Coombe Lying-In Hospital, Dublin: clinical report for the year 1981 (671 KB)

COOMBE LYING-IN HOSPITAL

DUBLIN

CLINICAL REPORT

FOR THE YEAR

1981

NIALL DUIGNAN
Master

STAFF

Master:
NIALL M. DUIGNAN, M.D., M.A.O., M.R.C.O.G.

Assistants to the Master:
PAUL BOWMAN, M.B., M.R.C.P.I., M.R.C.O.G.
GEORGE KIDD, M.B., M.R.C.O.G. (until 21.4.81)
BERNARD STUART, M.B., M.R.C.O.G. (from 1.5.81)

Registrars:
JOHN CORRISTINE, L.R.C.P.I., M.R.C.O.G., T.D.M. & H. (until 20.2.81)
FINIAN LYNCH. M.B., M.R.C.O.G.
DAVID MORTELL. M.B., M.R.C.O.G. (from 1.4.81)

Research Fellows:
BERNARD STUART, M.B., M.R.C.O.G. (until 30.4.81)
ANNE L. KEANE, M.B., D.C.H.
PETER GRAY, M.B., D.C.H., M.R.C.P.I.

Consultant Obstetricians and Gynaecologists:
JAMES CLINCH, M.A., M.D], F.R.C.O.G.
PROFESSOR WILLIAM GAVIN, M.B., M.A.O., F.R.C.O.G.
PROFESSOR JOHN KEVIN FEENEY, M.D., M.A.O., D.P.H., B.Sc., T.D.D., F.R.C.O.G.
PATRICK L. LYNCH, M.B., M.A.O.
ELIZABETH M. TROY, M.B., M.A.O.
JOHN F. BOYLE, M.B., M.A.O., F.R.C.P.I., F.R.C.O.G.
DONAL P. O'BRIEN, M.B., M.A.O., F.R.C.O.G.
ALPHONSUS T. GREENE. M.B.. M.A.O., F.R.C.P.I., F.R.C.O.G.
CATHALP. MURRAY, M.B., M.A.O., F.R.C.O.G.
JOHN E. DRUMM, M.B., M.A.O., M.R.C.O.G.

Clinical Lecturers/Tutors:
University College Dublin:
ALPHONSUS T. GREENE, M.B., M.A.O., F.R.C.P.I., F.R.C.O.G.

Royal College of Surgeons in Ireland:
CATHAL P. MURRAY, M.B., M.A.O., F.R.C.O.G.
JOHN E. DRUMM, M.B., M.A.O., M.R.C.O.G.

Trinity College, Dublin:
PAUL BOWMAN, M.B., M.R.C.P.I. .M.R.C.O.G.

Pathologist:
FRANK MARTIN, M.D., M.Sc, F.R.C.Path.

Radiologist:
JEREMIAH KELLEHER, M.B., F.R.C.R.

Consultant Paediatricians:
ELIZABETH GRIFFIN, M.D., D.C.H., F.R.C.P.I.
PATRICK DEASY, M.B., F.R.C.P.I., F.A.A.P.
EDWARD TEMPANY, M.D., D.C.H., F.R.C.P.I.

Associate Paediatrician:
PAULINE A. O'CONNELL, M.B., D.C.H.

Paediatric Registrars:
NAEEM AHSAN JAMIL, M.B., D.C.H.
GERARD LOFTUS, M.B., D.C.H.
AIDEEN MOORE, M.B., D.C.H.
ANTHONY RYAN, M.B., D.C.H.

Paediatric House Officers:
R. CLARK
F. DOBBS
P. McARDLE
T. MAGEE
B. O'BRIEN
T. O'CARROLL
M. O'CARROLL
P. O'DWYER
C. O'REILLY
A. SHEEHAN
M. SHEEHAN

Consultant Anaesthetists:
KEVIN P. O'SULLIVAN, M.B., F.F.A.R.C.S.I., D.A.
FIONA O'HIGGINS, M.B., F.F.A.R.C.S.I., D.A.
LIAM P. BRIGGS, L.R.C.P.S.I., F.F.A.R.C.S.I., D.A., D.C.H., D.R.C.O.G.

Anaesthetic Registrars:

JOHN LYNCH — PADRAIG O'SCANLAIN
BRIAN LAMONT — MARIE McCARROLL

Senior Resident House Officers:

S.BONAR	W. LACEY	D. MOLONY	R. PATTON
A. FEENEY	P. McCAULEY	H. MAGUIRE	S. QUIGLEY
E. HEGARTY	M. McKEEVER	J. O'NEILL	G. RONAN
M. KELLY	D. MURRAY	C. O'CALLAGHAN	F. SCALLAN

Physicians:

PROFESSOR RISTEARD MULCAHY, M.D., F.R.C.P. (London), F.R.C.P.I.
LIAM G. OCONNELL, M.B., M.Sc, M.R.C.P.I.
PROFESSOR WILLIAM F. ODWYER, M.D., F.R.C.P.I.
M. I. DRURY,M.D., F.R.C.P.I.
GEORGE DUFFY, M.D., B.Sc, F.R.C.P.I., A.B.N.M.
T. J. McKENNA, M.B., M.R.C.P.I., M.R.C.P., F.A.C.P.

Psychiatrist:

PROFESSOR JOHN P. MALONE, M.D., F.R.C.P.I., D.P.M., F.R.C.PSYCH.

Dermatologist:

JOSEPH BARNES, M.D.

Surgeons:

THOMAS C. J. O'CONNELL, M.Sc, M.D., M.Ch., F.R.C.S.I.
J. A. MEHIGAN, M.Ch., F.R.C.S.I.
J. J. MURPHY, M.Ch., F.R.C.S.I.

Urological Surgeons:

FRANCIS A. J. DUFF, M.D., M.Ch., F.R.C.S.I.
DANIEL G. KELLY, M.Ch., F.R.C.S.I.

Ear, Nose and Throat Surgeon:

OLIVER McCULLEN, M.Ch.

Opthalmologist:

PHILOMENA GUINAN, M.D., M.Ch.

Orthopaedic Surgeon:

FRANCIS E. DOWLING, B.Sc, M.Ch., F.R.C.S.I.

Matron:

MISS M. M. KELLY

Assistant Matron

MISSM. MORAN

Unit Nursing Officer:

MRS. P. McCOMBE

Secretary/Manager:

MISS M. SMITHWICK, DIP.H.ADM., A.I.I.S.

Pharmacist:

MISSM. KIELY,M.P.S.I.

Midwifery Tutors:

MISS M. McCABE
MRS. M. APPLEBY
MISS. E. M. GREEN

Medical Secretary:

MISS M. CORRIGAN

Radiographers:

MRS. G. RHATIGAN, D.S.R.
MRS. M. HOURIHANE, D.S.R.

Accountant:

JOHN RYAN, M.I.A.S., M.H. ADM.

Staff Officer in Personnel:

MISS. JOAN PRIESTLEY, B.A., H.DIP.ED.

Medical Social Workers:

MISS C. GREGG, A.I.M.S.W.
MS. ROSEMARY GRANT, B.S.S., C.Q.S.W.

Physiotherapists:

MRS.J.COOTE,M.C.S.P.
MISS A. O'LOUGHLIN, M.C.S.P.
MISS S. KAVANAGH, M.C.S.P.
MISS J. SWEENEY, M.C.S.P.
MISS H. CREMIN, M.C.S.P.

Glossary of Terms

BOOKED PATIENT: A patient who is seen once at the antenatal clinic, other than the occasion on which she is admitted. This includes patients seen by the Consultant staff in their Consulting rooms.

ABORTION: Expulsion of products of conception before the end of the 28th week of pregnancy.

MATERNAL MORTALITY: Death of a patient, booked or unbooked, for whom the hospital has accepted responsibility, during pregnancy or within six weeks of delivery whether in the hospital or not.

Maternal mortality is calculated against the total number of mothers in the hospital including abortions, ectopic pregnancies and hydatidiform moles.

STILLBIRTH (S.B.): A baby born after the end of the 28th week of pregnancy who shows no sign of life.

FIRST WEEK NEONATAL DEATH (N.N.D.): Death of a baby born alive after the end of the 28th week of pregnancy, within 7 days, either in the hospital or after transfer to another hospital.

PERINATAL MORTALITY: The sum of stillbirths and first week neonatal deaths as defined.

CALCULATION OF PERINATAL MORTALITY RATE: The perinatal mortality rate refers to the number of perinatal deaths (S.B. and 1st week N.N.D.) per 1,000 total births at or over 28 weeks.

Abbreviations used throughout report:

A.N.C.	Antenatal course
A.P.H.	Antepartum haemorrhage
A.R.M.	Artificial rupture of membranes
B./N.B.	Booked/non-booked
B.P.D.	Biparietal diameter
C.A.N.C.	Combined antenatal care
C. P. A. P.	Continuous positive airway pressure
C.T.G.	Cardiotogograph
C.V.P.	Central venous pressure
D.I.C.	Disseminated intravascular coagulation
F.H.H./N.H.	Fetal heart heard/not heard
F.M.N.F.	Fetal movement not felt
G.T.T.	Glucose tolerance test
I.P.P.V.	Intermittent positive pressure ventilation
I.U.D.	Intrauterine death
L.S.	Lecithin/sphingomyelin
L. S. C. S.	Lower segment Caesarean Section
M. S. U.	Mid-stream urinalysis
P.E.T.	Pre-eclamptic toxaemia
P.G.E.	Prostaglandin
P. P. H.	Postpartum haemorrhage
P.R.O.M.	Premature rupture of membranes
R. D. S.	Respiratory distress syndrome
R. I. U. G.	Retarded intrauterine growth
S.C.B.U.	Special Care Baby Unit
S. E.	Socio-economic group
S. R. O. M.	Spontaneous rupture of membranes
S.V.D.	Spontaneous vertex delivery
U.T.I.	Urinary tract infection

Guinness Lectures

1969—Professor T. N. A. Jeffcoate University of Liverpool.	"The Changing Face of Obstetrics.'
1970—Professor N. Butler University of Bristol	"British Perinatal Survey."
1971—Sir Dugald Baird University of Aberdeen.	"How Many Children."
1972—Professor C. A. Jane way Boston.	"The Immunological Relationship between Mother and Fetus."
1973—Professor F. Geldenhuys University of Pretoria.	"Not Two but One."
1978—Professor Keith P. Russell University of Southern California School of Medicine.	"The Obstetrician-Gynaecologist and Diseases of the Breast."
1979—Dr. J. S. Wigglesworth Institute of Child Health, University of London.	-"Preterm Birth and the Developing Brain."
1980—Professor James Scott, University of Leeds.	-"The Obstetrician—a Biologist or a Sociologist."
1981—Dr. J. K. Brown, Royal Hospital for Sick Children, Edinburgh.	-"The New Obstetrics or Preventative Paediatrics?"

Introduction

There was a 5.6 per cent drop in the number of deliveries recorded in 1981. During the year a total of 7,274 babies of over 28 weeks gestation were born; 61 were stillborn and 31 died within 7 days of delivery, so that the perinatal mortality rate was 12.6/1,000. This is the lowest rate ever recorded in the hospital. Congenital malformations accounted for 37 per cent of the total perinatal deaths and when such cases were excluded the stillbirth rate was 6.6/1,000 and the neonatal death rate 1.4/1,000, giving a corrected perinatal mortality rate of 8.0/1,000. The improved outcome of the very premature baby which has been commented upon in previous reports was again evident during the year, with 6 infants of less than 28 weeks gestation surviving. Thus, the perinatal mortality rate calculated for infants weighing 500 grams or more was also the lowest ever noted in the hospital.

It was pleasing to record a slight decrease in the number of normal stillbirths encountered during the year, but disappointing to mention an increase in the number of intra-partum deaths. The rate of induction and of operative intervention during labour was similar to that of previous years and it is still abundantly clear that more strenuous efforts must be made to recognise the fetus that is at risk in utero so that it can be delivered prior to intra-uterine death occurring. While congenital malformations, per se, remain by far the commonest cause of perinatal death the number of antepartum deaths, particularly of mature infants, is still disturbing.

One of the notable clinical occurrences during the year was the sharp rise in the number of pregnant mothers who were drug addicts and nine such cases delivered during 1981. The serious medical and social problems which arise when dealing with such cases became clearly manifest. Presumably the increased number of drug addicts who were delivered during the year reflected the more widespread abuse of drugs among the population and regretfully this appears likely to be a continuing problem.

Grants totalling £5,782,921 were received from the Department of Health. The cost per occupied bed was £74.00 per day. This can be compared with the figure of £61.00 in 1980 and represents an increase of 21 per cent.

The active research programme continued during 1981. Dr. Stuart was invited to speak at an International meeting in Glasgow where he presented the results of his studies on umbilical red cell velocity. We were deeply honoured to learn at the end of the year that Dr. Stuart had been awarded a William Blair Bell Memorial Lectureship by the Royal College of Obstetricians and Gynaecologists and that the lecture would be delivered in 1982. This is the first occasion in which this prestigious lectureship has been awarded for research work performed in Ireland and it augurs well for the future of research work within the hospital. Dr. Duignan was invited to present the results of the breech study at a Postgraduate meeting held at the Royal College of Obstetricians and Gynaecologists in London. Dr. Gray commenced work as Research Fellow in the neonatal department and his continued research into cerebral blood flow is being financed by the Coombe Hospital Research Fund. Doctors Keane and O'Connell continued

the follow-up studies of the breech born babies and during the year this study was widened to include a psychological analysis at the age of four years.

Dr. D. O'Brien continued to act as Irish representative to the hospital Recognition Committee of the Royal College of Obstetricians and Gynaecologists, and Dr. Duignan continued as Irish member on both the Council and the Postgraduate Committee of the College. Dr. Drury was elected an Honorary Fellow of the Royal College of Obstetricians and Gynaecologists: his election reflected the high esteem for his outstanding work on diabetes in pregnancy.

Dr. J. K. Brown presented the Guinness Lecture on "The New Obstetrics or Preventative Paediatrics?". His excellent dissertation was well appreciated by an attentive audience.

Dr. Liam Briggs joined the staff as Consultant Anaesthetist in August of 1980 and we were pleased to welcome him to the staff. Dr. Griffin was appointed lecturer in neonatology by the Royal College of Surgeons in Ireland, and Dr. Clinch as Clinical Lecturer by the University of Dublin. Both of these appointments should enhance the Undergraduate teaching within the hospital. During 1981 a total of 142 students attended for training.

The sudden and unexpected death of Mr. Mehigan was a sad loss to the hospital. For many years Mr. Mehigan had been a staunch supporter of the Coombe Hospital and his personality and clinical acumen will be hard to replace. Two Board members, Mr. Willie Gill and Mr. Maurice Veale also died during 1981. Both of these men had for many years devoted a lot of their spare time to help the hospital and staff. Two senior members of the staff retired: Mrs. Hayes had been Assistant Secretary for twenty-six years and Sister Hennessy had worked for thirty-one years in the hospital. We wish them both well in their retirement.

I am grateful for the help given to me by the Assistant Masters in the compilation of this report. In addition I would like to thank the following who helped to prepare special sections: J. Clinch (Induction of Labour), J. Drumm (Ultrasound and Haemolytic Disease), M. I. Drury (Diabetic Clinic), A. T. Greene (Infertility and Diabetic Clinic), E. Griffin (Paediatric Department and Haemolytic Disease), M. Hooper (Varicose Vein Clinic), F. Martin (Pathology Department), R. Mulcahy (Cardiac Department), P. O'Connell (Paediatric Assessment Unit), Miss Gregg (Social Services Department), Miss O'Loughlin (Physiotherapy Department) and Mrs. Rhatigan (Radiology Department).

I would like to take the opportunity also of thanking Dr. J. O'Riordan and staff of the Blood Transfusion Service Board for the continued first class service they gave us during 1981.

I wish to conclude by expressing my personal thanks to all members of the hospital staff for the support and work performed during the year. I hope that in future years the cordial atmosphere of the hospital will be maintained. I would also like to thank the Chairman and Board members who devoted so much of their spare time to the running of the hospital. Finally, I wish to express my appreciation to my secretary Miss Corrigan and to the staff of medical records department for the production of this report.

NIALL DUIGNAN.

Comparative Table for 1

	1972	1973	1974	1975	1976
Babies born	7,856	7,631	7,721	7,301	7,111
Perinatal deaths	181	161	179	132	117
Mortality rate	23.0	21.4	23.2	18.1	16.5
Mothers delivered	8,607	8,428	8,494	7,970	7,809
Maternal deaths	11	1	Nil	Nil	2
Caesarean section %	4.6	6.3	6.7	6.5	7.9
Forceps %	12.8	13.4	14.1	12.6	-9.9
Induction %	30.0	40.6	44.0	36.0	28.6

Statistical Summary

Mothers delivered after 28 weeks gestation ...	7,209
Mothers delivered before 28 weeks gestation ...	813
Hydatidiform Moles	7
Ectopic Pregnancies	10

Mothers delivered after 28 weeks gestation	7,209
Primigravidae	2,107
Multiparae	5,102
Booked cases	7,149
Non-booked cases	60

Maternal Death	1

Infants delivered over 28 weeks gestation	7,274
Sets of twins	65

Perinatal Deaths	**92**
Booked cases	88
Non-Booked cases	4

Statistical Analysis of Hospital Population

	Total Births	% Hospital Population
Age-Group		
< 20 years	378	5.2
20-24 years	1,649	22.9
25-29 years	2,407	33.4
30-34 years	1,813	25.2
35-39 years	786	10.9
40+ years .	176	2.4
Parity		
0	2,107	29.2
1,2,3	4,276	59.3
4+	826	11.5
Birth Weight		
< 1,000 g	7	0.1
1,001-1,500 g	42	0.6
1,501-2,000 g	79	1.1
2,001-2,500 g	241	3.3
2,501-3,000 g	970	13.3
3,001-3,500 g	2,619	35.9
3,501-4,000 g	2,340	32.2
4,001-4,500 g	830	11.4
4,501+g. ...	146	2.0
Gestation		
28-31 weeks	35	0.5
32-36 weeks	282	3.9
37-39^{6} weeks	2,589	35.6
40-40^{6} weeks	2,291	31.5
41-41^{6} weeks	1,661	22.8
42+ weeks	416	5.7

Comment: The above tables apply only to pregnancies of greater than 28 weeks gestation. These tables snow no significant changes from those recorded during 1980. During the year 369 babies (5.1 per cent) weighed less than 2,500 grams at birth and J17 babies (4.4 per cent) were less than 37 weeks gestation. The number of patients whose pregnancies progressed beyond 42 weeks gestation was similar to that recor dedinl980.

Perinatal Mortality

	imber	Rate
Number of infants born after 28 weeks	7,274	
Perinatal Deaths	92	12.6
Booked Patients	7,149	12.3
Non-booked Patients	60	66.6
Stillbirths	61	8.3
Neonatal Deaths	31	4.2

Perinatal mortality calculated for infants 1,000 grams or more **11.6**

Perinatal mortality calculated for infants 500 grams or more **15.0**

Analysis of Perinatal Mortality

Antepartum Deaths	40
Intrapartum Deaths	8
Neonatal Deaths	10
Congenital Malformations	34

Congenital Malformations accounted for 37 per cent of total fetal losses.

