	8	0.4
TOTAL	126	6.8	1379	74.9	336	18.3	1841	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 1996–2000**

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

TABLE 61**CONFINEMENTS BY ANTENATAL CORTICOSTEROID ADMINISTRATION AND GESTATIONAL AGE, NSW & ACT 1996–2000**

Year	Corticosteroid administration	Gestational age (weeks)						TOTAL	
		23–27		28–31		32–36		No.	%
		No.	%	No.	%	No.	%	No.	%
1996	No	23	11.1	64	13.8	291	55.4	378	31.6
	Yes	185	88.9	401	86.2	234	44.6	820	68.4
	TOTAL	208	100.0	465	100.0	525	100.0	1198	100.0
1997	No	20	9.7	80	17.1	263	50.9	363	30.5
	Yes	186	90.3	387	82.9	254	49.1	827	69.5
	TOTAL	206	100.0	467	100.0	517	100.0	1190	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

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

5.3 TRANSFER STATUS, LABOUR AND DELIVERY

Infants are admitted to a neonatal intensive care unit after:

- delivery which 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-six per cent of all births were booked at a tertiary centre, ranging from 38.9 per cent for the 32–36 week gestational age group to 33.3 per cent for the 37-plus week gestational age group (Table 62). 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 (54.2 per cent) and for those born at 28–31 weeks gestation (56.2 per cent). The overall rate of maternal transfer was 34.1 per cent.

Thirty per cent of infants were transferred to a tertiary centre following birth. There were 4.7 per cent (94/2,003) of infants transferred from one tertiary centre to another within four hours of commencing assisted ventilation or for major surgery. Transfer following birth was most common in the 37-plus weeks gestational age group (64.8 per cent). Thirty-seven infants (37/1,123; 3.3 per cent) greater than 31 weeks gestation were discharged home prior to the admission that qualified them for registration in NICUS.

The inverse relationship between gestational age groups and the proportion of births in a tertiary centre is shown in Figure 7 and Table 63. The proportion of infants born in a tertiary centre increased from 61.3 per cent in 1992 to 74.7 per cent 2000. In 2000, 91.7 per cent of infants less than 32 weeks gestation were born in a tertiary centre

compared with 73.4 per cent of 32–36 week gestation infants and 47.7 per cent of term infants.

The pattern of transfer status (Table 64) and place of birth (Table 65) by birthweight is similar to that of gestational age, with the majority (92.4 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 66). Augmentation and induction of labour were most common in term and post-term births.

The proportion of mothers who gave birth by elective caesarean section (caesarean section without labour) increased from 27.5 per cent in 1992 to 31.9 per cent in 2000. Spontaneous onset of labour occurred in just over two-thirds (68.3 per cent) of all infants less than 2,500 grams birth weight (Table 67). As expected, augmentation or induction of labour was most common in mothers of infants with a birthweight of 2,500 grams or more (31.9 per cent).

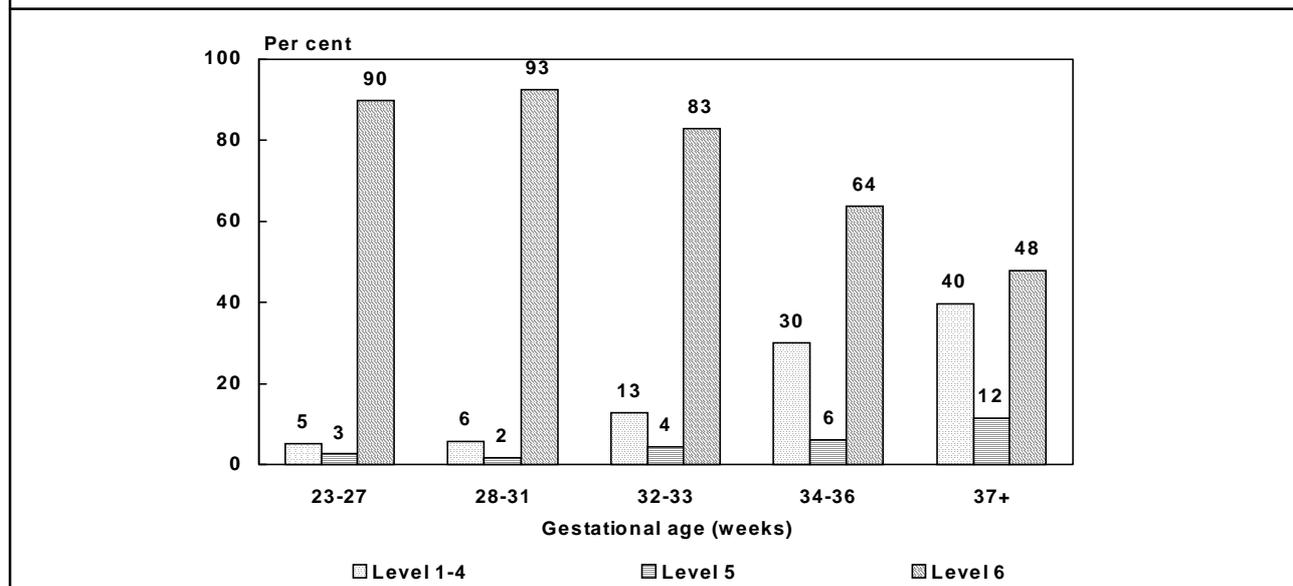
Prolonged rupture of membranes (greater than 24 hours) was more common at lower gestations, affecting 28 per cent of infants less than 28 weeks gestation (Table 68).

The most common type of delivery was caesarean section (53.1 per cent in 1992 to 52.1 per cent in 2000), followed by normal vaginal delivery (41.9 per cent in 1993 to 37.6 per cent in 2000) and vaginal breech delivery (7.0 per cent in 1998 to 4.6 per cent in 2000) (Tables 69 and 70). 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 37.9 per cent, almost double the rate for all births in NSW and the ACT in 2000.

continued on p.59

FIGURE 7

NICUS REGISTRANTS BY PLACE OF BIRTH (LEVEL OF OBSTETRIC HOSPITAL) AND GESTATIONAL AGE, NSW & ACT 2000



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

TABLE 62**NICUS REGISTRANTS BY BOOKING STATUS, TRANSFER STATUS AND GESTATIONAL AGE, NSW & ACT 2000**

Booking status and transfer status	Gestational age (weeks)										TOTAL	
	23-27		28-31		32-36		37-41		42+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Booked at tertiary hosp	98	35.6	218	36.0	234	38.9	170	33.2	4	40.0	724	36.1
Transfer before birth	149	54.2	340	56.2	185	30.8	10	2.0	0	0.0	684	34.1
Transfer after birth	28	10.2	47	7.8	182	30.3	332	6.8	6	60.0	595	29.7
TOTAL	275	100.0	605	100.0	601	100.0	512	100.0	10	100.0	2003	100.0

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

TABLE 63**NICUS REGISTRANTS BY PLACE OF BIRTH (LEVEL OF OBSTETRIC HOSPITAL) AND GESTATIONAL AGE, NSW & ACT 2000**

Place of birth	Gestational age (weeks)										TOTAL	
	23-27		28-31		32-33		34-36		37+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Level 1-4	14	5.1	34#	5.6	38	12.7	91	30.2	207	39.7	384	19.2
Level 5	7	2.5	10#	1.7	13	4.3	18	6.0	61	11.7	109	5.4
Level 6	247	89.8	560#	92.6	249	83.0	192	63.8	249	47.7	1497	74.7
Born before arrival	7	2.5	1	0.2	0	0.0	0	0.0	5	1.0	13	0.6
TOTAL	275	100.0	605	100.0	300	100.0	301	100.0	522	100.0	2003	100.0

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

23/44 (52.3%) babies not born in a level six hospital were 30-31 weeks gestation.
324/560 (57.9%) babies born in a level six hospital were 30-31 weeks gestation.

TABLE 64**NICUS REGISTRANTS BY BOOKING STATUS, TRANSFER STATUS AND BIRTHWEIGHT, NSW & ACT 2000**

Booking status and transfer status	Birthweight (grams)								TOTAL	
	Less than 1,000		1,000-1,499		1,500-2,499		2,500+		No.	%
	No.	%	No.	%	No.	%	No.	%		
Booked at tertiary hosp	111	39.2	172	35.0	227	37.8	214	34.0	724	36.1
Transfer before birth	155	54.8	277	56.4	224	37.3	28	4.5	684	34.1
Transfer after birth	17	6.0	42	8.6	149	24.8	387	61.5	595	29.7
TOTAL	283	100.0	491	100.0	600	100.0	629	100.0	2003	100.0

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

TABLE 65**NICUS REGISTRANTS BY PLACE OF BIRTH (LEVEL OF OBSTETRIC HOSPITAL) AND BIRTHWEIGHT, NSW & ACT 2000**

Place of birth	Birthweight (grams)								TOTAL	
	Less than 1,000		1,000-1,499		1,500-2,499		2,500+		No.	%
	No.	%	No.	%	No.	%	No.	%		
Level 1-4	10	3.5	29	5.9	97	16.2	248	39.4	384	19.2
Level 5	2	0.7	9	1.8	32	5.3	66	10.5	109	5.4
Level 6	266	94.0	451	91.9	470	78.3	310	49.3	1497	74.7
Born before arrival	5	1.8	2	0.4	1	0.2	5	0.8	13	0.6
TOTAL	283	100.0	491	100.0	600	100.0	629	100.0	2003	100.0

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

TABLE 66**CONFINEMENTS BY ONSET OF LABOUR AND GESTATIONAL AGE, NSW & ACT 2000**

Onset of labour	Gestational age (weeks)										TOTAL	
	23-27		28-31		32-36		37-41		42+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Spontaneous	169	69.5	274	53.5	271	48.0	237	46.3	4	40.0	955	51.9
Augmented	2	0.8	23	4.5	24	4.3	60	11.7	0	0.0	109	5.9
Induced	5	2.1	8	1.6	44	7.8	127	24.8	5	50.0	189	10.3
No labour	67	27.6	207	40.4	225	39.9	88	17.2	1	10.0	588	31.9
TOTAL	243	100.0	512	100.0	564	100.0	512	100.0	10	100.0	1841	100.0

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

TABLE 67**CONFINEMENTS BY ONSET OF LABOUR AND BIRTHWEIGHT, NSW & ACT 2000**

Onset of labour	Birthweight (grams)								TOTAL	
	Less than 1,000		1,000-1,499		1,500-2,499		2,500+		No.	%
	No.	%	No.	%	No.	%	No.	%		
Spontaneous	137	55.2	209	49.1	306	56.8	303	48.2	955	51.9
Augmented	2	0.8	15	3.5	30	5.6	62	9.9	109	5.9
Induced	5	2.0	8	1.9	38	7.1	138	22.0	189	10.3
No labour	104	41.9	194	45.5	165	30.6	125	19.9	588	31.9
TOTAL	248	100.0	426	100.0	539	100.0	628	100.0	1841	100.0

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

TABLE 68**NICUS REGISTRANTS BY DURATION OF RUPTURE OF MEMBRANES AND GESTATIONAL AGE, NSW & ACT 2000**

Duration of rupture of membranes	Gestational age (weeks)										TOTAL	
	23-27		28-31		32-36		37-41		42+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Less than 24 hours	198	72.0	459	75.9	514	85.5	486	94.9	10	100.0	1667	83.2
24 hours-7 days	38	13.8	89	14.7	62	10.3	22	4.3	0	0.0	211	10.5
8+ days	39	14.2	57	9.4	25	4.2	4	0.8	0	0.0	125	6.2
TOTAL	275	100.0	605	100.0	601	100.0	512	100.0	10	100.0	2003	100.0

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

TABLE 69**NICUS REGISTRANTS BY TYPE OF DELIVERY AND GESTATIONAL AGE, NSW & ACT 2000**

Type of delivery	Gestational age (weeks)										TOTAL	
	23-27		28-31		32-36		37-41		42+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
Normal vaginal	102	37.1	193	31.9	207	34.4	246	48.0	6	60.0	754	37.6
Forceps	5	1.8	7	1.2	14	2.3	19	3.7	0	0.0	45	2.2
Forceps rotation	0	0.0	1	0.2	7	1.2	8	1.6	0	0.0	16	0.8
Vacuum extraction	0	0.0	2	0.3	13	2.2	36	7.0	0	0.0	51	2.5
Vaginal breech	29	10.5	40	6.6	15	2.5	9	1.8	0	0.0	93	4.6
Elective Caesarean	75	27.3	239	39.5	247	41.1	94	18.4	1	10.0	656	32.8
Emergency Caesarean	64	23.3	123	20.3	98	16.3	100	19.5	3	30.0	388	19.4
TOTAL	275	100.0	605	100.0	601	100.0	512	100.0	10	100.0	2003	100.0

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

TABLE 70**NICUS REGISTRANTS BY TYPE OF DELIVERY AND BIRTHWEIGHT, NSW & ACT 2000**

Type of delivery	Birthweight (grams)									
	Less than 1,000		1,000–1,499		1,500–2,499		2,500+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal vaginal	81	28.6	135	27.5	251	41.8	287	45.6	754	37.6
Forceps	3	1.1	7	1.4	16	2.7	19	3.0	45	2.2
Forceps rotation	0	0.0	2	0.4	5	0.8	9	1.4	16	0.8
Vacuum extraction	0	0.0	0	0.0	9	1.5	42	6.7	51	2.5
Vaginal breech	24	8.5	32	6.5	25	4.2	12	1.9	93	4.6
Elective Caesarean	119	42.0	223	45.4	183	30.5	131	20.8	656	32.8
Emergency Caesarean	56	19.8	92	18.7	111	18.5	129	20.5	388	19.4
TOTAL	283	100.0	491	100.0	600	100.0	629	100.0	2003	100.0

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

5.4 INFANT CHARACTERISTICS

Nearly three quarters of the infants (73.9 per cent) were preterm (less than 37 weeks gestation), 43.9 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 71). Almost all live born 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 72).

Sixty-nine per cent of infants had a low birthweight (less than 2,500 grams), 38.6 per cent had a very low birthweight (less than 1,500 grams) and 14.1 per cent had an extremely low birthweight (less than 1,000 grams). The proportion of infants in each birthweight group has remained constant (Table 73). Almost all live born infants 600–1500 grams birthweight were admitted to a NICU (Table 74).

Overall, 58.6 per cent of infants were male. The ratio of males to females was approximately 3:2 in most gestational age groups (Table 75).

The overall proportion of the infants who had a major congenital anomaly decreased from 20.9 per cent in 1992 to 16.7 per cent in 2000. Congenital anomalies were more common among term infants (37 plus weeks gestational age), of whom 40.4 per cent had a major congenital anomaly and 2.9 per cent had a minor congenital anomaly (Table 76).

The overall proportion of infants born following a multiple pregnancy has remained constant since 1992. In 2000 most of the infants (79.1 per cent) were from a singleton pregnancy, 18.8 per cent were from a twin pregnancy and 2.0 per cent were from a triplet pregnancy. Infants born as a result of a multiple gestation were more likely to be preterm, with 27.1 per cent of infants less than 37 weeks gestation being from a multiple gestation pregnancy (Table 77). Multiple births represented 3.3 per cent of all NSW and ACT births in 2000. The higher than expected rate of multiple births among the 2000 NICUS cohort reflects the high proportion of multiple pregnancies resulting in preterm birth.

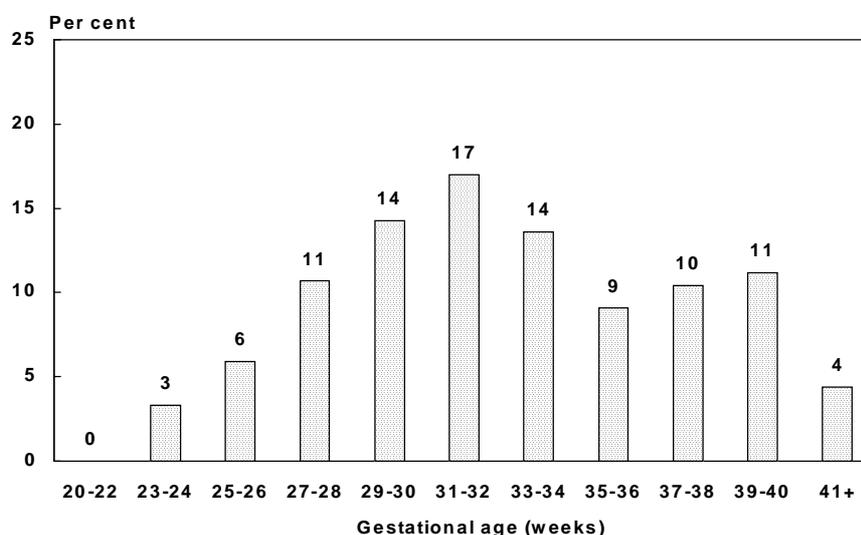
Table 78 shows the median, 25th and 75th percentiles for one- and five-minute Apgar scores according to gestational age groups. For infants greater than 27 weeks gestational age the median one-minute Apgar score was seven and the median five-minute score was nine. The proportion of infants with a one-minute Apgar score of 0–4 has decreased from 38.7 per cent in 1992 to 25.4 per cent in 2000, similarly the proportion of infants with a five-minute Apgar score of 0–4 has decreased from 10.8 per cent in 1992 to 7.7 per cent in 2000 (Table 79).

continued on p.63

TABLE 71**NICUS REGISTRANTS BY GESTATIONAL AGE, NSW & ACT 1996-2000**

Gestational age (weeks)	Year of birth									
	1996		1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
23–27	237	13.3	232	13.2	287	15.1	289	14.5	275	13.7
28–31	529	29.6	538	30.5	589	31.0	551	27.7	605	30.2
32–36	552	30.9	542	30.8	536	28.2	623	31.3	601	30.0
37–41	461	25.8	428	24.3	479	25.2	512	25.7	512	25.6
42+	8	0.4	22	1.2	8	0.4	16	0.8	10	0.5
TOTAL	1787	100.0	1762	100.0	1899	100.0	1991	100.0	2003	100.0

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

FIGURE 8**NICUS REGISTRANTS BY GESTATIONAL AGE, NSW & ACT 2000**

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

TABLE 72**BIRTHS BY NICUS REGISTRATION AND GESTATIONAL AGE, NSW & ACT 2000#**

Gestational age (weeks)	NSW & ACT		Registrations No.	NICUS Rate per 1,000 live births	% of cohort
	Stillbirths No.	Live births No.			
Less than 21	50	11	0	0.0	0.0
21	64	21	0	0.0	0.0
22	49	38	0	0.0	0.0
23	36	25	17	680.0	0.8
24	30	49	49	1000.0	2.4
25	28	64	40	625.0	2.0
26	24	87	78	896.6	3.9
27	15	87	91	1046.0	4.5
28	10	120	124	1033.3	6.2
29	22	140	134	957.1	6.7
30	20	171	153	894.7	7.6
31	25	206	194	941.7	9.7
32	18	330	147	445.5	7.3
33	17	492	153	311.0	7.6
34	23	741	119	160.6	5.9
35	16	1264	97	76.7	4.8
36	29	2461	85	34.5	4.2
37	28	5039	81	16.1	4.0
38	35	13718	128	9.3	6.4
39	33	20572	107	5.2	5.3
40	38	29397	117	4.0	5.8
41	20	14624	79	5.4	3.9
42	1	2102	10	4.8	0.5
43	1	149	0	0.0	0.0
44	1	6	0	0.0	0.0
45	0	0	0	0.0	0.0
Not stated	0	59	0	0.0	0.0
TOTAL	633	91973	2003	21.8	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, 2000. ACT Maternal-Perinatal Data Collection, 1999.

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

TABLE 73**NICUS REGISTRANTS BY BIRTHWEIGHT, NSW & ACT 2000**

Birthweight (grams)	1996		1997		Year of birth 1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 400	0	0.0	2	0.1	0	0.0	3	0.2	1	0.0
400-499	4	0.2	3	0.2	6	0.3	9	0.5	6	0.3
500-599	19	1.1	19	1.1	23	1.2	24	1.2	21	1.0
600-699	38	2.1	42	2.4	43	2.3	51	2.6	56	2.8
700-799	61	3.4	58	3.3	62	3.3	62	3.1	62	3.1
800-899	62	3.5	48	2.7	65	3.4	75	3.8	53	2.6
900-999	63	3.5	80	4.5	85	4.5	58	2.9	84	4.2
1,000-1,249	192	10.7	204	11.6	207	10.9	210	10.5	211	10.5
1,250-1,499	211	11.8	225	12.8	238	12.5	247	12.4	280	14.0
1,500-1,749	168	9.4	164	9.3	205	10.8	207	10.4	203	10.1
1,750-1,999	150	8.4	137	7.8	143	7.5	151	7.6	144	7.2
2,000-2,499	238	13.3	228	12.9	221	11.6	242	12.2	253	12.6
2,500-2,999	217	12.1	179	10.2	198	10.4	211	10.6	201	10.0
3,000-3,499	184	10.3	191	10.8	214	11.3	205	10.3	200	10.0
3,500-3,999	110	6.2	123	7.0	128	6.7	153	7.7	149	7.4
4,000+	70	3.9	59	3.3	61	3.2	83	4.2	79	3.9
TOTAL	1787	100.0	1762	100.0	1899	100.0	1991	100.0	2003	100.0

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

TABLE 74**NICUS REGISTRANTS BY NICUS REGISTRATION AND BIRTHWEIGHT, NSW & ACT 2000#**

Birthweight (grams)	NSW & ACT		Registrations No.	NICUS Rate per 1,000 live births	% of cohort
	Stillbirths No.	Live births# No.			
Less than 400	124	54	1	18.5	0.0
400-499	73	40	6	150.0	0.3
500-599	40	48	21	437.5	1.0
600-699	32	70	56	800.0	2.8
700-799	25	72	62	861.1	3.1
800-899	20	56	53	946.4	2.6
900-999	12	89	84	943.8	4.2
1,000-1,249	28	233	211	905.6	10.5
1,250-1,499	25	303	280	924.1	14.0
1,500-1,749	19	437	203	464.5	10.1
1,750-1,999	16	662	144	217.5	7.2
2,000-2,499	56	3503	253	72.2	12.6
2,500-2,999	65	13402	201	15.0	10.0
3,000-3,499	42	32197	200	6.2	10.0
3,500-3,999	38	28903	149	5.2	7.4
4,000+	17	11899	79	6.6	3.9
Not stated	1	5	0	0.0	0.0
TOTAL	633	91973	2003	21.8	100.0

Source: NICUS Data Collection. NSW Centre for Perinatal Health Services Research, 2000. NSW Midwives Data Collection. Epidemiology and Surveillance Branch, NSW Health Department, 2000. ACT Maternal-Perinatal Data Collection, 1999.

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

TABLE 75**NICUS REGISTRANTS BY GENDER AND GESTATIONAL AGE, NSW & ACT 2000**

Sex	23-27		28-31		Gestational age (weeks)				42+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Male	152	55.3	331	54.7	369	61.4	316	61.7	6	60.0	1174	58.6
Female	123	44.7	274	45.3	232	38.6	196	38.3	4	40.0	829	41.4
TOTAL	275	100.0	605	100.0	601	100.0	512	100.0	10	100.0	2003	100.0

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

TABLE 76**NICUS REGISTRANTS BY CONGENITAL ANOMALIES AND GESTATIONAL AGE, NSW & ACT 2000**

Congenital anomaly	23-27		28-31		Gestational age (weeks)				42+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
None	254	92.4	556	91.9	510	84.9	285	55.7	6	60.0	1611	80.4
Minor	8	2.9	14	2.3	16	2.7	19	3.7	1	10.0	58	2.9
Major	13	4.7	35	5.8	75	12.5	208	40.6	3	30.0	334	16.7
TOTAL	275	100.0	605	100.0	601	100.0	512	100.0	10	100.0	2003	100.0

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

TABLE 77**NICUS REGISTRANTS BY PLURALITY AND GESTATIONAL AGE, NSW & ACT 2000**

Plurality	23-27		28-31		Gestational age (weeks)				42+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Singleton	205	74.5	417	68.9	457	76.0	496	96.9	10	100.0	1585	79.1
Twins	60	21.8	168	27.8	133	22.1	16	3.1	0	0.0	377	18.8
Triplets	10	3.6	20	3.3	11	1.8	0	0.0	0	0.0	41	2.0
TOTAL	275	100.0	605	100.0	601	100.0	512	100.0	10	100.0	2003	100.0

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

TABLE 78**NICUS REGISTRANTS BY APGAR SCORE AND GESTATIONAL AGE, NSW & ACT 2000**

Apgar Score	23-27		28-31		32-36		37+	
	Median (25%,75%)		Median (25%,75%)		Median (25%,75%)		Median (25%,75%)	
One-minute Apgar	5	(3,7)	7	(5,8)	7	(5,8)	7	(4,8)
Five-minute Apgar	8	(6,8)	9	(8,9)	9	(8,9)	9	(7,9)

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

TABLE 79**NICUS REGISTRANTS BY APGAR SCORE AT ONE AND FIVE MINUTES, NSW & ACT 1996-2000**

Apgar Score	1996		1997		Year of birth		1999		2000	
	No.	%	No.	%	No.	%	No.	%	No.	%
One minute										
0-4	533	29.8	453	25.7	533	28.1	530	26.6	509	25.4
5-7	655	36.7	649	36.8	693	36.5	689	34.6	743	37.1
8+	586	32.8	650	36.9	657	34.6	766	38.5	737	36.8
Not stated	13	0.7	10	0.6	16	0.8	6	0.3	14	0.7
TOTAL	1787	100.0	1762	100.0	1899	100.0	1991	100.0	2003	100.0
Five minutes										
0-4	150	8.4	121	6.9	142	7.5	132	6.6	154	7.7
5-7	453	25.3	413	23.4	412	21.7	436	21.9	399	19.9
8+	1171	65.5	1219	69.2	1329	70.0	1417	71.2	1437	71.7
Not stated	13	0.7	9	0.5	16	0.8	6	0.3	13	0.6
TOTAL	1787	100.0	1762	100.0	1899	100.0	1991	100.0	2003	100.0

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

continued from p.59

Infants with major congenital anomalies ($n=334$) have been excluded from the analysis of morbidity and mortality.

The majority of infants without a major congenital anomaly ($n=1,669$; 88.7 per cent) in the 2000 NICUS cohort received assisted ventilation (intermittent mandatory ventilation and/or continuous positive airways pressure) (Table 80).

The main indication for ventilation for most infants was respiratory distress syndrome (Figure 9). 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 81).

Proven systemic infection has decreased from 22.0 per cent in 1992 to 14.4 per cent of infants in 2000. Infection was most common among infants less than 28 weeks gestation (46.6 per cent) (Table 82).

The overall proportion of ventilated infants who received surfactant has increased from 33.8 per cent in 1992 to 42.6 per cent in 2000 (Table 83). In 2000, 56.2 per cent of the infants who received surfactant were less than 32 weeks gestational age. The majority (66.6 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 15.4 per cent in 2000. In 2000, 95.2 per cent of the infants treated for PDA were less than 32 weeks gestational age (Table 84). The majority of infants with a PDA requiring treatment received indomethacin only (14.7 per cent). Surgical treatment of PDA was predominantly performed on infants less than 28 weeks gestation (2.3 per cent). Some infants (0.5 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 2.2 per cent in 2000. The diagnosis of NEC was made radiologically or at surgery in 56.8 per cent of infants and clinically in the remainder. NEC was more common at the lower gestational age groups and 75.7 per cent of the infants with NEC were born at less than 32 weeks gestation (Table 85).

