

11. PERINATAL DEATHS

REVIEW OF PERINATAL DEATHS 2003

Introduction

This chapter presents the results of perinatal death reviews carried out by the NSW Maternal and Perinatal Committee, which is a quality assurance committee established under the Health Administration Act 1982. The Committee is privileged under the Act to carry out confidential reviews of maternal and perinatal deaths.

NSW Department of Health Circular No. 2002/6 describes hospital procedures for review and reporting of perinatal deaths. The circular is available on the Department's web site at: www.health.nsw.gov.au/fcsd/rmc/cib/circulars/2002/cir2002-6.pdf. The Maternal and Perinatal Committee carries out reviews of perinatal deaths occurring among fetuses or infants of at least 22 weeks gestation or at least 500 grams birthweight. The criteria used by the NSW Midwives Data Collection (MDC) for reporting of births is at least 400 grams birthweight or at least 20 weeks gestation. The Maternal and Perinatal Committee reviews deaths that have a slightly higher threshold to focus attention on deaths that are more likely to be preventable.

Perinatal deaths were reviewed by the Committee's Perinatal Outcomes Working Party. Both stillbirths and neonatal deaths were classified according to an obstetric cause-specific classification, the Perinatal Society of Australia and New Zealand Perinatal Death Classification (PSANZ-PDC). Neonatal deaths were also classified by neonatal cause according to the Perinatal Society of Australia and New Zealand Neonatal Death Classification (PSANZ-NDC).

Of the 619 perinatal deaths of at least 22 weeks gestation or at least 500 grams birthweight reported to the NSW Midwives Data Collection in 2003, confidential reports on 595 (96.1 per cent) were reviewed and classified. Of the 429 stillbirths reported to the MDC, reviews were carried out on 403 (93.9 per cent). The MDC was notified of 190 neonatal deaths. However, reviews were carried out on 192 neonatal deaths, reflecting under-enumeration of neonatal deaths on the MDC. Comparative information is also presented for 2001 and 2002.

Trends in obstetric antecedents of perinatal death

Between 2001 and 2003, the pattern of antecedent causes of death remained fairly stable (Figure 18, Table 125). About 30 per cent of perinatal deaths were unexplained. The next most common obstetric antecedents were fetal abnormalities followed by spontaneous preterm birth, specific perinatal conditions (such as twin-to-twin transfusion) and antepartum haemorrhage.

Obstetric antecedents of perinatal death 2003

1. Congenital abnormality

Congenital abnormalities were the underlying cause for 95 deaths (Table 126). Chromosomal abnormalities were most common ($n=27$, 28.4 per cent). Of these, 6 were trisomy 21, 10 were trisomy 18, 5 were trisomy 13, 1 was Turner syndrome, and 5 were other abnormalities.

Twenty-two deaths were associated with abnormalities of the central nervous system (23.2 per cent), of which 10 were congenital hydrocephalus and 6 were neural tube defects. Sixteen deaths occurred among babies who had multiple abnormalities not associated with a chromosomal abnormality.

Fifteen deaths were associated with abnormalities of the cardiovascular system, of which 7 were cases of hypoplastic left heart syndrome. Three deaths were associated with congenital diaphragmatic hernia.

2. Perinatal infection

Thirty deaths were found to be due to infection, of which 16 were stillbirths and 14 were neonatal deaths. In 25 deaths there was an associated chorioamnionitis.