Statistical Analysis of Perinatal Deaths

Age-Group

	Total Births	Perinatal Deaths	Perinatal Mortality Rate
< 20 years	378	7	18.5
20-24 years	1,649	16	9.7
25-29 years	2,407	28	11.6
30-34 years	1,813	26	14.3
35-39 years	786	10	12.7
40+ years	176	5	28.4
Parity			
0	2,107	30	14.2
1,2,	4,276	51	11.9
4+	826	11	13.3
Birth Weight			
< 1,000 g	7	7	875
1,001-1,500 g	42	21	500
1,501-2,000 g	79	17	215
2,001-2,500 g	241	10	41.5
2,501-3,000 g	970	7	7.2
3,001-3,500 g	2,619	18	6.8
3,501-4,000 g	2,340	9	3.8
4,001-4,500 g	830	3	3.6
4,501+g.	146	Nil	Nil
Gestation			
28-31 weeks	35	19	527
32-36 weeks	282	30	106
37-39^{6} weeks	2,589	15	5.7
40-40^{6} weeks	2,291	15	6.5
41-41^{6} weeks	1,661	11	6.6
42+ weeks	416	2	4.8

Comment: The above tables apply only to patients of greater than 28 weeks gestation. The most notable features are the small effect which parity appeared to exert on perinatal outcome during the year, and also the low perinatal mortality recorded in infants of more than 42 weeks gestation.

The perinatal mortality for the past 10 years is summarised in the table opposite. During 1981, 92 of the 7,274 babies born after 28 weeks gestation died, giving a perinatal mortality rate of 12.6 per thousand. Congenital malformations accounted for 37 per cent of all perinatal deaths and when these were excluded, the perinatal mortality rate fell to 8.0 per thousand. It is interesting to note in tne table that the perinatal mortality rate excluding congenital malformations dropped from 16.4 to 8.0 per thousand in the past 10 years, but it is disappointing to note that there has been no significant improvement since 1977.

Analysis of Perinatal Mortality

	1972	1973	1974	1975
Total Perinatal Deaths	181	161	179	132
Mortality Rate	23.0	21.4	23.2	18
Antepartum deaths ...	77	41	65	42
Percentage of Total ...	43	26	36	31
Intrapartum deaths ...	14	12	10	5
Percentage of Total ...	8	7	6	5
Neonatal deaths	37	44	43*	23
Percentage of Total ...	20	27	24	17
Fetal Abnormalities	52	64	61	62
Percentage of total ...	29	40	34	47

PERINATAL MORTALITY EXCLUDING CONGEN

Total Normal Babies	7,803	7,567	7,660	7,239
Stillbirth Rate	11.6	7.0	9.8	6
Neonatal Death Rate	4.8	5.9	5.7	3
Perinatal Mortality Rate	16.4	12.9	15.5	9

Stillbirths

Sixty-one of the 7,274 babies born after 28 weeks gestation were stillborn, giving a stillbirth rate of 8.4 per thousand. Thirteen of the 61 stillbirths (21 per cent) were due to congenital malformations; the stillbirth rate lor normal infants was 6.6 per thousand, which is slightly less than that recorded in 1980. Three hundred and sixty-nine of the 7,274 babies (5.1 per cent) weighed 2.5 kilograms or less at birth; 32 of these were stillborn and accounted for 52 per cent of the stillbirths.

The time at which intra-uterine death occurred is summarised in the following table:

Dead on referral	1
Dead on admission to hospital	25
Died in antenatal ward ...	14
Died in labour	8
Congenital malformation	13

ANTEPARTUM DEATHS

Forty intra-uterine deaths occurred during the antenatal period and they accounted for 65 per cent of the stillbirths. Careful assessment of each case suggested that if management had been different the outcome in 18 of these 40 cases might have been altered. The main clinical factors giving rise to intra-uterine death are summarised in the following table:

CLASSIFICATION

Cause unknown.	9
Antepartum haemorrhage	14
Hypertension/Pre-eclampsia.	5
Placental insufficiency.	3
Multiple pregnancy	2
Diabetes/Latent Diabetes	2
Haemolytic disease	2
Cord accident	1
Respiratory tract problem	1
Recurrent infections	1

Cause Unknown (9)

No apparent cause for intra-uterine death could be found in 9 subjects. All infants were normal weight for gestation when born and 5 of the intra-uterine deaths occurred before *7 weeks gestation. Nonetheless, 2

patients deserve further comment. Case 3 presented at 36 weeks gestation with a history of not having felt fetal movement for 48 hours. It came to notice some months later that this patient have been involved in a road traffic accident and the lack of fetal movement appeared to be related to the accident. Thus, although there was no evidence of any retroplacental clot this case may have had an iatrogenic factor. The outcome of Case 9 might have been different had a more active policy re induction been undertaken when the patient was admitted to hospital.

Less than 37 weeks (5)

(1) B.46369. Para 1*°. Age 28. S.E.4. Gestation 33 weeks. Antenatal care from 20 weeks. Seen regularly. Last visit at 33 weeks. No fetal movements for 5 days prior to visit. Fetal heart absent. PGE induction. Delivered of macerated female infant weighing 1.5 kilograms.

Post-mortem: Maceration.

(2) B.58311. Para 0*°. Age 20. S.E.4. Gestation 33 weeks. Attended A.N.C. at 31 weeks. All well. Ten days later referred by G.P. with 3 day history of lack of fetal movements. F.H.N.H. Scan confirmed I.U.D. Spontaneous onset of labour. Male infant weighing 1.50 kilograms. Placenta healthy.

Post-mortem: Maceration.

(3) B.59303. Para 0^{+0}. Age 25. S.E.I. Gestation 36 weeks. Antenatal care from 11 weeks uneventful. F.M.N.F. for two days when seen at 36 weeks gestation. I.U.D. confirmed by scan. Spontaneous onset of labour same night. Stillborn male infant weighing 2.77 kilograms. No obvious abnormality. Placenta looked normal.

Post-mortem: Refused.

(4) B. 19729. Para 3^{+0}. Age 39. S.E.4. Gestation 36 weeks. Booked at 14 weeks gestation. Blood group B Negative. Serum contained anti J.K.[a] Three full term normal deliveries. No jaundice. Anti J.K.[a] in 3rd pregnancy. Husband A Positive, J.K.[a] positive. Amniocentesis suggested non-affected fetus. I.U.D. at 36 weeks. Spontaneous labour and delivery of male stillborn infant weighing 3.14 kilograms. Nuchal cord x 3. Skeletal survey—N.A.D.

Post-mortem: Maceration. No evidence of erythroblastosis.

(5) B.4123. Para 3^{+1}. Age 32. S.E.3. Gestation 36 weeks. Booked at 10 weeks. Attended A.N.C. regularly. Last visit at 36 weeks. No abnormality. Admitted 2 days later with no fetal movements for over 24 hours. F.H.N.H. Normal delivery of stillborn female infant weighing 2.92 kilograms. Early maceration.

Post-mortem: Maceration.

Over 37 weeks (4)

(6) B.58513. Para 0^{+0}. Age 25. S.E.4. Gestation 40 weeks. Booked at 13 weeks gestation. Normal antenatally. Admitted in labour at term +5 draining thick meconium. F.H.N.H. Normal delivery macerated male infant weighing 3.20 kilograms.

Post-mortem: Maceration.

(7) B.48729. Para 1^{+0}. Age 27. S.E.4. Gestation 40 weeks. Booked at 13 weeks. Regular attender for A.N.C. Admitted on two occasions for hyperemesis. Uneventful antenatal course to term when no fetal movements felt for 48 hours'. F.H.N.H. I.U.D. confirmed by scan. Prostaglandin induction. Macerated female stillborn infant weighing 3.09 kilograms.

Post-mortem: Maceration.

(8) B.61522. Para 0^{+0}. Age 27. S.E.3. Gestation 41 weeks. Booked at 10 weeks. Normal antenatal course. Admitted for induction 11 days past term. F.H.H. on admission but F.H.N.H. the following morning. PGE induction and spontaneous delivery of stillborn male infant weighing 3.91 kilograms.

Post-mortem: Intra-uterine asphyxia.

(9) B.26961. Para 2^{+3}. Age 31. S.E.5. Gestation 41 weeks. Smoked 10 daily. Booked at 12 weeks gestation. Admitted at 39 weeks, irregular pains, not in labour, discharged home. Re-admitted at 40 weeks, ? S.R.O.M. Not in labour. Pyridium test. Discharged three days later. Re-admitted at 41 weeks with pains. Cervix multips os. F.H.H. Unsuitable for A.R.M. Eight hours later F.H.N.H. Prostaglandin infusion. Spontaneous delivery of male stillborn infant weighing 3.17 kilograms. No nuchal cord/retroplacental clot.

Post-mortem: Intra-uterine anoxia.

Antepartum Haemorrhage (14)

Fourteen stillbirths were directly due to antepartum haemorrhage which is a slight increase on that recorded during 1980. Thirteen of the cases were definitely due to accidental haemorrhage, while in the other patient (13) no retroplacental clot was found, nor was the placenta low lying. Different management might have improved the outcome in 6 of the 14 cases. Case 12 came to the hospital at 30 weeks gestation with a history of lower abdominal pain. Clinical examination was normal and there was no vaginal bleeding and the patient was allowed home. However, when admitted the following day the patient had classical signs of abruptio placentae and the fetal heart could not be heard; had she been admitted the previous day the outcome might have been different. Case 13 was admitted to hospital at 31 weeks gestation with a substantial antepartum haemorrhage. The fetal heart was normal on admission but was not evident at an ultrasound scan 9 hours later. Had the fetal heart been monitored continuously following admission to hospital the outcome might have been improved. Case 14 was noted to have hypertension at 28 weeks gestation but was not asked to return to the clinic for four weeks; earlier recall might have resulted in a more favourable outcome. Case 16 was a non-booked lady who had had no antenatal care whatever. Case 19 was noted to have hypertension at 34 weeks but was not admitted to hospital. In Case 22 a C.T.G. performed 12 hours prior to intra-uterine death was abnormal but this abnormality was not noted and acted upon.

(10) B.30991. Para 2^{+1}. Age 29. S.E.3. Gestation 29 weeks. Booked at 12 weeks gestation. C.A.N.C. Admitted at 29 weeks gestation with abdominal pain. Uterus noted to be somewhat hard, otherwise N.A.D. F.H.H. Small A.P.H. next day. I.U.D. four days later. No F.H. PGE induction. Spontaneous delivery of a stillborn female infant weighing 1.50 kilograms. Retroplacental clot.

Post-mortem: Refused.

(11) B.47855. Para 0^{+2}. Age 31. S.E.3. Gestation 29 weeks. Past history: 1978—first trimester abortion. 1979—PROM at 24 weeks. Booked at 7 weeks gestation. Hypertension and proteinuria at 10 weeks, but subsequently normal. Admitted at 29 weeks with abruptio placentae. F.H.N.H. Spontaneous vertex delivery of a stillborn female infant weighing 1.8 kilograms.

Post-mortem: Intra-uterine anoxia.

(12) B.38315. Para 2^{+0}. Age 28. S.E.4. Gestation 30 weeks. Booked at 17 weeks. Post pill pregnancy. Scan confirmed dates. Regular attender. At 30 weeks presented to district complaining of backache and lower abdominal pain. F.H.H. Following day admitted with severe lower abdominal pain and slight p.v. bleeding. Contracting. F.H.N.H. A.R.M. No coagulation defect. Rapia delivery of a stillborn male infant weighing 1.58 kilograms. Early maceration. 16 oz. retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(13) B.49868. Para 1^{+0}. Age 21. S.E.2. Gestation 31 weeks. Attended A.N.C. at 26 weeks gestation. All well. Admitted at 31 weeks with substantial A.P.H. F.H. present on admission. Nine hours after admission ultrasound scan to exclude placenta praevia. No F.H. Anterior wall placenta. Spontaneous labour lasting 1$ hours. Fresh stillborn female infant weighing 1.53 kilograms. No retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(14) B. 13348. Para 2^{+0}. Age 38. S.E.4. Gestation 32 weeks. Previous Caesarean section. Booked at 10 weeks. Uneventful progress to 28 weeks when B.P. 160/95 noted—checked 120/80. Subsequently admitted at 32 weeks with B.P. 165/110 and 10 hour history of vaginal bleeding. F.H.N.H. Placenta not praevia. PGE induction—female stillborn infant weighing 1.02 kilograms. Large retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(15) B.59658. Para 0^{+0}. Age 16. Gestation 32 weeks. Non-smoker. Booked at 10 weeks gestation. Admitted at 30 weeks with P.E.T. and accidental haemorrhage. F.H.N.H. Labour accelerated by A.R.M. Delivered stillborn male infant weighing 1.55 kilograms. 1250 ml. retroplacentalclot.

Post-mortem: Intra-uterine anoxia.

(16) N.B.41086. Para 2^{+0}. Age 20. S.E. Gestation 34 weeks. No antenatal care. Admitted with abruptio placentae at 34 weeks gestation. F.H. 96. Transferred to theatre for Caesarean section. F\H. absent in theatre. Membranes ruptured artificially. Fresh stillborn female infant weighing 2.32 kilograms. Large retroplacental clot 120 mis.

Post-mortem: Intra-uterine anoxia.

(17) B.57791. Para 0^{+0}. Age 21. S.E.3. Gestation 34 weeks. Booked at 16 weeks gestation. Known epileptic, on Phenobarbitone and Epilim. Uneventful antenatal care up to 29 weeks when found to be only 24 weeks in size and complained of crampy lower abdominal pains. Admitted. Scan confirmed dates. B.P.D. 28/52. Pains cleared and patient discharged. Seen 3 weeks later in clinic. Small for dates. Protein + + . Scan arranged for next visit in two weeks. M.S.U. clear. Two weeks later scan—B.P.D. only 29/30 weeks, breech. No weight gain. B.P. 130/90, proteinuria + + . Admitted for assessment. On admission severe lower abdominal pain. Uterus tense, hard and tender. In strong labour. Fundus=32 weeks. Sedated. A.R.M.—straw coloured liquor. Seven hours later delivered female stillborn infant weighing 1.47 kilograms. Breech delivery with 16 oz. retroplacental clot.

Post-mortem: Maceration.

(18) B.60472. Para *V*°. Age 26. S.E.2. Gestation 34 weeks. Attended booking clinic at 22 weeks gestation. U.T.I, treated with Nitrofurantoin. C.A.N.C. Admitted at 34 weeks with A.P.H. F.H.N.H. Clinically placental abruption. A.R.M. Syntocinon. C.V.P. line. Four units of blood transfused. Puerperal Hb. = 14.I g/dl. Fresh stillborn male infant weighing 2.42 kilograms. Large retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(19) B.7439. Para 2^{+0}. Age 34. S.E.3. Gestation 35 weeks. Booked at 14 weeks. C.A.N.C. Uneventful pregnancy until 34 weeks when B.P. 140/100 and trace proteinuria noted. Admitted with abruptio placentae at 35 weeks. F.H.N.H. Coagulopathy and haemorrhage treated with 6 units of fresh blood under C.V.P. monitor. Spontaneous vertex delivery of a female stillborn infant weighing 1.96 kilograms.

Post-mortem: Intra-uterine anoxia.

(20) B.56154. Para 0^{+0}. Age 20. S.E. (unmarried). Gestation 39 weeks. Booked at 12 weeks gestation. Regular A.N.C. B.P. 130/90 at 24,28 and32 weeks. A.P.H. at 34 weeks. B.P.D. =34 weeks. No placenta praevia. Discharged after 3 weeks. Re-admitted at 39 weeks in labour. F.H.N.H. Signs of aoruptio. Spontaneous delivery of stillborn female infant weighing 3.31 kilograms. Retroplacentalclot.

Post-mortem: Refused.

(21) B.60310. Para 0^{+0}. Age 24. S.E.3. Gestation 40 weeks. Booked at 24 weeks gestation. Normal pregnancy. Admitted at term with concealed abruption. F.H.N.H. A.R.M. Syntocinon. C.V.P. line. Spontaneous delivery of a stillborn male infant weighing 3.47 kilograms. 1,000 ml. retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(22) B.56944. Para 1^{+0}. Age 24. S.E.3. Gestation 42 weeks. First attended at 20 weeks. Uneventful A.N.C. Admitted at term+11 days for assessment re induction. On examination head free, adequate liquor, Cx. uneffaced. Induction deferred. C.T.G. normal. Forty hours later spontaneous onset of labour. F.H.N.H. on admission to delivery suite. S.R.O.M. at 8 cms. dilatation—Grade III meconium. Spontaneous delivery of a fresh female stillborn infant weighing 3.21 kilograms, nuchal cord noted. Small retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(23) B.61268. Para 4. Age 30. S.E.5. Gestation ? 38 weeks. Late booker and only two visits. Admitted with abruptio placentae. F.H.N.H. A.R.M. and delivered female stillborn infant weighing 2.8 kilograms. Large retroplacental clot.

Post-mortem: Intra-uterine anoxia.

Hypertension!Pre-eclampsia (5)

Two stillbirths (24 and 26) were directly related to chronic hypertension, while the other 3 (25, 27 and 28) were due to pre-eclampsia; a further patient (39) had pre-eclampsia but has been included in a different section as the main reason for referral was recurrent pneumothoraces. In cases 25 and 27 the pre-eclampsia was quite mild and it was surprising that intra-uterine death occurred. It is worthy of mention that case 27 also suffered a fall around the time of intra-utenne death but there was no evidence of any accidental haemorrhage. Case 24 had a terrible history, and although she attended the hospital regularly it would have been more advisable to have admitted her routinely for prolonged bed rest, even though the outcome may have been no different. Case 26 was admitted to hospital at 35 weeks gestation and allowed home over Christmas; had she been kept in hospital the outcome might have been better. Case 28 was noted to have retarded intra-uterine growth and premature delivery might have saved this infant.

(24) B.37207. Para 1^{+5}. Age 27. S.E.4. Gestation 29 weeks. Previous history: 1972: F.T.N.D. 6 lb. 10 oz. male, alive and well. 1975: 26/40 abortion. 1976: 26/40 abortion. 1977: 20/40 abortion. 1978: 28/40 S.B. 1979: 26/40 abortion. Shirodkar suture inserted in last two pregnancies. Booked at 8 weeks gestation. Smoked 10/daily. Seen at 12,16,18 and 20 weeks. B.P. normal. B.P.D. good growth. Gave up cigarettes. Admitted at 24 weeks gestation. B.P. 150/100. Proteinuria+2. Uric acid 487. Renal function normal. V.M. A. normal. Treated with Aldomet, Hydrallazine, Trasicor. I.U.D. at 29 weeks. Spontaneous labour and delivery of female infant weighing 539 grams.

Post-mortem: Maceration.

(25) B.59392. Para 0^{+0}. Age 26. S.E.3. Gestation 34 weeks. Booked at 16 weeks. Height 4' 10 . No previous illness. Group A positive. Cycle irregular 38-42 days. Attended monthly to 28 weeks. Uneventful course until 30 weeks when B.P. 130/90. At 32 weeks B.P. 140/90. Slight oedema, no albumin. At 34 weeks B.P. 140/90, oedema + - no albumin. Diuretic given. Two days later F.M.N.F. Admitted. I.U.D. Prostaglandin drip induction. Spontaneous delivery of female infant weighing 1.55 kilograms. Very infarcted placenta.

Post-mortem: Maceration.

(26) B.55910. Para 1^{+0}. Age 43. S.E.4. Gestation 36 weeks. Previous C.S. Booked at 16 weeks gestation. Good attender. Smoker. Mild essential hypertension (B.P. 150/86 at 24 weeks). Admitted at 35 weeks when B.P. 175/105. Investigations: B.P. Borderline on bed rest. Uric Acid: 310 u mol/1. C.T.G. satisfactory. Allowed home over Christmas holidays. Returned to hospital at 36 weeks gestation. No fetal movements for 48 hours. I.U.D. Spontaneous delivery at term of macerated male stillborn infant weighing 2.94 kilograms. Placenta very unhealthy. Clotting screen normal.