The overall incidence of major surgery has decreased from 7.6 per cent in 1992 to 3.0 per cent in 2000. In 2000, 46.0 per cent of the infants who required major surgery were less than 32 weeks gestation (Table 86). The most common surgical procedures amongst these infants were for patent ductus arteriosus and necrotising enterocolitis.

continued on p.66

TABLE 80

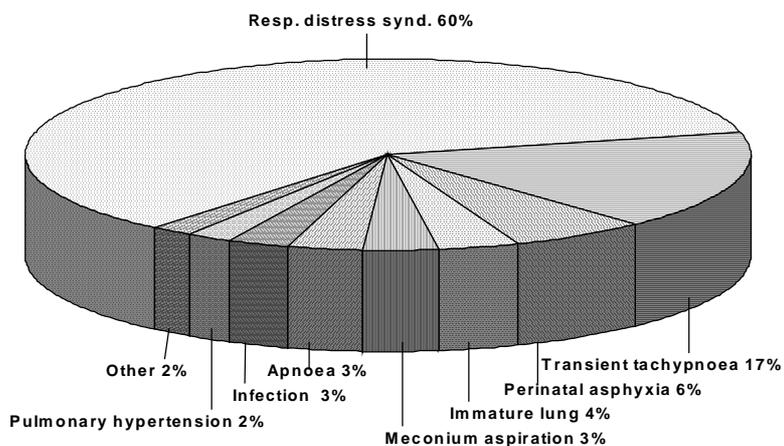
ASSISTED VENTILATION BY GESTATIONAL AGE, NSW & ACT 1996–2000#

Year	Assisted ventilation	Gestational age (weeks)								TOTAL	
		23–27		28–31		32–36		37+		No.	%
		No.	%	No.	%	No.	%	No.	%	No.	%
1996	No	1	0.4	117	23.3	48	10.2	6	2.2	172	11.7
	Yes	227	99.6	385	76.7	424	89.8	267	97.8	1303	88.3
	TOTAL	228	100.0	502	100.0	472	100.0	273	100.0	1475	100.0
1997	No	0	0.0	104	20.1	60	12.9	9	3.5	173	11.8
	Yes	227	100.0	413	79.9	406	87.1	248	96.5	1294	88.2
	TOTAL	227	100.0	517	100.0	466	100.0	257	100.0	1467	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	292	97.0	1441	88.4
	TOTAL	281	100.0	524	100.0	524	100.0	301	100.0	1630	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

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

FIGURE 9

NICUS REGISTRANTS BY MAIN INDICATION FOR ASSISTED VENTILATION, NSW & ACT 2000#



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

TABLE 81

MAIN INDICATION FOR ASSISTED VENTILATION OF BABIES BY GESTATIONAL AGE, NSW & ACT 2000#

Indication	Gestational age (weeks)									
	23-27		28-31		32-36		37+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Respiratory distress syndrome	235	90.0	313	68.9	286	62.0	41	13.4	875	59.0
Transient tachypnoea of newborn	1	0.4	69	15.2	108	23.4	70	23.0	248	16.7
Meconium aspiration	0	0.0	0	0.0	3	0.7	45	14.8	48	3.2
Infection	1	0.4	9	2.0	12	2.6	21	6.9	43	2.9
Perinatal asphyxia	0	0.0	5	1.1	18	3.9	64	21.0	87	5.9
Immature lung	22	8.4	34	7.5	0	0.0	0	0.0	56	3.8
Apnoea	2	0.8	19	4.2	14	3.0	13	4.3	48	3.2
Pulmonary hypertension	0	0.0	2	0.4	3	0.7	23	7.5	28	1.9
Congenital anomaly	0	0.0	0	0.0	1	0.2	3	1.0	4	0.3
Cardiac disorder	0	0.0	0	0.0	1	0.2	3	1.0	4	0.3
Peri surgery	0	0.0	2	0.4	4	0.9	7	2.3	13	0.9
Other	0	0.0	1	0.2	11	2.4	15	4.9	27	1.8
TOTAL	261	100.0	454	100.0	461	100.0	305	100.0	1481	100.0

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

TABLE 82

PROVEN SYSTEMIC INFECTION BY GESTATIONAL AGE, NSW & ACT 2000#

Infection	Gestational age (weeks)									
	23-27		28-31		32-36		37+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
No	140	53.4	492	86.3	507	96.4	290	93.2	1429	85.6
Yes	122	46.6	78	13.7	19	3.6	21	6.8	240	14.4
TOTAL	262	100.0	570	100.0	526	100.0	311	100.0	1669	100.0

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

TABLE 83**SURFACTANT ADMINISTRATION BY GESTATIONAL AGE, NSW & ACT 1996–2000#**

Year	Surfactant administration	Gestational age (weeks)								TOTAL	
		23–27		28–31		32–36		37+		No.	%
		No.	%	No.	%	No.	%	No.	%	No.	%
1996	No	46	20.3	150	39.0	226	53.3	208	77.9	630	48.3
	Yes	181	79.7	235	61.0	198	46.7	59	22.1	673	51.7
	TOTAL	227	100.0	385	100.0	424	100.0	267	100.0	1303	100.0
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	218	74.7	775	53.8
	Yes	223	79.6	187	46.2	182	39.2	74	25.3	666	46.2
	TOTAL	280	100.0	405	100.0	464	100.0	292	100.0	1441	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

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

TABLE 84**TREATED PATENT DUCTUS ARTERIOSUS (PDA) BY GESTATIONAL AGE, NSW & ACT 2000#**

PDA—Treatment for PDA	Gestational age (weeks)								TOTAL	
	23–27		28–31		32–36		37+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
No treated PDA	129	49.2	503	88.2	516	98.1			1148	84.5
Indomethacin only	127	48.5	64	11.2	9	1.7			200	14.7
Surgery only	1	0.4	1	0.2	1	0.2			3	0.2
Indomethacin & surgery	5	1.9	2	0.4	0	0.0			7	0.5
TOTAL	262	100.0	570	100.0	526	100.0			1358	100.0

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

TABLE 85**NECROTISING ENTEROCOLITIS (NEC) BY GESTATIONAL AGE, NSW & ACT 2000#**

NEC—Treatment for NEC	Gestational age (weeks)								TOTAL	
	23–27		28–31		32–36		37+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
No NEC	249	95.0	555	97.4	520	98.9	308	99.0	1632	97.8
Clinical diagnosis	5	1.9	7	1.2	3	0.6	1	0.3	16	1.0
X-ray diagnosis	4	1.5	7	1.2	1	0.2	0	0.0	12	0.7
Surgery for NEC	4	1.5	1	0.2	2	0.4	2	0.6	9	0.5
TOTAL	262	100.0	570	100.0	526	100.0	311	100.0	1669	100.0

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

continued from p.63

The incidence of intraventricular haemorrhage (IVH) among preterm infants (less than 37 weeks gestational age) has remained relatively constant (15.2 per cent in 2000). In 2000, confirmed IVH was most common among infants less than 28-weeks gestation (38.2 per cent); 38.0 per cent of these infants had severe IVH (grade 3 or 4). Two infants less than 32 weeks gestation with severe IVH required surgical drainage for post haemorrhagic hydrocephalus (2/55; 3.6 per cent). Of the surviving infants born before 32 weeks gestation, 94.0 per cent had a head ultrasound examination

to detect IVH (Table 87). 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 4.8 per cent in 2000. In 2000, all infants with severe grades of ROP were less than 32 weeks gestation and 75.0 per cent of the infants less than 28 weeks gestation with severe ROP received either cryo- or laser therapy. Importantly, 20.5 per cent of surviving infants of 28–31 weeks gestational age did not have an eye examination recorded (Table 88).

TABLE 86

MAJOR SURGERY BY GESTATIONAL AGE, NSW & ACT 2000#

Major Surgery	Gestational age (weeks)									
	23–27		28–31		32–36		37+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
No	247	94.3	562	98.6	518	98.5	292	93.9	1619	97.0
Yes	15	5.7	8	1.4	8	1.5	19	6.1	50	3.0
TOTAL	262	100.0	570	100.0	526	100.0	311	100.0	1669	100.0

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

Babies with major congenital anomalies excluded.

TABLE 87

INTRAVENTRICULAR HAEMORRHAGE (IVH) BY GESTATIONAL AGE, NSW & ACT 2000#

Head ultrasound	Gestational age (weeks)								TOTAL	
	23–27		28–31		32–36				No.	%
	No.	%	No.	%	No.	%			No.	%
No IVH	152	58.0	427	74.9	237	45.1			816	60.1
Grade 1	34	13.0	64	11.2	10	1.9			108	8.0
Grade 2	28	10.7	10	1.8	3	0.6			41	3.0
Grade 3	16	6.1	6	1.1	1	0.2			23	1.7
Grade 4	22	8.4	11	1.9	1	0.2			34	2.5
Hydrocephalus requiring drainage	0	0.0	2	11.8	0	0.0			2	3.5
Not examined & lived	0	0.0	49	8.6	267	50.8			316	23.3
Not examined & died	10	3.8	3	0.5	7	1.3			20	1.5
TOTAL	262	100.0	570	100.0	526	100.0			1358	100.0

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

Babies with major congenital anomalies excluded.

TABLE 88

RETINOPATHY OF PREMATURITY BY GESTATIONAL AGE, NSW & ACT 2000#

Retinopathy of prematurity (ROP)	Gestational age (weeks)						TOTAL	
	22–27		28–31				No.	%
	No.	%	No.	%			No.	%
No ROP	94	35.9	402	70.5			496	59.6
Grade 1	26	9.9	24	4.2			50	6.0
Grade 2	41	15.6	11	1.9			52	6.3
Grade 3	34	13.0	4	0.7			38	4.6
Grade 4	2	0.8	0	0.0			2	0.2
Treatment with cryotherapy-laser	27	75.0	3	75.0			30	75.0
Not examined & lived	2	0.8	114	20.0			116	13.9
Not examined & died	63	24.0	15	2.6			78	9.4
TOTAL	262	100.0	570	100.0			832	100.0

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

Babies with major congenital anomalies excluded.

5.5 SERVICE UTILISATION

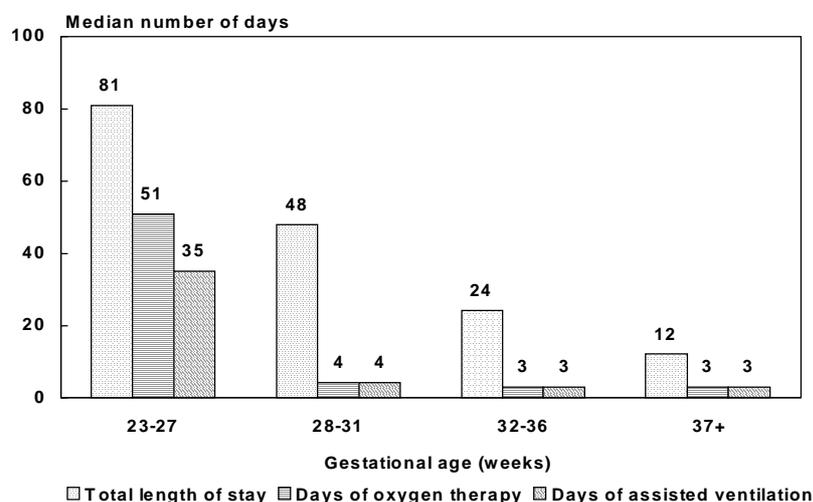
Indicators of service utilisation collected as part of NICUS include length of stay in tertiary and non-tertiary centres, days on assisted ventilation and days in oxygen (Figures 10 and 11 and Table 89). On an individual basis, infants born at less than 28 weeks gestation consumed most resources. However, as a group those born at 28–31 weeks gestation consumed more bed days than any other group due to their higher numbers. In 2000, the total cohort used 58,529 bed days in a tertiary centre in NSW and the ACT (range 46,090 in 1993 to 58,529 in 2000); as well as 18,411 in a non-tertiary centre (level 2 neonatal unit) in NSW and

the ACT (14,288 in 1992 to 19,134 in 1999). Even when these infants leave the neonatal intensive care unit, they still require substantial resources.

In 2000, NICUS registrants used 18,909 days of assisted ventilation (range 15,282 in 1993 to 18,070 in 1998) and 29,998 days of oxygen therapy (range 22,526 in 1992 to 30,419 in 1998). The overall proportion of infants going home on supplemental oxygen was 4.5 per cent in 2000 (range 2.1 per cent in 1992 to 5.1 per cent in 1998). The proportion of infants less than 28 weeks gestation going home on supplemental oxygen was 18.7 per cent (range 7.5 per cent in 1992 to 20.0 per cent in 1998) (Table 90).

FIGURE 10

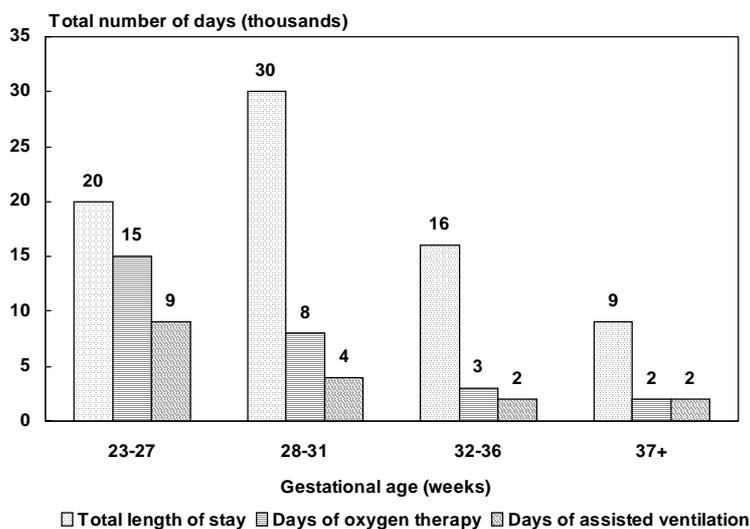
MEDIAN NUMBER OF DAYS IN HOSPITAL, OXYGEN THERAPY AND ASSISTED VENTILATION BY GESTATIONAL AGE, NSW & ACT 2000



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 2000



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

TABLE 89**SERVICE UTILISATION INDICATORS BY GESTATIONAL AGE, NSW & ACT 2000**

Indicators	Gestational age (weeks)				TOTAL
	23–27	28–31	32–36	37+	
Non-tertiary hospital stay (days)					
Minimum	0	0	0	0	0
Maximum	109	230	60	77	230
Sum	2527	9473	5036	1370	18411
Median	0	13	3	0	1
25th percentile	0	0	0	0	0
75th percentile	17	28	15	3	16
Tertiary hospital stay (days)					
Minimum	1	1	1	1	1
Maximum	292	163	321	350	350
Sum	18016	21358	11101	8054	58529
Median	69	32	13	9	18
25th percentile	29	17	8	6	8
75th percentile	96	49	24	17	40
Total hospital stay (days)					
Minimum	1	1	1	1	1
Maximum	292	245	321	355	355
Sum	20543	30831	16137	9429	76940
Median	81	48	24	12	30
25th percentile	44	38	16	7	14
75th percentile	103	62	33	21	53
Mechanical ventilation (days)					
Minimum	0	0	0	0	0
Maximum	181	74	155	44	181
Sum	4248	1536	1317	1831	8932
Median	8	0	1	2	2
25th percentile	2	0	0	1	0
75th percentile	22	3	3	5	4
Continuous positive airways pressure (days)					
Minimum	0	0	0	0	0
Maximum	84	81	45	37	84
Sum	5562	3089	890	436	9977
Median	19	2	1	0	1
25th percentile	1	0	0	0	0
75th percentile	33	6	2	1	4
Assisted ventilation (days)					
Minimum	0	0	0	0	0
Maximum	265	81	156	67	265
Sum	9810	4625	2207	2267	18909
Median	35	4	3	3	3
25th percentile	13	1	1	1	1
75th percentile	51	9	5	5	8
Oxygen (days)					
Minimum	0	0	0	0	0
Maximum	292	131	156	51	292
Sum	15401	8353	3380	2864	29998
Median	51	4	3	3	4
25th percentile	10	1	1	1	1
75th percentile	91	16	6	7	12

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

TABLE 90**HOME OXYGEN ADMINISTRATION BY GESTATIONAL AGE, NSW & ACT 1996–2000#**

Year	Home oxygen	Gestational age (weeks)								TOTAL	
		23–27		28–31		32–36		37+		No.	%
		No.	%	No.	%	No.	%	No.	%	No.	%
1996	No	191	83.8	483	96.2	469	99.4	267	97.8	1410	95.6
	Yes	37	16.2	19	3.8	3	0.6	6	2.2	65	4.4
	TOTAL	228	100.0	502	100.0	472	100.0	273	100.0	1475	100.0
1997	No	204	89.9	498	96.3	464	99.6	254	98.8	1420	96.8
	Yes	23	10.1	19	3.7	2	0.4	3	1.2	47	3.2
	TOTAL	227	100.0	517	100.0	466	100.0	257	100.0	1467	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	298	99.0	1574	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	301	100.0	1630	100.0
2000	No	213	81.3	555	97.4	519	98.7	307	98.7	1594	95.5
	Yes	49	18.7	15	2.6	7	1.3	4	1.3	75	4.5
	TOTAL	262	100.0	570	100.0	526	100.0	311	100.0	1669	100.0

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

Babies with major congenital anomalies excluded.

TABLE 91**DURATION OF SURVIVAL OF BABIES BY GESTATIONAL AGE, NSW & ACT 2000#**

Gestational age (weeks)	Alive at six months		Age at death (days)						TOTAL	
	No.	%	0–7		8–28		28+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
23	6	35.3	6	35.3	2	11.8	3	17.6	17	1.0
24	26	54.2	12	25.0	4	8.3	6	12.5	48	2.9
25	20	52.6	10	26.3	6	15.8	2	5.3	38	2.3
26	61	85.9	9	12.7	1	1.4	0	0.0	71	4.3
27	80	90.9	6	6.8	2	2.3	0	0.0	88	5.3
28	109	94.0	3	2.6	3	2.6	1	0.9	116	7.0
29	122	94.6	6	4.7	0	0.0	1	0.8	129	7.7
30	141	97.9	1	0.7	1	0.7	1	0.7	144	8.6
31	180	99.4	1	0.6	0	0.0	0	0.0	181	10.8
32	135	99.3	0	0.0	0	0.0	1	0.7	136	8.1
33	136	97.8	3	2.2	0	0.0	0	0.0	139	8.3
34	106	97.2	2	1.8	0	0.0	1	0.9	109	6.5
35	75	97.4	2	2.6	0	0.0	0	0.0	77	4.6
36	63	95.5	3	4.5	0	0.0	0	0.0	66	4.0
37	49	94.2	3	5.8	0	0.0	0	0.0	52	3.1
38	69	92.0	5	6.7	0	0.0	1	1.3	75	4.5
39	58	92.1	3	4.8	2	3.2	0	0.0	63	3.8
40	57	89.1	6	9.4	0	0.0	1	1.6	64	3.8
41	44	88.0	4	8.0	1	2.0	1	2.0	50	3.0
42	7	100.0	0	0.0	0	0.0	0	0.0	7	0.4
TOTAL	1543	92.5	85	5.1	22	1.3	19	1.1	1669	100.0

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

Babies with major congenital anomalies excluded.

5.6 SURVIVAL

Infants with a major congenital anomaly have been excluded from the analysis of survival with the exception of data reported in Table 94.

The six-month survival rate for all infants without a major congenital anomaly in the 2000 cohort was 92.5 per cent compared with 87.8 per cent in 1992. Survival of infants born at less than 25 weeks gestation was 49.2 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 up to 32 weeks gestation after which it decreased slightly. Term infants (91.3 per cent) were slightly less likely to survive than preterm infants (92.7 per cent). Amongst infants who died, 67.5 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 17.5 per cent occurring during the first month of life (Table 91).

The six-month survival rate improved with increasing birth weight, ranging from 35.3 per cent for infants in the 500–599 gram group to 86.1 per cent for the 900–999 gram group. Six-month survival continued to improve with increasing birthweight to a maximum of 98.9 per cent for infants of 1,500–1,749 grams birthweight and then decreased slightly (Table 92).

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 2000, the six-month survival rate for infants born at 23 to 27 weeks was greater for those born in a non-tertiary

centre (90.5 per cent; n=21) compared with those born in a tertiary centre (73.1 per cent; n=234). These results should be interpreted with extreme caution. Of the surviving infants born in a non-tertiary centre 11/19 were 27 weeks gestation. Place of birth did not significantly affect survival for infants in the other gestational age groups (Table 93).

The six-month survival rate for male infants (92.5 per cent) was similar to that for female infants (92.4 per cent). The six-month survival rate was similar for males and females for all gestational age groups: less than 28 weeks (70.8 per cent versus 77.1 per cent), 28–31 weeks (95.9 per cent versus 98.0 per cent), 32–36 weeks (97.8 per cent versus 97.6 per cent) and 37–41 weeks gestation groups (94.3 per cent versus 85.5 per cent).

The six-month survival rate was 92.6 per cent (n=1,276) for singleton infants and 92.1 per cent (n=393) for multiple gestation infants. Plurality did not influence survival in infants greater than 28 weeks gestational age. In 2000 the survival rate for infants in the less than 28 week gestation group was lower for infants born of a multiple (44/66; 66.7 per cent) than a singleton pregnancy (149/196; 76.0 per cent).

As expected survival was generally lower (83.5 per cent) in the presence of a major congenital anomaly (Table 94).

Post-mortem examinations were performed on 39/126 infants (31.0 per cent) who died in the 2000 cohort (Figure 12 and Table 95). Post-mortem examinations were most commonly not requested for infants 23–27 weeks gestation (55.1 per cent) and 28–31 weeks gestation (55.6 per cent). The highest rate of refusal was in term group (22.2 per cent) and the highest rate of post-mortems done was in the term group (48.1 per cent).

TABLE 92

DURATION OF SURVIVAL BY BIRTHWEIGHT, NSW & ACT 2000*

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	100.0	0	0.0	0	0.0	1	0.1
400–499	1	16.7	3	50.0	1	16.7	1	16.7	6	0.4
500–599	6	35.3	6	35.3	1	5.9	4	23.5	17	1.0
600–699	34	63.0	14	25.9	3	5.6	3	5.6	54	3.2
700–799	42	70.0	12	20.0	4	6.7	2	3.3	60	3.6
800–899	42	87.5	3	6.3	3	6.3	0	0.0	48	2.9
900–999	68	86.1	6	7.6	4	5.1	1	1.3	79	4.7
1,000–1,249	193	96.5	6	3.0	1	0.5	0	0.0	200	12.0
1,250–1,499	254	97.7	1	0.4	1	0.4	4	1.5	260	15.6
1,500–1,749	187	98.9	1	0.5	1	0.5	0	0.0	189	11.3
1,750–1,999	130	97.7	3	2.3	0	0.0	0	0.0	133	8.0
2,000–2,499	201	96.2	7	3.3	0	0.0	1	0.5	209	12.5
2,500–2,999	126	94.0	8	6.0	0	0.0	0	0.0	134	8.0
3,000–3,499	120	93.0	7	5.4	0	0.0	2	1.6	129	7.7
3,500–3,999	86	91.5	4	4.3	3	3.2	1	1.1	94	5.6
4,000+	53	94.6	3	5.4	0	0.0	0	0.0	56	3.4
TOTAL	1543	92.5	85	5.1	22	1.3	19	1.1	1669	100.0

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

TABLE 93**DURATION OF SURVIVAL BY PLACE OF BIRTH AND GESTATIONAL AGE, NSW & ACT 2000#**

Gestational age (weeks)	Place of birth	Alive at six months		0-7		Age at death (days)				TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	%
23-27	Non tertiary	19	90.5	2	9.5	0	0.0	0	0.0	21	8.2
	Tertiary	171	73.1	39	16.7	13	5.6	11	4.7	234	91.8
	Sub-total	190	74.5	41	16.1	13	5.1	11	4.3	255	100.0
28-31	Non tertiary	42	100.0	0	0.0	0	0.0	0	0.0	42	7.4
	Tertiary	509	96.6	11	2.1	4	0.8	3	0.6	527	92.6
	Sub-total	551	96.8	11	1.9	4	0.7	3	0.5	569	100.0
32-36	Non tertiary	138	97.2	4	2.8	0	0.0	0	0.0	142	27.0
	Tertiary	376	97.9	6	1.6	0	0.0	2	0.5	384	73.0
	Sub-total	514	97.7	10	1.9	0	0.0	2	0.4	526	100.0
37-41	Non tertiary	132	86.3	16	10.5	3	2.0	2	1.3	153	50.7
	Tertiary	144	96.6	4	2.7	0	0.0	1	0.7	149	49.3
	Sub-total	276	91.4	20	6.6	3	1.0	3	1.0	302	100.0
42+	Non tertiary	4	100.0	0	0.0	0	0.0	0	0.0	4	57.1
	Tertiary	3	100.0	0	0.0	0	0.0	0	0.0	3	42.9
	Sub-total	7	100.0	0	0.0	0	0.0	0	0.0	7	100.0
TOTAL		1538	92.7	82	4.9	20	1.2	19	1.1	1659	100.0

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

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

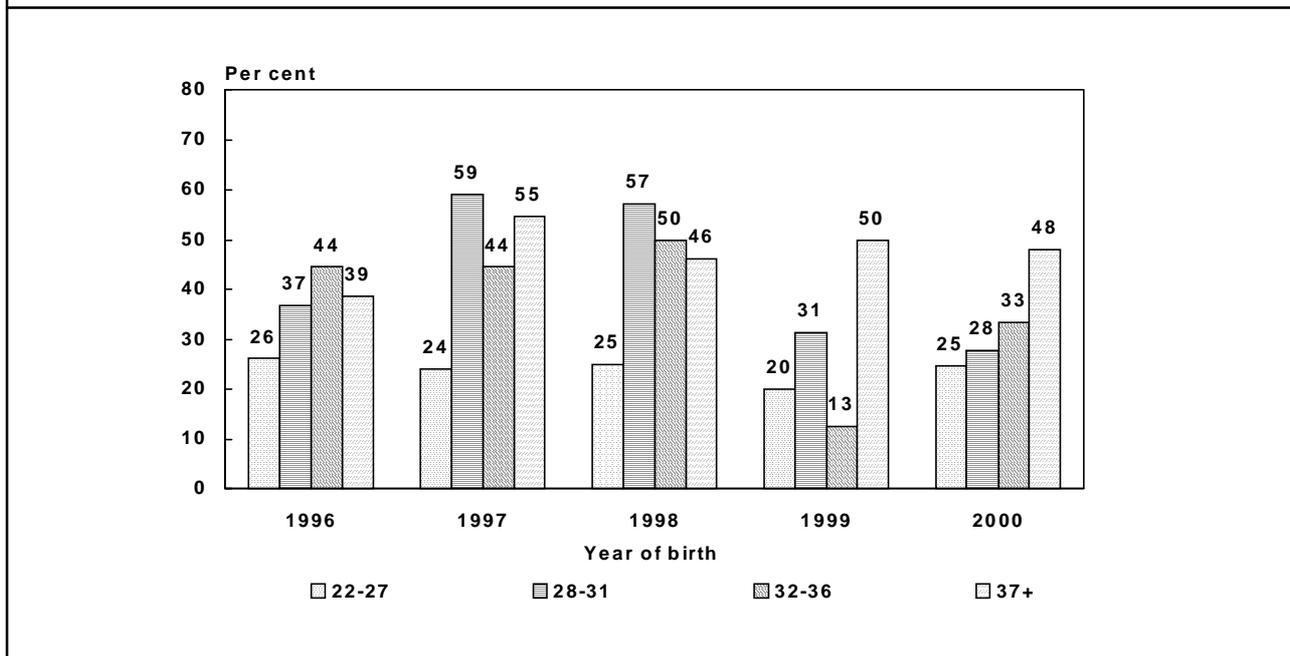
TABLE 94**DURATION OF SURVIVAL BY MAJOR CONGENITAL ANOMALY AND GESTATIONAL AGE, NSW & ACT 2000**

Gestational age (weeks)	Major congenital anomaly	Alive at six months		0-7		Age at death (days)				TOTAL	
		No.	%	No.	%	No.	%	No.	%	No.	%
23-27	No	193	73.7	43	16.4	15	5.7	11	4.2	262	95.3
	Yes	8	61.5	3	23.1	2	15.4	0	0.0	13	4.7
	Sub-total	201	73.1	46	16.7	17	6.2	11	4.0	275	100.0
28-31	No	552	96.8	11	1.9	4	0.7	3	0.5	570	94.2
	Yes	25	71.4	4	11.4	1	2.9	5	14.3	35	5.8
	Sub-total	577	95.4	15	2.5	5	0.8	8	1.3	605	100.0
32-36	No	514	97.7	10	1.9	0	0.0	2	0.4	526	87.5
	Yes	57	76.0	12	16.2	2	2.7	4	5.4	75	12.5
	Sub-total	571	95.0	22	3.7	2	0.3	6	1.0	601	100.0
37-41	No	277	91.1	21	6.9	3	1.0	3	1.0	304	59.4
	Yes	187	89.9	10	4.8	6	2.9	5	2.4	208	40.6
	Sub-total	464	90.6	31	6.1	9	1.8	8	1.6	512	100.0
42+	No	7	100.0	0	0.0	0	0.0	0	0.0	7	70.0
	Yes	2	66.7	0	0.0	0	0.0	1	33.3	3	30.0
	Sub-total	9	90.0	0	0.0	0	0.0	1	10.0	10	100.0
TOTAL		1822	91.0	114	5.7	33	1.6	34	1.7	2003	100.0

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

FIGURE 12

DEATHS BY POST-MORTEM EXAMINATION AND GESTATIONAL AGE, NSW & ACT 1996–2000#



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

TABLE 95

POST-MORTEM EXAMINATION BY GESTATIONAL AGE, NSW & ACT 2000#

Post-mortem	23–27		28–31		32–36		37+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Not requested	38	55.1	10	55.6	6	50.0	8	29.6	62	49.2
Refused	14	20.3	3	16.7	2	16.7	6	22.2	25	19.8
Done	17	24.6	5	27.8	4	33.3	13	48.1	39	31.0
TOTAL	69	100.0	18	100.0	12	100.0	27	100.0	126	100.0

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

PART 6: BIRTH DEFECTS

6.1 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, 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 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 1994–1999 and birth defects detected during pregnancy or at birth for 2000.

6.1.1 TRENDS IN REPORTED BIRTH DEFECTS

Between 1994 and 1999, the reported number of infants with birth defects has remained stable at just over two per cent (Table 96). In 2000, 1056 cases of birth defects detected during pregnancy or at birth were reported.

6.1.2 BIRTH DEFECTS BY DIAGNOSTIC CATEGORY

The most common categories of birth defects for births of more than 20 weeks gestation or with a birthweight greater than 400 grams are presented in Table 97. Birth defects

TABLE 96

BIRTH DEFECT CASES, NSW 1994–2000[#]

Year	Birth defect cases	Births	Rate/1,000 births
1994	1989	87262	22.8
1995	1947	86648	22.5
1996	1880	85706	21.9
1997	2001	87416	22.9
1998	1949	85627	22.8
1999	1836	86468	21.2
2000	1056	87279	12.1

Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

For 1994–1999, cases reported during pregnancy and up to one year of age are included. For 2000, cases reported during pregnancy or at birth are reported.

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 1994–2000, defects of the cardiovascular system were most commonly reported, followed by defects of the musculoskeletal system and defects of the genito-urinary system (Table 97). This is a similar pattern to previous years. In 1999, the overall rate of defects was slightly lower than the previous five years combined (39.5 versus 42.9 per 1,000), due to a decrease in the number of babies with multiple malformations. The proportion of reported cases with three or more malformations fell from 21.4 to 18.9 per cent between 1994 and 1999.