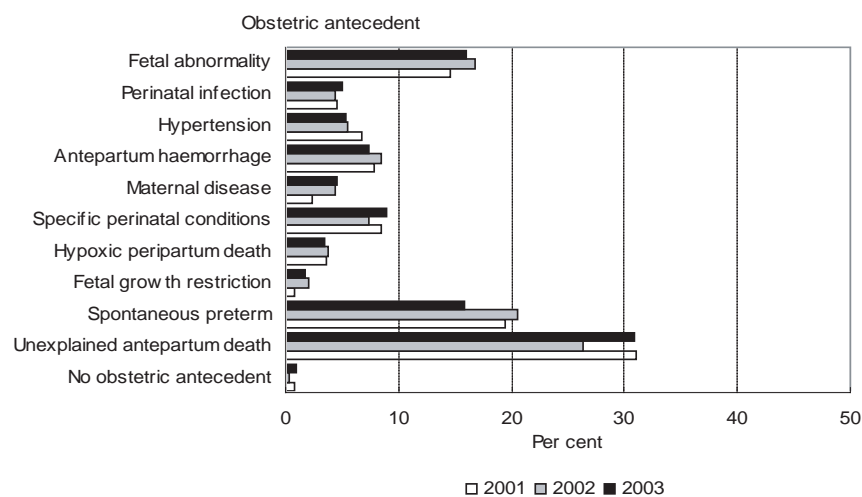
The most common infective organism identified was group B streptococcus, which was considered responsible for 4 neonatal deaths and 4 stillbirths. Three neonatal deaths were caused by *E. Coli* infection. There was one neonatal death from a congenital *Strep. Pneumoniae* infection and another from *Staph. Epidermidis* infection. One neonatal death followed cytomegalovirus infection. The causative organism was not specified for 16 deaths.

3. Hypertension

Thirty-two (5.4 per cent) deaths were considered to be due to maternal hypertension. There were 23 stillbirths and 9 neonatal deaths. The majority ($n=19$, 59.4 per cent) occurred in mothers with pre-eclampsia, two of whom had HELLP syndrome. Two deaths were among babies of twin pregnancies. Five deaths in this group were associated with placental abruption, and one was associated with maternal diabetes.

4. Antepartum haemorrhage

Forty-four deaths were due to antepartum haemorrhage, of which 28 were due to placental abruption, 4 were due to placenta praevia, and 3 due to vasa praevia. There were 31 stillbirths, of whom 10 died during labour, and 9 were neonatal deaths. Two cases of placental abruption were associated with a twin pregnancy. Three cases were associated with maternal hypertension.