Post-mortem: (i) Congenital Cardiac Anomaly, VSD.
(ii) Maceration.

(27) B.58598. Para 0^{+0}. Age 31. S.E.3. Gestation 36 weeks. Booked at 14 weeks gestation. B.P. 150/80 at first visit. Pregnancy uneventful until 36 weeks when B.P. 160/110 and F.H.N.H. History of fall 3 days previously and F.M.N.F. since. Complaining of vague lower abdominal pain. F.H. absent on scan and C.T.G. Spontaneous vertex delivery. Female macerated infant weighing 2.77 kilograms. Cord once tighly around neck.

Post-mortem: Maceration.

(28) B. 13706. Para 5^{+2}. Age 40. S.E.2. Gestation 37 weeks. Smoked 15/daily. Previous premature delivery at 27 weeks gestation, alive and well. Booked at 10 weeks. Known essential hypertension. On treatment. B.P. 130/85. Referred to renal clinic and advised to remain on Prestyl. B.P. well controlled. Ultrasound scan at 35 weeks — B.P.D. = 31 weeks. Seen again at 36 weeks but patient not keen on admission. Admitted at 37 weeks. F.H.N.H. two days following admission. Spontaneous delivery at 40 weeks of macerated male infant weighing 1.24 kilograms.

Post-mortem: Maceration.

Placental Insufficiency (3)

Three deaths were directly attributed to placental insufficiency, with no underlying pathology and all these babies were small for dates. In each instance, retarded intra-uterine growth was picked up clinically but not acted upon and a more aggressive induction policy in these cases might have saved each infant.

(29) B.55551. Para 0^{+0}. Age 25. S.E.2. Gestation 38 weeks. Booked at 11 weeks gestation. Antenatal course totally uneventful until 36 weeks when suspected clinically as smallish, although ultrasound scan one week later = B.P.D. 9.12 (34-35 weeks). Seen one week later. Ultrasound scan — no fetal heart detected. Prostaglandin induction at 38 weeks. Spontaneous delivery of macerated stillborn male infant weighing 2.01 kilograms.

Post-mortem: (i) Congenital Cardiac Anomaly.
(ii) Maceration.

(30) B.57762. Para 0^{+o}. Age 21. S.E.4. Gestation 38 weeks. Smoker. Booked at 11 weeks. Confirmed on scan. Normal up to 38 weeks when no fetal movements felt. Scan confirmed I.U.D. Spontaneous labour and delivery of male infant weighing 2.16 kilograms. Total weight gain 16 kilograms.

Post-mortem: Maceration.

(31) B.59400. Para 0^{+0}. Age 22. S.E.3. Gestation 40 weeks. Booked late at 30 weeks. Subsequent visit at 36 weeks felt small for dates. Scan however agreed with dates with adequate liquor. Seen again at 37 weeks when all appeared well. Admitted at 40 weeks in spontaneous labour. On examination fundus = 36/40, F.H.N.F. Normal delivery of macerated female infant weighing 2.35 kilograms. Placenta pale and unhealthy.

Post-mortem: Intra-uterine anoxia.

Multiple Pregnancy (2)

Two intra-uterine deaths occurred in twin pregnancies. In both cases the first twin was live-born and the second twin was stillborn. It is interesting to note that in the case of patient 33 both twins appeared to be of similar size and to have exhibited normal growth rates on antenatal scans. While earlier delivery would probably have afforded a better outcome in this case, the normal growth rate on scan suggested that both twins were developing satisfactorily in utero.

(32) B.35566. Para 2^{+0}. Age 26. S.E.2. Gestation 38 weeks. Booked at 12 weeks gestation. Large for dates. Multiple pregnancy confirmed by ultrasound scan at 26 weeks. Uneventful pregnancy. Labour induced at 38 weeks. 1st twin S.V.D. female infant weighing 3.35 kilograms. Twin II S.V.D. female, early macerated S.B. weighing 1.72 kilograms.

Post-mortem: Maceration.

(33) B.59419. Para 2^{+0}. Age 29. S.E.4. Gestation ? term. Booked at ? 36 weeks. Smoked 20/per day. Fundus large. Family history of twins. X-ray twins. Gestation suggested as only 28/29 weeks. Admitted one month later when scans put gestation at 31-32 and 32-33 weeks. Scan following week B.P.D. not possible. No fetal abnormalities. Liquor adequate. Following week scan put gestation at 36-37 weeks. Two days later delivered twins. First spontaneous vertex female weighing 3.43 kilograms — good Apgars. Second twin F.H. not heard. Breech delivery forceps to aftercoming head, macerated male infant weighing 3.60 kilograms.

Post-mortem: None.

Diabetes/Latent Diabetes (2)

Two stillbirths were associated with diabetes or latent diabetes. In case 34 clinical diabetes was complicated by pre-eclampsia and this patient should probably have been induced earlier, particularly as a C.T.G. was non-reactive 2 days prior to planned delivery. In the event, the fetal heart could not be heard the following day. Case 35 was found to have a positive

glucose tolerance test at term and was admitted for induction the following day. However, the fetal heart could not be heard on the day of admission. It is interesting to note that this patient had no particular indication for performing a glucose tolerance so that this was an unexpected finding.

(34) B.59553. Para 0^{+0}. Age 30. S.E.3. Gestation 37 weeks. Clinical diabetic 6 years. Booked at 14 weeks from Mater Hospital. Normal outpatient management until admitted at 35 weeks with hypertension 150/90. Albumin + 2. Clinically fundus = dates. B.P. settled in hospital. Ultrasound examination revealed 2 weeks lag in growth. Oestrogens remained normal. C.T.G. satisfactory until term—17 days when non-reactive trace. F.H.N.H. following day. Spontaneous labour at 39 weeks. Macerated stillborn male infant weighing 3.23 kilograms.

Post-mortem: Maceration.

(35) B.59152. Para 0^{+0}. Age 27. S.E.2. Gestation 40 weeks. Booked at 15 weeks gestation, glycosuria + 1. Second fasting specimen requested for next visit 4 weeks later. No glycosuria detected on this specimen. Trace of glucose at 23 and 31 weeks. At 33 weeks + 2 glycosuria in a non-fasting specimen. At 38 weeks extensive pregnancy urticaria, treated with anti-histamines. No glycosuria at 38 or 39 weeks. G.T.T. at 40 weeks 4.7; 9.6; 8.4; 5.3. Admitted for induction at 40^{+2}. No F.H. Prostaglandin induction. Clear liquor. Spontaneous delivery of male stillborn infant weighing 3.20 kilograms.

Post-mortem: Intra-uterine anoxia.

Haemolytic Disease (2)

Two deaths were associated with haemolytic disease. Case 36 did not attend for first visit until 26 weeks gestation and even then her gestation was in doubt. She was found to have severe haemolytic disease and was admitted to hospital for planned induction but the L.S. ratio remained extremely low despite a course of Dexamethasone. In the event, the baby was somewhat larger than was clinically thought and earlier delivery might have saved this infant. This particular case was compounded by the fact that the patient was separated from her husband and had become pregnant by a different partner. Case 37 was noted to have antibodies but was not referred to the Rhesus Clinic until 33 weeks gestation; earlier attendance at that clinic might have afforded a better outcome.

(36) B.59332. Para 1^{+0}. Age 28. Gestation ? 30 weeks. Booked at approximately 26 weeks gestation but dates unknown. Previous haemolytic disease developed during her first pregnancy and high antibody level noted at first visit. Consort found to be heterozygous for the rhesus factor. Amniocentesis showed severely affected fetus. Admitted to hospital for planned induction but L.S. ratio only 1.4 despite course of Dexamethasone. Delivery therefore deferred and I.U.D. at approximately 30 weeks gestation. Prostaglandin induction and spontaneous delivery of macerated stillborn male infant weighing 1.84 kilograms.

Post-mortem: None.

(37) B.4528. Para 5^{+0}. Age 32. S.E.2. Gestation 37 weeks. Booked at 18 weeks. Anti-D in serum. Incomplete 128. Third and fourth child affected, fourth needed exchange transfusion. At 33 weeks first tap — mid zone. At 34 weeks 2nd tap — upper zone. At 37 weeks spontaneous onset of labour — I.U.D. Spontaneous delivery of female stillborn infant weighing 2.38 kilograms.

Post-mortem: Maceration and erythroblastosis foetalis.

Cord Accident (1)

One stillbirth appeared to be due to a cord accident and was unavoidable.

(38) B.58799. Para 1^{+0}. Age 27. S.E.4. Gestation 40 weeks. Booked at 34 weeks. Attended clinic three times. Last seen at term. Admitted from country hospital in labour. F.H.N.H. S.R.O.M. at 7 cms. Meconium stained liquor. Spontaneous vertex delivery of stillborn male infant weighing 3.7 kilograms with cord tight around neck once.

Post-mortem: Maceration.

Respiratory Tract Problem (1)

In one patient intra-uterine death occurred following recurrent spontaneous pneumothoraces. It is true that his particular woman also had pre-eclampsia and it is difficult to decide whether the intra-uterine death was related to her chronic chest problem or to the pre-eclampsia. In the event, the case has been recorded as being essentially due to the respiratory problems but it may well be that the main problem was pre-eclampsia. It is interesting to note that this patient received radiotherapy in the first few months of pregnancy for Hodgknrs disease, but unfortunately a post-mortem examination was not performed to see if there were any fetal abnormalities.

(39) N.B.61227. Para 7^{+1}. Age 33. S.E.3. Gestation 33 weeks. Booked for delivery in country hospital. Admitted on this pregnancy to a general hospital at 33 weeks with recurrent spontaneous pneumothoraces. Diagnosed as having Hodgkin's disease in March 1981 and had treatment to cervical and mediastinal glands with radiation in the first month of pregnancy. Transferred to Coombe Hospital with I.U.D. at 33 weeks associated with P.E.T., B.P. 180/120, Albumin + 3. Gross placental dysfunction. On admission F.H.N.H. Spontaneous labour. Macerated female infant weighing 1.16 kilograms.

Post-mortem: Not performed.

Recurrent Infections (1)

This patient had several episodes of acute infections throughout pregnancy and it could be argued that earlier delivery was indicated on this account. In the event, intra-uterine death occurred at 41 weeks and the baby was found to be normal size for its gestation.

(40) B.9919. Para 5^{+0}. Age 33. S.E.3. Gestation 41 weeks. Booked at 12 weeks gestation. Appendicectomy at 23 weeks. Subsequent acute pyelitis, septicaemia, pneumonia. At 31 weeks further U.T.I, and renal colic. Renal calculus confirmed on I.V.P. Admitted at 41 weeks for induction but F.H.N.H. the following day. Spontaneous labour. Delivered of stillborn male infant weighing 3.52 kilograms.

Post-mortem: Intra-uterine anoxia.

Congenital Malformations (13)

Thirteen stillbirths were directly attributable to lethal congenital malformations, 10 of which occurred in the central nervous system.

Central Nervous System (10)

(41) B.57749. Para 0^{+0}. Age 25. S.E.4. Gestation 29 weeks. Booked at 9 weeks. Uneventful pregnancy until admitted at 29 weeks with show. Spontaneous delivery of male anencephalic infant weighing 822 grams.

Post-mortem: Anencephalus.

(42) B.55977. Para 0^{+0}. Age 18. S.E.5. Gestation 33 weeks. Booked at 10 weeks gestation. Ultrasound scan at 19 weeks — anencephaly. Spontaneous labour at 33 weeks — anencephalic female infant weighing 1.07 kilograms.

Post-mortem: Anencephalus and spina bifida.

(43) B.60071. Para 0^{+0}. Age 16. Gestation 34 weeks. Diagnosis of hydramnios and anencephaly made. A.R.M. and spontaneous delivery of a female infant weighing 964 grams.

Post-mortem: Anencephaly.

(44) B.30124. Para 7^{+0}. Age 35. S.E.5. Gestation 31 weeks. Premature labour and delivery of anencephalic female stillborn infant weighing 1.21 kilograms.

Post-mortem: Anencephalus.

(45) B.56375. Para 0^{+0}. Age 24. Gestation 36 weeks. Booked at 20 weeks. Anencephaly diagnosed at 24 weeks. PGE induction at 36 weeks. Male infant weighing 1.33 kilograms with anencephaly and exomphalus.

Post-mortem: None.

(46) B.48259. Para 1^{+1}. Age 24. S.E.5. Gestation 38 weeks. Booked at 26 weeks gestation. At 32 weeks gestation admitted with vomiting and backache. Polyhydramnios. X-ray anencephaly. At 38 weeks S.R.O.M. and spontaneous delivery of anencephalic female stillborn infant weighing 1.84 kilograms.

Post-mortem: Refused.

(47) B.55545. Para 0^{+0}. Age 19. Gestation 40 weeks. Attended clinic at 32 weeks gestation. Ultrasound scan showed anencephaly. Prostaglandin induction term + 6. Delivered of female macerated anencephalic infant weighing 3.09 kilograms.

Post-mortem: Anencephalus.

(48) B.45712. Para 2^{+1}. Age 31. S.E.3. Gestation 40 weeks. Booked at 16 weeks. Uneventful antenatally until admitted at 39 weeks with unstable lie. Went into labour as breech at term. Normal progress in labour. Aftercoming head failed to deliver. Large hydrocephalus drained. Stillborn male infant weighing 3.96 kilograms.

Post-mortem: Hydro-microcephalus.

(49) B.59660. Para 2^{+0}. Age 33. S.E.2. Gestation 41 weeks. Booked at 19 weeks. Hydrocephalus diagnosed at 34 weeks. Admitted at 39 weeks with hypertension. Spontaneous onset of labour. Hydrocephaly drained. Assisted breech delivery of female infant weighing 4.36 kilograms. Continuous p.v. bleeding. Laparotomy for ruptured uterus; sub-total hysterectomy performed. Required 16 units of blood and 4 units of platelets. Good recovery.

Post-mortem: Hydrocephalus and spina bifida.

(50) N.B.58862. Para 0^{+0}. Age 32. S.E.4. Gestation 46 weeks. Referred from country hospital because of failed PGE pessary induction. Prostaglandin induction failed x 2. Extra amniotic prostaglandin infusion. Spontaneous delivery of male stillborn fetus weighing 3.0 kilograms, anencephalic.

Post-mortem: Refused.

Renal Tract (2)

(51) B.58533. Para 0^{+0}. Age 21. S.E.4. Gestation 34 weeks. Smoker. Booked at 12 weeks. Thought to be small at 20 weeks but scan showed a size of 19 weeks. Admitted with mid trimester bleed at 27 weeks, size on scan then 22-23 weeks. Allowed home at 30 weeks as bleeding settled and not previa on scan. Re-admitted at 32 weeks as size on scan only 23-24 weeks. Liquor absent and no fetal kidneys seen. Spontaneous labour at 34 weeks. F.H.N.H. Breech delivery of stillborn male infant weighing 1.04 kilograms.

Post-mortem: Potter's Syndrome.

(52) B.42974. Para 8^{+0}. Age 43. S.E.2. Gestation 37 weeks. Booked at 21 weeks. Four normal antenatal clinic visits. Admitted at 37 weeks gestation with regular contractions. F.H.N.H. Spontaneous vertex delivery of macerated male infant weighing 3.11 kilograms.

Post-mortem: (i) Polycystic kidneys.
(ii) Maceration.

Multiple (1)

(53) B.4065. Para 2^{+1}. Age 32. S.E.2. Gestation 31 weeks. Booked at 15 weeks gestation. C.A.N.C. Emergency admission at 31 weeks with ruptured membranes. F.H.N.H. Spontaneous delivery of stillborn infant weighing 1.36 kilograms with large exomphalus.

Post-mortem: *(i)* Maceration.
(ii) Exomphalos.
(hi) Diaphragmatic hernia.

INTRA-PARTUM DEATHS

Comparative Table for 10 Years

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Babies born	7856	7631	7721	7301	7111	7099	7516	7642	7712	7274
Intra-partum deaths:										
<37 weeks	5	5	2	1	3	Nil	3	1	Nil	3
>37 weeks	9	7	8	4	5	3	3	1	5	5

It is disappointing to record 8 intra-partum deaths during 1981. This is the highest number of intra-partum deaths reported since 1976 and is in marked contrast with the 2 deaths noted in 19/9. It is difficult to see how management could in any way have affected the outcome in three instances (55, 57 and 59). The other 5 patients, however, deserve special mention. Case 54 was admitted to hospital with a prolapsed cord; there was some delay getting this patient to theatre as there was no resident anaesthetist on duty that night. Case 56 had had no antenatal care prior to 36 weeks gestation, by which time she was quite ill and indeed fortunate not to have lost both twins. Case 58 was admitted to hospital at 37 weeks with pre-eclampsia but discharged 3 days later. In view of her age and history it would have been wiser to have kept her in hospital. During labour the fetal heart rate was monitored continuously but a Type II deceleration was not noted and acted upon; the patient should obviously have been delivered by Caesarean section. Case 60 presented in labour with a shoulder presentation which was misdiagnosed as a breech presentation. In case 61 the fetal heart could not be heard 15 minutes following A.R.M. to accelerate labour; the liquor at the time of acceleration was noted to be meconium stained and earlier intervention might have saved this infant.

(54) B.57083. Para 0^{+1}. Age 25. Gestation 31 weeks. Smoked 30/daily. Previous termination of pregnancy. First booking at 11 weeks gestation. Threatened miscarriage at 14 weeks. Further episode of vaginal bleeding and ? S.R.O.M. at 27 weeks — admitted. Ultrasound scan = 23/24 weeks gestation. Pyndium test negative for liquor. Definite S.R.O.M. at 29 weeks. Spontaneous labour at 31 weeks. Prolapsed cord. F.H. 60/min. L.S.C.S. fresh female stillborn delivered weighing 1.13 kilograms.

Post-mortem: Intra-uterine anoxia.

(55) B.57611. Para 0^{+0}. Age 30. S.E.2. Gestation 31 weeks. Booked at 19 weeks. One week history of backache and slight blood stained discharge. Treated by G.P. for U.T.I. No response. Referred to hospital in labour. Cervix fully dilated 1$ hours after admission. Breech on perineum. F.H. present. Assisted breech delivery. Spontaneous delivery of shoulder. Further progress arrested. Cervix clamped tightly around neck. Cord not pulsating. Deep anaesthesia with Halothane. Very difficult delivery with forceps to fetal head. Fresh female stillborn infant weighing 1.04 kilograms.

Post-mortem: Intra-partum asphyxia.

(56) N.B.57882. Para 4^{+0}. Age 40. S.E.5. Gestation 36 weeks. No antenatal care. Uncertain dates. First attended G.P. a day prior to admission to Coombe Hospital complaining of haematemesis. On admission (12/2/'81) twin pregnancy noted. Spontaneous onset of labour 16.30 on 13/2/'81. Examined on ward. F.H. x 2present. Cervix 6-8 cms. dilated. Transferred to delivery suite where immediate S.R.O.M. Meconium ++ Breech on perineum. Assisted breech delivery of Twin I. Cord not pulsating. Fresh stillborn male infant weighing 3.04 kilograms. Second sac punctured. F.H. dropped to 60. Thick meconium + +. Rapid breech extraction of Twin II, female infant weighing 2.58 kilograms born with Apgar scores of 1 at one and 9 at five minutes. Third stage uncomplicated. Hb. 7.3. grams %. Transfusion commenced immediately following delivery of placenta.

Post-mortem: Intra-uterine Anoxia.