TABLE 97

BIRTH DEFECTS AMONG STILLBIRTHS AND LIVE BIRTHS BY DIAGNOSTIC CATEGORY, NSW 1994–2000

Diagnostic category	No. defects			Rate/1,000 births				
	1994–1998	1999	2000	1994–2000	1994–1998	1999	2000	1994–2000
Defects of nervous system								
Anencephaly	51	5	9	65	0.1	0.1	0.1	0.1
Spina Bifida	145	32	23	200	0.3	0.4	0.3	0.3
Encephalocele	36	5	3	44	0.1	0.1	0.0	0.1
Microcephaly	142	18	12	172	0.3	0.2	0.1	0.3
Congenital hydrocephalus	183	37	32	252	0.4	0.4	0.4	0.4
Other nervous system defects	413	79	45	537	1.0	0.9	0.5	0.9
TOTAL	970	176	124	1270	2.2	2.0	1.4	2.1
Defects of eye								
Anophthalmos/ microphthalmos	74	18	8	100	0.2	0.2	0.1	0.2
Buphthalmos/ congenital glaucoma	33	6	1	40	0.1	0.1	0.0	0.1
Congenital cataract	88	23	4	115	0.2	0.3	0.0	0.2
Other eye defects	198	37	12	247	0.5	0.4	0.1	0.4
TOTAL	393	84	25	502	0.9	1.0	0.3	0.8
Defects of ear, face and neck								
Absence/ stricture auditory canal	44	10	7	61	0.1	0.1	0.1	0.1
Absent auricle	6	1	3	10	0.0	0.0	0.0	0.0
Defects of face and neck	44	4	5	53	0.1	0.0	0.1	0.1
Other ear defects	93	11	13	117	0.2	0.1	0.1	0.2
TOTAL	187	26	28	241	0.4	0.3	0.3	0.4
Defects of cardiovascular system								
Transposition of great vessels	217	37	29	283	0.5	0.4	0.3	0.5
Tetralogy of Fallot	147	30	13	190	0.3	0.3	0.1	0.3
Ventricular septal defect	1009	163	98	1270	2.3	1.9	1.1	2.1
Atrial septal defect	1005	166	90	1261	2.3	1.9	1.0	2.1
Heart valve defects	803	151	66	1020	1.9	1.7	0.8	1.7

TABLE 97 (CONT)
BIRTH DEFECTS AMONG STILLBIRTHS AND LIVE BIRTHS BY DIAGNOSTIC CATEGORY, NSW 1994–2000[#]

Diagnostic category	No. defects				Rate/1,000 births			
	1994–1998	1999	2000	1994–2000	1994–1998	1999	2000	1994–2000
Defects of cardiovascular system (cont.)								
Patent ductus arteriosus > 37 weeks	608	106	54	768	1.4	1.2	0.6	1.3
Coarctation of aorta	182	38	12	232	0.4	0.4	0.1	0.4
Other defects of aorta	104	28	7	139	0.2	0.3	0.1	0.2
Defects of pulmonary artery	137	29	13	179	0.3	0.3	0.1	0.3
Other cardiovascular defects	887	199	96	1182	2.1	2.3	1.1	1.9
TOTAL	5099	947	478	6524	11.8	11.0	5.5	10.8
Defects of respiratory system								
Defects of nose	77	16	10	103	0.2	0.2	0.1	0.2
Defects of larynx, trachea and bronchus	50	8	4	62	0.1	0.1	0.0	0.1
Defects of lung	97	26	10	133	0.2	0.3	0.1	0.2
Other respiratory defects	3	0	0	3	0.0	0.0	0.0	0.0
TOTAL	227	50	24	301	0.5	0.6	0.3	0.5
Defects of gastrointestinal system								
Cleft palate only	416	69	63	548	1.0	0.8	0.7	0.9
Cleft lip only	181	30	27	238	0.4	0.3	0.3	0.4
Cleft palate and cleft lip	261	46	38	345	0.6	0.5	0.4	0.6
Other gastrointestinal defects	520	100	35	655	1.2	1.2	0.4	1.1
Oesophageal atresia only	5	2	1	8	0.0	0.0	0.0	0.0
Oesophageal atresia with TOF	81	24	10	115	0.2	0.3	0.1	0.2
Tracheo-oesophageal fistula (TOF) only	27	5	7	39	0.1	0.1	0.1	0.1
Atresia–stenosis of small intestine	127	29	21	177	0.3	0.3	0.2	0.3
Atresia–stenosis of anus	158	36	14	208	0.4	0.4	0.2	0.3
TOTAL	1776	341	216	2333	4.1	3.9	2.5	3.8
Defects of genitourinary system								
Defects of female genitals	63	5	8	76	0.1	0.1	0.1	0.1
Undescended testis	455	71	21	547	1.1	0.8	0.2	0.9
Hypospadias	991	202	165	1358	2.3	2.3	1.9	2.2
Epispadias	27	2	3	32	0.1	0.0	0.0	0.1
Chordee	194	24	11	229	0.4	0.3	0.1	0.4
Indeterminate sex–ambiguous genitalia	70	9	10	89	0.2	0.1	0.1	0.1
Renal agenesis–dysgenesis	169	38	29	236	0.4	0.4	0.3	0.4
Obstructive defects of renal pelvis and ureter	828	165	61	1054	1.9	1.9	0.7	1.7
Other genitourinary system defects	742	109	59	910	1.7	1.3	0.7	1.5
TOTAL	3539	625	367	4531	8.2	7.2	4.2	7.5
Defects of musculoskeletal system								
Congenital dislocation of the hips	837	122	86	1045	1.9	1.4	1.0	1.7
Talipes equinovarus	290	55	37	382	0.7	0.6	0.4	0.6
Polydactyly	475	95	84	654	1.1	1.1	1.0	1.1
Syndactyly	154	23	15	192	0.4	0.3	0.2	0.3
Reduction deformities of limbs	327	59	50	436	0.8	0.7	0.6	0.7
Craniosynostosis	448	69	7	524	1.0	0.8	0.1	0.9
Diaphragmatic hernia	126	38	18	182	0.3	0.4	0.2	0.3
Exomphalos	73	14	13	100	0.2	0.2	0.1	0.2
Gastroschisis	84	18	19	121	0.2	0.2	0.2	0.2
Other musculoskeletal defects	1248	193	152	1593	2.9	2.2	1.7	2.6
TOTAL	4062	686	481	5229	9.4	7.9	5.5	8.6
Defects of integumentary system								
Cystic hygroma	366	60	52	478	0.8	0.7	0.6	0.8
TOTAL	49	8	4	61	0.1	0.1	0.0	0.1
Chromosomal defects								
Trisomy 21	554	93	90	737	1.3	1.1	1.0	1.2
Trisomy 13	24	8	10	42	0.1	0.1	0.1	0.1
Trisomy 18	86	22	14	122	0.2	0.3	0.2	0.2
Turner syndrome	48	11	8	67	0.1	0.1	0.1	0.1
Other chromosomal defects	219	61	28	308	0.5	0.7	0.3	0.5
TOTAL	931	195	150	1276	2.2	2.3	1.7	2.1
Situs inversus								
TOTAL	20	4	3	27	0.0	0.0	0.0	0.0
Congenital malformation syndromes								
TOTAL	201	32	32	265	0.5	0.4	0.4	0.4
Congenital rubella syndrome								
TOTAL	5	0	0	5	0.0	0.0	0.0	0.0
Congenital cytomegalovirus infection								
TOTAL	12	1	0	13	0.0	0.0	0.0	0.0
Congenital toxoplasmosis								
TOTAL	1	1	0	2	0.0	0.0	0.0	0.0
Non-immune hydrops foetalis								
TOTAL	112	28	14	154	0.3	0.3	0.2	0.3
Other and unspecified birth defects								
TOTAL	590	115	19	724	1.4	1.3	0.2	1.2
TOTAL	18540	3379	2017	23936	42.9	39.1	23.1	39.5

Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

For 1994–1999, cases reported during pregnancy and up to one year of age are included. For 2000, cases reported during pregnancy or at birth are reported.

6.1.3 INFANT CHARACTERISTICS

In the period 1994–2000, a single defect was reported in 62.9 per cent of infants, two defects in 17.5 per cent, three defects in 8.0 per cent, and four or more defects in 11.6 per cent of cases.

The sex was male in 59.0 per cent of infants, female in 40.3 per cent, indeterminate in 0.4 per cent of infants, and was not stated for 0.4 per cent.

Birth defects were more common in preterm and post-term infants than infants born at term (Table 98). Birth defects were also more common in infants born of a multiple

pregnancy than a singleton pregnancy: in 1994–2000, 2.0 per cent of singleton babies, 2.8 per cent of twins and 3.3 per cent of triplets were born with a birth defect.

Ten per cent of infants born with birth defects died in the perinatal period, with stillbirths contributing just over half the perinatal deaths (Table 99). 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 9.7 per 1,000 in 2000 (see Section 1.16).

TABLE 98

BIRTH DEFECT CASES BY GESTATIONAL AGE, NSW 1994–2000[#]

Gestational age (weeks)	1994–1998		1999		Year 2000		1994–2000		Rate/1,000 births
	No.	%	No.	%	No.	%	No.	%	
20–27	426	4.4	106	5.8	83	7.9	615	4.9	160.2
28–31	285	2.9	50	2.7	30	2.8	365	2.9	86.5
32–36	1077	11.0	233	12.7	132	12.5	1442	11.4	43.5
37–41	7366	75.4	1365	74.3	790	74.8	9521	75.2	17.3
42+	261	2.7	41	2.2	20	1.9	322	2.5	21.0
Not stated	351	3.6	41	2.2	1	0.1	393	3.1	–
TOTAL	9766	100.0	1836	100.0	1056	100.0	12658	100.0	20.9

Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

For 1994–1999, cases reported during pregnancy and up to one year of age are included. For 2000, cases reported during pregnancy or at birth are reported.

TABLE 99

BIRTH DEFECT CASES BY PREGNANCY OUTCOME, NSW 1994–2000[#]

Pregnancy outcome	1994–1998		1999		Year 2000		1994–2000	
	No.	%	No.	%	No.	%	No.	%
Stillbirth	484	5.0	103	5.6	99	9.4	686	5.4
Liveborn–neonatal death	430	4.4	94	5.1	52	4.9	576	4.6
Liveborn–postneonatal death	86	0.9	16	0.9	7	0.7	109	0.9
Liveborn surviving	8766	89.8	1623	88.4	898	85.0	11287	89.2
TOTAL	9766	100.0	1836	100.0	1056	100.0	12658	100.0

Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

For 1994–1999, cases reported during pregnancy and up to one year of age are included. For 2000, cases reported during pregnancy or at birth are reported.

6.1.4 MATERNAL CHARACTERISTICS

After 30 years of age, the incidence of birth defects increased with increasing maternal age (Table 100). While the rate of birth defects is higher in older women, the majority of births occur in younger women: in 1994–2000, 77.3 per cent of babies with birth defects were born to women aged less than 35 years.

In 1994–2000, 140 babies of Aboriginal or Torres Strait Islander mothers were reported to have birth defects. The rate of birth defects among these babies was 16.3 per 1,000 compared with 21.0 per 1,000 for non-Aboriginal mothers.

TABLE 100

BIRTH DEFECT CASES BY MATERNAL AGE, NSW 1994–2000[#]

Maternal age (years)	1994–1998		1999		2000		1994–2000		
	No.	%	No.	%	No.	%	No.	%	Rate/1,000 births
Under 20	498	5.1	87	4.7	59	5.6	644	5.1	22.0
20–24	1586	16.2	267	14.5	156	14.8	2009	15.9	19.1
25–29	2795	28.6	574	31.3	310	29.4	3679	29.1	18.8
30–34	2674	27.4	479	26.1	304	28.8	3457	27.3	19.0
35–39	1264	12.9	276	15.0	174	16.5	1714	13.5	21.3
40–44	281	2.9	75	4.1	50	4.7	406	3.2	30.0
45+	19	0.2	3	0.2	3	0.3	25	0.2	47.8
Not stated	649	6.6	75	4.1	0	0.0	724	5.7	–
TOTAL	9766	100.0	1836	100.0	1056	100.0	12658	100.0	20.9

Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

For 1994–1999, cases reported during pregnancy and up to one year of age are included. For 2000, cases reported during pregnancy or at birth are reported.

6.2 BIRTH DEFECTS AMONG TERMINATIONS OF PREGNANCY, SPONTANEOUS ABORTIONS AND UNKNOWN OUTCOMES OF PREGNANCY

In the period 1994–1998, about 150 terminations of pregnancy per year were reported to the NSW Birth Defects Register (Table 101). 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 and 308 in 1999.

Of the total 1,222 terminations of pregnancy reported in 1994–2000, 706 (57.8 per cent) were associated with a chromosomal abnormality, the most common of which was Down syndrome, and 276 (22.6 per cent) were associated with a neural tube defect (Table 102). In 1994–2000, 55.0 per cent of terminations were carried out in women aged less than 35 years (Table 103).

For spontaneous abortions, cytogenetic analysis is only carried out in cases of habitual abortion and the numbers presented therefore underestimate the number of spontaneous abortions which occur due to birth defects. Descriptions of some diagnostic terms used here are included in Appendix 1.

TABLE 101

PREGNANCIES WITH FETUSES AFFECTED BY BIRTH DEFECTS AND RESULTING IN SPONTANEOUS ABORTION, TERMINATION OF PREGNANCY OR UNKNOWN OUTCOME, NSW 1994–2000

Pregnancy outcome	Year			
	1994–1998 No.	1999 No.	2000 No.	1994–2000 No.
Spontaneous abortion	309	118	108	535
Termination of pregnancy less than 20 weeks gestation	774	308	140	1222
Unknown outcome	623	17	0	640
TOTAL	1706	443	248	2397

Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

TABLE 102
BIRTH DEFECTS AMONG SPONTANEOUS ABORTIONS, TERMINATIONS OF PREGNANCY AND UNKNOWN OUTCOME OF PREGNANCY BY DIAGNOSTIC CATEGORY, NSW 1994–2000

Diagnostic category	1994–1998			Year 1999			2000			1994–2000		
	Spont. abortion	Termination of pregnancy less than 20 weeks gestation	Unknown outcome	Spont. abortion	Termination of pregnancy less than 20 weeks gestation	Unknown outcome	Spont. abortion	Termination of pregnancy less than 20 weeks gestation	Unknown outcome	Spont. abortion	Termination of pregnancy less than 20 weeks gestation	Unknown outcome
	No.	No.	No.									
Defects of nervous system												
Neural tube defects	14	192	7	0	48	1	1	36	15	276	8	
Other nervous system defects	6	82	11	0	33	1	2	19	8	134	12	
TOTAL	20	274	18	0	81	2	3	55	23	410	20	
Defects of eye	0	2	1	0	1	0	0	0	0	3	1	
Defects of ear, face and neck	0	7	1	0	4	0	0	2	0	13	1	
Defects of cardiovascular system	4	105	44	0	51	3	4	19	8	175	47	
Defects of respiratory system	0	18	3	0	12	0	0	0	0	30	3	
Defects of gastrointestinal system	3	59	13	0	35	0	2	17	5	111	13	
Defects of genitourinary system	7	131	22	4	42	0	2	38	13	211	22	
Defects of musculoskeletal system	19	270	33	4	95	1	6	51	29	416	34	
Defects of the integumentary system	1	1	1	0	1	0	0	0	1	2	1	
Cystic hygroma	8	71	29	4	20	0	1	11	13	102	29	
Chromosomal defects												
Trisomy 21	29	173	231	10	107	2	7	44	46	324	233	
Trisomy 13	11	27	32	5	15	1	8	8	24	50	33	
Trisomy 18	18	76	79	7	41	4	4	9	29	126	83	
Turner syndrome	32	30	39	10	15	0	11	9	53	54	39	
Other chromosomal defects	199	98	163	80	41	6	76	13	355	152	169	
TOTAL	289	404	544	112	219	13	106	83	507	706	557	
Situs inversus	0	2	0	0	0	0	0	1	0	3	0	
Congenital malformation syndromes	0	20	2	0	3	0	0	2	0	25	2	
Non-immune hydrops foetalis	3	28	9	2	14	2	1	11	6	53	11	
Other and unspecified birth defects	1	22	23	0	11	1	2	1	3	34	24	
TOTAL	355	1414	743	126	589	22	127	291	608	2294	765	

Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

TABLE 103
TRENDS IN REPORTED TERMINATIONS OF PREGNANCY ASSOCIATED WITH BIRTH DEFECTS BY MATERNAL AGE, 1994–2000

Year	Maternal age (years)																TOTAL	
	15–19		20–24		25–29		30–34		35–39		40–44		45+		Not stated			
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
1994	5	3.6	26	18.8	20	14.5	23	16.7	29	21.0	17	12.3	2	1.4	16	11.6	138	100.0
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	2.8	16	15.1	22	20.8	24	22.6	24	22.6	11	10.4	0	0.0	6	5.7	106	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	7.6	55	22.0	45	18.0	63	25.2	51	20.4	4	1.6	10	4.0	250	100.0
1999	6	1.9	19	6.2	56	18.2	72	23.4	90	29.2	42	13.6	5	1.6	18	5.8	308	100.0
2000	2	1.4	11	7.9	30	21.4	40	28.6	32	22.9	15	10.7	1	0.7	9	6.4	140	100.0
1994–2000	28	2.3	123	10.1	247	20.2	274	22.4	296	24.2	172	14.1	15	1.2	67	5.5	1222	100.0

Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

6.3 TRENDS IN SELECTED BIRTH DEFECTS

Trends in a selection of common birth defects are shown in Figures 13 to 20. For 1994–1999, malformations reported up to one year of age are included and for 2000 malformations reported during pregnancy or at birth are included.

The reported number of infants born with neural tube was 46 in 1994 and 41 in 1999, and 31 have been reported for 2000 to date. The number of reported terminations of pregnancy was 40 in 1994, 44 in 1999 and 32 in 2000.

Over the period 1994–1999, the number of cases of isolated cleft palate ranged from 59 in 2000 to 91 in 1995 and for total cleft lip (including cases of cleft lip and cleft palate) from 70 in 2000 to 101 in 1995 (Figures 14 and 15). 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.

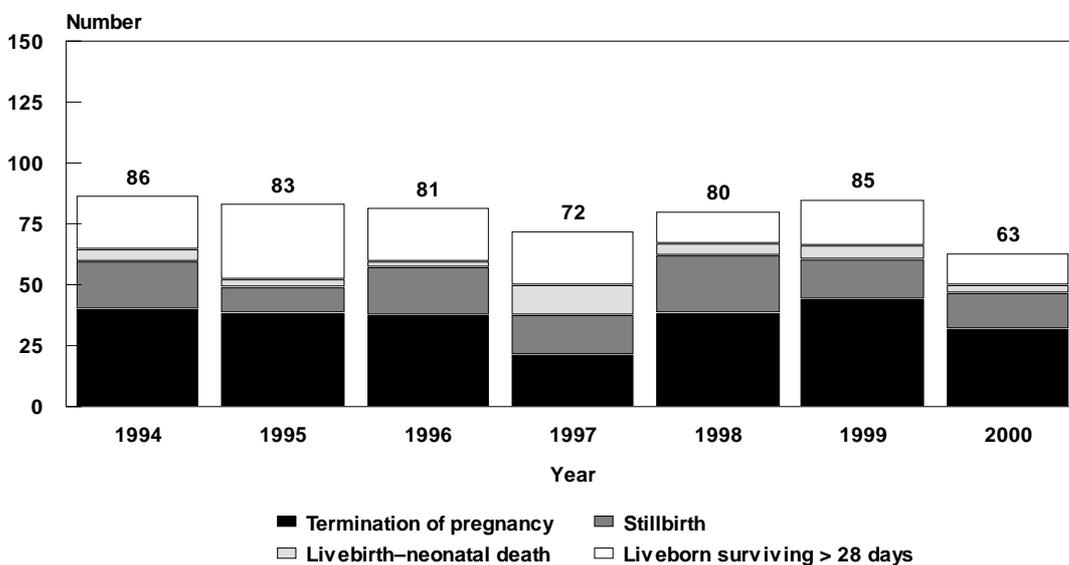
The number of reported cases of hypospadias varied from 165 in 2000 to 224 in 1993 (Figure 16), and cases of limb reduction defects varied from 44 in 1996 to 61 in 1997 (Figure 17).

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 18 and 19). The number of infants born with chromosomal defects was 185 in 1994 to 194 in 1999, and the number of reported terminations of pregnancy associated with chromosomal defects rose from 69 in 1994 to 219 in 1999. The number of infants born with Down syndrome was 104 in 1999 and 93 in 1999, while the number of terminations of pregnancy associated with Down syndrome rose from 26 in 1994 to 107 in 1999.

There was a trend towards improved notification of cases of renal agenesis and dysgenesis, which peaked in 1998. The increased reporting is due partly to the introduction of notification requirements in 1998, but also to improved diagnosis of less severe forms of renal dysgenesis in infants (Figure 20).

FIGURE 13

NEURAL TUBE DEFECTS: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1994–2000[#]

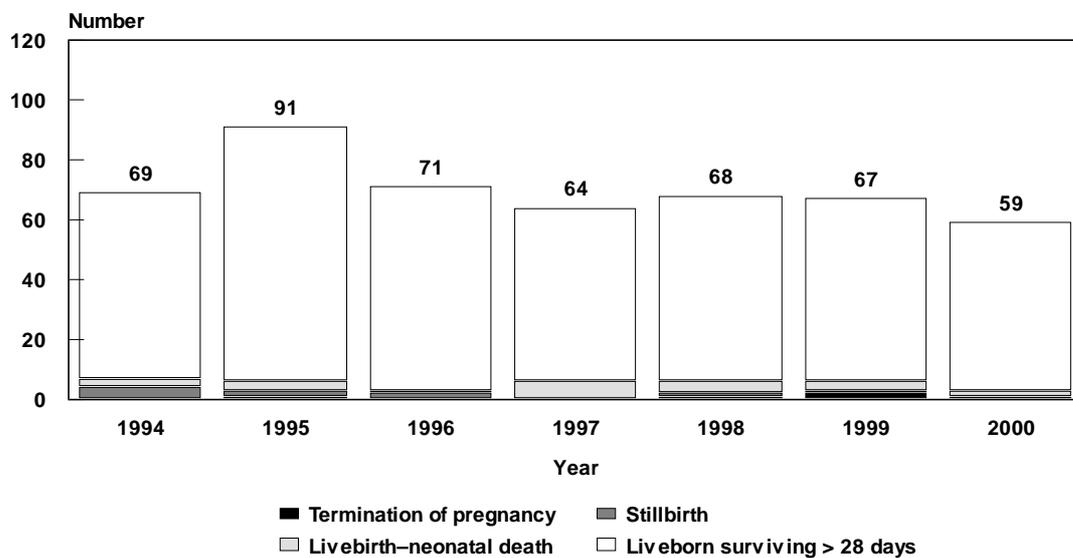


Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

[#] For 1994–1999, cases reported during pregnancy and up to one year of age are included. For 2000, cases reported during pregnancy or at birth are reported.

FIGURE 14

CLEFT PALATE: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1994–2000#

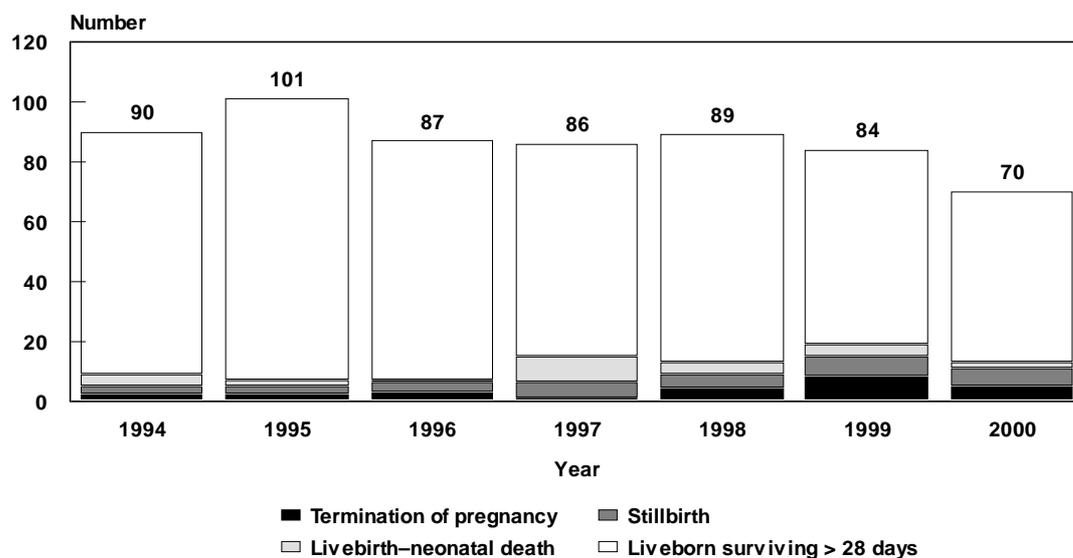


Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

For 1994–1999, cases reported during pregnancy and up to one year of age are included. For 2000, cases reported during pregnancy or at birth are reported.

FIGURE 15

TOTAL CLEFT LIP: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1994–2000#

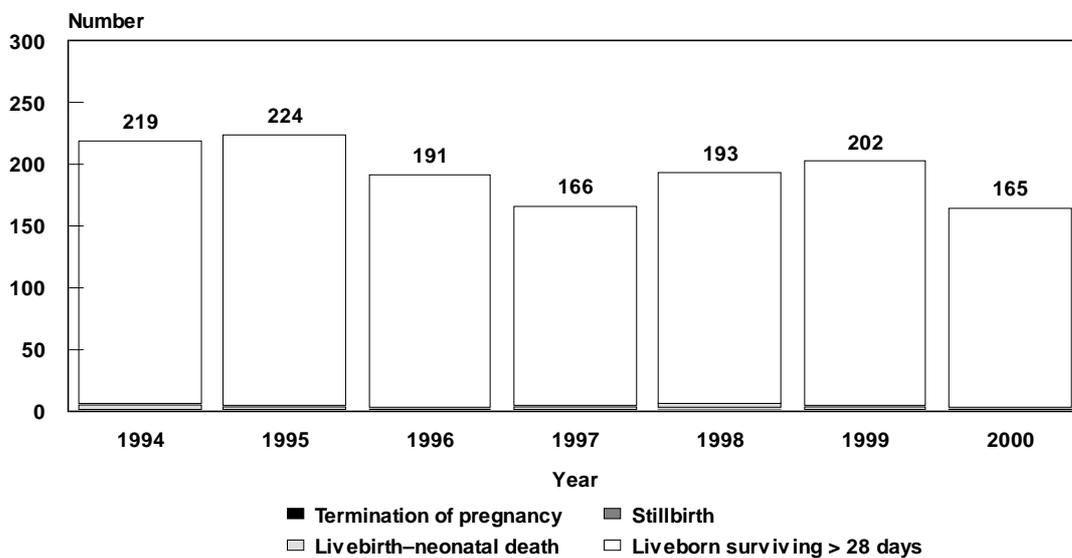


Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

For 1994–1999, cases reported during pregnancy and up to one year of age are included. For 2000, cases reported during pregnancy or at birth are reported.

FIGURE 16

HYPOSPADIAS: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1994–2000#

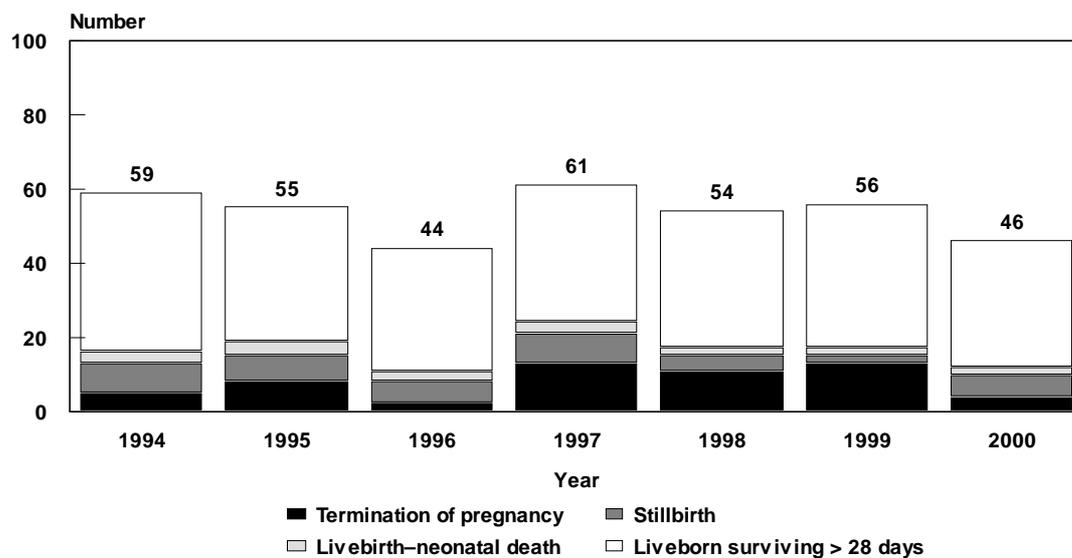


Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

For 1994–1999, cases reported during pregnancy and up to one year of age are included. For 2000, cases reported during pregnancy or at birth are reported.