FIGURE 18**PERINATAL DEATHS BY OBSTETRIC ANTECEDENT AND YEAR, NSW 2001–2003**

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

TABLE 125**PERINATAL DEATHS BY OBSTETRIC ANTECEDENT AND YEAR, NSW 2001–2003**

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

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

TABLE 126

PERINATAL DEATHS BY OBSTETRIC ANTECEDENT AND PERINATAL OUTCOME, NSW 2003

Obstetric antecedent	Stillbirth		Perinatal outcome Neonatal death		TOTAL	
	No.	%	No.	%	No.	%
1. Fetal abnormality						
Central nervous system	13	3.2	9	4.7	22	3.7
Cardiovascular system	4	1.0	11	5.7	15	2.5
Urinary tract	1	0.2	2	1.0	3	0.5
Gastrointestinal system	0	0.0	3	1.6	3	0.5
Chromosomal	20	5.0	7	3.6	27	4.5
Metabolic	0	0.0	1	0.5	1	0.2
Multiple	9	2.2	7	3.6	16	2.7
Other	3	0.7	5	2.6	8	1.3
Total	50	12.4	45	23.4	95	16.0
2. Perinatal infection						
Group B Streptococcus	4	1.0	4	2.1	8	1.3
E Coli	0	0.0	3	1.6	3	0.5
Other bacterial	0	0.0	2	1.0	2	0.3
Unspecified bacterial	3	0.7	2	1.0	5	0.8
Cytomegalovirus	0	0.0	1	0.5	1	0.2
Unspecified viral	2	0.5	0	0.0	2	0.3
Unspecified organism	7	1.7	2	1.0	9	1.5
Total	16	4.0	14	7.3	30	5.0
3. Hypertension						
Chronic: Essential	3	0.7	1	0.5	4	0.7
Chronic: Secondary eg renal	1	0.2	0	0.0	1	0.2
Chronic: Unspecified	1	0.2	0	0.0	1	0.2
Gestational	6	1.5	0	0.0	6	1.0
Pre-eclampsia	9	2.2	8	4.2	17	2.9
Pre-eclampsia superimposed on pre-existing	2	0.5	0	0.0	2	0.3
Unspecified	1	0.2	0	0.0	1	0.2
Total	23	5.7	9	4.7	32	5.4
4. Antepartum haemorrhage						
Placental abruption	23	5.7	5	2.6	28	4.7
Placenta praevia	2	0.5	2	1.0	4	0.7
Vasa praevia	2	0.5	1	0.5	3	0.5
Undetermined origin	4	1.0	5	2.6	9	1.5
Total	31	7.7	13	6.8	44	7.4
5. Maternal disease						
Termination of pregnancy other than for fetal abnormality	4	1.0	1	0.5	5	0.8
Diabetes/gestational diabetes	9	2.2	1	0.5	10	1.7
Maternal injury: Accidental	5	1.2	1	0.5	6	1.0
Other	2	0.5	5	2.6	7	1.2
Total	20	5.0	8	4.2	28	4.7
6. Specific perinatal conditions						
Twin-to-twin transfusion	16	4.0	11	5.7	27	4.5
Fetomaternal haemorrhage	2	0.5	0	0.0	2	0.3
Antepartum cord complications	6	1.5	1	0.5	7	1.2
Uterine abnormality	2	0.5	4	2.1	6	1.0
Birth trauma	0	0.0	1	0.5	1	0.2
Haemolytic disease	1	0.2	0	0.0	1	0.2
Idiopathic hydrops	1	0.2	1	0.5	2	0.3
Other	2	0.5	3	1.6	5	0.8
Total	30	7.4	21	10.9	51	8.6
7. Hypoxic peripartum death						
Uterine rupture	2	0.5	0	0.0	2	0.3
Cord prolapse	3	0.7	1	0.5	4	0.7
Shoulder dystocia	1	0.2	0	0.0	1	0.2
Other intrapartum complication	2	0.5	4	2.1	6	1.0
No intrapartum complication	3	0.7	3	1.6	6	1.0
Unspecified	1	0.2	1	0.5	2	0.3
Total	12	3.0	9	4.7	21	3.5
8. Fetal growth restriction						
With evidence of uteroplacental insufficiency	4	1.0	2	1.0	6	1.0
With chronic villitis	1	0.2	0	0.0	1	0.2
Without the above placental pathology	1	0.2	1	0.5	2	0.3
No placental examination	1	0.2	0	0.0	1	0.2
Total	7	1.7	3	1.6	10	1.7

TABLE 126 (continued)
PERINATAL DEATHS BY OBSTETRIC ANTECEDENT AND PERINATAL OUTCOME, NSW 2003

Obstetric antecedent	Stillbirth		Perinatal outcome Neonatal death		TOTAL	
	No.	%	No.	%	No.	%
9. Spontaneous preterm						
Intact membranes or membrane rupture less than 24 hours:						
with chorioamnionitis	11	2.7	25	13.0	36	6.1
without chorioamnionitis	4	1.0	12	6.3	16	2.7
no placental examination	0	0.0	2	1.0	2	0.3
Membrane rupture 24 hours or more:						
with chorioamnionitis	9	2.2	17	8.9	26	4.4
without chorioamnionitis	1	0.2	1	0.5	2	0.3
no placental examination	3	0.7	4	2.1	7	1.2
Membrane rupture unknown duration:						
with chorioamnionitis	1	0.2	1	0.5	2	0.3
without chorioamnionitis	1	0.2	1	0.5	2	0.3
unspecified placental examination	0	0.0	1	0.5	1	0.2
Total	30	7.4	64	33.3	94	15.8
10. Unexplained antepartum death						
With evidence of uteroplacental insufficiency	43	10.7	0	0.0	43	7.2
With chronic villitis	2	0.5	0	0.0	2	0.3
Without the above placental pathology	108	26.8	0	0.0	108	18.2
No placental examination	28	6.9	0	0.0	28	4.7
Unspecified placental examination	3	0.7	0	0.0	3	0.5
Total	184	45.7	0	0.0	184	30.9
11. No obstetric antecedent						
Other	0	0.0	2	1.0	2	0.3
Unknown/unexplained	0	0.0	4	2.1	4	0.7
Total	0	0.0	6	3.1	6	1.0
TOTAL	403	100.0	192	100.0	595	100.0

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

5. Maternal disease

Twenty-eight deaths were attributed to other maternal conditions including: diabetes (10), motor vehicle accident injury (4), other maternal injury (2), termination of pregnancy (5), antiphospholipid syndrome (1), renal failure (1), thrombocytopaenia (1), and maternal pelvic thrombophlebitis (1).