(57) B.9733. Para 2^{+0} Age 31. S.E.2. Gestation 38 weeks. Smoked 20/daily. Booked at 12 weeks gestation. Normal antenatally. Admitted at 38 weeks with S.R.O.M. — clear liquor. Cervix 3 cms. dilated. Two hours later heavy show. No signs of accidental haemorrhage but F.H.N.H. shortly afterwards. Spontaneous delivery of stillborn male infant weighing 3.28 kilograms. No clinical evidence of causative factor. Post-mortem X-ray = maturity 38-39 weeks.

Post-mortem: Intra-partum asphyxia. No congenital defect.

(58) B.57552. Para 1^{+0}. Age 40. S.E.5. Gestation 38 weeks. Non-smoker. Booked at 9 weeks gestation. Twelve years infertility. Normal to 37 weeks when B.P. 140/95. Admitted for rest. B.P. settled. C.T.G. normal and good fetal movement. Discharged after 3 days. Admitted in spontaneous labour. Difficulty hearing F.H. 2 hours later but complex on monitor. Three hours later F.H.N.H. Spontaneous delivery of a stillborn male infant weighing 3.43 kilograms.

Post-mortem: Intra-uterine anoxia.

(59) B.8002. Para 7^{+0}. Age 38. S.E.5. Gestation 40 weeks. Booked for C.A.N.C. at 18 weeks. Four visits to out-patient clinic. Iron deficient anaemia. Hb. 9.3 g/dl at 37 weeks. Did not attend for 40 week visit. Admitted in spontaneous labour. F.H.H. 80/min. A.R.M. — meconium. For L.S.C.S. F.H. stopped within 15 minutes of admission. S.V.D. female stillborn infant weighing 3.2 kilograms. Nucnal cord x 1.

Post-mortem: Intra-partum asphyxia.

(60) B. 12538. Para 2^{+0}. Age 30. S.E.4. Gestation 40 weeks. Previous history: 1973 — induced for pre-eclampsia, 5 lb. 4 oz. at 38/40. 1975 — induced for pre-eclampsia, 6 lb. 10 oz. at 41/40. Booked at 18 weeks gestation. Seven A.N. visits. N.A.D. At 40 + weeks admitted with show and pains. F.H.H. Breech. Cervix 9 cms. F.H.N.H. Prolapsed arm. E.U.A. — shoulder presentation with prolapsed arm. Internal podalic version. Breech extraction, normal female weighing 3.03 kilograms, stillborn.

Post-mortem: Refused.

(61) B.58221. Para 2^{+0}. Age 37. S.E.3. Gestation 41 weeks. Non-smoker. Booked at 11 weeks gestation. Normal antenatally. Admitted in labour at 41 weeks. A.R.M. to accelerate. Meconium stained liquor. F.H.N.H. soon after. Normal delivery of a stillborn male infant weighing 4.11 kilograms.

Post-mortem: intra-uterine anoxia.

NEONATAL DEATHS

Thirty-one of the 7,274 live born infants died in the first seven days of life, so that the neonatal death rate was 4.3 per thousand, which is identical to that recorded in 1980. Twenty-one of the 31 deaths (68 per cent) were due to lethal congenital malformations, and only 10 of the 7,192 normal live born infants died in the first week of life, so that the neonatal death rate for normal live born infants was 1.4 per thousand. This maintains the big improvement recorded in 1980. Eight of the 10 normal neonatal deaths weighed less than 2.5 kilograms. The management of only 1 of the 31 neonatal deaths deserves special comment. Case 63 was admitted to hospital with recurrent mid trimester bleeding but was discharged at 27 weeks. It would have been wiser to have kept this patient in hospital, in which case her premature labour might not have occurred.

The main causes of death were as follows:

Cerebral Anoxia	1
Intraventricular Cerebral Haemorrhage	3
Respiratory Dysfunction	5
Necrotising Enterocolitis	1
Congenital Malformations	21

Cerebral Anoxia (1)

One baby died as a result of Cerebral Anoxia secondary to abruptio placentae despite the performance of an emergency Caesarean section.

(62) B. 11848. Para $3_{\sim}^{2}$. Age 38. S.E.3. Gestation 40 weeks. Smoker. Booked at 13 weeks. Noted to have essential hypertension. Attended the renal clinic but no hypotensives required. Fourteen antenatal visits and no abnormality noted. Spontaneous labour at term. Emergency L.S.C.S. for accidental haemorrhage. 1300 mis. of retroplacental clot. Male infant weighing 3.80 kilograms born with Apgar scores of 0 and 2. Resuscitated but subsequently developed marked cerebral signs prior to N.N.D. at 37 hours of age.

Post-mortem; Refused.

Intraventricular Cerebral Haemorrhage (3)

Three babies died as a result of intraventricular cerebral haemorrhage: one (63) was a premature breech delivery; one (64) was a pre-term infant delivered by Caesarean section and one (65) went into premature labour following the development of maternal pneumonia. Case 63 suffered a typical complication of pre-term breech delivery in that the aftercoming head was caught in an incompletely dilated cervix. However, as Case 64 illustrates, Caesarean section for the pre-term infant does not necessarily avoid the occurrence of intraventricular cerebral haemorrhage. Further studies on the aetiology and prevention of intraventricular cerebral haemorrhage in the pre-term infant are required so that the incidence can be hopefully reduced.

(63) B.42968. Para *V°*. Age 22. S.E.5. Gestation 28 weeks. Admitted at 16 weeks gestation bleeding p.v. Repeated bleeds on and off up to 27 weeks. Serial scans showed good growth. Admitted at 28 weeks by scan. Premature breech rapidly delivered through incompletely dilated cervix. Male infant weighing 1.17 kilograms born with Apgar scores of 2 and 3. Manual removal of small infarcted placenta with retro-placental clot. Baby intubated at 1 minute and ventilated. Subsequently developed jaundice and pneumothorax. Two exchange transfusions. Convulsions prior to cardiac arrest at 48 hours of age.

Post-mortem: (i) Bilateral intraventricular haemorrhage.
(ii) Pulmonary disease of the newborn.

(64) B.56283. Para 1^{+2}. Age 22. Gestation 29 weeks. Booked at 9 weeks when B.P. normal. Gross obesity. Uneventful pregnancy to 25 weeks when +3 proteinuria noted. M.S.U. taken. Seen again one week later. M.S.U. sterile but B.P. 160/105 with +4 proteinuria. Admitted to hospital. Hypertension persisted and i.v. Hydralazine required. At 26 weeks platelet count reduced, Urea and Uric Acid increased. At 27 weeks commenced on Aldomet and Trasicor. At 29 weeks ultrasound scan showed growth retardation. B.P.D. equivalent to 26-27 weeks with diminished liquor. C.T.G. non-reactive with dips. Emergency Caesarean section performed. Retroplacental clot present. Birth weieht 960 grams. Apgar scores 8 and 10. Intubated at 4 minutes because of secondary apnoea. Following initial period of ventilation the baby was stabilised on intermittent manditary ventilation at a rate of 20 per minute in 35% oxygen. The baby continued fairly well for the first 24 hours. At 48 hours the baby began to deteriorate with mixed metabolic and respiratory acidosis and increased ventilatory requirement. At 49 hours the baby had intermittent myoclonic jerking and a sudden cardiac arrest. The baby was resuscitated with cardiac massage and intra-cardiac adrenaline and recovered slowly over about 30 minutes. The baby then had further seizures which were treated with Phenobarbitone. The baby's general condition remained very poor over the next 3 hours despite maximal ventilation in 100% oxygen. The baby was given additional bicarbonate, was paralysed and given higher pressure ventilation but had a further collapse at 54 hours and did not respond to resuscitation.

Post-mortem: (i) Bilateral intraventricular haemorrhage.
(ii) Hyaline membrane disease.

(65) B.4369. Para 3^{+0}. Age 27. S.E.4. Gestation 29 weeks. Latent diabetes 1972 first pregnancy. Smoked 40 rigs/daily. Booked late at 21 weeks. Admitted with pneumonia at 29 weeks. Premature labour and delivery on day of admission, male alive weighing 1.37 kilograms, Apgar scores 8 and 10. The baby was admitted to the Unit and was initially nursed in an oxygen hood. He was commenced on C.P.A.P. at 2 hours and also antibiotics. Chest X-ray showed moderately severe hyaline membrane disease. At 6 hours the baby deteriorated

further and was commenced on ventilation and was stable on this overnight. At 18 hours of age he deteriorated further with a rising $C0_2$ and falling 0_2. He was paralysed and treated with higher peak pressures and an increased inspiratory oxygen. Subsequent chest X-ray showed severe pulmonary interstitial emphysema. The baby continued to deteriorate with a worsening in blood gases and persisting hypotension, despite plasma and Dopamine infusions. The baby died at 30 hours.

Post-mortem: (i) Intra-ventricular haemorrhage on both sides.
(ii) Pulmonary atelectasis and haemorrhage.

Respiratory Dysfunction (5)

The number of babies dying as a result of respiratory dysfunction is larger than expected. Four of the 5 cases (66-69) occurred in premature infants. One of these patients (67) also showed evidence of intraventricular haemorrhage, but the pulmonary complication appeared to be the main cause of death. The fifth case (70) died as a result of widespread pulmonary haemorrhage which arose secondary to meconium aspiration following spontaneous delivery at 41 weeks gestation. This particular patient delivered 50 minutes after admission to hospital and it is unlikely that Caesarean section would have altered the outcome.

(66) B.40483. Para 3^{+0}. Age 35. S.E.2. Gestation 28 weeks. First seen at 15 weeks gestation. Admitted at 25 weeks with A.P.H. and leaking membranes. Kept in hospital on bed rest. Premature onset of labour at 28 weeks and spontaneous delivery of male live infant weighing 1,22 kilograms. Baby noted to have low set ears, widely splayed sutures, and limb deformities. Intubated at birth and required I.P.P. V. Cardiorespiratory arrest at 6 hours.

Post-mortem: Pulmonary atelectasis and immaturity.

(67) B.48168. Para l^{+0}. Age 28. S.E.2. Gestation 28 weeks. Booked at 19 weeks gestation. Admitted at 27 weeks with mid-trimester bleeding. One week later spontaneous breech delivery of female live infant weighing 1.10 kilograms born with Apgar scores of 2 and 5. Transferred immediately to S.C.B.U. The infant had evidence of marked respiratory distress and was intubated and commenced on I.P.P. V. There was some good response following this, but at the age of 6 hours the infant had intermittent hypoxic episodes which became persistent and Tolazoline was administered without a good response. Subsequently, the baby developed evidence of pneumothorax and pneumoabdomen associated with findings consistent with intracranial haemorrhage. The baby died at the age of 17 hours.

Post-mortem: (i) Intraventricular cerebral haemorrhage.
(ii) Pulmonary atelectasis.

(68) B.28416. Para 2^{+0}. Age 34. S.E.3. Gestation 29 weeks. Booked at 15 weeks. Previous atrial septal defect repaired. At 28 weeks, A.P.H. followed by premature labour at 29 weeks. Assisted breech delivery of male infant weighing 1.55 kilograms born with Apgar scores of 5 and 8. Intubated. Initial chest X-ray showed hyaline membrane disease. Collapsed at 3 hours. Left pneumothorax. Drain inserted. Further collapse. Did not respond.

Post-mortem: Pulmonary immaturity and atelectasis.

(69) B.44501. Para 2^{+1}. Age 24. S.E.5. Gestation 31-weeks. First visit at 19 weeks confirmed by scan. Shirodkar suture inserted. Uneventful A.N.C. until 28 weeks when admitted with A.P.H. Ultrasound scan excluded placenta praevia. Bled on and off until 31 weeks. Went into labour. Shirodkar suture removed. Delivered of live male infant weighing 1.47 kilograms, born with Apgar scores of 3 and 7. Intubated at 5 minutes. Ventilated and given antibiotics. Developed persisting cyanosis. Did not improve on increased ventilation or Tolazoline. Marked scleroderma. At 30 hours developed right pneumothorax. Later left pneumothorax. Collapsed at 42 hours. Failed to resuscitate.

Post-mortem: Pulmonary atelectasis and immaturity.

(70) B.40830. Para 2^{+1}. Age 32. S.E.I. Gestation 41 weeks. Booked at 12 weeks gestation. Normal pregnancy. Admitted at 41 weeks in labour. F.H. 140 and irregular. Cervix 5 cms. dilated. Spontaneous rupture of membranes 40 minutes after admission. Meconium + Spontaneous delivery 10 minutes later of female infant weighing 3.85 kilograms, born with Apgar scores of 5 and 7. Treated with direct tracheal suction at birth and had a bronchial lavage carried out on the labour ward with some improvement. Transferred to the S.C.B.U. at which

stage she had deteriorated with significant cyanosis and poor respiratory effort. The baby was given further bronchial lavage with transient improvement and was nursed in 40% oxygen which was increased to 100% without much improvement in colour. Chest X-ray showed a moderate right pneumothorax + severe consolidation and this was drained with an underwater seal. Repeat X-ray showed re-expansion of the lung. Despite this, however, the baby's ventilatory status remained critical with persisting respiratory and metabolic acidosis, despite additional bicarbonate and high inspired oxygen concentration. The baby was intubated at 2 hours and started on ventilation. At this stage the baby had an episode of stiffness which was felt to be a seizure and was treated with Dexamethasohe and Phenobarbitone. Her condition failed to improve despite maximal ventilation and she had a cardiac arrest at 5 hours of age which failed to respond to massage and i/c cadrenaline.

Post-mortem: Extensive pulmonary haemorrhage and oedema with the right lung almost completely atelectatic, and the left partially atelectatic. The brain showed extensive petechial haemorrhage.

Necrotising Enterocolitis (1)

The one baby that died from necrotising enterocolitis was a first twin delivered at 35 weeks gestation, and it is of interest that the second twin, though delivered by the breech, survived.

(71) B.13431. Para 4^{+1}. Age 27. S.E.4. Gestation 35 weeks. Booked at 14 weeks gestation. Twins diagnosed at 19 weeks. Normal antenatal course until admitted in premature labour at 35 weeks gestation. Twin I: spontaneous vertex delivery female infant weighing 1.89 kilograms born with Apgar scores of 9 and 10. During the first day, the baby developed hypoglycaemia which responded to i.v. fluids. The baby also had early jaundice and hypocalcaemia. At the age of 2 days the baby developed frank melaena and X-ray at this time revealed multiple fluid levels with evidence of necrotising enterocolitis. The baby, despite fullest support, rapidly deteriorated and was subsequently transferred to another hospital for surgical intervention, but died prior to surgery being undertaken on the fourth day of life. Twin II: assisted breech delivery of male infant weighing 1.95 kilograms born with Apgar scores of 6 and 9 which survived.

Post-mortem: Necrotising enterocolitis.

Congenital Malformations

Congenital malformations accounted for 21 of the 31 (68 per cent) early neonatal deaths. The site of the abnormality was as follows:

Central Nervous System	8
Cardio-Vascular System	4
Respiratory System	2
Pulmonary/Renal Tract	2
Multiple	2
Chromosome Abnormality	3

Central Nervous System

(72) B.48073. Para 1^{+0}. Age 26. S.E.3. Gestation 31 weeks. Admitted in labour at 31 weeks. Spontaneous delivery of female anencephalic infant weighing 624 grams. N.N.D. minutes.

Post-mortem: Refused.

(73) B.27650. Para 3^{+0}. Age 32. S.E.2. Gestation'34 weeks. Booked at 14 weeks gestation. Uneventful antenatally until 33 weeks. Thought to be clinically small. Scan performed. Anencephalic fetus. PGE induction. Spontaneous delivery of female infant weighing 1.10 kilograms. N.N.D. 2 hours.

Post-mortem: Anencephaly.

(74) B.59645. Para 0^{+0}. Age 19. Gestation 35 weeks. Booked at 17 weeks. Seven antenatal visits. Admitted at 24 weeks with midtrimester bleeding. Anencephaly diagnosed by ultrasound scan. At 35 weeks spontaneous delivery of male anencephalic infant weighing 1.33 kilograms.

Post-mortem: Anencephalus.

(75) B.49292. Para 1^{+4}. Age 28. S.E.2. Gestation 35 weeks. Threatened abortion 8/40. Booked at 12 weeks gestation. Seven antenatal visits. Anencephaly suspected ultrasonically. Admitted with backache at 34 weeks. PGE induction. Spontaneous delivery of live male infant weighing 2.18 kilograms. Anencephalic. N.N.D. 20 minutes.

Post-mortem: Refused.

(76) B.46588. Para 1^{+0}. Age 26. S.E.3. Gestation 37 weeks. Uneventful pregnancy. Scan at 37 weeks revealed anencephaly. Prostaglandin induction. Male infant weighing 3.03 kilograms. N.N.D. 2 days.

Post-mortem: Microcephalus and encephalocoele.

(77) B.23052. Para 2^{+0}. Age 38. S.E.5. Gestation 40 weeks. Uneventful pregnancy. Undiagnosed twin pregnancy. Admitted at term in spontaneous labour at full dilatation of cervix. First twin delivered spontaneously, male, weighing 1.96 kilograms, good Apgar scores. Second twin male anencephalic weighing 1.60 kilograms. N.N.D. 45 minutes.

Post-mortem: Anencephalus.

(78) B.57704. Para 0^{+0}. Aee 15. Gestation 41 weeks. Booked at 25 weeks gestation. Admitted at 39 weeks with Tate pregnancy hypertension. Hydrocephaly noted on scan. Spontaneous labour at term + 13. Head drained during labour. Normal delivery of live-born female infant weighing 3.65 kilograms with spina bifida and hydrocephaly. N.N.D. 47 hours.

Post-mortem: Hydrocephalus and spina bifida.

(79) B.59515. Para 2^{+0}. Age 26. S.E.5. Gestation 41 weeks. Booked at 16 weeks. Spontaneous delivery of a live-born male infant weighing 3.30 kilograms, with hydrocephaly and spina bifida. N.N.D. 1 hour.

Post-mortem: *(i)* Hydrocephalus and spina bifida.
(ii) Left diaphragmatic hernia.

Car dio-Vascular System

(80) B.51678. Para 2^{+0}. Age 31. Gestation 32 weeks. S.E.3. Grossly obese. Latent diabetes 1980 — diagnosed on last pregnancy. Spontaneous onset of labour and delivery at 32 weeks of female ahve weighing 1.97 kilograms. Clinically the fetus was grossly ascitic. Blood group O Rh. Negative. No antibodies found. N.N.D.

Post-mortem: *(i)* Congenital cardiac lesion, endomyocardiopathy.
(ii) Microcephalus.

(81) B.57012. Para 1^{+0}. Age 26. S.E.3. Gestation 38 weeks. Booked at 12 weeks gestation. External cephalic version at 35 weeks. Admitted at 38 weeks ? S.R.O.M. — not confirmed. Home 2 days later. Appointment to attend clinic one week later but failed to attend. At 38 weeks S.V.D. male infant weighing 4.04 kilograms, born with Apgar scores of 9 and 10. Clinical examination normal. Sudden collapse after feed when 2 days old and did not respond to resuscitation.

Post-mortem: Congenital cardiac anomaly — single ventricle.

(82) B.36739. Para 1^{+0}. Age 27. S.E.3. Gestation 39 weeks. Smoker. Booked at 15 weeks. Regular attender but noted to be small at 33 weeks. Spontaneous labour at term minus 5. Meconium stained liquor. Normal delivery of male infant weighing 2.38 kilograms. Good Apgars. Transferred to another hospital at one day with congenital heart disease. Died at 72 hours following cardiac catherization.

Post-mortem: Transposition of the great arteries with a single ventricle. Single A/V valve and a hypoplastic aorta.