FIGURE 17

LIMB REDUCTION DEFECTS: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1994–2000#

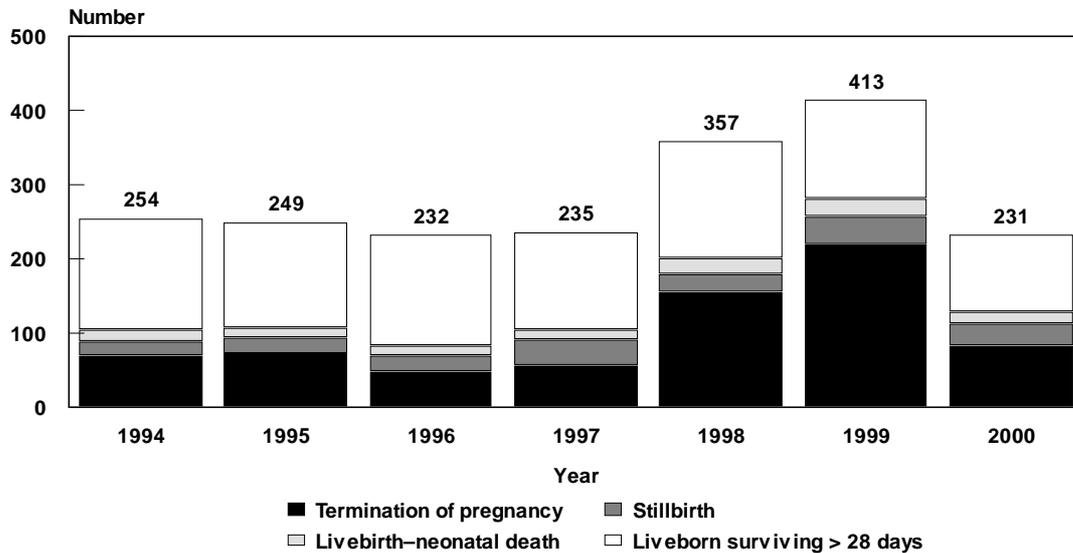


Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

For 1994–1999, cases reported during pregnancy and up to one year of age are included. For 2000, cases reported during pregnancy or at birth are reported.

FIGURE 18

CHROMOSOMAL ABNORMALITIES: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1994–2000#

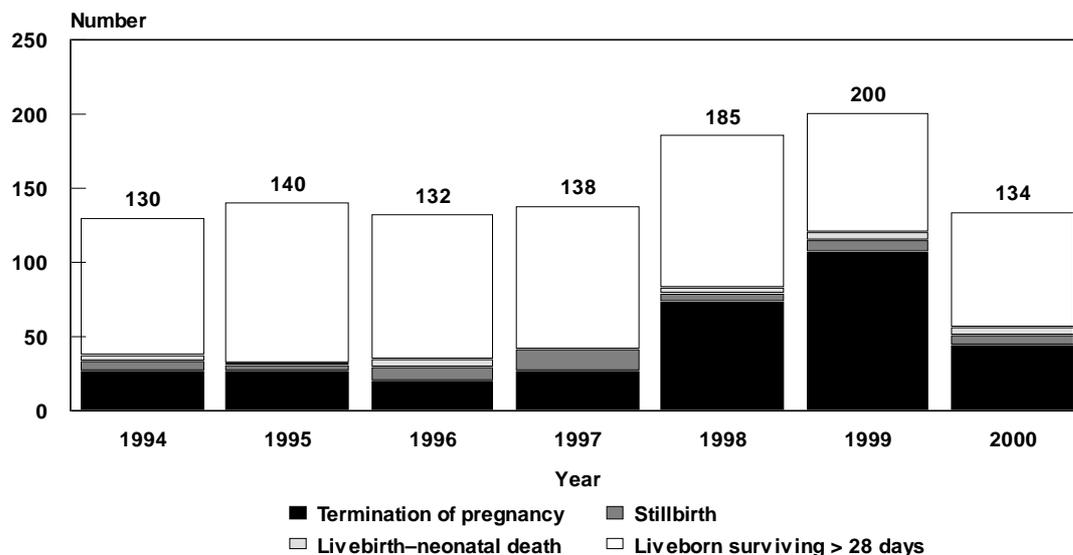


Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

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 1994–1999, cases reported during pregnancy and up to one year of age are included. For 2000, cases reported during pregnancy or at birth are reported.

FIGURE 19

DOWN SYNDROME: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1994–2000#

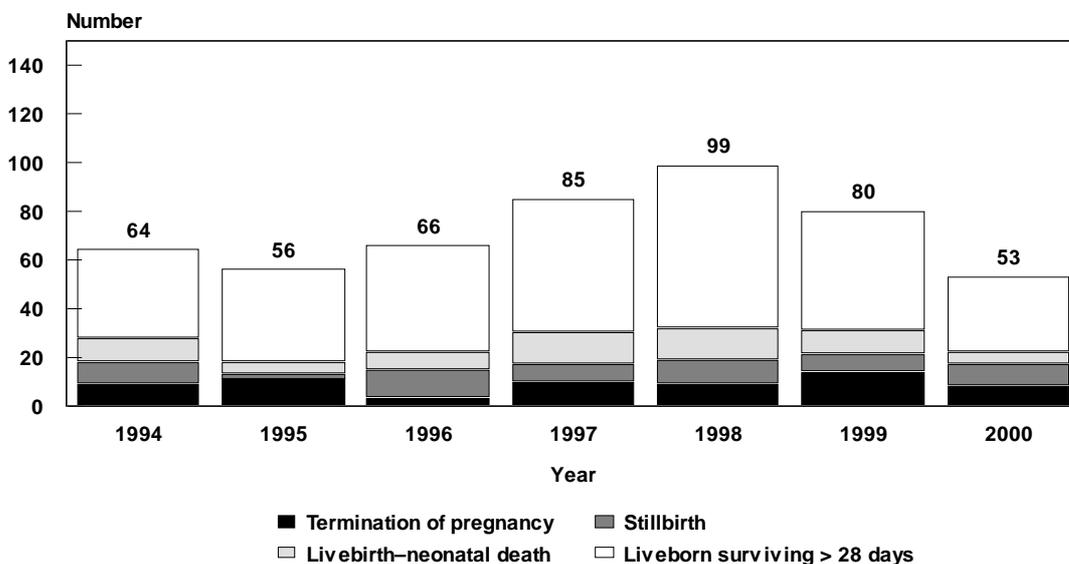


Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

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 1994–1999, cases reported during pregnancy and up to one year of age are included. For 2000, cases reported during pregnancy or at birth are reported.

FIGURE 20

RENAL AGENESIS AND DYSGENESIS: CASES BY YEAR AND PREGNANCY OUTCOME, NSW 1994–2000#



Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, 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 1994–1999, cases reported during pregnancy and up to one year of age are included. For 2000, cases reported during pregnancy or at birth are reported.

6.4 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 104. For 1994–1999, birth defects detected up to one year of age are reported and for 2000 birth defects detected during pregnancy or at birth are reported. The denominator population includes live births and stillbirths among NSW residents as reported to the MDC. The rate of birth defects increases with increasing maternal age (Table 100). 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 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 1994–2000 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 as a whole. 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 from the Hunter Area. In addition, higher rates of unstable hips (but not dislocated hips), hypospadias, and ventricular septal defect. The range 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 104

BIRTH DEFECTS IN NSW HEALTH AREAS, 1994–2000[#]

Health Area	1994–1998			1999			2000			1994–2000			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	739	21.7	20.3	145	21.6	18.9	97	14.0	14.1	981	20.6	19.3	17.5–21.1
Northern Sydney	1107	25.0	23.8	212	22.5	21.4	134	14.0	12.3	1453	22.9	22.0	20.0–24.1
Western Sydney	1247	23.8	22.9	269	24.8	23.8	142	13.0	13.2	1658	22.4	21.6	20.2–23.0
Wentworth	565	22.8	22.3	135	27.5	27.2	79	15.8	15.9	779	22.5	22.0	20.0–24.2
South Western													
Sydney	1420	23.1	22.0	274	22.1	21.8	152	11.9	11.9	1846	21.3	20.5	19.3–21.8
Central Coast	457	24.0	24.0	81	21.7	21.2	50	13.0	12.8	588	22.1	22.0	19.7–24.5
Hunter	948	26.5	25.9	234	33.0	32.3	104	14.7	14.9	1286	25.8	25.3	23.5–27.2
Illawarra	497	22.0	21.2	85	19.0	18.6	68	15.1	15.5	650	20.6	19.9	17.9–22.1
South Eastern													
Sydney	1167	25.8	23.7	243	25.4	24.0	115	11.6	11.5	1525	23.6	22.0	20.3–23.7
Northern Rivers	282	18.9	19.3	53	18.0	17.6	43	15.4	16.0	378	18.3	18.6	16.2–21.3
Mid North Coast	345	22.4	22.2	69	23.4	22.2	47	16.5	16.2	461	21.8	21.5	18.9–24.3
New England	292	23.3	23.6	52	21.9	22.4	33	14.4	14.5	377	21.9	22.2	19.3–25.3
Macquarie	213	25.5	25.1	29	18.0	18.2	20	12.3	11.5	262	22.6	22.2	18.8–26.2
Mid Western	251	20.6	20.1	59	25.3	25.5	35	15.1	15.5	345	20.5	20.2	17.4–23.2
Far West	63	21.3	21.1	10	18.6	18.7	3	5.6	5.5	76	18.9	18.9	13.3–25.9
Greater Murray	353	20.5	20.3	52	19.6	19.7	28	11.0	10.3	433	19.3	19.1	16.8–21.7
Southern	222	23.1	21.1	42	22.5	20.3	20	11.2	10.9	284	21.4	19.6	16.6–23.0
TOTAL NSW	10168	23.5	22.5	2044	23.6	22.7	1170	13.4	13.3	13382	22.1	21.2	20.7–21.7

Source: NSW Birth Defects Register. Epidemiology and Surveillance Branch, NSW Department of Health.

Cases exclude terminations of pregnancy, stillbirths and livebirths where the place of residence is unknown. For 1994–1999, cases reported during pregnancy and up to one year of age are included. For 2000, 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.

PART 7: NSW HOSPITALS

7.1 ONSET AND AUGMENTATION OF LABOUR IN SELECTED HOSPITALS

Table 105 gives onset or augmentation of labour for individual hospitals where the number of reported deliveries exceeded 200 in 2000, totals for all hospitals within each health area and the NSW total.

TABLE 105

CONFINEMENTS BY ONSET AND AUGMENTATION OF LABOUR AND HOSPITAL, NSW 2000[#]

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.	%	
Central Sydney																				
Canterbury*	953	62.2	0	0.0	187	12.2	121	7.9	256	16.7	14	0.9	0	0.0	2	0.1	0	0.0	1533	100.0
King George V*	2115	54.7	0	0.0	504	13.0	475	12.3	741	19.2	29	0.7	0	0.0	4	0.1	0	0.0	3868	100.0
NSW Private	94	36.3	18	6.9	27	10.4	39	15.1	39	15.1	6	2.3	36	13.9	0	0.0	0	0.0	259	100.0
ALL HOSPITALS	3162	55.9	18	0.3	718	12.7	635	11.2	1036	18.3	49	0.9	36	0.6	6	0.1	0	0.0	5660	100.0
Northern Sydney																				
Hornsby	584	49.3	28	2.4	126	10.6	137	11.6	84	7.1	5	0.4	220	18.6	0	0.0	0	0.0	1184	100.0
Manly	461	50.6	20	2.2	85	9.3	104	11.4	74	8.1	26	2.9	141	15.5	0	0.0	0	0.0	911	100.0
Mona Vale	359	54.1	6	0.9	79	11.9	70	10.5	37	5.6	0	0.0	113	17.0	0	0.0	0	0.0	664	100.0
Royal North Shore	837	48.9	53	3.1	205	12.0	264	15.4	117	6.8	5	0.3	228	13.3	1	0.1	0	0.0	1710	100.0
Ryde	413	56.9	17	2.3	75	10.3	69	9.5	57	7.9	3	0.4	92	12.7	0	0.0	0	0.0	726	100.0
Mater, North Sydney	609	33.1	140	7.6	268	14.5	346	18.8	165	9.0	59	3.2	253	13.7	0	0.0	2	0.1	1842	100.0
North Shore Private	639	34.7	78	4.2	184	10.0	399	21.6	111	6.0	35	1.9	385	20.9	12	0.7	0	0.0	1843	100.0
Sydney Adventist	504	23.2	289	13.3	331	15.2	365	16.8	116	5.3	34	1.6	537	24.7	1	0.0	0	0.0	2177	100.0
ALL HOSPITALS	4406	39.8	631	5.7	1353	12.2	1754	15.9	761	6.9	167	1.5	1969	17.8	14	0.1	2	0.0	11057	100.0
Western Sydney																				
Auburn	813	56.9	114	8.0	160	11.2	94	6.6	97	6.8	7	0.5	145	10.1	0	0.0	0	0.0	1430	100.0
Blacktown	1302	47.4	365	13.3	240	8.7	217	7.9	191	7.0	5	0.2	405	14.8	16	0.6	4	0.1	2745	100.0
Westmead	2030	52.5	179	4.6	537	13.9	376	9.7	158	4.1	25	0.6	549	14.2	13	0.3	0	0.0	3867	100.0
The Hills Private	381	27.5	174	12.6	196	14.2	190	13.7	121	8.7	11	0.8	312	22.5	0	0.0	0	0.0	1385	100.0
Other Area hospitals	46	37.1	14	11.3	7	5.6	18	14.5	15	12.1	1	0.8	23	18.5	0	0.0	0	0.0	124	100.0
ALL HOSPITALS	4572	47.9	846	8.9	1140	11.9	895	9.4	582	6.1	49	0.5	1434	15.0	29	0.3	4	0.0	9551	100.0
Wentworth																				
Blue Mountains	265	59.4	37	8.3	38	8.5	24	5.4	44	9.9	17	3.8	18	4.0	3	0.7	0	0.0	446	100.0
Nepean	1829	52.9	102	3.0	262	7.6	433	12.5	205	5.9	27	0.8	589	17.0	9	0.3	0	0.0	3456	100.0
Jamison Private	149	35.6	74	17.7	34	8.1	48	11.5	40	9.6	12	2.9	61	14.6	0	0.0	0	0.0	418	100.0
Hawkesbury	493	46.7	160	15.2	79	7.5	83	7.9	93	8.8	21	2.0	127	12.0	0	0.0	0	0.0	1056	100.0
Nepean Private	79	34.6	35	15.4	21	9.2	28	12.3	20	8.8	6	2.6	38	16.7	1	0.4	0	0.0	228	100.0
ALL HOSPITALS	2815	50.2	408	7.3	434	7.7	616	11.0	402	7.2	83	1.5	833	14.9	13	0.2	0	0.0	5604	100.0
South Western Sydney																				
Fairfield	1353	62.8	63	2.9	163	7.6	143	6.6	111	5.2	5	0.2	306	14.2	11	0.5	0	0.0	2155	100.0
Liverpool	1685	53.3	231	7.3	322	10.2	256	8.1	208	6.6	34	1.1	393	12.4	30	0.9	0	0.0	3159	100.0
Campbelltown	1470	52.4	172	6.1	216	7.7	223	7.9	134	4.8	54	1.9	525	18.7	12	0.4	0	0.0	2806	100.0
Bankstown-Lidcombe	994	52.8	172	9.1	189	10.0	150	8.0	141	7.5	6	0.3	225	12.0	5	0.3	0	0.0	1882	100.0
Bankstown Private	100	24.9	33	8.2	60	14.9	64	15.9	49	12.2	6	1.5	90	22.4	0	0.0	0	0.0	402	100.0
Sydney Southwest Private	131	28.2	37	8.0	60	12.9	53	11.4	56	12.0	11	2.4	116	24.9	1	0.2	0	0.0	465	100.0
Bowral	378	57.9	14	2.1	32	4.9	48	7.4	48	7.4	16	2.5	108	16.5	9	1.4	0	0.0	653	100.0
ALL HOSPITALS	6111	53.0	722	6.3	1042	9.0	937	8.1	747	6.5	132	1.1	1763	15.3	68	0.6	0	0.0	11522	100.0
Central Coast																				
Gosford	855	35.8	321	13.4	393	16.4	237	9.9	202	8.4	20	0.8	363	15.2	0	0.0	0	0.0	2391	100.0
Wyong	276	62.0	144	32.4	22	4.9	3	0.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	445	100.0
North Gosford Private	196	27.6	60	8.5	103	14.5	112	15.8	73	10.3	25	3.5	139	19.6	2	0.3	0	0.0	710	100.0
ALL HOSPITALS	1327	37.4	525	14.8	518	14.6	352	9.9	275	7.8	45	1.3	502	14.2	2	0.1	0	0.0	3546	100.0
Hunter																				
Maitland	740	57.7	34	2.7	60	4.7	160	12.5	108	8.4	32	2.5	140	10.9	8	0.6	0	0.0	1282	100.0
Muswellbrook	114	52.5	30	13.8	9	4.1	9	4.1	33	15.2	4	1.8	18	8.3	0	0.0	0	0.0	217	100.0
Belmont	292	44.0	76	11.5	52	7.8	68	10.3	41	6.2	17	2.6	116	17.5	1	0.2	0	0.0	663	100.0
John Hunter	2177	61.5	98	2.8	144	4.1	346	9.8	241	6.8	87	2.5	426	12.0	22	0.6	0	0.0	3541	100.0
Christo Road Private	463	48.2	33	3.4	39	4.1	155	16.1	86	9.0	22	2.3	159	16.6	3	0.3	0	0.0	960	100.0
Other Area hospitals	235	52.9	40	9.0	19	4.3	78	17.6	50	11.3	5	1.1	17	3.8	0	0.0	0	0.0	444	100.0
ALL HOSPITALS	4021	56.6	311	4.4	323	4.5	816	11.5	559	7.9	167	2.3	876	12.3	34	0.5	0	0.0	7107	100.0
Illawarra																				
Shoalhaven	529	63.1	25	3.0	20	2.4	92	11.0	91	10.9	5	0.6	70	8.4	6	0.7	0	0.0	838	100.0
Wollongong	990	39.8	358	14.4	285	11.5	196	7.9	193	7.8	35	1.4	427	17.2	1	0.0	0	0.0	2485	100.0
Illawarra Private	198	26.6	115	15.5	65	8.7	115	15.5	46	6.2	12	1.6	191	25.7	2	0.3	0	0.0	744	100.0
Other Area hospitals	45	36.9	18	14.8	9	7.4	23	18.9	14	11.5	1	0.8	12	9.8	0	0.0	0	0.0	122	100.0
ALL HOSPITALS	1762	42.1	516	12.3	379	9.0	426	10.2	344	8.2	53	1.3	700	16.7	9	0.2	0	0.0	4189	100.0

TABLE 105 (continued)

CONFINEMENTS BY ONSET AND AUGMENTATION OF LABOUR AND HOSPITAL, NSW 2000#

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	1678	43.4	240	6.2	687	17.8	443	11.5	261	6.8	19	0.5	524	13.6	10	0.3	0	0.0	3862	100.0
St. George	1127	47.0	257	10.7	327	13.6	197	8.2	265	11.1	29	1.2	195	8.1	1	0.0	0	0.0	2398	100.0
Sutherland	401	42.1	71	7.5	132	13.9	85	8.9	114	12.0	9	0.9	139	14.6	2	0.2	0	0.0	953	100.0
Hurstville Community	228	27.2	70	8.3	160	19.1	143	17.0	49	5.8	7	0.8	182	21.7	0	0.0	0	0.0	839	100.0
Kareena Private	127	20.6	48	7.8	82	13.3	121	19.6	61	9.9	8	1.3	169	27.4	1	0.2	0	0.0	617	100.0
St. George Private	425	33.3	121	9.5	180	14.1	245	19.2	152	11.9	19	1.5	133	10.4	1	0.1	0	0.0	1276	100.0
Prince of Wales Private	473	28.9	189	11.5	233	14.2	354	21.6	166	10.1	35	2.1	186	11.4	2	0.1	0	0.0	1638	100.0
ALL HOSPITALS	4459	38.5	996	8.6	1801	15.5	1588	13.7	1068	9.2	126	1.1	1528	13.2	17	0.1	0	0.0	11583	100.0
Northern Rivers																				
Grafton Base	163	34.6	59	12.5	52	11.0	70	14.9	51	10.8	8	1.7	68	14.4	0	0.0	0	0.0	471	100.0
Lismore Base	610	50.3	106	8.7	96	7.9	123	10.1	118	9.7	31	2.6	125	10.3	3	0.2	0	0.0	1212	100.0
Murwillumbah	162	35.2	71	15.4	69	15.0	39	8.5	67	14.6	1	0.2	50	10.9	1	0.2	0	0.0	460	100.0
Tweed Heads	338	46.5	95	13.1	82	11.3	74	10.2	39	5.4	4	0.6	95	13.1	0	0.0	0	0.0	727	100.0
Other Area hospitals	221	66.4	44	13.2	15	4.5	28	8.4	7	2.1	8	2.4	10	3.0	0	0.0	0	0.0	333	100.0
ALL HOSPITALS	1494	46.6	375	11.7	314	9.8	334	10.4	282	8.8	52	1.6	348	10.9	4	0.1	0	0.0	3203	100.0
Mid North Coast																				
Coffs Harbour	282	40.5	38	5.5	32	4.6	142	20.4	68	9.8	6	0.9	128	18.4	0	0.0	0	0.0	696	100.0
Kempsey	112	38.2	72	24.6	19	6.5	30	10.2	21	7.2	2	0.7	37	12.6	0	0.0	0	0.0	293	100.0
Port Macquarie Base	240	34.0	123	17.4	62	8.8	91	12.9	70	9.9	5	0.7	112	15.9	2	0.3	0	0.0	705	100.0
Manning Base	322	45.4	89	12.6	54	7.6	67	9.4	57	8.0	16	2.3	104	14.7	0	0.0	0	0.0	709	100.0
Other Area hospitals	140	50.5	29	10.5	26	9.4	36	13.0	19	6.9	2	0.7	25	9.0	0	0.0	0	0.0	277	100.0
ALL HOSPITALS	1096	40.9	351	13.1	193	7.2	366	13.7	235	8.8	31	1.2	406	15.1	2	0.1	0	0.0	2680	100.0
New England																				
Armidale	148	32.8	74	16.4	75	16.6	25	5.5	63	14.0	9	2.0	57	12.6	0	0.0	0	0.0	451	100.0
Inverell	75	32.6	35	15.2	23	10.0	35	15.2	26	11.3	5	2.2	31	13.5	0	0.0	0	0.0	230	100.0
Moree	118	48.6	23	9.5	17	7.0	21	8.6	18	7.4	1	0.4	45	18.5	0	0.0	0	0.0	243	100.0
Tamworth Base	173	27.2	130	20.5	64	10.1	93	14.6	38	6.0	11	1.7	125	19.7	1	0.2	0	0.0	635	100.0
Other Area hospitals	267	36.5	104	14.2	54	7.4	82	11.2	108	14.8	13	1.8	100	13.7	3	0.4	0	0.0	731	100.0
ALL HOSPITALS	781	34.1	366	16.0	233	10.2	256	11.2	253	11.0	39	1.7	358	15.6	4	0.2	0	0.0	2290	100.0
Macquarie																				
Dubbo Base	542	43.9	144	11.7	125	10.1	114	9.2	112	9.1	36	2.9	160	13.0	2	0.2	0	0.0	1235	100.0
Mudgee	127	52.5	21	8.7	23	9.5	32	13.2	20	8.3	4	1.7	15	6.2	0	0.0	0	0.0	242	100.0
Other Area hospitals	100	64.5	29	18.7	2	1.3	20	12.9	0	0.0	1	0.6	3	1.9	0	0.0	0	0.0	155	100.0
ALL HOSPITALS	769	47.1	194	11.9	150	9.2	166	10.2	132	8.1	41	2.5	178	10.9	2	0.1	0	0.0	1632	100.0
Mid Western																				
Bathurst Base	258	49.0	58	11.0	37	7.0	73	13.9	58	11.0	8	1.5	35	6.6	0	0.0	0	0.0	527	100.0
Orange Base	270	35.4	102	13.4	72	9.4	111	14.5	44	5.8	25	3.3	138	18.1	0	0.0	1	0.1	763	100.0
Parkes	126	61.2	8	3.9	6	2.9	30	14.6	20	9.7	3	1.5	13	6.3	0	0.0	0	0.0	206	100.0
Other Area hospitals	238	39.0	103	16.9	42	6.9	97	15.9	72	11.8	23	3.8	36	5.9	0	0.0	0	0.0	611	100.0
ALL HOSPITALS	892	42.3	271	12.9	157	7.5	311	14.8	194	9.2	59	2.8	222	10.5	0	0.0	1	0.0	2107	100.0
Far West																				
Broken Hill Base	183	66.1	21	7.6	10	3.6	17	6.1	13	4.7	14	5.1	19	6.9	0	0.0	0	0.0	277	100.0
Other Area hospitals	59	71.1	5	6.0	7	8.4	3	3.6	8	9.6	0	0.0	1	1.2	0	0.0	0	0.0	83	100.0
ALL HOSPITALS	242	67.2	26	7.2	17	4.7	20	5.6	21	5.8	14	3.9	20	5.6	0	0.0	0	0.0	360	100.0
Greater Murray																				
Griffith Base	205	42.9	66	13.8	21	4.4	58	12.1	79	16.5	8	1.7	41	8.6	0	0.0	0	0.0	478	100.0
Wagga Wagga Base	393	47.9	73	8.9	57	7.0	93	11.3	89	10.9	25	3.0	81	9.9	9	1.1	0	0.0	820	100.0
Calvary, Wagga Wagga	137	31.8	19	4.4	28	6.5	54	12.5	123	28.5	16	3.7	53	12.3	1	0.2	0	0.0	431	100.0
Other Area hospitals	440	50.6	103	11.9	30	3.5	85	9.8	131	15.1	19	2.2	61	7.0	0	0.0	0	0.0	869	100.0
ALL HOSPITALS	1175	45.2	261	10.0	136	5.2	290	11.2	422	16.2	68	2.6	236	9.1	10	0.4	0	0.0	2598	100.0
Southern																				
Bega	86	41.0	35	16.7	19	9.0	29	13.8	16	7.6	1	0.5	23	11.0	1	0.5	0	0.0	210	100.0
Goulburn Base	165	52.2	38	12.0	38	12.0	41	13.0	26	8.2	0	0.0	7	2.2	0	0.0	1	0.3	316	100.0
Queanbeyan	190	56.7	27	8.1	28	8.4	23	6.9	50	14.9	3	0.9	14	4.2	0	0.0	0	0.0	335	100.0
Other Area hospitals	418	52.1	89	11.1	56	7.0	71	8.9	88	11.0	17	2.1	63	7.9	0	0.0	0	0.0	802	100.0
ALL HOSPITALS	859	51.7	189	11.4	141	8.5	164	9.9	180	10.8	21	1.3	107	6.4	1	0.1	1	0.1	1663	100.0
TOTAL NSW	40042	46.3	7014	8.1	9050	10.5	9926	11.5	7493	8.7	1196	1.4	11516	13.3	215	0.2	8	0.0	86460	100.0

Source: NSW Midwives Data Collection (HOIST), Epidemiology and Surveillance Branch, 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 reports augmentation by oxytocin-prostaglandin only.

7.2 TYPE OF DELIVERY IN SELECTED HOSPITALS

Table 106 gives type of delivery for individual hospitals where the number of reported confinements exceeded 200 in 2000, totals for all hospitals within each health area and the NSW total.