6. Specific perinatal conditions

Of the 51 deaths in this group, twin-twin transfusion accounted for 27 deaths, followed by antepartum cord complications (7) and uterine abnormalities (6). Other causes were: prolonged premature rupture of membranes (4), fetomaternal haemorrhage (2), idiopathic hydrops (2), birth trauma (1), haemolytic disease (1), and chorangioma of the placenta (1).

7. Hypoxic peripartum death

There were 21 deaths associated with peripartum hypoxia. Two deaths followed uterine rupture—1 prior to the onset of labour and 1 during labour. Four deaths followed cord prolapse and 1 death followed shoulder dystocia.

Four deaths occurred before the onset of labour, 7 during labour and 1 at an unspecified time prior to birth. The remaining 9 deaths occurred in the neonatal period.

8. Fetal growth restriction

In 10 cases, the main obstetric cause of death was considered to be fetal growth restriction (FGR). Of these, 7 were stillbirths and 3 were neonatal deaths. FGR is defined as less than the tenth percentile of birthweight for gestational age with no major congenital abnormalities. If a maternal or fetal cause of FGR was known then the cause of death was classified to the underlying cause of the FGR. Stillbirths with evidence of maceration were not classified as FGR unless there was evidence of growth restriction on serial ultrasound during pregnancy.

9. Spontaneous preterm

There were 94 perinatal deaths associated with spontaneous preterm birth, which comprises normally formed babies born before 37 weeks gestation. Of these, 30 (31.9 per cent) were stillbirths and 64 (68.1 per cent) were neonatal deaths. Twenty-nine deaths (30.9 per cent) were at 21–22 weeks gestation, 48 (51.1 per cent) were at 23–25 weeks gestation, and 17 (18.1 per cent) occurred between 26 and 36 weeks gestation. Chorioamnionitis was reported in 64 deaths (68.1 per cent). Thirty-five deaths (37.2 per cent) were associated with membrane rupture of 24 hours or more.

10. Unexplained antepartum death

Of the 184 unexplained stillbirths 110 (59.8 per cent) were low birthweight babies and 110 were premature. A variety of associated maternal conditions were reported in this group including: multiple pregnancy (12 deaths), maternal hypertension (8), diabetes (3), epilepsy (2), asthma (1), systemic lupus erythematosus (1) and taking methadone (1). Placental histopathology results were provided for 156 unexplained antepartum deaths (84.8 per cent) and evidence of uteroplacental insufficiency was found in 43.

11. No obstetric antecedent

Six neonatal deaths were considered not to have an obstetric antecedent. One baby had fetal akinesia syndrome and 1 had primary persistent pulmonary hypertension. No cause of death could be identified for 4 babies—post-mortem and placental histopathology examination had been carried out in 2 cases.

Obstetric cause of perinatal death by hospital service level 2003

Obstetric service levels are described in the Explanatory Notes of the Methods section (page 16). The majority of perinatal deaths occurred in level 6 hospitals (47.0 per cent, Table 127). The proportion of unexplained intrauterine deaths was substantially lower in level 6 hospitals than other hospitals, possibly due to better access to perinatal post-mortem services. The proportion of deaths associated with congenital abnormalities was highest in level 6 hospitals, reflecting patterns of referral for diagnosis and treatment.

Time of death 2003

Of the 595 perinatal deaths in 2003, 277 (46.6 per cent) occurred before the onset of labour, 46 (7.7 per cent) occurred during labour, 80 (13.4 per cent) occurred at an unknown time before birth, and 192 (32.3 per cent) were neonatal deaths.

Trends in neonatal causes of death

Between 2001 and 2003 extreme prematurity was the most common cause of neonatal death, accounting for over 40 per cent of all neonatal deaths in 2003 (Table 128). Congenital abnormalities were the next most common cause of neonatal death for the 3 years. There were slightly more deaths attributed to neurological conditions in 2002 and 2003 compared with 2001, particularly hypoxic ischaemic encephalopathy.

Neonatal causes of death 2003

Of the 192 neonatal deaths reviewed for 2003, 153 (79.7 per cent) were less than 37 weeks gestation (Table 129). The most common neonatal cause of death was extreme prematurity ($n=86$, 44.8 per cent). Thirty-seven infants died from a congenital abnormality. There were 13 deaths due to hypoxic ischaemic encephalopathy and 10 deaths due to intracranial haemorrhage.