(83) B.58485. Para 2^{+0}. Age 31. Gestation 41 weeks. Booked at 16 weeks gestation. Previous stillbirth at 36 weeks. Family history of diabetes. Negative G.T.T. at 38 weeks. Suffered from agoraphobia. Admitted to hospital at 38 weeks. Spontaneous labour at 41 weeks. L.S.C.S. for failure to advance. Live male infant weighing 3.71 kilograms, born with Apgar scores of 9 and 10. Baby admitted to S.C.B.U. because of lethargy, poor feeding and a systolic murmur at 24 hours of age. Transferred to another hospital on day 3 because of

congestive cardiac failure. Chest X-ray showed increased pulmonary vasculature. E.C.G. showed a marked right axis deviation with ventricular hypertrophy. The baby collapsed just prior to cardiac catherization, which revealed congenital mitral atresia with patent ductus arteriosus and a hypoplastic aortic arch. The aortic valve was not identifiea nor was the ventricle.

Post-mortem: Congenital heart disease.

Respiratory System

(84) B.58392. Para 0*°. Age 31. S.E.3. Gestation 30 weeks. Booked at 11 weeks. Uneventful pregnancy until 30 weeks when referred by G.P. with a history of lack of fetal movements and brown vaginal discharge for one week. On examination F.H. present and size compatible with dates. Discharged. Admitted same evening in premature labour. Assisted breech delivery 30 minutes later of live female infant weighing 8/0 grams, born with Apgar scores of 3 and 4. Baby intubated, I.P.P.V., Sodium Bicarbonate. No response. Chest X-ray — diaphragmatic hernia on left. N.N.D. 2 hours.

Post-mortem: Bilateral diaphragmatic hernia, pulmonary hypoplasia.

(85) B.28119. Para 2^{+0}. Age 37. S.E.2. Gestation 33 weeks. Booked at 20 weeks gestation under C.A.N.C. Known excess alcohol intake. No further attendance until emergency admission at 33 weeks in second stage of labour. Spontaneous delivery few minutes later of female infant weighing 1.30 kilograms, born with Apgar scores of 3 and 5. Noted to be dysmature. Intubated and started on I.P.P.V. Chest X-ray showed mild to severe hyaline membrane disease and a soft tissue mass in right thorax, ? cyst, ? tumour. At 72 hours of age became dusky. p02 monitor dropped to zero. Resuscitation unsuccessful.

Post-mortem: (i) Diaphragmatic hernia.
(ii) Large ventricular septal defect.
(hi) Pulmonary atelectasis.

Pulmonary I Renal Tract

(86) B.43682. Para 1^{+1}. Age 32. S.E.3. Gestation 36 weeks. Booked at 15 weeks gestation. Four A.N. visits. Spontaneous labour at 36 weeks — undiagnosed twins. Twin I male alive weighing 1.53 kilograms born with Apgar scores of 7 and 8. Twin II female alive weighing 2.35 kilograms, assisted breech delivery, forceps to A.C.H. Apgar scores of 6 and 10. Twin I N.N.D. 24 hours — Potter's Syndrome.

Post-mortem: (i) Renal dysgenesis.
(ii) Pulmonary immaturity.

(87) B.59826. Para 0^{+0}. Age 24. S.E.4. Gestation 36 weeks. Booked at 13 weeks. Admitted in labour at 36 weeks. Normal F.H. tracing. Assisted breech delivery of male infant weighing 2.04 kilograms born with Apgar scores of 1 and 1. No response to resuscitation. N.N.D. 1 hour.

Post-mortem: (i) Pulmonary hypoplasia.
(ii) Renal dysgenesis (polycystic kidneys).

Multiple

(88) B.50062. Para 1^{+0}. Age 31. S.E.2. Gestation 38 weeks. Booked at 11 weeks. Threatened miscarriage at 8 weeks, otherwise uneventful pregnancy until admitted at 36 weeks following small A.P.H. Ultrasound scan suggested growth retardation. Urinary oestrogens extremely low — 18, 20, 21, 23. With bed rest growth rate improved and Caesarean section performed at 38 weeks because of breech presentation and growth retardation. Abnormal infant delivered, female weighing 1.87 kilograms. Multiple congenital abnormalities including a diaphragmatic hernia. N.N.D. whilst being transferred to another hospital.

Post-mortem: (i) Diaphragmatic hernia.
(ii) Congenital cardiac anomaly.

(89) B.3455. Para 3^{+0}. Age 36. S.E.I. Gestation 41 weeks. First seen at 9 weeks gestation. Normal antenatal record apart from small A.P.H. at 30 weeks. Scan at that time N.A.D. Spontaneous onset of labour. Spontaneous delivery of abnormal looking female infant, very flat at delivery, weighing 2.84 kilograms. X-ray ? dyastrophic dwarf. N.N.D. 40 minutes.

Post-mortem: Multiple anomalies including pulmonary hypoplasia and laryngeal atresia.

Chromosome Abnormality

(90) B.17263. Para 5^{+0}. Age 31. S.E.3. Gestation 36 weeks. Booked at 13 weeks. Combined antenatal care. Hydramnios noted at 34 weeks. Ultrasound scan — no fetal abnormality. Spontaneous vertex delivery of male infant weighing 1.49 kilograms at 36 weeks. N.N.D. 4 hours.

Post-mortem: Edward's Syndrome with congenital cardiac lesion and tracheo-oesophageal fistula.

(91) B.33905. Para 2^{+0}. Age 28. S.E.I. Gestation 41 weeks. Booked at 16 weeks. Normal antenatal course. Induced at term + 11 days. Shortly afterwards developed fetal distress. L.S.C.S. delivered male infant weighing 1.94 kilograms. Transferred to S.C.B.U. because of grunting, pallor and tachypnoea. Multiple anomalies noted and transferred to another hospital prior to death at 3 days of age.

Post-mortem: Edward's Syndrome.

(92) B.58417. Para 0^{+0}. Age 19. S.E.3. Gestation 40 weeks. Smoker. Booked at 13 weeks gestation. Admitted at term in labour. A.R.M. Slightly meconium stained liquor. Normal delivery of female infant weighing 2.24 kilograms, born with Apgar score of 7 at 5 minutes. Following delivery the baby was found to have multiple congenital anomalies clinically consistent with Trisomy 13. N.N.D. 28 hours.

Post-mortem: *(i)* Congenital heart, single ventricle.
(ii) Polycystic horseshoe kidney.
(hi) Meningo-encephalocele.

Paediatric Department

Nine hundred and forty-nine of the 7,235 live born infants (13.1 per cent) were admitted to the Special Care Unit. Thus, the number of babies requiring admission to the Special Care Unit dropped by a further one per cent during 1981 and this trend is welcomed.

The gestation and mode of delivery of babies requiring admission to the Special Care Unit are summarised in Tables I and II: the 949 babies admitted to the Unit include 22 infants of less than 28 weeks gestation. It is interesting to note in Table I that there was no significant difference in the percentage of babies admitted to the Special Care from 40 weeks gestation onwards.

TABLE I

Gestation of infants admitted to Special Care Baby Unit

Gestation	Total Births	Number of babies admitted	Per cent
<28 weeks	24	22	92
28—36 weeks	317	230	72
37—39^{+6} weeks	2,589	452	17
40—40^{+6} weeks	2,291	121	5.3
41—41^{+6} weeks	1,661	104	6.2
42^{+} weeks	416	20	4.8

TABLE II

Mode of delivery of infants admitted to Special Care Baby Unit

	Total Births	Number of babies admitted	PerCe
Spontaneous vertex delivery	5,957	583	9.8
Forceps delivery	471	75	15.9
Vacuum extraction	73	16	21.9
Breech delivery	166	43	26.3
Caesarean Section	631	232	36.7

Apart from the babies who required admission to the Special Care Unit, other infants needed special management in the post-natal wards or careful follow-up in the out-patient clinics. Table III enumerates some of the conditions which other infants delivered in the hospital suffered from. The numbers in the table do not necessarily correspond to the total number of infants treated, as some babies had'more than one of the tabulated conditions.

TABLE III

Summary of neonatal problems that required special attention

Condition	Total	N.N.D.
Prolonged Rupture of Membranes (greater than 24 hours)	16	0
Birth Asphyxia	132	8
Cerebral Irritability (jittery)	69	0
Hypertonia	14	0
Hypotonia	26	0
Convulsions	18	4
Hyponatraemia	7	0
Electrolyte Disturbance-Transient	9	0
Hypoglycaemia	63	1
Hypocalcaemia	132	3
Prematurity	85	25
Small for Gestational Age	88	1
Hyaline Membrane Disease (I.R.D.S.)	43	14
Transient Tachypnoea of Newborn	48	0
Pulmonary Atelectasis	10	4
Pneumothorax/Pneumomediastinum	18	5
Meconium Aspiration (seen beyond vocal cords)	20	1
Aspiration of Liquor	4	0
Pneumonia	72	3
Pulmonary Haemorrhage	4	3
Hypothermia (Less than 35°C)	25	0
Necrotizing Enterocolitis	3	1
Jaundice-Physiological (greater than 200 umol)	503	0
Jaundice-Of Prematurity	28	3
Jaundice-Breast Milk	24	0
Jaundice-Treated	151	0
Septic Spots	153	0
Breast Abscess	5	0
Abscess	13	0
Conjunctivitis	206	0
Staphylococcal Infections—Other	32	0
Bronchiolitis	26	0
Urinary Tract Infection	7	0
Upper Respiratory Tract Infection	291	0
Meningitis	2	0
Monilia (Perineal)	298	0
Monilia (Oral)	217	0
Inguinal Hernia	17	0
Pyloric Stenosis	8	0
Dermatitis	279	0
Feeding Problem	319	0
Undescended Testis	30	0
Inguinal Hernia	16	0
Sternomastoid Tumour	14	0

Outcome of Infants weighing between 500 and 1500 g.

Twenty-five infants weighing between 500 and 1500 g. survived the neonatal period during 1981. As in previous years, the infants have been divided into those that were appropriate for gestational age and those that were small for gestational age. No sub-division has been made for gestational age; the 25 survivors include 6 babies who were delivered before 28 weeks gestation.

Tables IV to XIII enumerate the main clinical features concerned with the 25 survivors. These tables clearly illustrate the different clinical features that affected the appropriate for gestational age babies and the small for gestational age babies respectively. Comparisons between the clinical outcome of the two groups of babies can be made by referring to each individual table. It should be noted that the overall survival rate of liveborn babies weighing 500—1500 g. was 59 per cent (Table IV).

TABLE IV

Summary of infants weighing 500—1500 g.

Total	STILLBORN		LIVEBORN		
	Normal	Abnormal	Abnormal-NND	Normal	Survived
73	10	8	6	49	25

TABLE V

Liveborn Survivors

	N = 25	AGA = 17	SGA = 8
Birthweight (Mean ± SD)	1.23 ± 0.2	1.24 ± 0.2	1.20 ± 0.1
Range	(0.86 — 1.5)	(0.86-1.5)	(0.99-1.41)
Gestation (Mean ± SD)	30.3 ± 3.2	28.8 ± 1.6	33 ± 3.9
Range	(27 - 39)	(27 - 33)	(27 - 39)
Sex	17M8F	13M4F	4M4F
Maternal Age (Mean ± SD)	28 ± 7	27.6 + 8	29.1 + 4
Range	(18 - 44)	(18 - 44)	(22 - 35)
Smokers	9	5	6

TABLE VI

Maternal Complications During Pregnancy

N	Recurrent Bleeding	p P j	Multiple Pregnancy	UTI	Heart Disease
17 AGA	2	1	1	2	1
8 SGA	1	3	1	0	0

TABLE VII

Mode of Delivery

	SVD	Forceps	Breech	Elective C.S.	Emergency C.S.
17 AGA	10	2	3	1	1
8 SGA	2	0	2	4	0

TABLE VIII

Condition at Birth and Resuscitation

Apgar Score	IMin.	5 Mins.	
17 AGA	7 ± 2	9 ± 2	
8 SGA	5 ± 2	9 ± 1	
Resuscitation	Mucous Extraction+0_2	Bag & Mask	Intubation
17 AGA	11	3	3
8 SGA	2	3	

TABLE IX

Respiratory Complications

	*IRDS	Apnoea		Pneumonia	Pneumothorax	*BPD/*PIE
		Early	Late			
17 AGA	12	2	4	3	4	5
8 SGA	3	1	1	0	1	0

*IRDS—Idiopathic Respiratory Distress Syndrome
*BPD—Bronchopulmonary Dysplasia
*PIE—Pulmonary Interstitial Emphysema

TABLE X

Management of Respiratory Disorders

	0_2 Only	CPAP Only	IPPV		Theophylline
			<7 days	>7 days	
17 AGA	2	2	2	8	7
8 SGA	0	0	3	0	1

TABLE XI

Patent Ductus Arteriosus

	Affected	Indomethacin	Surgical Ligation
17 AGA	9	0	1
8 SGA	2	1	0

TABLE XII

Jaundice and Anaemia

	Phototheraphy	Exchange Transfusion	Top-up Transfusion
17 AGA	16	2	14
8 SGA	7	1	5

TABLE XIII

Other Complications

	NEC	IVH			Hypoglycaemia	Hypocalcaemia
		Gr.1	Gr.11	Gr.111		
17 AGA	3	1	2	1	3	7
6 SGA	0	1	0	0	3	1

Congenital Abnormalities

		Total	Sur-vived	Still-birth	Early N.N.D.	Late N.N.D.
Spina Bifida and Hydrocephalus	741.0	7	4	1	1	1
Spina Bifida	741	7	7	0	0	0
Congenital Hydrocephalus	742.3	2	1	0	0	1
Anencephalus	740	10	0	6	4	0
Encephalacoele and Microcephalus	742, 742.1	1	0	0	1	0
Microcephalus and CHD	742.1, 745	1	0	0	1	0
Hydromicrocephalus	742.1	1	0	1	0	0
Encephaloceole	742.08	1	1	0	0	0
Anencephalus and Spina Bifida	740, 740.1	1	0	1	0	0
Anencephalus and Exomphalus	740, 756.7	1	0	1	0	0
Anencephalus and Spina Bifida and CHD and Polycystic Kidneys	740, 741, 745, 753.1	1	0	0	1	0
Hydrocephalus and Spina Bifida and Diaphragmatic Hernia	742.3, 741, 756.6	1	0	0	1	0
Diaphramatic Hernia and CHD	756.6, 745	1	0	0	1	0
Diaphragmatic Hernia and Pulmonary Hypoplasia	756.6, 748.5	1	0	0	1	0
Diaphragmatic Hernia and Exompahlus	756.6, 756.7	1	0	1	0	0
Potters Syndrome	753	2	0	1	1	0
Polycystic Kidneys and Pul. Hypoplasia	753.1, 748.5	1	0	0	1	0
Edwards Syndrome	758.3	4	0	0	3	1
Pataus Syndrome	758.1	2	1	0	1	0
Pul. Hypoplasia and Laryngeal Atresia	748.5	1	0	0	1	0
Congenital Heart Disease	746	50	45	2*	3	0
Tracheo-Oesophageal Fistula	750.32	2	1	0	0	1
Genitalia	752	15	15	0	0	0
Hypospadias	752.6	9	9	0	0	0
Congenital Abnormalities of Urinary Tract	753	4	4	0	0	0
Umbilical Hernia	553.1	18	18	0	0	0
Congenital Anomalies of Respiratory Tract	748	1	1	0	0	0
Congenital Adrenal Hyperplasia	255.25	1	1	0	0	0
Congenital Eye Anomalies	743	6	6	0	0	0
Anomalies of Ear, Face, Neck	744	1	1	0	0	0
Cleft Palate and/or Cleft Lip	749	10	10	0	0	0
Pyloric Stenosis	750.5	8	8	0	0	0
Other G.I.T. Anomalies	751	9	9	0	0	0
Sternomastoid Tumour						
Congenital Dislocation of Hip	754.30	23	23	0	0	0
Unstable Hip	754.31	25	25	0	0	0
Varus Deformities of Feet	754.4	57	57	0	0	0
Valgus Deformities of Feet	754.6	20	20	0	0	0
Other Anomalies of Foot	754.7	4	4	0	0	0
Other Limb Abnormalities	755	7	7	0	0	0
Musculoskeletal Anomalies	756	5	5	0	0	0
Anomalies of Face and Bones	756.0	2	2	0	0	0
Anomalies of Spine	756.1	4	4	0	0	0
Anomalies of Skin, Hair and Nails	757	5	5	0	0	0
Cystic Fibrosis	277	2	2	0	0	0
Maple Syrup Urine Disease	270.31	—	—	—	—	—
Phenylketonuria	270.1	—	—	—	—	—
Down's Syndrome	758.0	16	16	0	0	0
Rubenstein Taybi Syndrome	759.84	1	1	0	0	0
Foetal Warfarin Syndrome		1	1	0	0	0
Pierre Robin Syndrome	756.03	1	1	0	0	0
Tongue, Mouth, Pharynx and Stomach	750	4	4	0	0	0
Congenital Hypothyroidism	243.99	2	2	0	0	0
Icthyosis	701.1	1	1	0	0	0
Hiatus Hernia	750.6	2	2	0	0	0
Kleinefelter Syndrome		1	1	0	0	0
Epidermolysis Bullosa		1	1	0	0	0

*Incidental finding in 2 stillborn infants.

Late Neonatal Deaths

It is gratifying to record a large drop in the number of late neonatal deaths, so that during 1981 there were only 4 cases. It has at times been suggested that intensive care in the neonatal unit merely transferred early neonatal deaths into late neonatal deaths and it is therefore important to note that this, in fact, was not evident during 1981.

(93) Para 4^{+0}. Age 33. Gestation 38 weeks. Birth weight 3.487 kilograms. Apgar Score: 5 and 7 at 1 and 5 minutes respectively. Vertex Delivery. Spina Bifida and Hydrocephalus. Transferred to Our Lady's Hospital, Crumlin on Day 6 and died later on Day 27.

(94) Para 5^{+I}. Age 34. Gestation 29 weeks. Birth weight 2.0 kilograms. Apgar score: 6 and 7 at 1 and 5 minutes respectively. Poor obstetrical history. Previous pregnancies: Rhesus Incompatibility. Ascites on ultra sound at 26 weeks and 28 weeks. Abnormal CTG. L/S Ratio 1.0. Dexamethasone was given. Delivered by L.S.C.S. Required full ventilation for hyaline membrane disease. He had a total of 6 exchange transfusions. He developed Pneumonia and later Pulmonary Interstitial Emphysema with Pneumothorax and required intercostal drainage. On account of PDA, he had mild cardiac failure. He had convulsive episodes on day 4 and was found to have low serum Calcium. Ultrasound scan showed evidence of Intraventricular Haemorrhage. On day 10 he developed resistantant Staphylococcal septicaemia. His condition gradually deteriorated. Died at the age of 24 days.

Autopsy: Purulent exudate in lungs, Intraventricular and Subarachnoid haemorrhage.

Bacteriology: Multi-resistant Staphylococcus aureus.

(95) Para 2^{+0}. Age 25 years. Gestation 43 weeks. Birth weight 4.310 kilograms. Apgar score 6 at one minute. Previous child: Spina Bifida had died. Admitted at 35 weeks and membranes rupture with craniotomy done to facilitate labour. The baby had gross Hydrocephalus and died at the age of 25 days.

(96) Para 0^{+0}. Age 18 years. Gestation 37 weeks. Birth weight 2.620 kilograms. Apgar score 1 at one and five minutes. Infant was resuscitated but marked inspiratory stridor persisted and baby developed early convulsions and apnoea requiring controlled ventilation. Treated with Dexamethasone anci Phenobarbitone. Mannitol. He had bilateral talipes. Later developed hypotonia. Gradually deteriorated. Died at 26 days of age.