TABLE 106

CONFINEMENTS BY TYPE OF DELIVERY AND HOSPITAL, NSW 2000*

Health Area and Hospital	Normal vaginal		Forceps		Vacuum extraction		Type of delivery				Emergency caesarean		Not stated		TOTAL	
	No.	%	No.	%	No.	%	Vaginal breech	Elective caesarean	Emergency caesarean	No.	%	No.	%	No.	%	
Central Sydney																
Canterbury	1083	70.6	61	4.0	111	7.2	7	0.5	121	7.9	150	9.8	0	0.0	1533	100.0
King George V	2516	65.0	123	3.2	300	7.8	50	1.3	475	12.3	404	10.4	0	0.0	3868	100.0
NSW Private	142	54.8	18	6.9	34	13.1	0	0.0	39	15.1	26	10.0	0	0.0	259	100.0
ALL HOSPITALS	3741	66.1	202	3.6	445	7.9	57	1.0	635	11.2	580	10.2	0	0.0	5660	100.0
Northern Sydney																
Hornsby	808	68.2	49	4.1	80	6.8	6	0.5	137	11.6	104	8.8	0	0.0	1184	100.0
Manly	631	69.3	29	3.2	55	6.0	1	0.1	104	11.4	91	10.0	0	0.0	911	100.0
Mona Vale	437	65.8	39	5.9	53	8.0	3	0.5	70	10.5	62	9.3	0	0.0	664	100.0
Royal North Shore	970	56.7	127	7.4	101	5.9	14	0.8	264	15.4	234	13.7	0	0.0	1710	100.0
Ryde	511	70.4	31	4.3	33	4.5	6	0.8	69	9.5	76	10.5	0	0.0	726	100.0
Mater, North Sydney	895	48.6	102	5.5	271	14.7	2	0.1	346	18.8	224	12.2	2	0.1	1842	100.0
North Shore Private	893	48.5	83	4.5	239	13.0	6	0.3	399	21.6	223	12.1	0	0.0	1843	100.0
Sydney Adventist	1289	59.2	164	7.5	159	7.3	8	0.4	365	16.8	192	8.8	0	0.0	2177	100.0
ALL HOSPITALS	6434	58.2	624	5.6	991	9.0	46	0.4	1754	15.9	1206	10.9	2	0.0	11057	100.0
Western Sydney																
Auburn	1153	80.6	55	3.8	21	1.5	16	1.1	94	6.6	91	6.4	0	0.0	1430	100.0
Blacktown	2024	73.7	163	5.9	83	3.0	17	0.6	217	7.9	232	8.5	9	0.3	2745	100.0
Westmead	2605	67.4	322	8.3	103	2.7	51	1.3	376	9.7	410	10.6	0	0.0	3867	100.0
The Hills Private	851	61.4	138	10.0	61	4.4	11	0.8	190	13.7	134	9.7	0	0.0	1385	100.0
Other Area hospitals	76	61.3	9	7.3	11	8.9	0	0.0	18	14.5	10	8.1	0	0.0	124	100.0
ALL HOSPITALS	6709	70.2	687	7.2	279	2.9	95	1.0	895	9.4	877	9.2	9	0.1	9551	100.0
Wentworth																
Blue Mountains	340	76.2	4	0.9	26	5.8	6	1.3	24	5.4	44	9.9	2	0.4	446	100.0
Nepean	2425	70.2	79	2.3	184	5.3	12	0.3	433	12.5	323	9.3	0	0.0	3456	100.0
Jamison Private	286	68.4	26	6.2	7	1.7	1	0.2	48	11.5	50	12.0	0	0.0	418	100.0
Hawkesbury	747	70.7	75	7.1	35	3.3	11	1.0	83	7.9	105	9.9	0	0.0	1056	100.0
Nepean Private	160	70.2	7	3.1	4	1.8	0	0.0	28	12.3	29	12.7	0	0.0	228	100.0
ALL HOSPITALS	3958	70.6	191	3.4	256	4.6	30	0.5	616	11.0	551	9.8	2	0.0	5604	100.0
South Western Sydney																
Fairfield	1749	81.2	21	1.0	133	6.2	26	1.2	143	6.6	83	3.9	0	0.0	2155	100.0
Liverpool	2359	74.7	73	2.3	186	5.9	49	1.6	256	8.1	236	7.5	0	0.0	3159	100.0
Campbelltown	2220	79.1	35	1.2	128	4.6	16	0.6	223	7.9	184	6.6	0	0.0	2806	100.0
Bankstown-Lidcombe	1432	76.1	27	1.4	109	5.8	13	0.7	150	8.0	151	8.0	0	0.0	1882	100.0
Bankstown Private	220	54.7	25	6.2	48	11.9	1	0.2	64	15.9	44	10.9	0	0.0	402	100.0
Sydney Southwest Private	286	61.5	20	4.3	50	10.8	6	1.3	53	11.4	50	10.8	0	0.0	465	100.0
Bowral	423	64.8	66	10.1	73	11.2	8	1.2	48	7.4	35	5.4	0	0.0	653	100.0
ALL HOSPITALS	8689	75.4	267	2.3	727	6.3	119	1.0	937	8.1	783	6.8	0	0.0	11522	100.0
Central Coast																
Gosford	1567	65.5	60	2.5	239	10.0	14	0.6	237	9.9	274	11.5	0	0.0	2391	100.0
Wyong	404	90.8	5	1.1	17	3.8	1	0.2	3	0.7	15	3.4	0	0.0	445	100.0
North Gosford Private	383	53.9	23	3.2	88	12.4	4	0.6	112	15.8	100	14.1	0	0.0	710	100.0
ALL HOSPITALS	2354	66.4	88	2.5	344	9.7	19	0.5	352	9.9	389	11.0	0	0.0	3546	100.0
Hunter																
Maitland	871	67.9	31	2.4	70	5.5	11	0.9	160	12.5	139	10.8	0	0.0	1282	100.0
Muswellbrook	183	84.3	1	0.5	4	1.8	1	0.5	9	4.1	19	8.8	0	0.0	217	100.0
Belmont	504	76.0	8	1.2	32	4.8	2	0.3	68	10.3	49	7.4	0	0.0	663	100.0
John Hunter	2431	68.7	100	2.8	216	6.1	59	1.7	346	9.8	389	11.0	0	0.0	3541	100.0
Christo Road Private	554	57.7	44	4.6	93	9.7	4	0.4	155	16.1	110	11.5	0	0.0	960	100.0
Other Area hospitals	320	72.1	6	1.4	22	5.0	2	0.5	78	17.6	16	3.6	0	0.0	444	100.0
ALL HOSPITALS	4863	68.4	190	2.7	437	6.1	79	1.1	816	11.5	722	10.2	0	0.0	7107	100.0
Illawarra																
Shoalhaven	613	73.2	50	6.0	0	0.0	8	1.0	92	11.0	75	8.9	0	0.0	838	100.0
Wollongong	1824	73.4	54	2.2	173	7.0	17	0.7	196	7.9	221	8.9	0	0.0	2485	100.0
Illawarra Private	416	55.9	16	2.2	135	18.1	2	0.3	115	15.5	60	8.1	0	0.0	744	100.0
Other Area hospitals	85	69.7	3	2.5	3	2.5	0	0.0	23	18.9	8	6.6	0	0.0	122	100.0
ALL HOSPITALS	2938	70.1	123	2.9	311	7.4	27	0.6	426	10.2	364	8.7	0	0.0	4189	100.0

TABLE 106 (continued)
CONFINEMENTS BY TYPE OF DELIVERY AND HOSPITAL, NSW 2000[#]

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	2245	58.1	262	6.8	338	8.8	34	0.9	443	11.5	540	14.0	0	0.0	3862	100.0
St. George	1582	66.0	107	4.5	180	7.5	13	0.5	197	8.2	319	13.3	0	0.0	2398	100.0
Sutherland	669	70.2	45	4.7	48	5.0	5	0.5	85	8.9	101	10.6	0	0.0	953	100.0
Hurstville Community	411	49.0	87	10.4	84	10.0	5	0.6	143	17.0	109	13.0	0	0.0	839	100.0
Kareena Private	290	47.0	96	15.6	23	3.7	6	1.0	121	19.6	81	13.1	0	0.0	617	100.0
St. George Private	640	50.2	115	9.0	67	5.3	4	0.3	245	19.2	204	16.0	1	0.1	1276	100.0
Prince of Wales Private	827	50.5	80	4.9	191	11.7	5	0.3	354	21.6	181	11.1	0	0.0	1638	100.0
ALL HOSPITALS	6664	57.5	792	6.8	931	8.0	72	0.6	1588	13.7	1535	13.3	1	0.0	11583	100.0
Northern Rivers																
Grafton Base	274	58.2	40	8.5	13	2.8	3	0.6	70	14.9	71	15.1	0	0.0	471	100.0
Lismore Base	849	70.0	41	3.4	49	4.0	10	0.8	123	10.1	140	11.6	0	0.0	1212	100.0
Murwillumbah	332	72.2	8	1.7	14	3.0	7	1.5	39	8.5	60	13.0	0	0.0	460	100.0
Tweed Heads	544	74.8	20	2.8	18	2.5	7	1.0	74	10.2	64	8.8	0	0.0	727	100.0
Other Area hospitals	299	89.8	3	0.9	1	0.3	1	0.3	28	8.4	1	0.3	0	0.0	333	100.0
ALL HOSPITALS	2298	71.7	112	3.5	95	3.0	28	0.9	334	10.4	336	10.5	0	0.0	3203	100.0
Mid North Coast																
Coffs Harbour	418	60.1	42	6.0	14	2.0	5	0.7	142	20.4	75	10.8	0	0.0	696	100.0
Kempsey	229	78.2	7	2.4	3	1.0	3	1.0	30	10.2	21	7.2	0	0.0	293	100.0
Port Macquarie Base	489	69.4	27	3.8	23	3.3	3	0.4	91	12.9	72	10.2	0	0.0	705	100.0
Manning Base	533	75.2	11	1.6	33	4.7	6	0.8	67	9.4	59	8.3	0	0.0	709	100.0
Other Area hospitals	217	78.3	7	2.5	8	2.9	1	0.4	36	13.0	8	2.9	0	0.0	277	100.0
ALL HOSPITALS	1886	70.4	94	3.5	81	3.0	18	0.7	366	13.7	235	8.8	0	0.0	2680	100.0
New England																
Armidale	388	86.0	4	0.9	13	2.9	3	0.7	25	5.5	18	4.0	0	0.0	451	100.0
Inverell	162	70.4	12	5.2	1	0.4	4	1.7	35	15.2	16	7.0	0	0.0	230	100.0
Moree	162	66.7	17	7.0	11	4.5	0	0.0	21	8.6	32	13.2	0	0.0	243	100.0
Tamworth Base	388	61.1	35	5.5	54	8.5	5	0.8	93	14.6	60	9.4	0	0.0	635	100.0
Other Area hospitals	509	69.6	47	6.4	30	4.1	5	0.7	82	11.2	58	7.9	0	0.0	731	100.0
ALL HOSPITALS	1609	70.3	115	5.0	109	4.8	17	0.7	256	11.2	184	8.0	0	0.0	2290	100.0
Macquarie																
Dubbo Base	897	72.6	84	6.8	41	3.3	7	0.6	114	9.2	92	7.4	0	0.0	1235	100.0
Mudgee	169	69.8	1	0.4	19	7.9	1	0.4	32	13.2	20	8.3	0	0.0	242	100.0
Other Area hospitals	123	79.4	5	3.2	5	3.2	2	1.3	20	12.9	0	0.0	0	0.0	155	100.0
ALL HOSPITALS	1189	72.9	90	5.5	65	4.0	10	0.6	166	10.2	112	6.9	0	0.0	1632	100.0
Mid Western																
Bathurst Base	336	63.8	18	3.4	24	4.6	1	0.2	73	13.9	75	14.2	0	0.0	527	100.0
Orange Base	491	64.4	44	5.8	25	3.3	5	0.7	111	14.5	87	11.4	0	0.0	763	100.0
Parkes	137	66.5	6	2.9	5	2.4	3	1.5	30	14.6	25	12.1	0	0.0	206	100.0
Other Area hospitals	412	67.4	10	1.6	30	4.9	4	0.7	97	15.9	58	9.5	0	0.0	611	100.0
ALL HOSPITALS	1376	65.3	78	3.7	84	4.0	13	0.6	311	14.8	245	11.6	0	0.0	2107	100.0
Far West																
Broken Hill Base	221	79.8	9	3.2	4	1.4	5	1.8	17	6.1	21	7.6	0	0.0	277	100.0
Other Area hospitals	75	90.4	1	1.2	0	0.0	2	2.4	3	3.6	2	2.4	0	0.0	83	100.0
ALL HOSPITALS	296	82.2	10	2.8	4	1.1	7	1.9	20	5.6	23	6.4	0	0.0	360	100.0
Greater Murray																
Griffith Base	335	70.1	14	2.9	20	4.2	4	0.8	58	12.1	47	9.8	0	0.0	478	100.0
Wagga Wagga Base	549	67.0	71	8.7	19	2.3	9	1.1	93	11.3	79	9.6	0	0.0	820	100.0
Calvary, Wagga Wagga	217	50.3	52	12.1	55	12.8	9	2.1	54	12.5	44	10.2	0	0.0	431	100.0
Other Area hospitals	646	74.3	29	3.3	33	3.8	3	0.3	85	9.8	73	8.4	0	0.0	869	100.0
ALL HOSPITALS	1747	67.2	166	6.4	127	4.9	25	1.0	290	11.2	243	9.4	0	0.0	2598	100.0
Southern																
Bega	126	60.0	5	2.4	22	10.5	2	1.0	29	13.8	26	12.4	0	0.0	210	100.0
Goulburn Base	189	59.8	40	12.7	8	2.5	1	0.3	41	13.0	37	11.7	0	0.0	316	100.0
Queanbeyan	266	79.4	7	2.1	15	4.5	1	0.3	23	6.9	23	6.9	0	0.0	335	100.0
Other Area hospitals	609	75.9	23	2.9	36	4.5	3	0.4	71	8.9	59	7.4	1	0.1	802	100.0
ALL HOSPITALS	1190	71.6	75	4.5	81	4.9	7	0.4	164	9.9	145	8.7	1	0.1	1663	100.0
TOTAL NSW	58049	67.1	3904	4.5	5367	6.2	669	0.8	9926	11.5	8530	9.9	15	0.0	86460	100.0

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

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

7.3 PAIN RELIEF IN SELECTED HOSPITALS

Table 107 gives type of pain relief provided to women for individual hospitals where the number of reported confinements exceeded 200 in 2000, totals for all hospitals within each health area and the NSW total. In addition to

the types of pain relief listed a further 21,370 (24.9 per cent) women were reported to have received local anaesthetic to the perineum, and 927 (1.1 per cent) received a pudendal block.

TABLE 107

CONFINEMENTS BY TYPE OF PAIN RELIEF AND HOSPITAL, NSW 2000*

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	263	17.2	104	6.8	503	32.8	768	50.1	91	5.9	218	14.2	1533	100.0
King George V	1393	36.0	248	6.4	1374	35.5	1103	28.5	130	3.4	617	16.0	3868	100.0
NSW Private	66	25.5	22	8.5	53	20.5	147	56.8	21	8.1	19	7.3	259	100.0
ALL HOSPITALS	1722	30.4	374	6.6	1930	34.1	2018	35.7	242	4.3	854	15.1	5660	100.0
Northern Sydney														
Hornsby	472	39.9	50	4.2	308	26.0	617	52.1	31	2.6	78	6.6	1184	100.0
Manly	290	31.8	28	3.1	301	33.0	401	44.0	88	9.7	66	7.2	911	100.0
Mona Vale	272	41.0	22	3.3	301	45.3	242	36.4	42	6.3	64	9.6	664	100.0
Royal North Shore	675	39.5	81	4.7	509	29.8	934	54.6	297	17.4	49	2.9	1710	100.0
Ryde	149	20.5	56	7.7	173	23.8	387	53.3	64	8.8	76	10.5	726	100.0
Mater, North Sydney	1162	63.1	48	2.6	216	11.7	638	34.6	31	1.7	54	2.9	1842	100.0
North Shore Private	1105	60.0	37	2.0	203	11.0	721	39.1	160	8.7	54	2.9	1843	100.0
Sydney Adventist	1188	54.6	103	4.7	275	12.6	768	35.3	54	2.5	60	2.8	2177	100.0
ALL HOSPITALS	5313	48.1	425	3.8	2286	20.7	4708	42.6	767	6.9	501	4.5	11057	100.0
Western Sydney														
Auburn	169	11.8	102	7.1	397	27.8	655	45.8	27	1.9	247	17.3	1430	100.0
Blacktown	659	24.0	198	7.2	467	17.0	1495	54.5	66	2.4	584	21.3	2745	100.0
Westmead	1728	44.7	249	6.4	592	15.3	1733	44.8	74	1.9	388	10.0	3867	100.0
The Hills Private	646	46.6	90	6.5	273	19.7	537	38.8	14	1.0	81	5.8	1385	100.0
Other Area hospitals	40	32.3	7	5.6	42	33.9	59	47.6	14	11.3	9	7.3	124	100.0
ALL HOSPITALS	3242	33.9	646	6.8	1771	18.5	4479	46.9	195	2.0	1309	13.7	9551	100.0
Wentworth														
Blue Mountains	105	23.5	10	2.2	165	37.0	275	61.7	22	4.9	61	13.7	446	100.0
Nepean	880	25.5	284	8.2	1198	34.7	1922	55.6	260	7.5	392	11.3	3456	100.0
Jamison Private	94	22.5	18	4.3	137	32.8	255	61.0	54	12.9	42	10.0	418	100.0
Hawkesbury	90	8.5	77	7.3	350	33.1	630	59.7	89	8.4	175	16.6	1056	100.0
Nepean Private	50	21.9	7	3.1	70	30.7	139	61.0	27	11.8	20	8.8	228	100.0
ALL HOSPITALS	1219	21.8	396	7.1	1920	34.3	3221	57.5	452	8.1	690	12.3	5604	100.0
South Western Sydney														
Fairfield	79	3.7	199	9.2	600	27.8	1189	55.2	7	0.3	386	17.9	2155	100.0
Liverpool	580	18.4	220	7.0	1132	35.8	1749	55.4	133	4.2	305	9.7	3159	100.0
Campbelltown	333	11.9	189	6.7	1304	46.5	1870	66.6	150	5.3	290	10.3	2806	100.0
Bankstown-Lidcombe	236	12.5	97	5.2	582	30.9	1188	63.1	95	5.0	193	10.3	1882	100.0
Bankstown Private	91	22.6	52	12.9	132	32.8	221	55.0	32	8.0	30	7.5	402	100.0
Sydney Southwest Private	135	29.0	32	6.9	196	42.2	255	54.8	11	2.4	40	8.6	465	100.0
Bowral	160	24.5	25	3.8	259	39.7	341	52.2	19	2.9	91	13.9	653	100.0
ALL HOSPITALS	1614	14.0	814	7.1	4205	36.5	6813	59.1	447	3.9	1335	11.6	11522	100.0
Central Coast														
Gosford	680	28.4	115	4.8	921	38.5	1209	50.6	288	12.0	225	9.4	2391	100.0
Wyong	0	0.0	23	5.2	125	28.1	225	50.6	0	0.0	121	27.2	445	100.0
North Gosford Private	374	52.7	18	2.5	138	19.4	289	40.7	41	5.8	56	7.9	710	100.0
ALL HOSPITALS	1054	29.7	156	4.4	1184	33.4	1723	48.6	329	9.3	402	11.3	3546	100.0
Hunter														
Maitland	137	10.7	103	8.0	401	31.3	729	56.9	174	13.6	169	13.2	1282	100.0
Muswellbrook	2	0.9	5	2.3	51	23.5	125	57.6	25	11.5	60	27.6	217	100.0
Belmont	44	6.6	36	5.4	282	42.5	432	65.2	71	10.7	77	11.6	663	100.0
John Hunter	796	22.5	244	6.9	894	25.2	1719	48.5	307	8.7	586	16.5	3541	100.0
Christo Road Private	314	32.7	38	4.0	198	20.6	448	46.7	128	13.3	113	11.8	960	100.0
Other Area hospitals	57	12.8	9	2.0	75	16.9	257	57.9	38	8.6	71	16.0	444	100.0
ALL HOSPITALS	1350	19.0	435	6.1	1901	26.7	3710	52.2	743	10.5	1076	15.1	7107	100.0
Illawarra														
Shoalhaven	94	11.2	38	4.5	172	20.5	342	40.8	113	13.5	181	21.6	838	100.0
Wollongong	460	18.5	145	5.8	622	25.0	1650	66.4	110	4.4	273	11.0	2485	100.0
Illawarra Private	236	31.7	59	7.9	200	26.9	474	63.7	26	3.5	26	3.5	744	100.0
Other Area hospitals	8	6.6	3	2.5	31	25.4	55	45.1	24	19.7	19	15.6	122	100.0
ALL HOSPITALS	798	19.0	245	5.8	1025	24.5	2521	60.2	273	6.5	499	11.9	4189	100.0

TABLE 107 (continued)

CONFINEMENTS BY TYPE OF PAIN RELIEF AND HOSPITAL, NSW 2000#

Health Area and Hospital	Epidural		General anaesthetic		Type of pain relief				Spinal		Nil		TOTAL	
	No.	%	No.	%	IM narcotics	%	Nitrous oxide	%	No.	%	No.	%	No.	%
South Eastern Sydney														
Royal Hospital for Women	1940	50.2	79	2.0	822	21.3	1387	35.9	240	6.2	309	8.0	3862	100.0
St. George	755	31.5	96	4.0	630	26.3	1387	57.8	138	5.8	266	11.1	2398	100.0
Sutherland	334	35.0	27	2.8	76	8.0	520	54.6	94	9.9	138	14.5	953	100.0
Hurstville Community	552	65.8	29	3.5	99	11.8	216	25.7	8	1.0	44	5.2	839	100.0
Kareena Private	468	75.9	14	2.3	65	10.5	168	27.2	11	1.8	13	2.1	617	100.0
St. George Private	763	59.8	53	4.2	278	21.8	575	45.1	31	2.4	67	5.3	1276	100.0
Prince of Wales Private	1287	78.6	6	0.4	89	5.4	390	23.8	53	3.2	55	3.4	1638	100.0
ALL HOSPITALS	6099	52.7	304	2.6	2059	17.8	4643	40.1	575	5.0	892	7.7	11583	100.0
Northern Rivers														
Grafton Base	158	33.5	46	9.8	105	22.3	205	43.5	51	10.8	73	15.5	471	100.0
Lismore Base	391	32.3	50	4.1	335	27.6	441	36.4	94	7.8	221	18.2	1212	100.0
Murwillumbah	59	12.8	69	15.0	154	33.5	262	57.0	5	1.1	60	13.0	460	100.0
Tweed Heads	152	20.9	43	5.9	284	39.1	409	56.3	31	4.3	85	11.7	727	100.0
Other Area hospitals	17	5.1	0	0.0	51	15.3	119	35.7	14	4.2	142	42.6	333	100.0
ALL HOSPITALS	777	24.3	208	6.5	929	29.0	1436	44.8	195	6.1	581	18.1	3203	100.0
Mid North Coast														
Coffs Harbour	153	22.0	77	11.1	183	26.3	305	43.8	73	10.5	106	15.2	696	100.0
Kempsey	57	19.5	12	4.1	105	35.8	165	56.3	29	9.9	60	20.5	293	100.0
Port Macquarie Base	217	30.8	35	5.0	200	28.4	414	58.7	15	2.1	74	10.5	705	100.0
Manning Base	94	13.3	45	6.3	326	46.0	413	58.3	67	9.4	81	11.4	709	100.0
Other Area hospitals	18	6.5	8	2.9	59	21.3	116	41.9	25	9.0	91	32.9	277	100.0
ALL HOSPITALS	539	20.1	177	6.6	873	32.6	1413	52.7	209	7.8	412	15.4	2680	100.0
New England														
Armidale	9	2.0	24	5.3	84	18.6	199	44.1	17	3.8	38	8.4	451	100.0
Inverell	5	2.2	8	3.5	61	26.5	115	50.0	46	20.0	45	19.6	230	100.0
Moree	32	13.2	9	3.7	43	17.7	130	53.5	39	16.0	43	17.7	243	100.0
Tamworth Base	207	32.6	65	10.2	141	22.2	363	57.2	28	4.4	61	9.6	635	100.0
Other Area hospitals	102	14.0	48	6.6	193	26.4	371	50.8	58	7.9	135	18.5	731	100.0
ALL HOSPITALS	355	15.5	154	6.7	522	22.8	1178	51.4	188	8.2	322	14.1	2290	100.0
Macquarie														
Dubbo Base	276	22.3	56	4.5	380	30.8	741	60.0	71	5.7	177	14.3	1235	100.0
Mudgee	10	4.1	23	9.5	63	26.0	147	60.7	22	9.1	34	14.0	242	100.0
Other Area hospitals	14	9.0	5	3.2	19	12.3	51	32.9	4	2.6	64	41.3	155	100.0
ALL HOSPITALS	300	18.4	84	5.1	462	28.3	939	57.5	97	5.9	275	16.9	1632	100.0
Mid Western														
Bathurst Base	138	26.2	56	10.6	77	14.6	276	52.4	7	1.3	86	16.3	527	100.0
Orange Base	234	30.7	42	5.5	158	20.7	428	56.1	24	3.1	110	14.4	763	100.0
Parke	44	21.4	23	11.2	30	14.6	82	39.8	10	4.9	54	26.2	206	100.0
Other Area hospitals	137	22.4	35	5.7	150	24.5	313	51.2	48	7.9	104	17.0	611	100.0
ALL HOSPITALS	553	26.2	156	7.4	415	19.7	1099	52.2	89	4.2	354	16.8	2107	100.0
Far West														
Broken Hill Base	27	9.7	7	2.5	65	23.5	171	61.7	20	7.2	64	23.1	277	100.0
Other Area hospitals	0	0.0	1	1.2	14	16.9	39	47.0	5	6.0	32	38.6	83	100.0
ALL HOSPITALS	27	7.5	8	2.2	79	21.9	210	58.3	25	6.9	96	26.7	360	100.0
Greater Murray														
Griffith Base	48	10.0	17	3.6	170	35.6	259	54.2	80	16.7	85	17.8	478	100.0
Wagga Wagga Base	208	25.4	27	3.3	221	27.0	412	50.2	82	10.0	143	17.4	820	100.0
Calvary, Wagga Wagga	186	43.2	4	0.9	112	26.0	172	39.9	32	7.4	58	13.5	431	100.0
Other Area hospitals	83	9.6	28	3.2	260	29.9	496	57.1	98	11.3	155	17.8	869	100.0
ALL HOSPITALS	525	20.2	76	2.9	763	29.4	1339	51.5	292	11.2	441	17.0	2598	100.0
Southern														
Bega	23	11.0	14	6.7	61	29.0	132	62.9	43	20.5	25	11.9	210	100.0
Goulburn Base	77	24.4	32	10.1	43	13.6	160	50.6	4	1.3	47	14.9	316	100.0
Queanbeyan	59	17.6	18	5.4	47	14.0	154	46.0	6	1.8	115	34.3	335	100.0
Other Area hospitals	82	10.2	31	3.9	179	22.3	407	50.7	77	9.6	190	23.7	802	100.0
ALL HOSPITALS	241	14.5	95	5.7	330	19.8	853	51.3	130	7.8	377	22.7	1663	100.0
TOTAL	25728	29.8	4753	5.5	22654	26.2	42303	48.9	5248	6.1	10518	12.2	86460	100.0

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

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

7.4 PERINEAL STATUS IN SELECTED HOSPITALS

Table 108 show the perineal status in vaginal deliveries for individual hospitals where the number of reported confinements exceeded 200 in 2000, totals for all hospitals within each health area and the NSW total.

TABLE 108

CONFINEMENTS WITH VAGINAL DELIVERIES BY PERINEAL STATUS AND HOSPITAL, NSW 2000*

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	322	25.5	423	33.5	344	27.3	20	1.6	132	10.5	1	0.1	20	1.6	0	0.0	1262	100.0
King George V	564	18.9	1127	37.7	988	33.1	58	1.9	222	7.4	4	0.1	26	0.9	0	0.0	2989	100.0
NSW Private	41	21.1	37	19.1	42	21.6	2	1.0	65	33.5	4	2.1	3	1.5	0	0.0	194	100.0
ALL HOSPITALS	927	20.9	1587	35.7	1374	30.9	80	1.8	419	9.4	9	0.2	49	1.1	0	0.0	4445	100.0
Northern Sydney																		
Hornsby	166	17.6	236	25.0	310	32.9	27	2.9	101	10.7	6	0.6	97	10.3	0	0.0	943	100.0
Manly	149	20.8	189	26.4	162	22.6	5	0.7	86	12.0	4	0.6	121	16.9	0	0.0	716	100.0
Mona Vale	162	30.5	174	32.7	95	17.9	2	0.4	46	8.6	1	0.2	52	9.8	0	0.0	532	100.0
Royal North Shore	158	13.0	318	26.2	387	31.9	37	3.1	195	16.1	5	0.4	112	9.2	0	0.0	1212	100.0
Ryde	134	23.1	153	26.3	142	24.4	10	1.7	96	16.5	3	0.5	43	7.4	0	0.0	581	100.0
Mater, North Sydney	199	15.7	277	21.8	300	23.6	6	0.5	410	32.3	49	3.9	28	2.2	1	0.1	1270	100.0
North Shore Private	151	12.4	247	20.2	395	32.4	30	2.5	317	26.0	31	2.5	50	4.1	0	0.0	1221	100.0
Sydney Adventist	265	16.4	369	22.8	373	23.0	9	0.6	543	33.5	34	2.1	27	1.7	0	0.0	1620	100.0
ALL HOSPITALS	1384	17.1	1963	24.2	2164	26.7	126	1.6	1794	22.2	133	1.6	530	6.5	1	0.0	8095	100.0
Western Sydney																		
Auburn	450	36.1	303	24.3	266	21.4	10	0.8	163	13.1	32	2.6	21	1.7	0	0.0	1245	100.0
Blacktown	587	25.7	491	21.5	482	21.1	37	1.6	512	22.4	73	3.2	94	4.1	11	0.5	2287	100.0
Westmead	665	21.6	920	29.9	628	20.4	42	1.4	628	20.4	16	0.5	182	5.9	0	0.0	3081	100.0
The Hills Private	298	28.1	204	19.2	250	23.6	6	0.6	274	25.8	12	1.1	17	1.6	0	0.0	1061	100.0
Other Area hospitals	28	29.2	20	20.8	19	19.8	1	1.0	28	29.2	0	0.0	0	0.0	0	0.0	96	100.0
ALL HOSPITALS	2028	26.1	1938	24.9	1645	21.2	96	1.2	1605	20.7	133	1.7	314	4.0	11	0.1	7770	100.0
Wentworth																		
Blue Mountains	133	35.4	78	20.7	111	29.5	11	2.9	29	7.7	5	1.3	9	2.4	0	0.0	376	100.0
Nepean	907	33.6	825	30.6	506	18.7	28	1.0	254	9.4	3	0.1	177	6.6	0	0.0	2700	100.0
Jamison Private	65	20.3	45	14.1	92	28.8	2	0.6	100	31.3	9	2.8	7	2.2	0	0.0	320	100.0
Hawkesbury	330	38.0	204	23.5	196	22.6	8	0.9	87	10.0	8	0.9	35	4.0	0	0.0	868	100.0
Nepean Private	47	27.5	22	12.9	52	30.4	0	0.0	39	22.8	6	3.5	5	2.9	0	0.0	171	100.0
ALL HOSPITALS	1482	33.4	1174	26.5	957	21.6	49	1.1	509	11.5	31	0.7	233	5.3	0	0.0	4435	100.0
South Western Sydney																		
Fairfield	542	28.1	465	24.1	456	23.6	23	1.2	360	18.7	4	0.2	79	4.1	0	0.0	1929	100.0
Liverpool	769	28.8	681	25.5	543	20.4	45	1.7	472	17.7	14	0.5	143	5.4	0	0.0	2667	100.0
Campbelltown	761	31.7	653	27.2	393	16.4	19	0.8	378	15.8	7	0.3	188	7.8	0	0.0	2399	100.0
Bankstown–Lidcombe	365	23.1	515	32.6	342	21.6	15	0.9	281	17.8	60	3.8	3	0.2	0	0.0	1581	100.0
Bankstown Private	49	16.7	58	19.7	59	20.1	0	0.0	123	41.8	5	1.7	0	0.0	0	0.0	294	100.0
Sydney Southwest Private	76	21.0	83	22.9	85	23.5	3	0.8	101	27.9	12	3.3	2	0.6	0	0.0	362	100.0
Bowral	194	34.0	144	25.3	148	26.0	5	0.9	46	8.1	2	0.4	31	5.4	0	0.0	570	100.0
ALL HOSPITALS	2756	28.1	2599	26.5	2026	20.7	110	1.1	1761	18.0	104	1.1	446	4.6	0	0.0	9802	100.0
Central Coast																		
Gosford	383	20.4	653	34.7	582	31.0	52	2.8	123	6.5	17	0.9	70	3.7	0	0.0	1880	100.0
Wyong	152	35.6	147	34.4	77	18.0	5	1.2	27	6.3	2	0.5	17	4.0	0	0.0	427	100.0
North Gosford Private	124	24.9	85	17.1	180	36.1	4	0.8	92	18.5	6	1.2	7	1.4	0	0.0	498	100.0
ALL HOSPITALS	659	23.5	885	31.6	839	29.9	61	2.2	242	8.6	25	0.9	94	3.4	0	0.0	2805	100.0
Hunter																		
Maitland	344	35.0	374	38.0	147	15.0	12	1.2	63	6.4	0	0.0	43	4.4	0	0.0	983	100.0
Muswellbrook	108	57.1	40	21.2	28	14.8	1	0.5	5	2.6	5	2.6	2	1.1	0	0.0	189	100.0
Belmont	209	38.3	169	31.0	109	20.0	7	1.3	41	7.5	3	0.5	8	1.5	0	0.0	546	100.0
John Hunter	858	30.6	1024	36.5	548	19.5	70	2.5	167	6.0	9	0.3	130	4.6	0	0.0	2806	100.0
Christo Road Private	165	23.7	209	30.1	174	25.0	10	1.4	124	17.8	0	0.0	13	1.9	0	0.0	695	100.0
Other Area hospitals	179	51.1	76	21.7	56	16.0	2	0.6	31	8.9	5	1.4	1	0.3	0	0.0	350	100.0
ALL HOSPITALS	1863	33.5	1892	34.0	1062	19.1	102	1.8	431	7.7	22	0.4	197	3.5	0	0.0	5569	100.0
Illawarra																		
Shoalhaven	275	41.0	231	34.4	79	11.8	9	1.3	45	6.7	3	0.4	29	4.3	0	0.0	671	100.0
Wollongong	831	40.2	557	26.9	438	21.2	16	0.8	172	8.3	4	0.2	50	2.4	0	0.0	2068	100.0
Illawarra Private	125	22.0	80	14.1	158	27.8	8	1.4	178	31.3	13	2.3	7	1.2	0	0.0	569	100.0
Other Area hospitals	40	44.0	23	25.3	19	20.9	0	0.0	9	9.9	0	0.0	0	0.0	0	0.0	91	100.0
ALL HOSPITALS	1271	37.4	891	26.2	694	20.4	33	1.0	404	11.9	20	0.6	86	2.5	0	0.0	3399	100.0