Perinatal deaths associated with maternal drug dependency/abuse 2003

No perinatal deaths were directly attributed to maternal drug dependency or drug abuse. One death occurred in a mother who had a history of drug abuse, but drug use was not considered to be the main cause of death. Two further perinatal deaths were reported among babies of mothers who were participating in a methadone program.

Post-mortem examination 2003

Postmortem examination is valuable in ascertaining or confirming the cause of death, identifying additional factors which may have contributed to the death, and counselling parents about the cause of death. Postmortem examinations were carried out for 193 (32.4 per cent) deaths: 161 stillborn infants (40.0 per cent) and 32 neonatal deaths (16.7 per cent). Placental histopathology was carried out in 484 perinatal deaths (81.3 per cent).

TABLE 127

PERINATAL DEATHS BY OBSTETRIC ANTECEDENT AND HOSPITAL SERVICE LEVEL, NSW 2003

Obstetric antecedent	Level 2		Level 3		Hospital service level				Level 6		Private		TOTAL	
	No.	%	No.	%	Level 4 No.	Level 4 %	Level 5 No.	Level 5 %	No.	%	No.	%	No.	%
1. Fetal abnormality	0	0.0	3	7.7	19	16.4	12	16.2	43	15.9	6	8.7	83	14.4
2. Perinatal infection	0	0.0	2	5.1	2	1.7	3	4.1	22	8.1	1	1.4	30	5.2
3. Hypertension	0	0.0	2	5.1	4	3.4	3	4.1	19	7.0	2	2.9	30	5.2
4. Antepartum haemorrhage	0	0.0	6	15.4	9	7.8	8	10.8	17	6.3	4	5.8	44	7.7
5. Maternal disease#	0	0.0	2	5.1	6	5.2	3	4.1	12	4.4	4	5.8	28	4.9
6. Specific perinatal conditions	0	0.0	2	5.1	8	6.9	5	6.8	29	10.7	7	10.1	51	8.9
8. Hypoxic peripartum death	1	16.7	6	15.4	4	3.4	0	0.0	6	2.2	2	2.9	19	3.3
9. Fetal growth restriction	0	0.0	1	2.6	2	1.7	0	0.0	7	2.6	0	0.0	10	1.7
10. Spontaneous preterm	2	33.3	5	12.8	14	12.1	5	6.8	54	20.0	11	15.9	91	15.8
11. Unexplained antepartum death	3	50.0	10	25.6	46	39.7	34	45.9	59	21.9	32	46.4	184	32.0
12. No obstetric antecedent	0	0.0	0	0.0	2	1.7	1	1.4	2	0.7	0	0.0	5	0.9
TOTAL	6	100.0	39	100.0	116	100.0	74	100.0	270	100.0	69	100.0	575	100.0

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

Maternal disease includes one perinatal death that occurred in a level 1 hospital.