Autopsy: Cerebral anoxic degenerative changes and focal pulmonary atelectasis and emphysema.

Paediatric Assessment Unit

The Assessment Unit is concerned with the aftercare of infants who are considered to be at risk because of adverse factors affecting fetal or neonatal wellbeing. Its aims are to assist each infant to achieve his full potential for growth and development, and to ensure that by early intervention the effects of handicaps are minimised. Infants are recalled to the Clinic at key developmental ages and are followed to 2 and, in some cases, to 3 years of age. At each visit, in addition to physical examination, assessment of growth, of behavioural development, of diet, and of haematologic status are carried out. Neurological assessment and assessment by the physiotherapist are carried out where indicated. Figures for 1981 are shown with the figures for 1980 in parenthesis:—

Number of patients attending	815 (958)
Total number of visits	1,292(1,394)
Additional visits for haematologic and dietetic assessment	43 (78)
Number of patients attending for physiotherapy	274 (276)
Referrals to other hospitals or units	224 (203)

Sixty-two patients attended for psychological assessment (Breech Study).

Examination of the figures for 1981 reveals the continuation of a trend which was apparent last year. Whereas the total number of infants seen during the year was less than in 1980, the total number of visits to the clinic was comparable, indicating that these infants were followed up more intensively. The necessity for this is evident from analysis of the birth weights which reflects the improved survival rate in low birth weight infants, particularly those under 1,500 grammes. A total of 106 of these small babies were seen in 1981, as opposed to 64 in 1980, an increase of 66%. The number of referrals is a reflection of the active management of potential handicap. It includes referral for specialist opinion in fields such as audiometry and opthalmology, psychology, neurology and neurosurgery as well as for E.E.G. and X-ray.

The following table illustrates the distribution of patients according to birth weight:—

<1.00 kilogram	=	6 (4)
1.01-1.50 kilograms	=	100 (62)
1.51-2.00 kilograms	=	94 (91)
2.01-2.50 kilograms	=	158 (165)
2.51 kilograms or over	=	452(623)
Not weighed	=	5 (13)

Low Birth Weight Infants

Improved perinatal care has been responsible for major changes in perinatal mortality over the past 10 years. In the Coombe Lying-in Hospital during this period the perinatal mortality rate for normally formed babies has fallen from 19.2 per 1,000 to 8.1 per 1,000, and the neonatal death rate has fallen from 6.2 per 1,000 to 1.2 per 1,000. At the same time, and in common with results published from other centres, the survival rate for low birth weight infants weighing 1,500 grammes or less has also shown considerable improvement. A recent study carried out in this hospital by Dr. Peter Gray,[1] compared survival rates over two four year periods from 1973 to 1976 and from 1977 to 1980. Examination of the 28 day survival rate by birth weight (lethal congenital anomalies excluded) showed a significant improvement in survival for infants under 1,500 grammes. The percentage surviving in the 1,251 to 1,500 grammes group improved from 64% to 82%; in the 1,001 to 1,250 grammes group from 41% to 63%, and in the 751 to 1,000 grammes group 14% to 40%, although of course in this latter group the total numbers were small. When analysed by gestational age significant differences were apparent at 26 to 27 weeks gestation, when survival increased from 8% to 35%, and at 30 to 31 weeks gestation when survival increased from 50% to 91%.

Because of the many variables comparisons of results from different centres are difficult. Most centres claim that the incidence of major and permanent handicap in these small infants has not shown any significant increase, thereby justifying the considerable efforts entailed in their survival. Preliminary results from Dr. Gray's study would support this view in that there was no significant difference in major handicap over the two four year periods. In our experience however, the incidence of temporary or minor morbidity is much increased when compared with morbidity incidence in full term infants.

In addition to the increased survival of appropriately grown preterm infants, we are also seeing an increasing survival of infants who have been severely growth retarded in utero. Prenatal monitoring with ultrasound, oestriol levels, cardiotocography, and recording of fetal movements has enabled the obstetrician to observe his patient more scientifically, and has provided the guidelines for earlier intervention. These infants do not form a homogeneous group; some are normal infants in whom the cause of retardation is external to the fetus, others are fetuses of inherent low growth potential, while others as indicated by a high incidence of minor anomalies, could be considered to be genetically unsound.

Whatever the combination of perinatal factors may have been, such small babies are an extremely vulnerable group and their special care does not end with discharge from hospital. While their life supportive requirements may be less intensive than in the early days, they continue to need supportive and corrective measures working always towards the establishment of normal patterns of growth and development. They require careful evaluation and distinction must be made between the effects of immaturity and the long term effects of interference with normal growth, and in particular of damaging effects on the growth of the central nervous system. In addition the complexity of perinatal care and the elaborate measures taken to sustain life carry with them their own special long term effects. Intubation, mechanical ventilation, exchange transfusion, maintenance of oxygenation and of alimentation, the control of infection, all carry special risks and require special vigilance with regard to respiratory function, visual and auditory function, neuromotor function and cognitive development. Psychological assessment is particularly important for these children as an indication of potential ability, and of readiness for formal education. Some of these

infants have an amazing capacity for rapid catch up both in growth and development so that by 3 to 4 years of age they are indistinguishable from their peers. Others continue to show immature but essentially normal growth and development patterns, while others show areas of specific disability. In each instance the approach to schooling and the advice to parents will be different.

Of the 106 infants of birth weight less than 1,500 grammes, ten had been born in 1977, nineteen in 1978, twenty-five in 1979, thirty-four in 1980 and eighteen in 1981. Forty infants weighed between 1,000 and 1,250 grammes, six infants weighed less than 1,000 grammes, one who is progressing well at 18 months, weighed 750 grammes at birth.

Mode of delivery was spontaneous vertex in 44, vertex with forceps in 9, breech delivery in 18 and Caesarean Section in 35. As might be expected the perinatal risks are high, including antepartum haemorrhage in 19, prolonged rupture of membranes in 11 and high incidence of fetal distress and birth asphyxia of varying degrees. The introduction of ultrasound examination late in 1981 enabled the diagnosis of intra-ventricular haemorrhage to be established in 4 infants. In *il* infants there was evidence of intra-uterine growth retardation as indicated by serial scans, falling oestriols, low birth weight in relation to gestational age, and dysmature appearance. Many of these cases were delivered by elective Caesarean Section.

Major handicaps are usually defined as conditions which adversely affect the child's ability to function normally in society, and include the cerebral palsies, mental retardation and serious sensory disabilities such as deafness and blindness.

In 23 infants morbidity was significant and long standing. The principle problems were—hydrocephalus in three, diplegia in eight, hemiplegia in one, quadriplegia in three, toxoplasmosis in one, meningitis in one, cardiac anomalies in two, tracheo-oesophageal fistula in one, diagnosis uncertain in three.

Minor handicaps are more difficult to define and may not become overt until later in life. Broadly speaking, they may be classified as deficits in motor co-ordination and in intelligence levels, as partial deafness or blindness, as learning difficulties and behavioural problems. In a review of results from studies concerning survival rates and long-term outcome, Anne L. Stewart[2] has looked at the incidence of these lesser handicaps. It is clear from her survey that the incidence of minor disabilities, while varying widely, is quite significant: e.g. between 16 to 25% of children in some studies had problems in school, and in many reports, the intelligence quotient tended to be below the expected range for normal birth weight children.

Almost all the infants in our group showed transient morbidity including neuromotor dysfunction and soft neurological signs. Five infants had recurrent respiratory problems consequent on prolonged ventilation. The incidence of hearing deficit was surprisingly low. There were only two cases of mild hearing loss, though many babies required re-testing because of uncertain responses. Delay in visuo-motor development was very common. In addition five infants snowed abnormal eye signs and two nystagmoid movements. No case of retrolental fibroplasia was seen during the year. All such infants now have a psychological assessment between 3 and 4 years of age and we hope to present more informative data regarding outcome to this stage in future reports.

Neuromotor Dysfunction

Two hundred and seventy-four infants received physiotherapy during the year, the total number of visits being six hundred and thirteen. With the

exception of a small number of miscellaneous conditions such as torticollis and metatarsus varus the majority attended for neurodevelopmental training. Neurodevelopmental training plays an important role in the management of neuromotor dysfunction. Working through the parents, the physiotherapist inhibits the emergence of abnormal postural reflex activity. Through positioning and exercising she works at all times towards the facilitation of normal patterns of movement. Timing of therapeutic measures is an important consideration because once abnormal patterns become established in the circuitry of the brain it is difficult to overcome them. From our experience of infants whose subsequent progress has been disappointing we think that the period up to 40 weeks developmental age is a critical one and the possibility of achieving good results after this time are not hopeful.

As always the fine line between success and failure is dependent on many factors including intercurrent infection and hospitalization and social factors. However, the single most important one is the quality of the parental care and in particular the mother/child relationship. Some mothers seem to relate well to their infants, to handle them sympathetically, and to stimulate them in a manner which becomes with guidance totally therapeutic. On the other hand, some mothers seem to lack these instinctive responses, they are awkward in handling and distant in emotional response and often they are only too ready to hand over the care of the infant to someone else. In such instances the odds are weighed against the chances of optimum recovery. A subsequent pregnancy causing the mother's attention to be divided is also very unfavourable, particularly if there is a fear that the problems of the first pregnancy may be repeated in this one.

Our special aim is to take measures to ensure that the morbidity encountered is dealt with as efficiently as possible and that the long term effects are minimised. Our function in the clinic is also a supportive and corrective one. Parents of infants who have been in special care have been through a stressful experience and the normal joy of a new baby has been marred by fear and uncertainty. This fear and uncertainty will continue to be a real factor until the parents feel confident that the infant is on an established course towards normality. However, human relationship is such that it is just this factor of confidence which is so important to the mother/child relationship. For this reason we deal with our parents in the most optimistic and encouraging manner possible. They are aware that their infants are at risk, but they also have tne reassurance which comes from knowing that measures are being taken to ensure a good outcome. If a good outcome is not possible, then there is the opportunity for a gradual coming to terms with the acceptance of disability and of something less than normalcy.

Recent advances in examination of the fetus by ultrasound scan have given a new dimension to the assessment of neuromotor dysfunction in the infant. Gesell originally defined developmental assessment as an assessment of the maturity of the central nervous system as judged by patterns of behaviour, the actions of the infant being built up in increasingly complex patterns. It is now evident that this process is not one which starts at birth, but is preceded by a similar build-up of patterns in intra-uterine life. These primary motor patterns which have been described by Milani-Comparetti[3] as the alphabet from which all subsequent movements are composed, are present as early as 20 weeks gestation.

The movement patterns of the fetus have been further delineated and described by Ianniruberto and Tajani[4] in the ultrasonagraphic study of fetal movements. The first movement patterns occur at six-seven weeks of gestational age as short vermicular movements of the embroyonic body, and they gradually increase in variety and complexity. For example at 1*-14 weeks gestational age creeping (reciprocal limb movements) and climb-

ing (symmetrical limb movement) are present, as are swallowing and early breathing movements. By 20 weeks, the basic patterns are present and the fetus has a range of movements which include rotation of the head and trunk, co-ordinated limb movements and fine movements of the fingers, foot, eyelids and mouth. Subsequent motor development appears to be an integrated process utilising these basic motor patterns to form more complex movement patterns which are functionally meaningful and which organise competence in the fetus.

In his interpretation of fetal motor behaviour, Milani-Comparetti[3] asserts that these primary motor patterns have to be considered genetically determined intrinsic properties of the central nervous system. As such, they are kenetic modules wnich can in turn be built up or integrated into primary automatisms which have a functional effect, i.e. fetal postural control, fetal locomotion, and fetal breathing and swallowing movements. The functional effect of fetal locomotion ana propulsion is to enable the fetus to move around in utero and to collaborate in the labour process. Other primary automatisms seen in the fetus belong to the development of extrauterine competencies such as postural control and breathing movements and response to auditory and visual stimuli. These workers have shown that stressful events in pregnancy and labour will affect the orderly sequence of events and interfere with the functional effects. Even more significantly they assert that periods of stress in the fetus may be followed by a regression to earlier patterns, and that this is evidence of central nervous system damage. Deeper study of these ideas will undoubtedly lead us to a greater understanding of developmental processes and of the way in which disorder of the fetal nervous system is reflected in disordered function both during and after birth.

Neonatal Seizures

A total of 46 infants had neonatal seizures, either convulsions or twitching in association with cerebral signs. Two were born in 1977, five in 1978, eleven in 1979, sixteen in 1980 and twelve in 1981. Thirty of these were term or post term infants, and there were sixteen large infants above 3.6 kilograms. Maternal height was available for 44 cases, twenty-six were 5 *2"* or less. Three mothers were 4'8", one 4'9", three 4'10" and three 4'11". The combination of small stature, large baby and post maturity are particularly hazardous and some of the most severely affected infants fell into this category. Infants who have had seizures are particularly at risk and show areas of developmental delay and specific disability. Seven required long term management and many will have special educational needs.

Neonatal Meningitis

Fifteen infants with a history of neonatal meningitis were seen. Two were born in 1978, four in 1979, seven in 1980 and two in 1981. There is a wide scatter of developmental attainment in this group and three require long term management.

A total of 11 cases were referred for long term management during 1981, one to St. John of God's Clinic and ten to the Central Remedial Clinic. A brief history of these cases is given here. We would like to take this opportunity of thanking Dr. Barry and his team for their co-operation and frequent reports.

B.7028/M/80. Para 1^{+1}. Age 28. Height 5'2" Paternal height 6'0" Gestation 27 weeks. Birth weight 1.08 kilograms. Two antenatal visits at 21 and 24 weeks gestation. P.V. bleeding and mild contractions at 27 weeks. Treated for vaginal discharge. Two days later spontaneous breech delivery. Cord had prolapsed. Intubated. Full ventilation and arterial line. Initial Astrup showed mixed respiratory and meatbolic acidosis with pH 7.079. Repeat Astrup 7.248. Septic work-up. Post-natal course complicated by hyaline membrane disease, pulmonary

atelectasis, persistent patent ductus arteriosis and hypoglycaemia. Discharged from special care unit at 11 weeks and followed in baby clinic to 16 weeks. Attended assessment clinic from 26 weeks, having cancelled three appointments. Irregular pattern of development with delay in upper limb function and slow visuo-motor development. Maternal attitude noted—mother tended not to stay with baby during the assessment. Referred for neuro-developmental training—seen once and then did not attend for 4 months. Ophthalmologist reported "small anterior polar lens opacities in both eyes, but otherwise eyes are healthy". Attended assessment clinic at 44 weeks, having cancelled three appointments. He continued to show variable signs of neuromotor dysfunction and developmental delay, including a persistent Moro response. By one year of age, because of persisting signs of weakness on the left side and a tendency to adduct the lower limbs it was thought that permanent signs were developing and he was referred to the Central Remedial Clinic. By 15 months of age, he had not yet attended the Central Remedial Clinic. Developmental attainment was irregular around 36 to 40 week level. However, mother was beginning to come to terms with the problem. By 19 months he was showing definite improvement with attainment around 48 week level. He sits, though balance is not yet complete, he pulls to stand and has a walking pattern. He manipulates objects and finger feeds. Mother works with him a great deal. Growth which had been very slow initially is now at the 3rd centile for height, 25th centile for weight and the 50th centile for head circumference. Behaviour patterns are variable. Normally alert and sociable, when crossed he shows aggressive and destructive behaviour.

This case is reported in some detail to illustrate the problems involved and the importance of maternal attitude in the management of these infants. This mother, though social class 1, personable and talkative, appeared disorganised and lacking in maternal intuition. Further to that she was pregnant again, and her parents were reported to be ill. However, it was difficult not to suspect some element of parental rejection. While there are now more grounds for optimism the outcome here is still in balance, and he may yet show signs of permanent though mild diplegia.

B.6373/M/80. Para 1^{+1}. Age 23. Height 5'1". Paternal height 5'2". Gestation 27 weeks. Birth weight 1.27 kilograms. Family history of diabetes and hypertension. Viral meningitis in 1976, and U.T.I, in previous pregnancy. Admitted at 14 weeks gestation with threatened abortion and further admission with P.V. bleeding. Spontaneous rupture of membranes at 22 weeks. Remained in hospital until she went into spontaneous labour at 27 weeks. Difficult breech delivery. Apgar score 1 at 1 minute, 5 at 5 minutes. Intubated. Initial pH 6.993, with mixed metabolic and respiratory acidosis. Full ventilation and septic work-up. The post natal course was complicated oy severe R.D.S. requiring prolonged ventilation and numerous pneumothoraces. Myoclonic jerks on day 16 and generalised convulsions on day 20. He was discharged at 3 months of age and attended the assessment clinic from 27 weeks. Immature pattern of development around 12-16 week level with evidence of neuromotor dysfunction including increased tone upper and lower limbs, more marked on the right side. Primitive responses were present ana marked. Initial response to neuro-developmental training was hopeful but at 9 months of age he showed difficulty in co-ordinating movements and was queried as athetosis. Referred to Central Remedial Clinic and now attending there. Provisional diagnosis—right hemiplegia. A problem pregnancy from 14 weeks but the history of convulsions would appear to be the important etiological factor in this child's permanent brain damage. Repeated respiratory infection associated with bronchopulmonary dysplasia have also been a negative factor. When last seen at 18 months of age, motor development was very delayed and he was not yet sitting steady. However, speech and comprehension were at age. Growth was less than the 3rd centile for height and weight with head circumference on the 50th centile.

B.136/M/80. Para 0^{+0}. Age 23. Height 5'5" Paternal height 6'0". Gestation 32 weeks. Birth weight 1.93 Kilograms. Admitted in early pregnancy with possibility of miscarriage, but settled. Scanned, 16 weeks by scan—18 weeks by dates. Urinary tract infection treated with Septrin. Admitted in labour. S.V.D. at 32 weeks. Apgars 6 at one and 8 at five minutes. Problems in the post natal period included moderate to severe respiratory distress syndrome, requiring oxygen and C.P.A.P., hyperbilirubinaemia and hypocalcaemia. Weaned into room air at 3 days and started on oral feeds. Very rapid-increase in both head and body growth during first 20 weeks postnatally. Attended the assessment clinic from 19 weeks. Mild signs of neuromotor dysfunction which could have been consistent with prematurity. Initial progress good and he received extensive neurodevelopmental training. However, by 1 year of age he was showing signs suggestive of a mild diplegia and was referred to the Central Remedial Clinic. At 2 years and 2 months the diagnosis was that of diplegia. Upper limb function good. This baby's problems date from early fetal life. He illustrates the need for careful surveillance as no definite signs were present until 12 months. Heavy child and as mother was pregnant again she had difficulty in getting around with him. Head circumference increased from below 3rd centile level at birth to above the 97th centile at 19 weeks. Investigations for possible hydrocephalus negative

B.7505/M/79. Para 4^{+0}. Age 30. Height 4'11". Paternal height 5'6". Gestation 40 weeks. Birth weight 3.8 kilograms. Booked at 10 weeks. Pregnancy uncomplicated. Spontaneous onset of labour, liquor initially clear but became meconium stained. Duration of labour 20

hours. S.V.D. Flat. Apgar 6 at one minute, 9 at five minutes. Responded to bagging and oxygen. Large baby, height, weight and head circumference on 90th centiles. Head moulding. No meconium aspiration. Noted to have mild cerebral signs on admission to unit. Twenty-four hours after admission the baby had two seizures and at 48 hours 2 cyanotic attacks. Lumbar puncture revealed 10,000 red cells, almost all crenated, subdural taps were negative. Baby continued to have twitching episodes up to day 4. E.E.G. tracing at 2 weeks of age—no significant abnormality. Mild signs of neuromotor dysfunction at 6 week check and at assessment at 19 weeks. Physiotherapy initiated early and he responded well to neurodevelopmental training, and was walking with one hand held at one year of age. However, because of slight signs of weakness on the right side he was referred to the Central Remedial Clinic. Considered to have a mild right hemiplegia. At 28 months there were mild but definite residual signs. More importantly however, there are early signs of perceptual problems and the Psychological assessment at 4 years will be important. Growth patterns have reflected his History, with growth in the upper centiles at birth, but not sustained. Head growth fell from 90th centile to the 25th centile up to 21 months, but is now rising again to the 75th centile. In this case the hypothesis is one of an infant of high growth potential being carried by a small mother. Maternal environment adequate to sustain high fetal growth rate until latter end of Pregnancy. Probable low grade hypoxia prepartum and intrapartum resulting in cerebral Haemorrhage, and central nervous system damage. Good efforts at compensation.