TABLE 108 (continued)

CONFINEMENTS WITH VAGINAL DELIVERIES BY PERINEAL STATUS AND HOSPITAL, NSW 2000#

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	531	18.4	771	26.8	806	28.0	76	2.6	663	23.0	32	1.1	0	0.0	0	0.0	2879	100.0
St. George	499	26.5	459	24.4	544	28.9	41	2.2	246	13.1	42	2.2	51	2.7	0	0.0	1882	100.0
Sutherland	218	28.4	148	19.3	193	25.2	13	1.7	129	16.8	13	1.7	53	6.9	0	0.0	767	100.0
Hurstville Community	97	16.5	101	17.2	166	28.3	4	0.7	205	34.9	9	1.5	5	0.9	0	0.0	587	100.0
Kareena Private	63	15.2	92	22.2	64	15.4	0	0.0	179	43.1	15	3.6	2	0.5	0	0.0	415	100.0
St. George Private	189	22.9	202	24.5	233	28.2	8	1.0	136	16.5	33	4.0	25	3.0	0	0.0	826	100.0
Prince of Wales Private	204	18.5	345	31.3	230	20.9	3	0.3	284	25.7	20	1.8	17	1.5	0	0.0	1103	100.0
ALL HOSPITALS	1801	21.3	2118	25.0	2236	26.4	145	1.7	1842	21.8	164	1.9	153	1.8	0	0.0	8459	100.0
Northern Rivers																		
Grafton Base	112	33.9	69	20.9	65	19.7	2	0.6	49	14.8	15	4.5	18	5.5	0	0.0	330	100.0
Lismore Base	378	39.8	265	27.9	145	15.3	7	0.7	115	12.1	15	1.6	24	2.5	0	0.0	949	100.0
Murwillumbah	110	30.5	74	20.5	72	19.9	0	0.0	60	16.6	10	2.8	35	9.7	0	0.0	361	100.0
Tweed Heads	218	37.0	163	27.7	123	20.9	7	1.2	53	9.0	6	1.0	19	3.2	0	0.0	589	100.0
Other Area hospitals	123	40.5	106	34.9	45	14.8	1	0.3	21	6.9	4	1.3	4	1.3	0	0.0	304	100.0
ALL HOSPITALS	941	37.1	677	26.7	450	17.8	17	0.7	298	11.8	50	2.0	100	3.9	0	0.0	2533	100.0
Mid North Coast																		
Coffs Harbour	212	44.3	114	23.8	62	12.9	3	0.6	76	15.9	3	0.6	9	1.9	0	0.0	479	100.0
Kempsey	123	50.8	50	20.7	45	18.6	2	0.8	19	7.9	1	0.4	2	0.8	0	0.0	242	100.0
Port Macquarie Base	205	37.8	81	14.9	151	27.9	8	1.5	70	12.9	10	1.8	17	3.1	0	0.0	542	100.0
Manning Base	273	46.8	150	25.7	87	14.9	7	1.2	37	6.3	6	1.0	23	3.9	0	0.0	583	100.0
Other Area hospitals	100	42.9	65	27.9	35	15.0	1	0.4	28	12.0	3	1.3	1	0.4	0	0.0	233	100.0
ALL HOSPITALS	913	43.9	460	22.1	380	18.3	21	1.0	230	11.1	23	1.1	52	2.5	0	0.0	2079	100.0
New England																		
Armidale	109	26.7	104	25.5	103	25.2	3	0.7	72	17.6	10	2.5	7	1.7	0	0.0	408	100.0
Inverell	69	38.5	58	32.4	18	10.1	3	1.7	29	16.2	1	0.6	1	0.6	0	0.0	179	100.0
Moree	86	45.3	35	18.4	35	18.4	4	2.1	23	12.1	5	2.6	2	1.1	0	0.0	190	100.0
Tamworth Base	131	27.2	154	32.0	101	21.0	3	0.6	69	14.3	10	2.1	14	2.9	0	0.0	482	100.0
Other Area hospitals	230	38.9	148	25.0	77	13.0	6	1.0	106	17.9	20	3.4	4	0.7	0	0.0	591	100.0
ALL HOSPITALS	625	33.8	499	27.0	334	18.1	19	1.0	299	16.2	46	2.5	28	1.5	0	0.0	1850	100.0
Macquarie																		
Dubbo Base	294	28.6	371	36.1	114	11.1	11	1.1	209	20.3	15	1.5	15	1.5	0	0.0	1029	100.0
Mudgee	83	43.7	52	27.4	27	14.2	1	0.5	21	11.1	4	2.1	2	1.1	0	0.0	190	100.0
Other Area hospitals	72	53.3	31	23.0	12	8.9	1	0.7	17	12.6	1	0.7	1	0.7	0	0.0	135	100.0
ALL HOSPITALS	449	33.2	454	33.5	153	11.3	13	1.0	247	18.2	20	1.5	18	1.3	0	0.0	1354	100.0
Mid Western																		
Bathurst Base	119	31.4	141	37.2	65	17.2	2	0.5	43	11.3	7	1.8	2	0.5	0	0.0	379	100.0
Orange Base	221	39.1	95	16.8	158	28.0	11	1.9	53	9.4	20	3.5	7	1.2	0	0.0	565	100.0
Parkees	64	42.4	34	22.5	33	21.9	1	0.7	16	10.6	3	2.0	0	0.0	0	0.0	151	100.0
Other Area hospitals	178	39.0	125	27.4	77	16.9	3	0.7	60	13.2	8	1.8	5	1.1	0	0.0	456	100.0
ALL HOSPITALS	582	37.5	395	25.5	333	21.5	17	1.1	172	11.1	38	2.5	14	0.9	0	0.0	1551	100.0
Far West																		
Broken Hill Base	127	53.1	71	29.7	23	9.6	3	1.3	10	4.2	3	1.3	2	0.8	0	0.0	239	100.0
Other Area hospitals	38	48.7	28	35.9	8	10.3	0	0.0	4	5.1	0	0.0	0	0.0	0	0.0	78	100.0
ALL HOSPITALS	165	52.1	99	31.2	31	9.8	3	0.9	14	4.4	3	0.9	2	0.6	0	0.0	317	100.0
Greater Murray																		
Griffith Base	172	46.1	141	37.8	24	6.4	6	1.6	28	7.5	2	0.5	0	0.0	0	0.0	373	100.0
Wagga Wagga Base	258	39.8	204	31.5	103	15.9	9	1.4	68	10.5	3	0.5	3	0.5	0	0.0	648	100.0
Calvary, Wagga Wagga	99	29.7	56	16.8	89	26.7	4	1.2	71	21.3	11	3.3	3	0.9	0	0.0	333	100.0
Other Area hospitals	300	42.2	182	25.6	110	15.5	6	0.8	97	13.6	11	1.5	5	0.7	0	0.0	711	100.0
ALL HOSPITALS	829	40.1	583	28.2	326	15.8	25	1.2	264	12.8	27	1.3	11	0.5	0	0.0	2065	100.0
Southern																		
Bega	72	46.5	34	21.9	18	11.6	0	0.0	25	16.1	2	1.3	4	2.6	0	0.0	155	100.0
Goulburn Base	73	30.7	27	11.3	44	18.5	3	1.3	69	29.0	12	5.0	10	4.2	0	0.0	238	100.0
Queanbeyan	138	47.8	87	30.1	52	18.0	1	0.3	9	3.1	1	0.3	1	0.3	0	0.0	289	100.0
Other Area hospitals	277	41.3	165	24.6	134	20.0	6	0.9	67	10.0	13	1.9	9	1.3	0	0.0	671	100.0
ALL HOSPITALS	560	41.4	313	23.1	248	18.3	10	0.7	170	12.6	28	2.1	24	1.8	0	0.0	1353	100.0
TOTAL NSW	19297	28.4	18560	27.3	15263	22.4	927	1.4	10701	15.7	876	1.3	2352	3.5	13	0.0	67989	100.0

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

Hospitals with more than 200 deliveries are identified individually. All hospitals include all public and private hospitals. There were 83 cases of 4th degree tear reported in 2000.

7.5 BIRTHWEIGHT IN SELECTED HOSPITALS

Table 109 shows the birthweight among live born babies for individual hospitals where the number of reported confinements exceeded 200 in 2000, totals for all hospitals within each health area and the NSW total.

TABLE 109

BIRTHS BY BIRTHWEIGHT AND HOSPITAL, NSW 2000[#]

Health Area and Hospital	Birthweight (grams)											
	Less than 1,000		1,000–1,499		1,500–2,499		2,500+		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney												
Canterbury	6	0.4	2	0.1	65	4.2	1473	95.3	0	0.0	1546	100.0
King George V	87	2.2	83	2.1	339	8.5	3491	87.2	3	0.1	4003	100.0
NSW Private	0	0.0	0	0.0	7	2.7	253	96.9	1	0.4	261	100.0
ALL HOSPITALS	93	1.6	85	1.5	411	7.1	5217	89.8	4	0.1	5810	100.0
Northern Sydney												
Hornsby	3	0.3	1	0.1	36	3.0	1157	96.6	1	0.1	1198	100.0
Manly	3	0.3	2	0.2	31	3.4	887	96.1	0	0.0	923	100.0
Mona Vale	4	0.6	2	0.3	24	3.6	642	95.5	0	0.0	672	100.0
Royal North Shore	42	2.4	59	3.4	122	6.9	1535	87.3	0	0.0	1758	100.0
Ryde	5	0.7	1	0.1	20	2.8	701	96.4	0	0.0	727	100.0
Mater, North Sydney	2	0.1	0	0.0	74	3.9	1808	95.9	1	0.1	1885	100.0
North Shore Private	7	0.4	2	0.1	67	3.6	1803	96.0	0	0.0	1879	100.0
Sydney Adventist	3	0.1	3	0.1	74	3.3	2139	96.4	0	0.0	2219	100.0
ALL HOSPITALS	69	0.6	70	0.6	448	4.0	10672	94.8	2	0.0	11261	100.0
Western Sydney												
Auburn	1	0.1	4	0.3	51	3.5	1388	96.1	0	0.0	1444	100.0
Blacktown	13	0.5	9	0.3	124	4.5	2618	94.3	12	0.4	2776	100.0
Westmead	63	1.6	90	2.3	258	6.5	3552	89.6	0	0.0	3963	100.0
The Hills Private	4	0.3	1	0.1	55	3.9	1349	95.7	0	0.0	1409	100.0
Other Area hospitals	0	0.0	0	0.0	9	7.2	116	92.8	0	0.0	125	100.0
ALL HOSPITALS	81	0.8	104	1.1	497	5.1	9023	92.9	12	0.1	9717	100.0
Wentworth												
Blue Mountains	1	0.2	1	0.2	8	1.8	437	97.8	0	0.0	447	100.0
Nepean	58	1.6	42	1.2	250	7.1	3181	90.1	0	0.0	3531	100.0
Jamison Private	0	0.0	0	0.0	8	1.9	411	98.1	0	0.0	419	100.0
Hawkesbury	1	0.1	1	0.1	27	2.5	1034	97.3	0	0.0	1063	100.0
Nepean Private	0	0.0	0	0.0	3	1.3	227	98.7	0	0.0	230	100.0
ALL HOSPITALS	60	1.1	44	0.8	296	5.2	5290	93.0	0	0.0	5690	100.0
South Western Sydney												
Fairfield	10	0.5	2	0.1	81	3.7	2083	95.7	0	0.0	2176	100.0
Liverpool	57	1.8	60	1.9	284	8.8	2837	87.6	0	0.0	3238	100.0
Campbelltown	8	0.3	4	0.1	136	4.8	2690	94.8	0	0.0	2838	100.0
Bankstown–Lidcombe	6	0.3	5	0.3	69	3.6	1819	95.8	0	0.0	1899	100.0
Bankstown Private	0	0.0	1	0.2	19	4.6	389	95.1	0	0.0	409	100.0
Sydney Southwest Private	0	0.0	0	0.0	26	5.5	446	94.5	0	0.0	472	100.0
Bowral	3	0.5	1	0.2	18	2.7	640	96.7	0	0.0	662	100.0
ALL HOSPITALS	84	0.7	73	0.6	633	5.4	10904	93.2	0	0.0	11694	100.0
Central Coast												
Gosford	13	0.5	6	0.2	118	4.9	2291	94.4	0	0.0	2428	100.0
Wyong	0	0.0	1	0.2	10	2.2	434	97.5	0	0.0	445	100.0
North Gosford Private	4	0.6	2	0.3	18	2.5	694	96.4	2	0.3	720	100.0
ALL HOSPITALS	17	0.5	9	0.3	146	4.1	3419	95.2	2	0.1	3593	100.0
Hunter												
Maitland	6	0.5	4	0.3	65	5.0	1224	94.2	0	0.0	1299	100.0
Muswellbrook	0	0.0	1	0.5	7	3.2	210	96.3	0	0.0	218	100.0
Belmont	2	0.3	0	0.0	17	2.5	648	97.0	1	0.1	668	100.0
John Hunter	70	1.9	73	2.0	290	8.0	3198	88.1	0	0.0	3631	100.0
Christo Road Private	6	0.6	0	0.0	25	2.6	939	96.7	1	0.1	971	100.0
Other Area hospitals	4	0.9	0	0.0	10	2.2	433	96.9	0	0.0	447	100.0
ALL HOSPITALS	88	1.2	78	1.1	414	5.7	6652	92.0	2	0.0	7234	100.0
Illawarra												
Shoalhaven	6	0.7	1	0.1	41	4.8	800	94.3	0	0.0	848	100.0
Wollongong	16	0.6	6	0.2	153	6.0	2354	93.1	0	0.0	2529	100.0
Illawarra Private	0	0.0	0	0.0	10	1.3	747	98.5	1	0.1	758	100.0
Other Area hospitals	0	0.0	0	0.0	2	1.6	120	98.4	0	0.0	122	100.0
ALL HOSPITALS	22	0.5	7	0.2	206	4.8	4021	94.5	1	0.0	4257	100.0

TABLE 109 (continued)
BIRTHS BY BIRTHWEIGHT AND HOSPITAL, NSW 2000#

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	45	1.1	40	1.0	242	6.1	3613	91.6	6	0.2	3946	100.0
St. George	14	0.6	3	0.1	140	5.7	2287	93.5	1	0.0	2445	100.0
Sutherland	1	0.1	1	0.1	31	3.2	928	96.6	0	0.0	961	100.0
Hurstville Community	1	0.1	1	0.1	53	6.2	799	93.6	0	0.0	854	100.0
Kareena Private	3	0.5	0	0.0	16	2.6	608	97.0	0	0.0	627	100.0
St. George Private	3	0.2	1	0.1	39	3.0	1254	96.7	0	0.0	1297	100.0
Prince of Wales Private	1	0.1	0	0.0	58	3.5	1614	96.5	0	0.0	1673	100.0
ALL HOSPITALS	68	0.6	46	0.4	579	4.9	11103	94.1	7	0.1	11803	100.0
Northern Rivers												
Grafton Base	3	0.6	2	0.4	19	4.0	450	94.9	0	0.0	474	100.0
Lismore Base	7	0.6	4	0.3	80	6.5	1139	92.6	0	0.0	1230	100.0
Murwillumbah	1	0.2	0	0.0	18	3.9	443	95.9	0	0.0	462	100.0
Tweed Heads	5	0.7	2	0.3	42	5.7	685	93.2	1	0.1	735	100.0
Other Area hospitals	2	0.6	1	0.3	10	3.0	318	95.5	2	0.6	333	100.0
ALL HOSPITALS	18	0.6	9	0.3	169	5.2	3035	93.8	3	0.1	3234	100.0
Mid North Coast												
Coffs Harbour	4	0.6	3	0.4	43	6.0	662	93.0	0	0.0	712	100.0
Kempsey	1	0.3	0	0.0	11	3.7	284	95.9	0	0.0	296	100.0
Port Macquarie Base	3	0.4	0	0.0	45	6.2	675	93.2	1	0.1	724	100.0
Manning Base	4	0.6	2	0.3	34	4.7	678	94.4	0	0.0	718	100.0
Other Area hospitals	0	0.0	0	0.0	11	4.0	267	96.0	0	0.0	278	100.0
ALL HOSPITALS	12	0.4	5	0.2	144	5.3	2566	94.1	1	0.0	2728	100.0
New England												
Armidale	3	0.7	0	0.0	27	5.9	430	93.5	0	0.0	460	100.0
Inverell	0	0.0	0	0.0	8	3.4	226	96.6	0	0.0	234	100.0
Moree	0	0.0	1	0.4	9	3.7	235	95.9	0	0.0	245	100.0
Tamworth Base	6	0.9	1	0.2	42	6.5	595	92.4	0	0.0	644	100.0
Other Area hospitals	3	0.4	0	0.0	23	3.1	707	96.3	1	0.1	734	100.0
ALL HOSPITALS	12	0.5	2	0.1	109	4.7	2193	94.6	1	0.0	2317	100.0
Macquarie												
Dubbo Base	2	0.2	3	0.2	92	7.3	1164	92.2	1	0.1	1262	100.0
Mudgee	0	0.0	0	0.0	8	3.3	234	96.7	0	0.0	242	100.0
Other Area hospitals	0	0.0	0	0.0	8	5.1	148	94.3	1	0.6	157	100.0
ALL HOSPITALS	2	0.1	3	0.2	108	6.5	1546	93.1	2	0.1	1661	100.0
Mid Western												
Bathurst Base	1	0.2	1	0.2	20	3.7	512	95.9	0	0.0	534	100.0
Orange Base	2	0.3	4	0.5	65	8.2	720	91.0	0	0.0	791	100.0
Parkes	1	0.5	0	0.0	6	2.9	199	96.6	0	0.0	206	100.0
Other Area hospitals	4	0.7	1	0.2	17	2.8	591	96.1	2	0.3	615	100.0
ALL HOSPITALS	8	0.4	6	0.3	108	5.0	2022	94.2	2	0.1	2146	100.0
Far West												
Broken Hill Base	1	0.4	0	0.0	14	5.0	262	94.2	1	0.4	278	100.0
Other Area hospitals	3	3.6	0	0.0	7	8.3	74	88.1	0	0.0	84	100.0
ALL HOSPITALS	4	1.1	0	0.0	21	5.8	336	92.8	1	0.3	362	100.0
Greater Murray												
Griffith Base	2	0.4	0	0.0	16	3.3	463	96.1	1	0.2	482	100.0
Wagga Wagga Base	8	1.0	1	0.1	53	6.4	771	92.4	1	0.1	834	100.0
Calvary, Wagga Wagga	2	0.5	1	0.2	17	3.9	420	95.5	0	0.0	440	100.0
Other Area hospitals	0	0.0	2	0.2	22	2.5	851	97.3	0	0.0	875	100.0
ALL HOSPITALS	12	0.5	4	0.2	108	4.1	2505	95.2	2	0.1	2631	100.0
Southern												
Bega	1	0.5	0	0.0	15	7.0	199	92.6	0	0.0	215	100.0
Goulburn Base	0	0.0	0	0.0	10	3.1	308	96.6	1	0.3	319	100.0
Queanbeyan	1	0.3	0	0.0	11	3.3	326	96.4	0	0.0	338	100.0
Other Area hospitals	1	0.1	1	0.1	28	3.5	772	96.0	2	0.2	804	100.0
ALL HOSPITALS	3	0.2	1	0.1	64	3.8	1605	95.8	3	0.2	1676	100.0
TOTAL NSW	653	0.7	546	0.6	4462	5.1	82214	93.5	47	0.1	87922	100.0

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

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

7.6 GESTATIONAL AGE IN SELECTED HOSPITALS

Table 110 shows the gestational age among live born babies for individual hospitals where the number of reported confinements exceeded 200 in 2000, totals for all hospitals within each health area and the NSW total.

TABLE 110

BIRTHS BY GESTATIONAL AGE AND HOSPITAL, NSW 2000[#]

Health Area and Hospital	20-31		32-33		34-36		37+		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Central Sydney												
Canterbury	7	0.5	2	0.1	69	4.5	1468	95.0	0	0.0	1546	100.0
King George V	183	4.6	124	3.1	233	5.8	3463	86.5	0	0.0	4003	100.0
NSW Private	0	0.0	1	0.4	9	3.4	251	96.2	0	0.0	261	100.0
ALL HOSPITALS	190	3.3	127	2.2	311	5.4	5182	89.2	0	0.0	5810	100.0
Northern Sydney												
Hornsby	5	0.4	1	0.1	45	3.8	1147	95.7	0	0.0	1198	100.0
Manly	4	0.4	0	0.0	57	6.2	862	93.4	0	0.0	923	100.0
Mona Vale	6	0.9	3	0.4	23	3.4	640	95.2	0	0.0	672	100.0
Royal North Shore	108	6.1	57	3.2	76	4.3	1517	86.3	0	0.0	1758	100.0
Ryde	5	0.7	1	0.1	16	2.2	705	97.0	0	0.0	727	100.0
Mater, North Sydney	4	0.2	4	0.2	89	4.7	1788	94.9	0	0.0	1885	100.0
North Shore Private	7	0.4	7	0.4	88	4.7	1777	94.6	0	0.0	1879	100.0
Sydney Adventist	4	0.2	10	0.5	105	4.7	2100	94.6	0	0.0	2219	100.0
ALL HOSPITALS	143	1.3	83	0.7	499	4.4	10536	93.6	0	0.0	11261	100.0
Western Sydney												
Auburn	5	0.3	8	0.6	39	2.7	1392	96.4	0	0.0	1444	100.0
Blacktown	24	0.9	11	0.4	124	4.5	2612	94.1	5	0.2	2776	100.0
Westmead	153	3.9	71	1.8	178	4.5	3561	89.9	0	0.0	3963	100.0
The Hills Private	5	0.4	3	0.2	74	5.3	1327	94.2	0	0.0	1409	100.0
Other Area hospitals	0	0.0	1	0.8	5	4.0	119	95.2	0	0.0	125	100.0
ALL HOSPITALS	187	1.9	94	1.0	420	4.3	9011	92.7	5	0.1	9717	100.0
Wentworth												
Blue Mountains	2	0.4	0	0.0	12	2.7	433	96.9	0	0.0	447	100.0
Nepean	105	3.0	68	1.9	209	5.9	3149	89.2	0	0.0	3531	100.0
Jamison Private	1	0.2	1	0.2	9	2.1	408	97.4	0	0.0	419	100.0
Hawkesbury	2	0.2	0	0.0	42	4.0	1019	95.9	0	0.0	1063	100.0
Nepean Private	0	0.0	0	0.0	5	2.2	225	97.8	0	0.0	230	100.0
ALL HOSPITALS	110	1.9	69	1.2	277	4.9	5234	92.0	0	0.0	5690	100.0
South Western Sydney												
Fairfield	12	0.6	6	0.3	85	3.9	2073	95.3	0	0.0	2176	100.0
Liverpool	117	3.6	99	3.1	194	6.0	2828	87.3	0	0.0	3238	100.0
Campbelltown	16	0.6	6	0.2	134	4.7	2682	94.5	0	0.0	2838	100.0
Bankstown-Lidcombe	7	0.4	6	0.3	74	3.9	1812	95.4	0	0.0	1899	100.0
Bankstown Private	1	0.2	2	0.5	19	4.6	387	94.6	0	0.0	409	100.0
Sydney Southwest Private	0	0.0	0	0.0	35	7.4	437	92.6	0	0.0	472	100.0
Bowral	4	0.6	0	0.0	16	2.4	642	97.0	0	0.0	662	100.0
ALL HOSPITALS	157	1.3	119	1.0	557	4.8	10861	92.9	0	0.0	11694	100.0
Central Coast												
Gosford	20	0.8	17	0.7	161	6.6	2230	91.8	0	0.0	2428	100.0
Wyong	1	0.2	3	0.7	12	2.7	429	96.4	0	0.0	445	100.0
North Gosford Private	7	1.0	0	0.0	32	4.4	681	94.6	0	0.0	720	100.0
ALL HOSPITALS	28	0.8	20	0.6	205	5.7	3340	93.0	0	0.0	3593	100.0
Hunter												
Maitland	8	0.6	3	0.2	69	5.3	1219	93.8	0	0.0	1299	100.0
Muswellbrook	1	0.5	0	0.0	6	2.8	211	96.8	0	0.0	218	100.0
Belmont	3	0.4	0	0.0	27	4.0	638	95.5	0	0.0	668	100.0
John Hunter	152	4.2	85	2.3	233	6.4	3161	87.1	0	0.0	3631	100.0
Christo Road Private	7	0.7	2	0.2	64	6.6	898	92.5	0	0.0	971	100.0
Other Area hospitals	4	0.9	1	0.2	16	3.6	426	95.3	0	0.0	447	100.0
ALL HOSPITALS	175	2.4	91	1.3	415	5.7	6553	90.6	0	0.0	7234	100.0
Illawarra												
Shoalhaven	8	0.9	3	0.4	33	3.9	804	94.8	0	0.0	848	100.0
Wollongong	26	1.0	29	1.1	147	5.8	2327	92.0	0	0.0	2529	100.0
Illawarra Private	1	0.1	0	0.0	7	0.9	750	98.9	0	0.0	758	100.0
Other Area hospitals	0	0.0	0	0.0	1	0.8	121	99.2	0	0.0	122	100.0
ALL HOSPITALS	35	0.8	32	0.8	188	4.4	4002	94.0	0	0.0	4257	100.0

TABLE 110 (continued)
BIRTHS BY GESTATIONAL AGE AND HOSPITAL, NSW 2000#

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	105	2.7	57	1.4	213	5.4	3571	90.5	0	0.0	3946	100.0
St. George	18	0.7	22	0.9	172	7.0	2233	91.3	0	0.0	2445	100.0
Sutherland	2	0.2	2	0.2	47	4.9	910	94.7	0	0.0	961	100.0
Hurstville Community	1	0.1	5	0.6	48	5.6	800	93.7	0	0.0	854	100.0
Kareena Private	4	0.6	2	0.3	34	5.4	587	93.6	0	0.0	627	100.0
St. George Private	4	0.3	5	0.4	71	5.5	1217	93.8	0	0.0	1297	100.0
Prince of Wales Private	3	0.2	5	0.3	66	3.9	1599	95.6	0	0.0	1673	100.0
ALL HOSPITALS	137	1.2	98	0.8	651	5.5	10917	92.5	0	0.0	11803	100.0
Northern Rivers												
Grafton Base	5	1.1	0	0.0	21	4.4	448	94.5	0	0.0	474	100.0
Lismore Base	14	1.1	18	1.5	74	6.0	1124	91.4	0	0.0	1230	100.0
Murwillumbah	2	0.4	0	0.0	17	3.7	443	95.9	0	0.0	462	100.0
Tweed Heads	10	1.4	3	0.4	41	5.6	681	92.7	0	0.0	735	100.0
Other Area hospitals	4	1.2	0	0.0	9	2.7	320	96.1	0	0.0	333	100.0
ALL HOSPITALS	35	1.1	21	0.6	162	5.0	3016	93.3	0	0.0	3234	100.0
Mid North Coast												
Coffs Harbour	7	1.0	3	0.4	41	5.8	661	92.8	0	0.0	712	100.0
Kempsey	0	0.0	0	0.0	10	3.4	286	96.6	0	0.0	296	100.0
Port Macquarie Base	4	0.6	1	0.1	53	7.3	666	92.0	0	0.0	724	100.0
Manning Base	8	1.1	5	0.7	27	3.8	678	94.4	0	0.0	718	100.0
Other Area hospitals	0	0.0	1	0.4	6	2.2	271	97.5	0	0.0	278	100.0
ALL HOSPITALS	19	0.7	10	0.4	137	5.0	2562	93.9	0	0.0	2728	100.0
New England												
Armidale	3	0.7	2	0.4	18	3.9	437	95.0	0	0.0	460	100.0
Inverell	0	0.0	1	0.4	6	2.6	227	97.0	0	0.0	234	100.0
Moree	1	0.4	0	0.0	8	3.3	236	96.3	0	0.0	245	100.0
Tamworth Base	9	1.4	2	0.3	53	8.2	580	90.1	0	0.0	644	100.0
Other Area hospitals	3	0.4	1	0.1	14	1.9	716	97.5	0	0.0	734	100.0
ALL HOSPITALS	16	0.7	6	0.3	99	4.3	2196	94.8	0	0.0	2317	100.0
Macquarie												
Dubbo Base	6	0.5	6	0.5	69	5.5	1181	93.6	0	0.0	1262	100.0
Mudgee	0	0.0	0	0.0	4	1.7	238	98.3	0	0.0	242	100.0
Other Area hospitals	0	0.0	0	0.0	6	3.8	151	96.2	0	0.0	157	100.0
ALL HOSPITALS	6	0.4	6	0.4	79	4.8	1570	94.5	0	0.0	1661	100.0
Mid Western												
Bathurst Base	3	0.6	2	0.4	26	4.9	503	94.2	0	0.0	534	100.0
Orange Base	8	1.0	6	0.8	74	9.4	703	88.9	0	0.0	791	100.0
Parkes	1	0.5	0	0.0	6	2.9	199	96.6	0	0.0	206	100.0
Other Area hospitals	5	0.8	2	0.3	16	2.6	592	96.3	0	0.0	615	100.0
ALL HOSPITALS	17	0.8	10	0.5	122	5.7	1997	93.1	0	0.0	2146	100.0
Far West												
Broken Hill Base	2	0.7	1	0.4	7	2.5	268	96.4	0	0.0	278	100.0
Other Area hospitals	3	3.6	0	0.0	6	7.1	75	89.3	0	0.0	84	100.0
ALL HOSPITALS	5	1.4	1	0.3	13	3.6	343	94.8	0	0.0	362	100.0
Greater Murray												
Griffith Base	3	0.6	4	0.8	21	4.4	454	94.2	0	0.0	482	100.0
Wagga Wagga Base	11	1.3	8	1.0	47	5.6	768	92.1	0	0.0	834	100.0
Calvary, Wagga Wagga	3	0.7	4	0.9	25	5.7	408	92.7	0	0.0	440	100.0
Other Area hospitals	3	0.3	1	0.1	16	1.8	854	97.6	1	0.1	875	100.0
ALL HOSPITALS	20	0.8	17	0.6	109	4.1	2484	94.4	1	0.0	2631	100.0
Southern												
Bega	2	0.9	2	0.9	14	6.5	197	91.6	0	0.0	215	100.0
Goulburn Base	1	0.3	0	0.0	13	4.1	305	95.6	0	0.0	319	100.0
Queanbeyan	1	0.3	0	0.0	11	3.3	326	96.4	0	0.0	338	100.0
Other Area hospitals	2	0.2	1	0.1	24	3.0	777	96.6	0	0.0	804	100.0
ALL HOSPITALS	6	0.4	3	0.2	62	3.7	1605	95.8	0	0.0	1676	100.0
TOTAL NSW	1286	1.5	807	0.9	4307	4.9 8	1516	92.7	6	0.0	87922	100.0

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

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

7.7 BABY DISCHARGE STATUS IN SELECTED HOSPITALS

Table 111 shows the discharge status of babies born in hospitals where the number of reported confinements exceeded 200 in 2000, totals for all hospitals within each health area and the NSW total.