TABLE 128

NEONATAL DEATHS BY CAUSE AND YEAR, NSW 2001–2003

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

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

TABLE 129

NEONATAL DEATHS BY CAUSE AND GESTATIONAL AGE, NSW 2003

Neonatal cause	Gestational age (weeks)					
	Less than 37		37+		TOTAL	
	No.	%	No.	%	No.	%
1. Congenital abnormality						
Central nervous system	5	3.3	4	10.3	9	4.7
Cardiovascular system	6	3.9	5	12.8	11	5.7
Urinary tract	2	1.3	1	2.6	3	1.6
Gastrointestinal tract	2	1.3	0	0.0	2	1.0
Chromosomal	2	1.3	1	2.6	3	1.6
Multiple	2	1.3	0	0.0	2	1.0
Other	4	2.6	3	7.7	7	3.6
Total	23	15.0	14	35.9	37	19.3
2. Extreme prematurity						
Not resuscitated	45	29.4	0	0.0	45	23.4
Unsuccessful resuscitation	22	14.4	0	0.0	22	11.5
Resuscitation unspecified or unknown	19	12.4	0	0.0	19	9.9
Total	86	56.2	0	0.0	86	44.8
3. Cardio-respiratory disorders						
Other	4	2.6	2	5.1	6	3.1
Hyaline membrane disease– Respiratory distress syndrome	6	3.9	0	0.0	6	3.1
Meconium aspiration syndrome	0	0.0	1	2.6	1	0.5
Primary persistent pulmonary hypertension	0	0.0	1	2.6	1	0.5
Pulmonary hypoplasia	4	2.6	1	2.6	5	2.6
Chronic neonatal lung disease	2	1.3	0	0.0	2	1.0
Total	16	10.5	5	12.8	21	10.9
4. Infection						
Other	1	0.7	0	0.0	1	0.5
Congenital bacterial	2	1.3	1	2.6	3	1.6
Acquired bacterial	5	3.3	1	2.6	6	3.1
Fungal	1	0.7	0	0.0	1	0.5
Total	9	5.9	2	5.1	11	5.7
5. Neurological						
Other	1	0.7	0	0.0	1	0.5
Hypoxic ischaemic encephalopathy– perinatal asphyxia	1	0.7	12	30.8	13	6.8
Intracranial haemorrhage	10	6.5	0	0.0	10	5.2
Total	12	7.8	12	30.8	24	12.5
6. Gastrointestinal						
Other	0	0.0	1	2.6	1	0.5
Necrotising enterocolitis	5	3.3	0	0.0	5	2.6
Total	5	3.3	1	2.6	6	3.1
7. Other						
SIDS	0	0.0	1	2.6	1	0.5
Other	2	1.3	3	7.7	5	2.6
Undetermined/Unknown	0	0.0	1	2.6	1	0.5
Total	2	1.3	5	12.8	7	3.6
TOTAL	153	100.0	39	100.0	192	100.0

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

SURVEY ON THE MANAGEMENT OF STILLBIRTHS IN NSW HOSPITALS

Introduction

Stillbirths account for approximately two-thirds of all perinatal deaths in NSW. In response, the NSW Department of Health and the NSW Maternal and Perinatal Committee recommended that a review be carried out to inform best practice on the management of stillbirths.

A Stillbirth Reference Group was convened in early 2003, comprising members from: the NSW Maternal and Perinatal Committee; Department of Health staff representing the Centre for Mental Health, the Nursing and Midwifery Office, and Statewide Services Development Branch; SIDS and Kids NSW; the NSW Pregnancy and Newborn Services Network and the NSW Genetic Services Advisory Committee. The Reference Group recommended that a statewide survey of Area Health Services be carried out to examine current practices in the management of stillbirths, and to determine the extent of the alignment of these practices with Department of Health guidelines.¹

Method

In 2003 a self-administered questionnaire was distributed to all public hospitals in NSW which reported a birth in 2002. Questions were included on the following:

- hospital policies and procedures for the management of stillbirths;
- clinical investigations routinely performed on mothers following a stillbirth;
- clinical investigations offered to parents following a stillbirth;
- expected timeframe for parents to obtain post-mortem results; and
- access to counselling services for parents of a stillborn infant.

Information from returned questionnaires were entered into an electronic spreadsheet and descriptive statistics were produced.

Results

Of the 107 public hospitals in NSW that reported at least one birth, 75 responded to the survey; an overall response rate of 70 per cent. At least one hospital in each of the then 17 Area Health Services completed the survey.

Policies and procedures that accorded with NSW Department of Health guidelines for the investigation of stillbirths¹ were in place in 63 of the 75 respondent hospitals. Policies were being updated or reviewed in a further 4 hospitals.

Thirty-one percent of hospitals reported that all nine maternal investigations listed in Table 130 were routinely requested. The most frequently ordered maternal investigations were: full blood count, blood group and antibody screen. Seventy-seven percent of hospitals routinely sent the placenta for histopathology following a stillbirth.

Post-mortem investigations were routinely offered to parents following a stillbirth in 85 per cent of hospitals. Almost half of the respondents identified the same hospital as performing the placental histopathology and the post-mortem examination of the stillborn infant. Clinical investigations routinely performed on a stillborn infant are listed in Table 131, with fetal karyotype and a total body X-ray routinely carried out by 75 per cent and 56 per cent of hospitals respectively, for stillborn infants with congenital abnormalities.