B.6680/M/80. Para 1^{+2}. Age 28. Height 5'H". Paternal height 6'H". Gestation 38 Weeks (dates), 36 weeks (Dubowitz). Birth weight 2.07 kilograms. Maternal B.P. 160/100 at 9 weeks gestation. Very overweight and admitted to hospital for reducing diet. Family history of hypertension. Two previous first trimester abortions. Prenatal monitoring indicated a very active infant. Elective section at 38 weeks by dates. Apgar score 5 at one minute, 10 at five minutes. Apart from one low blood sugar arid some jitteriness post natal course uneventful. No neurological signs noted at the six week check, but weight gain slow. Assessment clinic follow up from 19 weeks. Noted tense with shrill cry and very hypertonic when stressed. Rapid growth in head circumference since birth, but body growth poor. Deteriorated by 28 week visit with increased tone and strange pattern of flexion and persistent Moro. He continued to have variable signs involving all four limbs, but more marked on the left. Referred to Central Remedial Clinic at 8 months for evaluation. Also continued to attend the assessment clinic. At 18 months of age alert but very apprehensive with a shrill cry. General developmental attainment irregular around 15 month level. Walked at 16 months. Chewing and swallowing movements stilfunco-ordinated and speech is delayed. This little boy had intensive physiotherapy and advice and surveillance from the dietitian, and mother was a very good attender. Growth shows a rising pattern with height on the 50th centile, weight 10th centile and head circumference 75th centile. There seems no doubt that this infant's problems stem from his intrauterine experience, and that there was marked interference with his fetal growth generally and fetal brain in particular, showing in the subsequent disorganised patterns of growth and development. It is likely that this infant was of hign growth potential, but unable to achieve full potential in utero because of the adverse conditions imposed by the maternal environment.

B.1881/F/79. Para l^{+0}. Age 26. Height 5'4". Paternal height 5'10". Gestation 31 weeks. Birth weight 31bs. 3ozs. Post pill conception. Two small P.V. bleeds. Prolonged rupture of membranes (two weeks). S.V.D. Apgar 9 at one minute, 9 at five minutes. Post natal period complicated by hypoglycaemia, apnoeic attacks and prolonged jaundice. Attended assessment clinic from 21 weeks. Initial development slow and baby noted to be not very exploratory. Received neurodevelopmental training. Sitting by one year but not crawling or pulling to sit. At 18 months, crawling, pulling to stand and moving sideways. Considered to have normal reaction in standing. Not seen for 10 months, by which time, she was walking with diplegic gait and standing balance was poor. Referred to Central Remedial Clinic. At 30 months, some improvement in gait. Spread in developmental attainment, but speech and early cognitive development satisfactory. Late appearance of diplegia illustrates importance of follow through on all low birth weight infants until normal walking is established.

B.2978/M/79. Para 3^{+0}. Age 29. Height 5'5". Paternal height 5'9". Gestation 35 weeks. Birth Weight: 2.48 kgs. Booked at 33 weeks. Spontaneous onset of labour at 35 weeks. Sudden APH at full dilatation. Forceps delivery. Infant pale and shocked. B.P. 45 mms. Mild R.D.S. Prolonged jaundice. Attended assessment clinic from 14 weeks. Continuing evidence of neuromotor dysfunction with poor head control and hypotonia. Parents good attenders, but difficult to get co-operation for neurodevelopmental training. Finally arranged for physiotherapy in home town, Longford. By 15 months, improving pattern but signs of mild left hemiplegia. Strabismus. Investigations for thyroid function because of odd facies and coarse features were normal. E.E.G. normal. Because of difficulties regarding physiotherapy referred to Central Remedial Clinic at 2 years. Reported to have left hemiplegic gait, left hand function reasonable. At 30 months he is making good progress, speech has improved and he is using phrases. This case highlights some of the problems associated with living a distance from the **hospital.**

B.5129/M/79. Para 0^{+0}. Age 28. Height 4'9". Paternal height 5'9". Gestation 41 weeks by dates. Birth weight 2.04 kilograms. Booked at 10 weeks gestation, regular attender. Scan at Term +6 days revealed B.P.D. of 34-35 weeks gestation. Forceps delivery because of fetal bradycardia during second stage of labour at term +11 days. Tight nuchal cord. Placenta healthy. Apgar score 10 at one minute, 10 at five minutes. Asymptomatic hypoglycaemia and jaundice. Discharged at three weeks. Assessment clinic from 24 weeks. Short obese infant with slightly odd facies and numerous dysmorphic features. Broad nose and broad hands with short pointed fingers and unusual digital creases over the distal and middle phalanges. Skull X Ray and EEG N.A.D. Moderate developmental delay particularly locomotion. Referred to Central Remedial Clinic. Queried as diastomatomyelia.

B.7197/M/79. Para 0^{+0}. Age 18. Height 4'9". Paternal height 5'10". Gestation 42 weeks. Birth Weight 3.033 kilograms. No problems during pregnancy apart from mild proteinurea. Admitted at $T^{+}18$ with contractions. No progress. Two days later labour ensued. A.R.M. to accelerate revealed meconium stained liquor. F.T.A. and type 1 dips. Caesarean Section at $T^{+}20$ following 12 hours membrane rupture. Apgar score 3 at one minute, 6 at five minutes. Intubated. Spontaneous respirations at 7 minutes. Male infant, pale with meconium staining and peeling of skin. Growth parameters at birth, weight 25th centile, length 80th centile, head corcumference 90th centile. Cerebral signs during post natal period with twitching at 2 hours, apnoeic attacks at 6 hours and twitching on day 3. Ventilated. Discharged well on day 12. On further follow up in the baby clinic progress appeared to be satisfactory and no neurological abnormalities were noted. However, head growth was slowing, falling from the 90th centile at birth to the 25th centile at 5 weeks. Attended assessment clinic from 22 weeks, by which time, head circumference was below the 3rd centile. At 5| months, X-ray of skull was reported as microcephaly. There was no evidence of cranial stenosis. EEG reported no significant abnormality present. He received intensive neurodevelopmental training. Marvellous little mother. Delay in both motor and mental development. Showed some unusual patterns, however, not spastic. Referred at 20 months of age to Central Remedial Clinic for long term follow up. Despite absent protective responses he developed a walking pattern at 18 months and was walking independently at 22 months. At 3 years of age, though running around freely, he was just learning to pull to stand. He is sociable, comprehends simple commands, and has some simple sentences. However, intellectual activity is very limited. The fact that this child is performing in a socially acceptable way is due to the tireless efforts of his mother. In other circumstances he might have oeen an extremely handicapped institutionalized child. The problem here was again that of a small mother carrying a fyaby of high growth potential. The hypothesis is that the maternal environment was unable to sustain the infant's growth towards the end of pregancy with probable low grade hypoxia resulting in a disadvantaged infant unable to initiate labour. Problems compounded by gross post-maturity and loss of tissue fluids, and irreversable central nervous system damage.

B.6970/F/78. Para 2^{+0}. Age 28. Height 5'2". Paternal height 5'4". Gestation 36 weeks. Birth weight 3.655 kilograms. S. V.D. Neonatal meningitis with seizures developing at 4 days of age. No organism isolated. Mother gave history of offensive vaginal discharge and leaking of liquor for two days. E.E.G. at three weeks of age reported presence of an asymmetry with rather more slow activity on the right, there may be some right sided discharges present also. Developed hydrocephalus secondary to meningitis. Referred to OLHC. Treated with Isosorbide. Attended assessment clinic from 51 weeks. Received neurodevelopmental training. At 2 years, walking with one hand held, unsteady and on broad base. Behaviour problems, very apprehensive. Referred to Central Remedial Clinic for long term follow up. Walking becoming more stable, hearing and speech are reported as normal.

B.8284/F/79. Para 1^{+1}. Age 33. Height 5'1". Paternal height 5'1". Gestation term. Birth weight 3.51 kilograms. Normal pregnancy up to T-ll when blood pressure noted to be 150/105. Induction deferred because of high head. A.R.M. for acceleration. Thick meconium and type II dips. Vertex delivery after 4 hours of membrane rupture. Apgar scores 9 and 10. Large head with head circumference at 97th centile. Meconium aspiration, respiratory distress, pneumothorax. At 12 hours of age jitteriness and cerebral irritability. At z*2* hours, seizure activity of all limbs. Further seizures, lethargy and hypo tonicity. EEG—normal. Progress to 9 weeks of age satisfactory apart from diminished head control. Assessment clinic from 17 weeks. Abnormal eye signs, persistent Moro. Hypotonia initially followed by hypertonia. Received extensive physiotherapy. Very slow and unresponsive. At one year rolling but not sitting or standing. Beginning to take weight on legs at 15 months. Left convergent squint with lateral nystagmus. Referred to John of God unit for long term management. At 28 months functioning around 18 month level. Now attending nursery unit in Tallaght and making good progress. The problem here was again one of maternal age and small stature, and an iniant of moderate size but large head. Probable fetal disadvantage before labour contributing to failure to fix head. Overt signs of fetal distress followed by meconium aspiration. Earlier delivery would have been advisable. It could be postulated that the maternal constraint on fetal head growth was not adequate.

The high incidence of mothers of small stature attending the clinic was referred to in last year's report. This year there were 153 mothers of 5' or less in height, 34 of these were 4'10" or less. Mothers of 5'2" or less comprised 46% of the total number of mothers attending during the year. Some are mothers of low birth weight infants, but major problems usually arise with the larger infants, particularly at or after term. This is apparent from ongoing analysis of factors associated with cerebral dysfunction and seizures, and is well illustrated in some of the case histories given here.

Clinical Research

In the field of clinical research we continue to study growth patterns and to relate them to developmental patterns. As described in previous reports the norms for these studies are derived from the data gathered during the course of the Coombe Hospital—Medical Research Council study into the effects of iron deficiency in the mother on the subsequent growth and development of the child". The importance of this lies in the fact that these norms are directly relevant to our hospital population. In addition, they have been reinforced by control data from more recent studies. However, they relate only to the term infants, and we have no data available for the preterm or the in-appropriately grown infant. For some years we have examined the suitability of other growth charts available, in particular those of Lubchenco *et al*, and of Usher and McClean. More recently, we have used those of Douglas and Gairdner, but in each case we have found them at variance with observed growth patterns.

Hitherto low birth weight babies have been divided into two groups, those whose weight is appropriate for gestational age, the A.G.A. group, and secondly those whose weight is inappropriate or small for gestational age, the S.G.A. group. However, based on our experience, we consider that these groupings are now inadequate, and that an effort must be made to examine the difference between infants more closely. Fundamental to that is the consideration not alone of weight but of other growth parameters particularly length and head circumference. For these reasons we are studying growth and growth patterns in low birth weight and poorly grown infants with a view of grouping them under the following headings:—

(1) The appropriately grown infant who is small because of premature delivery.

(2) The small for gestational age infant—that is the infant of normal or high growth potential who is unable to achieve full potential for growth in utero, but who shows a catch up in post-natal life.

(3) The growth retarded infant—the infant of low growth potential who shows slow growth and delayed patterns of maturation in pre-natal and in post-natal life.

(4) The disproportionately grown infant—for example the infant who shows poor head growth in relation to body size, or poor weight gain in relation to body length.

Breech Study

The breech project under Dr. Anne Keane is progressing well, and we are grateful to the Coombe Hospital Research Fund for their continuing support. The study is a prospective and longitudinal one, and comprehensive in that it includes all infants presenting as a breech at term, born in this hospital over a period of 9 months. Growth studies and psychological assessment are now being carried out on all the children, both study and control, as they reach 4 years of age. The psychological assessments are under the direction of Dr. Paul McCarthy, M.R.C. Psych. and Mr. John

Connolly, B.A., M.Psych, of the Irish Foundation for Human Development, and we thank them for their interest and co-operation. Also with their assistance the completed data from the study are being entered on data sheets for computer analysis.

A paper entitled "A relationship between fetal growth patterns and morbidity in the infant" was presented to the Irish Association for Child Psychology and Psychiatry in February 1981.

We would like to record grateful appreciation to our secretary, Miss Bernadette Thompson, nurse, Mrs. Terry Ryan, dietitian, Mrs. Yvonne Walsh and haematology technologist, Mrs. Mary McKeown. In particular we thank Mrs. Joy Coote and the other members of the Physiotherapy Department.

References:

1. Gray P. Improved Survival of Very Low Birth Weight Babies Following the Introduction of Intensive Care. Irish Perinatal Society Meeting. September 1981. (unpublished).
2. Stewart Ann L. The Survival of Low Birth Weight Infants. Brit. J. Hosp. Med. September 1977.
3. Milani Comparetti A. The Neurophysiological and Clinical Implications of Studies of Fetal Motor Behaviour. Seminars in Perinatology, Vol. 5, No. 2 (April), 1981.
4. Ianniruberto A. and Tajani E. Ultrasonographic Study of Fetal Movements. Seminars in Perinatology, Vol. 5, No. 2 (April), 1981.

Deliveries less than 28 weeks weighing 500 grams and over

Number of infants	24
Incidence per cent	3.0
Dead born	2
Live born	22
Survived	6

Comment: The number of patients who delivered infants weighing over 500 grams before 28 weeks' gestation was greater than that recorded in 1980. Six of the 22 live born infants survived and the number of survivors is similar to that recorded in 1980. A perusal of the case summaries listed below reveals that survival appeared to be more related to birth weight than to actual gestation ana these very premature infants continue to demand a considerable amount of paediatric care.

Dead Born

B.27612. Para 2^{+0}. Age 30. Gestation 22 weeks. Booked at 12 weeks gestation. Hydramnios. Admitted in premature labour at 22 weeks and delivered dead born fetus weighing 794 grams with multiple abnormalities.

B.40480. Para 1^{+0}. Age 27. Gestation 26 weeks. Booked at 14 weeks. Normal antenatal course. I.U.D. at 26 weeks gestation. PGE induction and spontaneous delivery of macerated dead born fetus weighing 73/ grams. No cause for I.U.D. noted.

Live Born Died

N.B.57550. Para 3^{+1}. Age 32. Gestation 24 weeks. This patient was transferred from a country hospital at 24 weeks gestation with obstruction secondary to an apjpendix abscess. She went into premature labour the day following admission and delivered a live born infant weighing 6*7 grams which died shortly after birth.

Post-mortem: Pulmonary atelectasis.

B.46717. Para 1^{+0}. Age 27. Gestation 24 weeks. Booked at 23 weeks gestation. Emergency addmision at 24 weeks following vaginal bleeding. Breech delivery of male infant weighing 920 grams, which died shortly after birth.

B.45086. Gestation 23 weeks. Para 1^{+1}. Booked at 14 weeks gestation. Admitted with vaginal bleeding at 23 weeks. Spontaneous delivery of live born male infant weighing 900 grams which died within 24 hours.

B.45260. Para 1^{+0}. Age 28. Gestation 23 weeks. Emergency admission at 18 weeks gestation with vaginal bleeding. Premature rupture of membranes a few days following admission and continued to drain liquor thereafter. Spontaneous labour and breech delivery at 23 weeks gestation of live female infant weighing 650 grams which died after a few hours.

B.41661. Para 1^{+0}. Age 32. Gestation 24 weeks. Booked at 10 weeks gestation. Combined antenatal care. Emergency admission at 24 weeks in premature labour. Spontaneous delivery of live born infant weighing 650 grams which died after a few minutes.

B.53910. Para 1^{+0}. Age 20. Gestation 25 weeks. Admitted at 24 weeks gestation with vaginal bleeding. Spontaneous delivery one week later of live male infant weighing 800 grams which died within a few hours.

B.216. Para 2^{+6}. Age 34. Gestation 26 weeks. Booked at 8 weeks gestation. Admitted at 24 weeks with R.I.U.G. Subsequent recurrent vaginal bleeding and premature labour at 26 weeks. Breech delivery of male infant weighing 844 grams which died after 2 hours.

B.58615. Para 0^{+0}. Age 23. S.E.I. Gestation 24 weeks. Booked at 13 weeks gestation when multiple pregnancy diagnosed by scan. Normal antenatal care until admitted in premature labour at 24 weeks gestation. Spontaneous delivery of twin infants weighing 510 and 490 grams. Both died shortly after birth.

Post-mortem: Refused.

B.57898. Para 0^{+0}. Age 22. Gestation 25 weeks. Non-smoker. Unsure of dates. Booked at 14 weeks by scan. Admitted at 23 weeks with vaginal bleeding. S.R.O.M. at 25 weeks and had a normal delivery of female infant weighing 850 grams. Apgar score 8 at 1 and 5 minutes. N.N.D.7hours.

Post-mortem: (i) Cerebral haemorrhage, intraventricular; (ii) Pulmonary immaturity and mild hyaline membrane disease.

B.30823. Para 3^{+0}. Age 28. S.E.4 Gestation 26 weeks. Booked at 12 weeks. M.T.B. at 20 weeks. Four bleeds. Spontaneous vaginal delivery of male weighing 730 grams born with Apgar scores of 4 and 3. N. N. D. 2 hours.

Post-mortem: Pulmonary atelectasis and immaturity.

B.36361. Para 1^{+0}. Age 33. S.E.3 Gestation 26 weeks. Unsure of dates. Booked at 23 weeks by scan. Admitted at 26 weeks with S.R.O.M. Spontaneous labour 3 days later. Assisted breech delivery of live male infant weighing 960 grams. N.N.D. 3 days.

Post-mortem: (i) Cerebral, intraventricular haemorrhage; (ii) Pulmonary immaturity.

B.58784. Para 1^{+1}. Age 21. S.E.4. Gestation 25 weeks. Booked at 14 weeks. Admitted at 19 weeks with threatened miscarriage. Bleeding settled and discharged after 2 weeks. Re-admitted 8 days later with lower abdominal pain, no bleeding. Pain settled and discharged after 5 days. Re-admitted at 23 weeks with slight p.v. bleeding. Ultrasound scan, normal fetus equivalent to dates. Posterior wall placenta. Aborted at 25 weeks. Birth weight 890 grams. N.N.D. 6 days.

Post-mortem: (i) Pulmonary atelectasis and haemorrhage; (ii) Duodenal infarction; (iii) Bilateral intraventricular haemorrhage.

B.31108. Para 3^{+0}. Age 25. S.E.4. Gestation 24 weeks. Booked at 12 weeks. Threatened abortion at 14 weeks. Admitted for one week. Re-admitted at 18 weeks bleeding for 2 weeks. At 24 weeks bleeding, with S.R.O.M. Four days later spontaneous breech male infant weighing 640 grams, Apgar scores 1 and 1. N.N.D. 10 minutes.