TABLE 111

BIRTHS BY BABY DISCHARGE STATUS AND HOSPITAL, NSW 2000*

Health Area and Hospital	Discharged		Stillborn		Baby discharge status				Not stated		TOTAL	
	No.	%	No.	%	Neonatal death		Transferred		No.	%	No.	%
					No.	%	No.	%				
Central Sydney												
Canterbury	1520	98.3	7	0.5	5	0.3	14	0.9	0	0.0	1546	100.0
King George V	3719	92.9	49	1.2	26	0.6	209	5.2	0	0.0	4003	100.0
NSW Private	259	99.2	1	0.4	0	0.0	1	0.4	0	0.0	261	100.0
ALL HOSPITALS	5498	94.6	57	1.0	31	0.5	224	3.9	0	0.0	5810	100.0
Northern Sydney												
Hornsby	1178	98.3	6	0.5	2	0.2	12	1.0	0	0.0	1198	100.0
Manly	904	97.9	7	0.8	0	0.0	12	1.3	0	0.0	923	100.0
Mona Vale	657	97.8	4	0.6	1	0.1	10	1.5	0	0.0	672	100.0
Royal North Shore	1633	92.9	12	0.7	20	1.1	93	5.3	0	0.0	1758	100.0
Ryde	713	98.1	7	1.0	0	0.0	7	1.0	0	0.0	727	100.0
Mater, North Sydney	1867	99.0	10	0.5	1	0.1	7	0.4	0	0.0	1885	100.0
North Shore Private	1861	99.0	7	0.4	4	0.2	7	0.4	0	0.0	1879	100.0
Sydney Adventist	2189	98.6	12	0.5	1	0.0	17	0.8	0	0.0	2219	100.0
ALL HOSPITALS	11002	97.7	65	0.6	29	0.3	165	1.5	0	0.0	11261	100.0
Western Sydney												
Auburn	1418	98.2	7	0.5	1	0.1	18	1.2	0	0.0	1444	100.0
Blacktown	2726	98.2	18	0.6	4	0.1	26	0.9	2	0.1	2776	100.0
Westmead	3695	93.2	44	1.1	21	0.5	203	5.1	0	0.0	3963	100.0
The Hills Private	1387	98.4	3	0.2	3	0.2	16	1.1	0	0.0	1409	100.0
Other Area hospitals	123	98.4	1	0.8	0	0.0	1	0.8	0	0.0	125	100.0
ALL HOSPITALS	9349	96.2	73	0.8	29	0.3	264	2.7	2	0.0	9717	100.0
Wentworth												
Blue Mountains	432	96.6	3	0.7	0	0.0	12	2.7	0	0.0	447	100.0
Nepean	3373	95.5	39	1.1	17	0.5	102	2.9	0	0.0	3531	100.0
Jamison Private	416	99.3	0	0.0	0	0.0	3	0.7	0	0.0	419	100.0
Hawkesbury	1049	98.7	2	0.2	1	0.1	11	1.0	0	0.0	1063	100.0
Nepean Private	228	99.1	0	0.0	0	0.0	2	0.9	0	0.0	230	100.0
ALL HOSPITALS	5498	96.6	44	0.8	18	0.3	130	2.3	0	0.0	5690	100.0
South Western Sydney												
Fairfield	2140	98.3	13	0.6	3	0.1	19	0.9	1	0.0	2176	100.0
Liverpool	3012	93.0	29	0.9	20	0.6	177	5.5	0	0.0	3238	100.0
Campbelltown	2755	97.1	15	0.5	3	0.1	65	2.3	0	0.0	2838	100.0
Bankstown-Lidcombe	1857	97.8	14	0.7	2	0.1	26	1.4	0	0.0	1899	100.0
Bankstown Private	403	98.5	2	0.5	0	0.0	4	1.0	0	0.0	409	100.0
Sydney Southwest Private	469	99.4	1	0.2	0	0.0	2	0.4	0	0.0	472	100.0
Bowral	644	97.3	7	1.1	0	0.0	11	1.7	0	0.0	662	100.0
ALL HOSPITALS	11280	96.5	81	0.7	28	0.2	304	2.6	1	0.0	11694	100.0
Central Coast												
Gosford	1926	79.3	19	0.8	8	0.3	475	19.6	0	0.0	2428	100.0
Wyong	421	94.6	0	0.0	1	0.2	23	5.2	0	0.0	445	100.0
North Gosford Private	706	98.1	6	0.8	1	0.1	7	1.0	0	0.0	720	100.0
ALL HOSPITALS	3053	85.0	25	0.7	10	0.3	505	14.1	0	0.0	3593	100.0
Hunter												
Maitland	1240	95.5	12	0.9	2	0.2	45	3.5	0	0.0	1299	100.0
Muswellbrook	210	96.3	1	0.5	0	0.0	7	3.2	0	0.0	218	100.0
Belmont	627	93.9	5	0.7	0	0.0	36	5.4	0	0.0	668	100.0
John Hunter	3134	86.3	39	1.1	32	0.9	426	11.7	0	0.0	3631	100.0
Christo Road Private	928	95.6	11	1.1	0	0.0	32	3.3	0	0.0	971	100.0
Other Area hospitals	431	96.4	3	0.7	1	0.2	12	2.7	0	0.0	447	100.0
ALL HOSPITALS	6570	90.8	71	1.0	35	0.5	558	7.7	0	0.0	7234	100.0
Illawarra												
Shoalhaven	797	94.0	3	0.4	4	0.5	44	5.2	0	0.0	848	100.0
Wollongong	2101	83.1	10	0.4	7	0.3	411	16.3	0	0.0	2529	100.0
Illawarra Private	749	98.8	4	0.5	0	0.0	5	0.7	0	0.0	758	100.0
Other Area hospitals	121	99.2	0	0.0	0	0.0	1	0.8	0	0.0	122	100.0
ALL HOSPITALS	3768	88.5	17	0.4	11	0.3	461	10.8	0	0.0	4257	100.0

TABLE 111 (continued)

BIRTHS BY BABY DISCHARGE STATUS AND HOSPITAL, NSW 2000#

Health Area and Hospital	Discharged		Stillborn		Baby discharge status Neonatal death		Transferred		Not stated		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
South Eastern Sydney												
Royal Hospital for Women	3802	96.4	27	0.7	18	0.5	99	2.5	0	0.0	3946	100.0
St. George	2404	98.3	16	0.7	7	0.3	18	0.7	0	0.0	2445	100.0
Sutherland	949	98.8	2	0.2	1	0.1	9	0.9	0	0.0	961	100.0
Hurstville Community	838	98.1	6	0.7	0	0.0	10	1.2	0	0.0	854	100.0
Kareena Private	620	98.9	4	0.6	0	0.0	3	0.5	0	0.0	627	100.0
St. George Private	1283	98.9	5	0.4	1	0.1	8	0.6	0	0.0	1297	100.0
Prince of Wales Private	1655	98.9	1	0.1	1	0.1	16	1.0	0	0.0	1673	100.0
ALL HOSPITALS	11551	97.9	61	0.5	28	0.2	163	1.4	0	0.0	11803	100.0
Northern Rivers												
Grafton Base	452	95.4	4	0.8	0	0.0	18	3.8	0	0.0	474	100.0
Lismore Base	953	77.5	11	0.9	4	0.3	262	21.3	0	0.0	1230	100.0
Murwillumbah	446	96.5	2	0.4	0	0.0	14	3.0	0	0.0	462	100.0
Tweed Heads	721	98.1	5	0.7	1	0.1	8	1.1	0	0.0	735	100.0
Other Area hospitals	314	94.3	2	0.6	1	0.3	16	4.8	0	0.0	333	100.0
ALL HOSPITALS	2886	89.2	24	0.7	6	0.2	318	9.8	0	0.0	3234	100.0
Mid North Coast												
Coffs Harbour	648	91.0	2	0.3	4	0.6	58	8.1	0	0.0	712	100.0
Kempsey	287	97.0	1	0.3	0	0.0	8	2.7	0	0.0	296	100.0
Port Macquarie Base	665	91.9	5	0.7	1	0.1	53	7.3	0	0.0	724	100.0
Manning Base	670	93.3	8	1.1	1	0.1	39	5.4	0	0.0	718	100.0
Other Area hospitals	265	95.3	1	0.4	0	0.0	12	4.3	0	0.0	278	100.0
ALL HOSPITALS	2535	92.9	17	0.6	6	0.2	170	6.2	0	0.0	2728	100.0
New England												
Armidale	424	92.2	4	0.9	0	0.0	32	7.0	0	0.0	460	100.0
Inverell	220	94.0	1	0.4	0	0.0	13	5.6	0	0.0	234	100.0
Moree	237	96.7	1	0.4	0	0.0	7	2.9	0	0.0	245	100.0
Tamworth Base	559	86.8	5	0.8	0	0.0	80	12.4	0	0.0	644	100.0
Other Area hospitals	695	94.7	1	0.1	2	0.3	35	4.8	1	0.1	734	100.0
ALL HOSPITALS	2135	92.1	12	0.5	2	0.1	167	7.2	1	0.0	2317	100.0
Macquarie												
Dubbo Base	836	66.2	8	0.6	2	0.2	416	33.0	0	0.0	1262	100.0
Mudgee	232	95.9	0	0.0	0	0.0	10	4.1	0	0.0	242	100.0
Other Area hospitals	142	90.4	0	0.0	0	0.0	15	9.6	0	0.0	157	100.0
ALL HOSPITALS	1210	72.8	8	0.5	2	0.1	441	26.6	0	0.0	1661	100.0
Mid Western												
Bathurst Base	453	84.8	2	0.4	0	0.0	79	14.8	0	0.0	534	100.0
Orange Base	638	80.7	4	0.5	0	0.0	149	18.8	0	0.0	791	100.0
Parke	194	94.2	1	0.5	0	0.0	11	5.3	0	0.0	206	100.0
Other Area hospitals	590	95.9	4	0.7	1	0.2	20	3.3	0	0.0	615	100.0
ALL HOSPITALS	1875	87.4	11	0.5	1	0.0	259	12.1	0	0.0	2146	100.0
Far West												
Broken Hill Base	274	98.6	2	0.7	0	0.0	2	0.7	0	0.0	278	100.0
Other Area hospitals	72	85.7	1	1.2	2	2.4	9	10.7	0	0.0	84	100.0
ALL HOSPITALS	346	95.6	3	0.8	2	0.6	11	3.0	0	0.0	362	100.0
Greater Murray												
Griffith Base	463	96.1	5	1.0	1	0.2	13	2.7	0	0.0	482	100.0
Wagga Wagga Base	743	89.1	7	0.8	3	0.4	81	9.7	0	0.0	834	100.0
Calvary, Wagga Wagga	430	97.7	5	1.1	1	0.2	4	0.9	0	0.0	440	100.0
Other Area hospitals	830	94.9	1	0.1	0	0.0	44	5.0	0	0.0	875	100.0
ALL HOSPITALS	2466	93.7	18	0.7	5	0.2	142	5.4	0	0.0	2631	100.0
Southern												
Bega	183	85.1	2	0.9	0	0.0	30	14.0	0	0.0	215	100.0
Goulburn Base	308	96.6	1	0.3	0	0.0	10	3.1	0	0.0	319	100.0
Queanbeyan	330	97.6	2	0.6	0	0.0	6	1.8	0	0.0	338	100.0
Other Area hospitals	783	97.4	3	0.4	0	0.0	18	2.2	0	0.0	804	100.0
ALL HOSPITALS	1604	95.7	8	0.5	0	0.0	64	3.8	0	0.0	1676	100.0
TOTAL NSW	82731	94.1	595	0.7	243	0.3	4349	4.9	4	0.0	87922	100.0

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

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

7.8 POSTNATAL LENGTH OF STAY IN SELECTED HOSPITALS

Table 112 shows the mother's postnatal length of stay in the hospital of birth for hospitals where the number of reported confinements exceeded 200 in 1999, totals for all hospitals within each health area and the NSW total.

TABLE 112

AVERAGE MATERNAL POSTNATAL LENGTH OF STAY IN HOSPITAL OF BIRTH, NSW 1995–1999[#]

Health Area and Hospital	Average postnatal length of stay (days)					Health Area and Hospital	Average postnatal length of stay (days)				
	1995	1996	1997	1998	1999		1995	1996	1997	1998	1999
Central Sydney						South Eastern Sydney					
Canterbury	3.5	3.1	–	2.8	2.9	Royal Hospital for Women	4.6	4.2	4.1	3.8	3.6
King George V	4.1	3.7	3.9	3.9	4.0	St. George	4.1	3.8	3.9	3.6	3.5
NSW Private	5.8	5.4	5.4	4.6	5.0	Sutherland	4.5	4.1	3.8	3.8	3.6
ALL HOSPITALS	4.1	3.8	4.0	3.9	3.8	Hurstville Community	6.2	6.5	6.6	6.4	5.5
Northern Sydney						Northern Rivers					
Hornsby	4.4	4.1	3.7	3.8	3.7	Kareena Private	6.3	6.4	6.3	5.9	5.9
Manly	4.3	3.9	3.8	3.7	3.8	St. George Private	8.0	6.2	6.2	5.5	5.3
Mona Vale	4.3	4.2	3.9	3.8	3.7	Prince of Wales Private	–	–	6.3	5.6	5.2
Royal North Shore	4.3	4.3	3.9	4.1	4.3	Other Area hospitals	6.0	5.8	5.8	5.6	–
Ryde	4.0	4.3	3.6	3.3	3.4	ALL HOSPITALS	5.0	4.8	4.8	4.5	4.2
Mater, North Sydney	5.6	5.3	5.3	5.2	5.4	Mid North Coast					
North Shore Private	–	–	–	4.8	4.8	Grafton Base	4.4	4.8	4.5	3.9	3.9
Sydney Adventist	6.2	5.9	5.6	5.3	5.5	Lismore Base	3.8	3.3	3.2	3.4	3.1
ALL HOSPITALS	4.9	4.8	4.5	4.5	4.6	Murwillumbah	4.2	4.0	4.0	3.7	3.7
Western Sydney						New England					
Auburn	3.6	3.4	3.0	2.8	2.8	Armidale	5.1	5.1	4.7	4.4	4.4
Blacktown	3.3	3.3	3.1	3.1	3.0	Inverell	3.7	3.6	3.8	3.4	3.4
Westmead	3.9	3.5	3.5	3.3	3.4	Moree	4.1	3.8	3.6	4.0	3.7
The Hills Private	5.8	5.8	5.8	5.6	5.5	Tamworth Base	3.7	3.5	3.6	3.6	3.8
Other Area hospitals	3.9	3.5	3.5	–	–	Other Area hospitals	4.6	4.6	4.2	4.1	4.1
ALL HOSPITALS	3.9	3.7	3.6	3.5	3.5	ALL HOSPITALS	4.3	4.2	4.0	3.9	4.0
Wentworth						Macquarie					
Blue Mountains	3.5	3.6	3.6	3.7	3.5	Dubbo Base	3.3	3.2	3.0	3.0	2.9
Nepean	3.5	3.4	3.5	3.2	3.3	Mudgee	3.6	3.6	3.3	3.5	3.2
Jamison Private	5.3	5.3	5.5	5.3	5.0	Other Area hospitals	3.4	3.2	3.3	3.5	3.1
Hawkesbury	–	3.8	3.8	3.5	3.4	ALL HOSPITALS	3.3	3.3	3.1	3.1	2.9
Other Area hospitals	3.7	3.5	–	–	–	Mid Western					
ALL HOSPITALS	3.7	3.7	3.9	3.6	3.6	Bathurst Base	4.2	3.7	3.2	3.3	3.4
South Western Sydney						Far West					
Fairfield	3.1	3.0	2.9	2.9	2.8	Broken Hill Base	4.3	4.1	3.8	4.1	4.4
Liverpool	3.1	3.1	3.1	2.9	3.0	Other Area hospitals	3.2	3.8	2.9	2.8	3.6
Campbelltown	3.0	2.8	2.7	2.6	2.6	ALL HOSPITALS	4.0	4.1	3.6	3.8	4.2
Bankstown–Lidcombe	3.0	3.0	2.8	2.8	2.9	Greater Murray					
Bankstown Private	5.3	5.0	5.4	4.9	4.7	Deniliquin	5.3	5.3	4.8	4.4	4.4
Bowral	3.7	3.2	3.0	3.0	3.0	Griffith Base	4.1	3.6	3.4	3.4	3.1
Other Area hospitals	3.7	3.4	3.8	3.3	4.2	Wagga Wagga Base	4.0	3.7	3.4	3.3	3.8
ALL HOSPITALS	3.2	3.2	3.1	3.0	2.9	Calvary, Wagga Wagga	5.9	6.3	6.5	5.5	5.2
Central Coast						Southern					
Gosford	3.7	3.5	3.1	2.4	2.5	Bega	4.4	4.2	4.2	4.0	3.5
Wyong	–	–	3.2	2.5	2.4	Goulburn Base	4.1	3.6	3.8	3.3	3.5
North Gosford Private	6.1	6.2	5.9	5.9	5.6	Queanbeyan	3.4	3.2	3.2	3.4	3.4
ALL HOSPITALS	4.2	4.1	3.7	3.1	3.1	Other Area hospitals	4.2	4.1	3.8	3.9	3.8
Hunter						TOTAL NSW					
Maitland	3.5	3.2	3.1	3.2	3.4	1995	4.1	4.0	3.9	3.7	3.7
Muswellbrook	3.9	3.9	3.8	3.5	3.5	1996					
Belmont	3.6	3.3	3.5	3.5	3.6	1997					
Singleton	4.2	3.7	3.3	3.5	3.3	1998					
John Hunter	3.9	3.7	4.0	3.9	3.6	1999					
Christo Road Private	5.7	5.7	5.8	5.5	5.3						
Other Area hospitals	4.8	4.8	4.7	4.8	4.1						
ALL HOSPITALS	4.0	3.9	4.1	4.0	3.8						
Illawarra											
Shoalhaven	2.9	2.7	2.3	2.5	2.7						
Shellharbour	3.5	3.8	3.3	3.0	2.8						
Wollongong	2.5	2.4	2.4	2.6	2.8						
Illawarra Private	6.3	5.6	6.3	5.6	5.6						
Other Area hospitals	4.2	4.4	3.8	3.7	3.6						
ALL HOSPITALS	2.9	2.7	2.5	3.0	3.2						

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

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

7.9 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 113 shows aggregate information for these indicators for all NSW hospitals and comparative information for all participating hospitals in Australia.

TABLE 113					
CLINICAL INDICATORS FOR OBSTETRICS, NSW AND AUSTRALIA, 2000					
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.	31.2	33.0	20.4	49.4
1.2	Mothers undergoing induction of labour for other than defined indications as a percentage of all mothers giving birth.	7.4	8.5	4.6	14.5
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.	20.4	22.4	15.7	30.4
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	9.3	7.3	18.3
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.	33.8	29.2	27.0	39.2
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.	3.0	3.3	2.3	3.5
4.2	Mothers undergoing primary caesarean section for fetal distress as a percentage of mothers delivering by primary caesarean section.	20.0	21.0	16.5	26.3
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.	30.3	28.8	18.3	38.6
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.##	0.51	0.68	0.35	0.81
6.2	Infants born with an Apgar score of six or less at ten minutes post delivery as a percentage of all infants born.###	–	0.30	0.22	0.39
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 infants born.	0.8	1.2	0.27	1.2

Source: NSW Midwives Data Collection (HOIST). Epidemiology and Surveillance Branch, NSW Department of Health. The Australian Council on Healthcare Standards. *Determining the Potential to Improve the Quality of Care in Australian Health Care Organisations. 2nd Edition, Trends in Quality of Care: Results of the ACHS Clinical Indicators 1998-2000 Version 1.* Sydney: The Australian Council on Healthcare Standards, 2001.

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.

PART 8: REVIEW OF PERINATAL DEATHS 2000

8.1 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 2000, and the results of a survey of hospital perinatal death review practices, which was carried out during 2001.

Information on the review of perinatal deaths occurring in 2000 is presented in sections 8.2 to 8.7. Information on the the survey of hospital perinatal death review practices is presented in section 8.8

8.2 PERINATAL DEATH REVIEWS, 2000

Perinatal deaths in NSW are reviewed by the NSW Maternal and Perinatal Committee, which 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.

NSW Department of Health Circular No. 99/101 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/1999. Under this policy, the NSW 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 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 which are more likely to be preventable.

Perinatal deaths occurring in 2000 were reviewed by the Committee's Perinatal Outcomes Working Party. Both stillbirths and neonatal deaths were classified according to an obstetric cause-specific classification (amended Whitfield classification). Neonatal deaths were also classified by neonatal cause.

Of the 715 perinatal deaths of at least 22 weeks gestation or at least 500 grams birthweight reported to the NSW Midwives Data Collection, confidential reports on 601 (84.1 per cent) were reviewed and classified. Of the 601 confidential reports received, 421 (70.0 per cent) were for stillbirths and 180 (30.0 per cent) were for neonatal deaths.

8.3 OBSTETRIC CAUSES OF PERINATAL DEATH

Overall, almost one third of deaths reviewed (34.6 per cent) were unexplained, and among term infants over half (56.8 per cent) were unexplained (Table 114). Eighteen per cent of deaths followed spontaneous preterm labour, while 13.6 per cent were due to a congenital abnormality of the fetus.

1. Spontaneous preterm

There were 106 perinatal deaths associated with spontaneous preterm birth, which comprises normally formed babies born before 37 weeks gestation. Spontaneous preterm birth was attributed to previous spontaneous rupture of membranes in 34 cases, was idiopathic in 26 cases, was associated with a multiple pregnancy in 24 cases and cervical incompetence in 13 cases.

All of these babies were born before 33 weeks gestation and 88 (83.0 per cent) were born before 26 weeks gestation.

In 34 cases (32.1 per cent) there was bleeding during pregnancy, of which eight were associated with placental abruption, seven with threatened miscarriage, two with placenta praevia, and the remainder were of unknown origin. In 28 (26.4 per cent) cases there was associated chorioamnionitis.

2. Intrauterine growth restriction (IUGR)

In seven cases, the main obstetric cause was found to be IUGR, defined as less than the 10th percentile of birthweight for gestational age with no major congenital abnormalities. Stillbirths with evidence of maceration were not classified as IUGR unless there was evidence of IUGR on serial ultrasound during pregnancy.

Of these seven cases, two were stillbirths. One stillborn baby died during labour and the other had evidence of IUGR on serial ultrasound during pregnancy with placental infarction found at delivery. Among the five neonatal deaths, one was the second of twins in an otherwise uneventful pregnancy, one had evidence of chorioamnionitis but no fetal infection, one mother had chronic hypertension, one mother had renal disease, and there were no associated conditions reported in the remaining case.

3. Unexplained intrauterine death

The cause of death could not be adequately explained in 208 stillbirths. Of these, 127 (61.1 per cent) were low birthweight and 124 (59.6 per cent) were premature.

There were a variety of maternal conditions reported in this group, including: multiple pregnancy (six cases), maternal hypertension (18), diabetes (nine), history of drug dependency or abuse (four), and cholestasis (one).

Placental histopathology reports were provided in 154 (74.0 per cent) cases, of which 65 (42.2 per cent) were normal. Abnormalities found included: infarction in 24 (15.6 per cent) with 6 showing infarction of 25 per cent or more of the placenta; chorioamnionitis ($n=13$, 8.4 per cent); chorionitis ($n=9$, 5.8 per cent); and haemorrhage ($n=5$, 3.2 per cent).

TABLE 114

PERINATAL DEATHS BY OBSTETRIC CAUSE AND GESTATIONAL AGE, NSW 2000

Obstetric cause	Gestational age (weeks)					
	Less than 37		37+		TOTAL	
	No.	%	No.	%	No.	%
1. Spontaneous preterm						
Multiple pregnancy	24	5.3	0	0.0	24	4.0
Previous bleeding	8	1.8	0	0.0	8	1.3
Previous spontaneous rupture of membranes	34	7.5	0	0.0	34	5.7
Cervical incompetence	13	2.9	0	0.0	13	2.2
Idiopathic	26	5.7	0	0.0	26	4.3
Other	1	0.2	0	0.0	1	0.2
Total	106	23.4	0	0.0	106	17.6
2. Intrauterine growth retardation (IUGR)	5	1.1	2	1.4	7	1.2
3. Unexplained intrauterine death	124	27.4	84	56.8	208	34.6
4. Birth trauma	1	0.2	0	0.0	1	0.2
5. Intrapartum asphyxia						
Vaginal delivery	0	0.0	3	2.0	3	0.5
Cord complications	2	0.4	1	0.7	3	0.5
Caesarean section	0	0.0	3	2.0	3	0.5
Forceps delivery	0	0.0	2	1.4	2	0.3
Ventouse delivery	0	0.0	2	1.4	2	0.3
Total	2	0.4	11	7.4	13	2.2
6. Hypertension						
Unspecified	2	0.4	4	2.7	6	1.0
Pre-existing hypertension	5	1.1	0	0.0	5	0.8
Pre-eclamptic toxemia	18	4.0	5	3.4	23	3.8
Pre-existing + PET	2	0.4	0	0.0	2	0.3
Total	27	6.0	9	6.1	36	6.0
7. Maternal disease						
Other	7	1.5	2	1.4	9	1.5
Maternal injury	4	0.9	1	0.7	5	0.8
Diabetes/gestational diabetes	1	0.2	3	2.0	4	0.7
Maternal death	1	0.2	0	0.0	1	0.2
Total	13	2.9	6	4.1	19	3.2
8. Antepartum haemorrhage						
Placental abruption	30	6.6	7	4.7	37	6.2
Vasa praevia	1	0.2	0	0.0	1	0.2
APH undetermined origin	7	1.5	1	0.7	8	1.3
Total	38	8.4	8	5.4	46	7.7
9. Fetal abnormality						
Central nervous system	15	3.3	0	0.0	15	2.5
Cardiovascular system	4	0.9	2	1.4	6	1.0
Urinary tract	5	1.1	0	0.0	5	0.8
Gastrointestinal system	3	0.7	0	0.0	3	0.5
Chromosomal	22	4.9	7	4.7	29	4.8
Metabolic	1	0.2	1	0.7	2	0.3
Multiple	7	1.5	2	1.4	9	1.5
Other	9	2.0	4	2.7	13	2.2
Total	66	14.6	16	10.8	82	13.6
10. Haemolytic disease						
Rhesus incompatibility	1	0.2	0	0.0	1	0.2
Total	1	0.2	0	0.0	1	0.2
11. Infection						
Unspecified	30	6.6	6	4.1	36	6.0
Streptococcus Group B	9	2.0	3	2.0	12	2.0
E Coli	4	0.9	0	0.0	4	0.7
Other bacterial	2	0.4	0	0.0	2	0.3
Total	45	9.9	9	6.1	54	9.0

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

TABLE 113 (continued)**PERINATAL DEATHS BY OBSTETRIC CAUSE AND GESTATIONAL AGE, NSW 2000**

Obstetric cause	Gestational age (weeks)					
	Less than 37		37+		TOTAL	
	No.	%	No.	%	No.	%
12. Other						
Non-immune hydrops	6	1.3	0	0.0	6	1.0
Feto-maternal haemorrhage	0	0.0	1	0.7	1	0.2
Twin to twin transfusion	12	2.6	0	0.0	12	2.0
Maternal drug dependence/abuse	2	0.4	0	0.0	2	0.3
Unknown/unexplained	1	0.2	0	0.0	1	0.2
Other	4	0.9	2	1.4	6	1.0
Total	25	5.5	3	2.0	28	4.7
TOTAL	453	100.0	148	100.0	601	100.0

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

4. Birth trauma

This group comprises normally formed babies of at least 1,500 grams birthweight with evidence of lethal trauma at autopsy. There was only one death attributed to birth trauma. This 36 weeks gestation baby had a forceps delivery and died in the neonatal period following a subdural haemorrhage.