All hospitals reported that post-mortem examinations were performed at no charge to parents. The reported timeframe within which parents could expect to obtain the final post-mortem examination result ranged from six weeks to six months.

Almost all hospitals reported that families had the opportunity to see and hold their stillborn baby and to take photographs. Ninety-five per cent of hospitals reported that parents were able to access counselling and bereavement services following a stillbirth.

TABLE 130

HOSPITALS ROUTINELY PERFORMING MATERNAL INVESTIGATIONS			
Maternal investigations	Hospitals*		
	No.	%	
Full blood count	63	84.0	
Blood group and antibody screen	63	84.0	
Infection screen for TORCH organisms and syphilis	59	78.7	
Gestational diabetes	58	77.3	
Kleihauer count	56	74.7	
Assessment of anti-nuclear and anti-phospholipid antibodies	52	69.3	
Haemoglobin electrophoresis	47	62.7	
Maternal vaginal swab	40	53.3	
Swab from the chorionic surface of the placenta	36	48.0	

* Total hospitals n=75.

TABLE 131

HOSPITALS ROUTINELY PERFORMING FETAL CLINICAL INVESTIGATIONS			
Maternal investigations	Hospitals*		
	No.	%	
Description of clinical appearance	61	81.3	
Fetal karyotype	56	74.7	
Total body X-ray (fetogram)	42	56.0	
Anatomical photographs	35	46.7	
Fetal blood cultures	25	33.3	

* Total hospitals n=75.

Discussion

A post-mortem examination and maternal investigations can provide valuable information to health professionals on the cause of death of a stillborn baby. These investigations may assist parents by providing information that will enable informed decision making for the planning of future pregnancies.

This statewide survey of NSW hospitals provided an overview of current practices on the management of stillbirths. A key finding of the survey was that, despite 85 per cent of hospitals routinely offering to parents a post-mortem investigation of a stillborn infant, the perinatal post-mortem rate remains below 40 per cent.

One way to improve post-mortem rates is by ensuring that health professionals are well-informed, and clearly and sensitively discuss the post-mortem process with parents. In early 2004, the NSW Health Department issued Circular 2004/1 entitled *Use and retention of human tissue including organ donation, post-mortem examination and coronial matters*. This policy was developed in response to legislative changes and recommendations from major reports and enquiries, including the Walker Inquiry¹ and the National Code of Ethical Autopsy Practice.² The National Code of Ethical Autopsy Practice advises that institutions have a responsibility to ensure that a specially trained staff member engages with the bereaved family and provides clear and factual information.³ The NSW Department of Health policy describes this role as the Post-Mortem Coordinator. It is expected that the appointment of a Post-Mortem Coordinator in hospitals that provide non-coronial post-mortems will ensure parents receive information, support and assistance with the post-mortem process.

To further improve the management of stillbirths, there is a need to ensure that health professionals are aware of the

need for routine clinical investigations. The survey found that all nine maternal clinical investigations were reported to be routinely performed in approximately one third of hospitals. However, these results also reflect that the series of maternal investigations outlined in Table 1 may not be clinically appropriate for all cases of stillbirths or may be undertaken at a later time. There is scope to improve the uptake of maternal investigations where it is clinically indicated, particularly when the offer of a post-mortem examination of the stillborn baby has been declined. Without such investigations, it is more difficult to advise parents about the cause of death or identify risks which may affect the outcome of future pregnancies.⁴

Overall, respondents acknowledged the need to provide holistic care in the management of a stillbirth, and also to ensure open, honest and sensitive discussion of the post-mortem process.

References

1. NSW Department of Health. Circular 97/107 *Guidelines for investigation of a stillbirth*.
2. Walker B. *Inquiry into matters arising from the post-mortem and anatomical examination practices of the Institute of Forensic Medicine*. Sydney: NSW Department of Health, 2001.
3. Australian Health Ministers' Advisory Council Subcommittee on Autopsy Practice. *The National Code of Ethical Autopsy Practice*. Adelaide: South Australian Department of Human Services, 2002.
4. Maternal and Child Health Research Consortium. *Confidential Enquiry into Stillbirths and Deaths in Infancy 8th Annual Report*. London: Maternal and Child Health Research Consortium, 2001.