5. Intrapartum asphyxia

There were 13 deaths of normally formed babies of at least 1,500 grams birthweight with evidence of intrapartum hypoxia. Eight babies were stillborn following death during labour and five deaths occurred in the neonatal period.

There were two cases of shoulder dystocia, two cases of cord prolapse one of which was a first twin, and two cases of meconium aspiration. One case of a true knot in the cord resulted in death during labour. Another intrapartum death followed uterine rupture during labour. One baby, a second twin, died during labour following a pregnancy complicated by pre-eclampsia and placental abruption. There was one death associated with chorioamnionitis and one with maternal diabetes. Two intrapartum deaths were unexplained.

6. Hypertension

Thirty-six deaths were associated with hypertension: pre-eclampsia (23), chronic hypertension (five), combined chronic hypertension and pre-eclampsia (two) and unspecified hypertension (six).

Twenty-two deaths were among stillbirths and 11 were neonatal deaths. Three deaths were among babies of twin pregnancies.

Six deaths in this group were associated with placental abruption. One case of pre-eclampsia was complicated by eclampsia and placental abruption during labour. One mother had antiphospholipid antibodies and chronic hypertension complicated by pre-eclampsia. Another had both hypertension and diabetes.

Placental histopathology was reported for 28 (77.8 per cent), of which eight were normal. Infarction was reported in 14 cases, with four of these showing infarction of 25 per cent or more of the placenta. Other abnormalities reported were: haemorrhage (four), chorioamnionitis (one), and ischaemic changes (one).

7. Maternal disease

Nineteen deaths were attributed to other maternal diseases including: maternal injury following motor vehicle accident (four); diabetes (four); presence of antiphospholipid antibodies (six), in one case associated with systemic lupus erythematosus and diabetes; renal failure (one); presence of anti-cardiolipin antibodies (one); the presence of a large uterine fibroid which had undergone hyaline necrosis (one), maternal assault (one), and maternal death from a cause unrelated to pregnancy (one).

8. Antepartum haemorrhage

Forty-six deaths were due to antepartum haemorrhage, of which 37 were due to placental abruption, one due to vasa praevia and eight were of undetermined origin.

Thirty-three deaths were stillborn babies who died before the onset of labour, and 13 were neonatal deaths.

Two antepartum haemorrhages were associated with maternal diabetes, one mother was positive for antinuclear antibody (1:60) and one had an abnormal protein c profile.

9. Fetal abnormality

Eighty-two deaths were found to be due to fetal abnormalities. Chromosomal defects were most common ($n=29$, 35.8 per cent), of which 11 were trisomy 21, nine were trisomy 18, four were trisomy 13, and five were other chromosomal abnormalities. The next most common group of abnormalities were of the central nervous system ($n=15$, 18.5 per cent), of which seven were neural tube defects, and four were congenital hydrocephalus. Nine babies had multiple abnormalities not associated with a chromosomal abnormality.

10. Haematological disease

One death due to rhesus incompatibility was reported.

11. Infection

Fifty-four deaths were found to be due to infection, of which 30 were stillbirths and 24 were neonatal deaths. In all 30 stillbirths and in 17 neonatal deaths an associated chorioamnionitis was reported.

Most commonly an organism was not specified ($n=36$, 66.7 per cent). Organisms specified included Streptococcus group B (12), E. Coli (four), multi-resistant Staphylococcus Aureus (one), and an unspecified spirochaete (one).

12. Other

Twenty-eight deaths were due to other causes including: twin-to-twin transfusion (12); non-immune fetal hydrops (six); sacrococcygeal teratoma (two); maternal drug dependence/abuse (two); feto-maternal haemorrhage (one); accident in the post-natal period (one); termination of pregnancy for oligohydramnios (one); ovarian pregnancy (one), and fetal demise in utero due to true knot in cord (one). The placenta of one case, which was classified as unexplained, showed haemorrhagic endovasculitis on histopathology.

8.4 OBSTETRIC CAUSE OF PERINATAL DEATH BY HOSPITAL SIZE

The majority of perinatal deaths occurred in hospitals with more than 2000 births in 2000 (Table 115). The proportion of unexplained intrauterine deaths was substantially higher in hospitals with less than 1500 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.

8.5 NEONATAL CAUSE OF DEATH

Of the 180 neonatal deaths, 157 (87.2 per cent) were less than 37 weeks gestation (Table 116). The most common neonatal cause of death, affecting 43.9 per cent of infants, was extreme prematurity. All these infants were less than 26 weeks gestation. Thirty-two infants died from a congenital abnormality. The other most common causes of death included infection (11 deaths), neurological complications including asphyxia (11) and haemorrhage (nine), and hyaline membrane disease (nine).

8.6 PERINATAL DEATHS ASSOCIATED WITH MATERNAL DRUG DEPENDENCY/ABUSE

Two perinatal deaths were attributed to maternal drug dependency or drug abuse. One was attributed to the use of 'speed' and the other of heroin.

A further 13 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.

8.7 POSTMORTEM EXAMINATION

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

In 2000, postmortem examinations were carried out in 196 (32.6 per cent) cases of perinatal death. There were 156 postmortems carried out among stillborn infants (37.1 per cent of all stillbirths), and 40 postmortems among babies who died in the neonatal period (20.4 per cent of all neonatal deaths). Placental histopathology was carried out in 429 (71.4 per cent) perinatal deaths.

TABLE 115

PERINATAL DEATHS BY OBSTETRIC CAUSE AND HOSPITAL SIZE, NSW 2000

Obstetric cause	Hospital size (No. births per year)											
	0-499		500-999		1000-1499		1500-1999		2000+		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1. Spontaneous preterm	9	18.4	14	16.5	5	8.9	16	31.4	62	17.2	106	17.6
2. Intrauterine growth retardation (IUGR)	1	2.0	1	1.2	0	0.0	1	2.0	4	1.1	7	1.2
3. Unexplained intrauterine death	21	42.9	38	44.7	26	46.4	14	27.5	109	30.3	208	34.6
4. Birth trauma	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	1	0.2
5. Intrapartum asphyxia	3	6.1	2	2.4	1	1.8	1	2.0	6	1.7	13	2.2
6. Hypertension	3	6.1	6	7.1	1	1.8	6	11.8	20	5.6	36	6.0
7. Maternal disease	1	2.0	1	1.2	2	3.6	1	2.0	14	3.9	19	3.2
8. Antepartum haemorrhage	6	12.2	8	9.4	5	8.9	0	0.0	27	7.5	46	7.7
9. Fetal abnormality	1	2.0	9	10.6	7	12.5	4	7.8	61	16.9	82	13.6
10. Haemolytic disease	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	1	0.2
11. Infection	3	6.1	4	4.7	6	10.7	7	13.7	34	9.4	54	9.0
12. Other	1	2.0	2	2.4	3	5.4	1	2.0	21	5.8	28	4.7
TOTAL	49	100.0	85	100.0	56	100.0	51	100.0	360	100.0	601	100.0

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

TABLE 116**NEONATAL DEATHS BY CAUSE AND GESTATIONAL AGE, NSW 2000**

Neonatal cause	Gestational age (weeks)					
	Less than 37		37+		TOTAL	
	No.	%	No.	%	No.	%
Extreme prematurity						
Life support initiated	19	12.1	0	0.0	19	10.6
Life support not initiated	35	22.3	0	0.0	35	19.4
Life support not stated	15	9.6	0	0.0	15	8.3
Total	69	43.9	0	0.0	69	43.9
Congenital abnormality	22	14.0	10	43.5	32	17.8
Neurological						
Asphyxia	5	3.2	6	26.1	11	6.1
Haemorrhage	9	5.7	0	0.0	9	5.0
Other	1	0.6	0	0.0	1	0.6
Total	15	9.6	6	26.1	21	11.7
Cardio-respiratory						
Hyaline membrane disease	9	5.7	0	0.0	9	5.0
Persistent pulmonary hypertension	2	1.3	0	0.0	2	1.1
Necrotising enterocolitis	1	0.6	0	0.0	1	0.6
Other	9	5.7	2	8.7	11	6.1
Total	21	13.4	2	8.7	23	12.8
Metabolic/ endocrine	0	0.0	1	4.3	1	0.6
Infection						
Congenital bacterial	6	3.8	1	4.3	7	3.9
Acquired bacterial	3	1.9	0	0.0	3	1.7
Unspecified	1	0.6	0	0.0	1	0.6
Total	10	6.4	1	4.3	11	6.1
Other	15	9.6	1	4.3	16	8.9
Not stated	5	3.2	2	8.7	7	3.9
TOTAL	157	100.0	23	100.0	180	100.0

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

8.8 SURVEY OF PERINATAL DEATH REVIEW PROCEDURES IN NSW HOSPITALS

Introduction

A Department of Health policy on Hospital Procedures for Review and Reporting of Perinatal Deaths (Circular 99/101) was issued in December 1999. The policy provides for the establishment of Perinatal Death Review Committees at hospital or health area level as a quality assurance activity.

A survey was carried out to determine the extent to which perinatal death review procedures were in place and to identify any problems.

Method

In early 2001, a questionnaire concerning perinatal death review procedures was sent to all hospitals that reported births to the MDC in 1999. The questionnaire asked about the existence of a perinatal death review committee at the hospital or elsewhere, its composition, meeting frequency, privilege under the NSW Health Administration Act 1982, and any problems.

Returned questionnaires were entered into a MS Access database and analysed using SAS version 8.1. Information on types of perinatal death review practices were grouped and compared with the numbers of births and perinatal deaths reported to the MDC for 2000. Information on births and perinatal deaths for hospitals that opened or closed in 2000 were excluded from the analysis.

Results

Of the 143 hospitals in NSW that were open for the full year and reported at least one birth in 2000, 115 responded to the survey, giving a response rate of 80.4 per cent.

A variety of processes were reported for perinatal death reviews (Table 117). Reviews were carried out by a perinatal death review committee in 53 hospitals, as part of a wider clinical review meeting in 15 hospitals, on an informal basis in six hospitals, by a quality assurance committee in one hospital, and a medical review panel in one hospital. Twenty-seven hospitals reported not having any review process in place, of which 25 (92.6 per cent) were rural hospitals and 22 (81.5 per cent) had less than 200 births per year. Eleven hospitals reported that they either do not or no longer offer an obstetric service.

The type of perinatal death review process was compared with the numbers of births and perinatal deaths reported from hospitals in 2000 (Table 118). Seventy-five per cent of births and 83.3 per cent of perinatal deaths occurred in hospitals with a designated perinatal death review committee, and 90.5 per cent of births and 92.7 per cent of perinatal deaths occurred in hospitals with some sort of perinatal death process in place.

Of the 76 hospitals that carried out perinatal death reviews, 66 (86.8 per cent) carried out their own reviews, six

contributed to reviews carried out at another hospital, for three hospitals reviews were carried out at area health service level, and one hospital reported having a joint committee with another hospital.

In the 70 hospitals with committee-based reviews, 15 met at least monthly, 33 quarterly, three met 5–6 times per year, nine met twice a year and eight met as necessary. The meeting frequency for two hospitals was not stated.

Eight hospitals had applied for and gained privilege under the Health Administration Act 1982 for their committee's reviews of confidential medical information. A further three hospitals had submitted an application for privilege.

Hospitals with perinatal death review procedures in place did not report any major problems. A small number of hospitals commented on difficulties, including:

- difficulties in getting busy clinicians together for meetings;
- concern about deliberations of committee being subpoenaed, and need for committee's to have privilege to carry out reviews;
- difficulties in obtaining information from referral hospitals where death occurs following transfer;
- completing the paperwork associated with submitting the Confidential Report Forms on Perinatal Death to the Department of Health;
- obtaining files from medical records departments for purpose not directly related to clinical care.

Of the 28 hospitals that did not have perinatal death review procedures in place, 13 considered that a local perinatal death committee was not justified due to the low number of births and/or perinatal deaths at the hospital. Three hospitals reported that review procedures were being developed. A further two hospitals were waiting for a decision on whether they would be part of a health area-based review process.

Discussion

Review of perinatal deaths is an important part of quality assurance in obstetric and neonatal care. This survey found that processes exist in NSW hospitals for the review of over 90 per cent of perinatal deaths in the State. In over 80 per cent of perinatal deaths, reviews would be carried out by a designated perinatal death review committee.

For those hospitals with established review processes, there were no major problems reported. Some hospitals had difficulties with administrative arrangements associated with convening the meeting, obtaining relevant papers and providing Confidential Reports to the Department of Health for review by the NSW Maternal and Perinatal Committee.

TABLE 117**TYPE OF PERINATAL DEATH REVIEW BY HOSPITAL SIZE, NSW 2000**

Hospital perinatal death reviews	Hospital size (No. births per year)										TOTAL	
	0-499		500-999		1000-1499		1500-1999		2000+		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Perinatal death review committee	18	18.8	14	70.0	4	50.0	5	83.3	12	92.3	53	37.1
Clinical review committee/meeting	8	8.3	1	5.0	4	50.0	1	16.7	1	7.7	15	10.5
Informal review	6	6.3	0	0.0	0	0.0	0	0.0	0	0.0	6	4.2
Quality assurance committee	1	1.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.7
Medical review panel	1	1.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.7
No review process	26	27.1	1	5.0	0	0.0	0	0.0	0	0.0	27	18.9
No obstetric service	11	11.5	0	0.0	0	0.0	0	0.0	0	0.0	11	7.7
Not stated	25	26.0	4	20.0	0	0.0	0	0.0	0	0.0	29	20.3
TOTAL	96	100.0	20	100.0	8	100.0	6	100.0	13	100.0	143	100.0

Source: Survey of perinatal death review practices in NSW hospitals, 2001.

Excludes hospitals that opened or closed in 2000.

TABLE 118**COVERAGE OF BIRTHS AND PERINATAL DEATHS BY TYPE OF PERINATAL DEATH REVIEW, NSW 2000#**

Type of perinatal death review	Births		Coverage		Deaths	
	No.	%	No.	%	No.	%
Perinatal death review committee	64797	74.7	709	83.3		
Clinical review committee/meeting	12395	14.3	73	8.6		
Informal review	563	0.6	2	0.2		
Quality assurance committee	474	0.5	4	0.5		
Medical review panel	319	0.4	1	0.1		
No review process	3634	4.2	24	2.8		
No obstetric service	57	0.1	1	0.1		
Not stated	4541	5.2	37	4.3		
TOTAL	86780	100.0	851	100.0		

Source: Survey of perinatal death review practices in NSW hospitals, 2001.

Excludes hospitals that opened or closed in 2000.

Concerns about confidential information being subpoenaed was reported by one hospital. Hospitals may address this by seeking privilege under the Health Administration Act 1982. The process for seeking privilege is described in Department of Health Circular 99/101.

Twenty five rural hospitals reported that they offer an obstetric service but currently have no perinatal death review processes in place. Most of these hospitals offer low risk birthing services and have either none or very small numbers of perinatal deaths per year. For these hospitals, an association with a referral hospital or health area-based review process would be necessary to support a meaningful perinatal death review process.

PART 9: RISK-ADJUSTED CAESAREAN SECTION RATES IN NSW HOSPITALS, 2000

9.1 INTRODUCTION

This chapter presents the results of a study that produced risk-adjusted rates of caesarean section for NSW hospitals, using information on clinical risk factors currently collected through the NSW Midwives Data Collection (MDC). The objectives of this study were to:

- describe the relationship between caesarean section and the known risk factors using the MDC;
- validate the logistic regression model developed for prediction;
- facilitate comparison of caesarean section rates by standardisation based on logistic regression models;
- provide information to hospitals about their crude and adjusted caesarean section rates in 2000.

9.2 METHODS

Data were obtained from the MDC for the year 2000. The data set was divided into two parts based on baby's date of birth. Logistic regression models were developed on records of babies born between 1 January and 30 June. The model was then validated using the data on births occurring in the second half of the year.

Predicted probabilities from the final logistic model were applied to individual records for hospitals with 100 or more births during July–December 2000, resulting in each confinement being allocated a probability of caesarean section. The probabilities were summed for each hospital to give the expected number of caesarean sections by hospital, adjusted for the risk factors in the model. Standardised caesarean ratios were calculated for hospitals by calculating the ratio of observed to expected number of caesarean sections. The risk-adjusted caesarean section rate for each hospital was calculated by multiplying its standardised caesarean ratio with the caesarean section rate in the standard population of births (20.8 per cent for the first six months of 2000).

A detailed description of the method used to develop and validate the model is included in the Explanatory Notes of this report (page 16).

9.3 RESULTS

The crude caesarean section rate was 20.8 per cent in the first six months of 2000 and 21.8 per cent in the second six months. The mean age of mothers was 29 years in both the first and second half of 2000.

The risk of caesarean section for mothers with gestational diabetes was not significantly different to mothers without gestational diabetes. Table 118 presents crude and adjusted odds ratios for each statistically significant variable and shows:

- the risk of caesarean section rose steadily with increasing age, with the odds of caesarean section

increasing by six per cent for each year of maternal age;

- the presence of breech and other malpresentation greatly increased the risk of caesarean section. The risks increased substantially when adjusted for other factors;
- primiparous mothers have higher risk of caesarean section than multiparous mothers;
- multiple births have higher risk of caesarean section;
- the presence of diabetes mellitus, essential hypertension and pregnancy induced hypertension increased the risk of caesarean section;
- mothers who had a previous caesarean section faced a higher risk of caesarean section in the current pregnancy;
- when unadjusted for other factors, gestational age groups 20–28 weeks and 29–39 weeks had increased risk of caesarean section. The risk decreased for 20–28 weeks gestation after adjusting for other factors.

Risk-adjusted caesarean section rates varied less than crude rates. Crude rates ranged from 4.4 to 35.6 per cent and adjusted rates ranging from 11.9 to 31.2 per cent across hospitals (Table 119).

The highest crude caesarean section rates were among some tertiary referral hospitals and some private hospitals. After adjusting for clinical risk factors, estimated caesarean section rates in tertiary referral hospitals were no more than three per cent higher than the NSW rate of 21.7 per cent, and in four cases were lower than the NSW rate. The findings were similar for many private hospitals, with adjusted caesarean section rates generally lower than crude rates, and in some cases dramatically lower. Conversely, risk-adjusted caesarean section rates for smaller non-tertiary public hospitals tended to be higher than their crude rates.

9.4 DISCUSSION

This study examined clinical risk factors as predictors of caesarean section. We found that a combination of well-known clinical risk factors can predict caesarean section with a high level of certainty: These factors include: maternal age, type of presentation, parity, plurality, maternal diabetes mellitus, essential (chronic) hypertension, pregnancy-induced hypertension, previous caesarean section and gestational age. Of these clinical risk factors, by far the highest odds ratios were found to be associated with malpresentation (adjusted OR: 29.0 for breech and 48.2 for other malpresentation) and previous caesarean section (adjusted OR=45.1). A moderately high Odds Ratio was also found for primiparous mothers (adjusted OR=4.4).

TABLE 119**CRUDE AND ADJUSTED ODDS RATIOS FOR CAESAREAN SECTION BY CLINICAL RISK FACTORS FOUND TO BE SIGNIFICANT ON LOGISTIC MODELLING***

Risk factor	Births %	Crude Odds Ratio 95% CI		Adjusted Odds Ratio 95% CI	
Age (continuous)	n.a	1.07	1.06–1.07	1.07	1.07–1.08
Presentation					
Breech	4.2	19.43	17.24–21.91	29.04	25.66–32.86
Other malpresentation	0.8	23.61	17.88–31.18	48.16	36.66–63.26
Vertex	95.0	1.00		1.00	
Primiparous mothers	41.5	1.20	1.14–1.25	4.44	4.17–4.73
Multiparous mothers	58.5	1.00		1.00	
Multiple births	1.7	3.53	3.05–4.10	2.25	1.88–2.68
Singleton births	98.3	1.00		1.00	
Diabetes mellitus					
Yes	0.5	3.01	2.30–3.94	2.11	1.54–2.90
No	99.5	1.00		1.00	
Essential hypertension					
Yes	1.0	2.24	1.85–2.72	1.83	1.46–2.28
No	99.0	1.00		1.00	
Pregnancy induced hypertension					
Yes	7.1	1.79	1.65–1.94	1.78	1.63–1.94
No	92.9	1.00		1.00	
Previous caesarean section					
Yes	9.6	19.01	17.60–20.54	45.14	41.46–49.14
No	90.4	1.00		1.00	
Gestational age					
20–28 weeks	0.7	2.21	1.71–2.84	0.32	0.24–0.44
29–39 weeks	47.6	2.29	2.18–2.40	1.52	1.44–1.60
40+ weeks	51.7	1.00		1.00	

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

Interaction terms not shown.

In the second half of 2000, crude caesarean section rates in NSW hospitals varied from 4.4 to 35.6 per cent. After clinical risk-factor adjustment, the rates varied from 11.9 to 31.2 per cent. As expected, risk-adjustment tended to result in a lower estimate of the caesarean section rate for tertiary referral centres, where the majority of mothers with very high-risk pregnancies give birth. The caesarean section rates for some private hospitals also fell after risk-adjustment and in some cases quite dramatically.

The clinical risk adjustment model developed for this study did not include other factors that may influence a decision for caesarean section, such as private–public insurance status or induction of labour. This was deliberate, as it was intended to examine how well caesarean section could be predicted based on the presence of risk factors whose existence are beyond the control of mother or clinician.

While adjustment for clinical risk factors accounts for much of the variation in caesarean section rates in NSW hospitals, variation persisted after adjustment for a wide range of clinical risk factors. Other factors that could account for the residual variation include: other medical conditions and obstetric complications for which

information is not collected by the MDC; quality of care issues in relation to the management of medical conditions and obstetric complications; induction of labour and public–private insurance status, as mentioned above; and maternal or clinician preference.

It is inappropriate to use these risk-adjusted rates to make inferences about quality of care. The risk-adjustment process used in this study is based on the associations between risk factors and caesarean section on average in NSW. Average care in NSW may not, and probably does not, represent clinical best practice. Bearing this in mind, risk-adjusted caesarean section rates do provide more reliable information for comparing hospitals than crude rates, and the modelling of clinical risk factors carried out in this study provides useful information on the strength of various clinical factors to predict caesarean section.

Acknowledgments

We wish to acknowledge Mr Gaston Arnolda and Professor Geoffrey Berry, whose work on a similar project for the NSW Department of Health in 1994 provided much of the theoretical basis for this study. We also would like to thank Dr Tim Churches for methodological advice.

TABLE 120

CRUDE AND ADJUSTED CAESAREAN SECTION RATES BY HOSPITAL, NSW JULY–DECEMBER 2000#

Health Area and hospital	Caesarean sections No.	Births No.	Crude rate %	Adjusted rate %	99% confidence interval of adjusted rate
Central Sydney					
Canterbury	147	775	19.0	21.3	17.4–25.7
Royal Prince Alfred	435	1881	23.1	19.2	17.1–21.3
Sydney Private	28	117	23.9	21.6	13.2–32.0
Northern Sydney					
Hornsby	114	597	19.1	20.4	16.1–25.1
Manly	92	429	21.4	19.7	15.3–24.8
Mona Vale	68	312	21.8	21.5	15.9–28.1
Royal North Shore	246	843	29.2	22.0	19.0–25.2
Ryde	77	358	21.5	22.3	16.8–28.6
Mater, North Sydney	328	1031	31.8	24.0	21.2–26.9
North Shore Private	329	925	35.6	25.5	22.6–28.5
Sydney Adventist	288	1126	25.6	21.5	18.8–24.5
Western Sydney					
Auburn	93	668	13.9	18.4	14.1–23.4
Blacktown	223	1358	16.4	18.5	15.7–21.6
Westmead	415	1967	21.1	19.8	17.7–22.2
The Hills Private	166	700	23.7	21.0	17.4–24.8
Westmead Private	28	123	22.8	18.0	11.0–26.8
Wentworth					
Blue Mountains	42	203	20.7	25.7	17.2–35.9
Nepean	393	1760	22.3	24.4	21.6–27.3
Hawkesbury	97	510	19.0	21.0	16.3–26.3
Nepean Private	57	228	25.0	22.4	16.1–29.6
South Western Sydney					
Fairfield	131	1087	12.1	14.3	11.4–17.6
Liverpool	243	1557	15.6	18.7	15.9–21.7
Campbelltown	202	1409	14.3	17.8	15.0–21.0
Bankstown–Lidcombe	163	969	16.8	19.2	15.8–23.0
Bankstown Private	27	113	23.9	27.5	16.6–41.0
Sydney Southwest Private	59	285	20.7	20.3	14.6–27.0
Bowral	44	325	13.5	15.6	10.5–22.1
Central Coast					
Gosford District	270	1196	22.6	23.0	19.9–26.3
Wyong	9	206	4.4	11.9	4.2–25.8
North Gosford Private	106	353	30.0	24.5	19.5–30.0
Hunter					
Maitland	157	652	24.1	25.9	21.4–30.8
Muswellbrook District	12	103	11.7	15.5	6.6–29.4
Belmont	48	292	16.4	19.8	13.5–27.3
John Hunter	363	1770	20.5	21.5	19.0–24.2
Christo Road Private	126	476	26.5	23.1	18.7–28.0
Illawarra					
Shoalhaven	97	412	23.5	24.9	19.4–31.0
Wollongong	227	1264	18.0	21.0	17.9–24.5
Illawarra Private	93	363	25.6	21.8	17.0–27.2
South Eastern Sydney					
Royal Hospital for Women	501	1890	26.5	23.5	21.2–25.9
St. George	259	1269	20.4	20.5	17.7–23.6
Sutherland	96	456	21.1	21.5	16.7–27.0
Hurstville Community	149	494	30.2	23.2	19.2–27.5
Kareena Private	97	302	32.1	23.9	18.9–29.4
St George Private	233	684	34.1	26.6	23.0–30.3
Prince of Wales Private	279	846	33.0	23.5	20.5–26.5
Northern Rivers					
Grafton Base	80	247	32.4	31.2	24.0–39.0
Lismore Base	128	573	22.3	23.6	19.1–28.7
Murwillumbah	55	243	22.6	22.4	16.0–30.0
Tweed Heads	70	372	18.8	22.7	16.7–29.6
Mid North Coast					
Coffs Harbour	102	322	31.7	29.3	23.3–35.8
Kempsey	26	154	16.9	20.1	11.8–30.9
Port Macquarie Base	76	338	22.5	23.1	17.4–29.6
Manning Base	52	349	14.9	17.7	12.3–24.3
New England					
Armidale	25	201	12.4	14.6	8.4–23.1
Inverell District	19	110	17.3	24.7	13.1–40.6
Moree District	22	122	18.0	24.5	13.7–38.9
Tamworth Base	78	327	23.9	22.2	16.8–28.3

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

Hospitals with more than 100 deliveries in the period 1 July–31 December 2000.

TABLE 118 (continued)**CRUDE AND ADJUSTED CAESAREAN SECTION RATES BY HOSPITAL, NSW JULY–DECEMBER 2000[#]**

Health Area and hospital	Caesarean sections No.	Births No.	Crude rate %	Adjusted rate %	99% confidence interval of adjusted rate
Macquarie					
Dubbo Base	105	608	17.3	21.8	17.0–27.2
Mudgee	25	108	23.1	24.8	14.6–37.6
Mid Western					
Bathurst Base	91	278	32.7	31.1	24.4–38.4
Orange Base	86	377	22.8	22.5	17.2–28.4
Far West					
Broken Hill Base	17	133	12.8	18.2	9.1–31.3
Greater Murray					
Griffith Base	51	234	21.8	22.9	16.0–31.0
Wagga Wagga Base	92	416	22.1	21.5	16.6–27.0
Calvary, Wagga Wagga	48	210	22.9	20.9	14.5–28.5
Southern					
Goulburn Base	36	161	22.4	27.5	17.9–39.3
Queanbeyan	20	160	12.5	16.5	8.8–27.3
Young	23	107	21.5	23.1	13.2–35.9
TOTAL NSW	9434	43179	21.8	21.7	21.2–22.2

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

[#] Hospitals with more than 100 deliveries in the period 1 July–31 December 2000.

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

MAP OF NSW HEALTH AREAS