B.58368. Para 0^{+0}. Age 21. S.E.2. Gestation 24 weeks. Booked at 12 weeks. Four normal antenatal clinic visits. Admitted at 24 weeks with mid trimester bleeding. Two days later S.R.O.M. Spontaneous breech delivery of female weighing 530 grams, born with Apgar scores of land 3. N.N.D. 24 hours.

N.B.49073. Para 1^{+0}. Age 23. S.E.3. Gestation 25 weeks. No antenatal care. Admitted in labour at 25 weeks. Delivered twins—twin I weighed 454 grams, twin II weighed 595 grams, both females. Early N.N.D.

Post-mortem: Pulmonary atelectasis and immaturity.

B.57898. Para 1^{+0}. Age 23. S.E. (Innupta). Gestation 25 weeks. Previous pregnancy ended in delivery of live female at 24 weeks following haemorrhage. N.N.D. 7 days. Present pregnancy booked at 18 weeks gestation. Admitted contracting at 25 weeks. Cervix effaced, 3 cm. dilated. Delivered live male weighing 680 grams. N.N.D. 5 days.

Post-mortem: (i) Intraventricular cerebral haemorrhage; (ii) Pulmonary immaturity and mild hyaline membrane disease.

Live Born—Survived

B.59957. Para 0^{+0}. Age 25. Gestation 27 weeks. Booked at 14 weeks gestation. Emergency admission at 27 weeks gestation following vaginal haemorrhage. Forceps delivery of live male infant weighing 1.09 kilograms. Survived.

N.B.61298. Para 5^{+1}. Age 32. Referred from country hospital at 26 weeks gestation with mid trimester bleeding. Subsequently went into premature labour one week later and spontaneous delivery of live female infant weighing 992 grams, born with Apgar scores of 4 and 8. The baby survived but is still in the neonatal unit at the age of 3 months.

B.44438. Para 1^{+2}. Age 40. Gestation 27 weeks. Booked at 8 weeks gestation. Shirodkar suture inserted. Admitted with premature rupture of membranes at z6 weeks gestation. Spontaneous delivery one week later of live male infant weighing 860 grams which survived.

B.44718. Para 1^{+1}. Age 26. Gestation 27 weeks. Booked at 9 weeks gestation. Several admissions to hospital with first and second trimester bleeding. Eventually went into premature labour at 27 weeks and assisted breech delivery of live born female infant weighing 1.1 kilograms. Survived.

N.B.60474. Para 11^{+2}. Age 47. Gestation 27 weeks. Admitted via Flying Squad at 27 weeks gestation with recurrent mid trimester bleeding. Premature labour and spontaneous delivery following prolapsed cord of male infant weighing 1,077 grams, born with Apgar scores of 1 and 6. During the neonatal period the baby developed hyaline membrane disease, hypocalcaemia, hypoglycaemia, jaundice which required two exchange transfusions, and a right sided I.V.H. together with prolonged pulmonary problems. Eventually the baby recovered but unfortunately was subsequently noted to be a Klinefelter's Syndrome. The baby was discharged at 3^ months of age.

B.55854. Para l^{+0}. Age 20. Gestation 27 weeks. Booked at 19 weeks gestation. Emergency admission at 27 weeks with vaginal haemorrhage. Spontaneous delivery of live born male infant weighing 1.19 kilograms. Survived.

Maternal Death

Number of cases	1
Maternal mortality rate	0.12/1,000

There was 1 maternal death during 1981 which was due to a non-obstetric factor. The patient, a 34 year old mother of three, attended the hospital once at 12 weeks gestation and was booked under combined antenatal care. Subsequently she died at 25 weeks gestation as a result of traumatic injuries to the nead which, apparently, were not accidental. Full details of the case are not however available at the present time.

Cardiac Department

Number of cases	16
Incidence per cent	0.22
Perinatal deaths	Nil

Sixteen patients were seen during 1981 with current heart disease or with a previous nistory of heart disease. There was no maternal or fetal mortality. No case of coronary heart disease was encountered and only three patients presented with mild rheumatic heart disease. The three patients classified as having mild aortic stenosis may have had bicuspid valves or normal hearts.

Among the eight patients who had previous heart surgery six had operations for congenital lesions and are now without residuafevidence of heart disease. One patient had had a successful mitral valvotomy and the eighth patient had combined aortic and mitral valve replacement. This patient successfully reached full term and had a normal baby. She was also seen by Dr. Sean Blake of The National Maternity Hospital who, by arrangement with the three maternity hospitals, supervises the anticoagulant control of patients with prosthetic valves during pregnancy. I am most grateful to Dr. Blake for his assistance in this case.

The 16 patients were divided into the following diagnostic categories:

Heart Block	2
Mild aortic incompetence	3
Mild mitral valve disease	2
Mild aortic stenosis	3
Pure mitral stenosis (successful valvotomy)	1
Mitral and aortic valve replacemant	1
Patent ductus arteriosis (successful ligation)	2
Atrial septal defect (successful closure)	3
Pulmonary stenosis (successful valvotomy)	1

I also wish to express thanks to Miss Rita Murphy, SRN, Sister in charge of the out-patient department, for her assistance during the year.

COMPARATIVE TABLE FOR 10 YEARS

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of cases	31	27	36	36	30	18	16	15	16	16
Incidence %	0.4	0.3	0.4	0.4	0.4	0.25	0.21	0.19	0.19	0.22
Perinatal deaths	2	1	Nil	Nil	1	Nil	Nil	Nil	Nil	Nil
Mortality Rate	62.5	37.0	Nil	Nil	33	Nil	Nil	Nil	Nil	Nil

Latent Diabetes Mellitus

Number of cases	107	
Incidence per cent	1.5	
Number of babies delivered	109	
Stillbirth	1	
Neonatal deaths	2	
Perinatal deaths	3	Rate: 27/1,000

Comment: The detection of latent diabetes in pregnancy continued at the same rate as in other years. The patients attend the diabetic clinic for management during pregnancy and are induced at term if suitable. There were 3 perinatal deaths: the one stillbirth (35) was admitted two days past term for planned induction but the fetal heart was not heard on admission to hospital; the neonatal deaths were due to intraventricular haemorrhage following premature labour at 29 weeks (65) and a congenital cardiac lesion (80).

PERINATAL DEATHS

Normal Infants

(35) B.59152. Para 0^{+0}. Age 27. S.E.2. Gestation 40 weeks. Booked at 15 weeks gestation, glycosuria + 1. Second fasting specimen requested for next visit 4 weeks later. No glycosuria detected on this specimen. Trace of glucose at 23 and 31 weeks. At 33 weeks + 2 glycosuria in a non-fasting specimen. At 38 weeks extensive pregnancy urticaria, treated with anti-histamines. No glycosuria at 38 or 39 weeks. G.T.T. at 40 weeks 4.7; 9.6; 8.4; 5.3. Admitted for induction at 40^{+2}. No F.H. Prostaglandin induction. Clear liquor. Spontaneous delivery of male stillborn infant weighing 3.20 kilograms.

Posf-mortem.Tntra-uterine anoxia

(65) B.4369. Para 3^{+0}. Age 27. S.E.4. Gestation 29 weeks. Latent diabetes 1972 first pregnancy. Smoked 40 cigs/daily. Booked late at 21 weeks. Admitted with pneumonia at 29 weeks. Premature labour and delivery on day of admission, male alive weighing 1.37 kilograms, Apgar scores 8 and 10. The baby was admitted to the Unit and was initially nursed in an oxygen hood. He was commenced on C.P.A.P. at 2 hours and also antibiotics. Chest X-ray showed moderately severe hyaline membrane disease. At six hours the baby deteriorated further and was commenced on ventilation and was stable on this overnight. At 18 hours of age he deteriorated further with a rising CO2 and falling 0_2. He was paralysed and treated with higher peak pressures and an increased inspiratory oxygen. Subsequent chest X-ray showed severe pulmonary interstitial emphysema. The baby continued to deteriorate with a worsening in blood gases and persisting hypotension, despite plasma and Dopamine infusions. The baby died at 30 hours.

Post-mortem: (i) Intra-ventricular haemorrhage on both sides, (ii) Pulmonary atelectasis and haemorrhage.

Congenital Malformation

Case No. 80

COMPARATIVE TABLE FOR TEN YEARS

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of cases	157	132	126	134	142	108	101	97	71	107
Incidence %	2.0	1.8	1.6	1.8	2.0	1.5	1.4	1.27	0.9	1.5
Perinatal deaths	9	6	4	1	3	Nil	2	3	2	3
Mortality rate	56.9	44.4	31.7	7.4	21	Nil	19.2	31.2	28.2	27

Clinical Diabetes Mellitus

Number of cases 19

Incidence per cent 0.26

Caesarean Sections ... 8

Perinatal death . . . . . 1 Rate: 53/1,000

Comment: Nineteen clinical Diabetics were managed during 1981 and the distribution of cases according to White's Classification was as follows: A (1), B (4), C *(2),* D (10) and F (2). Six of the 19 cases occurred in primigravida and tnese were delivered as follows: 3 patients went into spontaneous labour; 2 were delivered by elective Caesarean section because of other complications, while 1 was delivered by emergency Caesarean section for fetal distress following induction at 38 weeks.

Five of the 13 multiparous patients were delivered by Caesarean section, 2 being performed electively, while 3 were performed as emergency procedures for fetal distress (2) and cephalo-pelvic disproportion (1) respectively. Of the remaining 10 multiparous patients, 4 were induced at term, 3 went into spontaneous labour at term, 2 went into spontaneous labour before 37 weeks gestation, while 1 patient *(34)* had an intra-uterine death at 37 weeks gestation. The intra-uterine deatn occurred after 2 C.T.G.'s had indicated a flat trace. This patient should have been delivered by Caesarean section twelve hours prior to the intra-uterine death and this case was avoidable.

PERINATAL DEATH

Normal Infant

(34) B.59553. Para 0^{+0}. Age 30. S.E.3. Gestation 37 weeks. Clinical diabetic 6 years. Booked at 14 weeks from Mater Hospital. Normal outpatient management until admitted at 35 weeks with hypertension 150/90. Albumin + 2. Clinically fundus = dates. B.P. settled in hospital. Ultrasound examination revealed 2 weeks lag in growth. Oestrogens remained normal. C.T.G. satisfactory until term—17 days when non-reactive trace. F.H.N.H. following day. Spontaneous labour at 39 weeks. Macerated stillborn male infant weighing 3.23 kilograms.

Post-mortem: Maceration.

COMPARATIVE TABLE FOR TEN YEARS

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of cases	10	9	9	9	10	12	11	19	12	19
Incidence %	0.1	0.1	0.1	0.1	0.14	0.17	0.15	0.25	0.15	0.26
Perinatal deaths	2	1	1	Nil	2	Nil	Nil	Nil	2	1
Mortality	200	111	111	Nil	200	Nil	Nil	Nil	166	53

Haemolytic Disease of the Newborn

Number of cases	50	
Incidence per cent	0.69	
Number of babies delivered	50	
Stillbirths	2	
Neonatal deaths	Nil	
Perinatal deaths	2	Rate: 40/1,000

Comment: The incidence of haemolytic disease of the newborn dropped during 1981, mainly due to a decrease in the incidence of ABO incompatibility. Unfortunately there were 2 stillbirths, both of whom were referred to the rhesus clinic late in pregnancy. The types of haemolytic disease encountered during the year are summarised in the table, together with a resume of the therapy required for each particular problem. In addition to the 50 babies suffering from haemolytic disease a further 203 infants required phototherapy for jaundice.

Type of Haemolytic disease	Number of babies affected	Number of babies exchanged	Number of exchange transfusions	Number of babies given simple transfusions	Number of babies given phototherapy
Rhesus	17	9	18	6	16
Anti-A	23	1	1	—	19
Anti-B	6	—	—	—	5
Others	4	—	—	—	—
Total:	50	10	19	6	40

The 2 stillbirths (36 and 37) had unreliable menstrual histories and were referred to the rhesus clinic relatively late in their pregnancy. Case 36 was first booked at the hospital at 29 weeks gestation, naving had no previous antenatal care. Two amniocenteses, a week apart, showed a severely affected fetus. Ultrasound examination demonstrated a hydropic placenta with fetal ascites. Planned delivery was deferred because the L.S. ratio was only 1.4 despite a course of Dexamethasone, and fetal death occurred four days after the second amniocentesis. Case 37 had two amniocenteses performed at 33 and 34 weeks respectively, which indicated a severely affected fetus. Unfortunately intra-uterine death occurred the day following the second amniocentesis. Earlier referral to the clinic might have prevented this fetal death.

During the year intra-uterine transfusions were performed for the first time in this hospital on 2 patients. The first patient, with Anti-D+E antibodies had an unremarkable past history and her last baby delivered at 38 weeks required only one top-up transfusion. In the current pregnancy, three successive amniocenteses suggested that the fetus was severely affected and ultrasound examinations showed the placenta to be becoming

increasingly hydropic. For this reason an intra-uterine transfusion was performed at30 weeks. Eight days later a further ultrasound examination revealed the presence of fetal ascites and a CTG demonstrated late decelerations. A Caesarean section was performed and a female infant weighing 2,100 g. was delivered. It required one exchange and two top-up transfusions. The second mother, a para 3^{+0} with Anti-D antibodies had a very bad past obstetric history. In the current pregnancy amniocentesis at 25 weeks gestation showed a severely affected fetus. Four intra-uterine transfusions were performed at two-weekly intervals and the baby was delivered by Caesarean section at 34 weeks gestation. The baby weighed 3.38 kilograms and required two exchange transfusions. Both of the babies described above survived and were progressing normally at follow-up.

The cases illustrated above clearly show that, in spite of the widespread use of Anti-D immunoglobulin, there is still a nucleus of patients who will require intra-uterine transfusions and it is our view that this procedure should not be abandoned.

PERINATAL DEATHS

Normal Infants

(36) B.59332. Para 1^{+0}. Age 28. Gestation ?30 weeks. Booked at approximately 26 weeks gestation but dates unknown. Previous haemolytic disease developed during her first pregnancy and high antibody level noted at first visit. Consort found to be heterozygous for the rhesus factor. Amniocentesis showed severely affected fetus. Admitted to hospital for planned induction but L.S. ratio only 1.4 despite course of Dexamethasone. Delivery therefore deferred and I.U.D. at approximately 30 weeks gestation. Prostaglandin induction and spontaneous delivery of macerated stillborn male infant weighing 1.84 kilograms.

Post-mortem: None.

(37) B.4528. Para 5^{+0}. Age 32. S.E. 2. Gestation 37 weeks. Booked at ?18 weeks (unsure of dates). Anti-D in serum. Incomplete 128. Third and fourth child child affected, fourth needed exchange transfusion. At 33 weeks first tap — mid zone. At 34 weeks 2nd tap — upper zone. At 37 weeks spontaneous onset of labour — I.U.D. Spontaneous delivery of female stillborn infant weighing 2.38 kilograms.

Post-mortem: Maceration and erythroblastosis foetalis.

COMPARATIVE TABLE FOR 10 YEARS

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of cases	86	59	129	83	63	53	64	49	71	50
Incidence %	1.1	0.78	1.7	1.15	0.9	0.75	0.85	0.64	0.9	0.69
Perinatal deaths	1 7	6	8 4		3	4	1 5		1 2	
Mortality rate	195	101	62	47.6	47	74	15.6	65.4	14.0	40

Anaemia

(A Haemoglobin reading of less than 10 grams per cent on one occasion)

Number of cases	411	
Incidence per cent	5.7	
Number of babies delivered	416	
Stillbirths	10	
Neonatal deaths	1	
Perinatal deaths	11	Rate: 26.7/1,000

Comment: The incidence of anaemia increased during 1981. It is interesting that only 5 of the 411 cases occurred in association with a twin pregnancy. Fifty-eight of the 411 cases (14 per cent) also had bacteriura or a clinical urinary tract infection. None of the perinatal deaths was related to the anaemia.

PERINATAL DEATHS

Normal Infants

(10) B.30991. Para 2^{+1}. Age 29. S.E.3 Gestation 29 weeks. Booked at 12 weeks gestation. C.A.N.C. Admitted at 29 weeks gestation with abdominal pain. Uterus noted to be somewhat hard, otherwise N.A.D. F.H.H. Small A.P.H. next day. I.U.D. four days later. No F.H. PGE induction. Spontaneous delivery of a stillborn female infant weighing 1.50 kilograms. Retroplacental clot.

Post-mortem: Refused.

(11) B.47855. Para 0^{+2}. Age 31. S.E. 3. Gestation 29 weeks. Past history: 1978—first trimester abortion. 1979—PROM at 24 weeks. Booked at 7 weeks gestation Hypertension and proteinuria at 10 weeks, but subsequently normal. Admitted at 29 weeks witn abruptio placentae. F.H.N.H. Spontaneous vertex delivery of a stillborn female infant weighing 1.8 kilograms.

Post-mortem: Intra-uterine anoxia.

(12) B.38315. Para 2^{+0}. Age 28. S.E. 4. Gestation 30 weeks. Booked at 17 weeks. Post pill pregnancy. Scan confirmed dates. Regular attender. At 30 weeks presented to district complaining of backache and lower abdominal pain. F.H.H. Following day admitted with severe lower abdominal pain and slight p.v. bleeding. Contracting. F.H.N.H. A.R.M. No coagulation defect. Rapid delivery of a stillborn male infant weighing 1.58 kilograms. Early maceration. 16 oz. retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(13) B.49868. Para 1^{+0}. Age 21. S.E. 2. Gestation 31 weeks. Attended A.N.C. at 26 weeks gestation. All well. Admitted at 31 weeks with substantial A.P.H. F.H. present on admission. Nine hours after admission ultrasound scan to exclude placenta praevia. No. F.H. Anterior wall placenta. Spontaneous labour lasting \\ hours. Fresh stillborn female infant weighing 1.53 kilograms. No retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(16) N.B.41086. Para 2^{+0}. Age 20. S.E. Gestation 34 weeks. No antenatal care. Admitted with abruptio placentae at 34 weeks gestation. F.H. 96. Transferred to theatre for Caesarean section. F.H. absent in theatre. Membranes ruptured artificially. Fresh stillborn female infant weighing 2.32 kilograms. Large retroplacental clot 120 mis.

Post-mortem: Intra-uterine Anoxia.

(22) B.56944. Para 1^{+0}. Age 24. S.E. 3. Gestation 42 weeks. First attended at 20 weeks. Uneventful A.N.C. Admitted at term + 11 days for assessment reinduction. On examination head free, adequate liquor, Cx. uneffaced. Induction deferred. C.T.G. normal. Forty hours later spontaneous onset of labour. F.H.N.H. on admission to delivery suite. S.R.O.M. at 8 cms. dilation—Grade III meconium. Spontaneous delivery of a fresh female stillborn infant weighing 3.21 kilograms, nuchal cord noted. Small retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(23) B.61268. Para 4. Age 30. S.E. 5. Gestation ? 38 weeks. Late booker and only two visits. Admitted with abruptio placentae. F.H.N.H. A.R.M. and delivered female stillborn infant weighing 2.8 kilograms. Large retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(40) B.9919. Para 5^{+0}. Age 33. S.E. 3. Gestation 41 weeks. Booked at 12 weeks gestation. Appendicectomy at 23 weeks. Subsequent acute pyelitis, septicaemia, pneumonia. At 31 weeks further U.T.I, and renal colic. Renal calculus confirmed on I.V.P. Admitted at 41 weeks for induction but F.H.N.H. the following day. Spontaneous labour. Delivered of stillborn male infant weighing 3.52 kilograms.

Post-mortem: Intra-uterine anoxia.

(59) B.8002. Para *T°*. Age 38. S.E. 5. Gestation 40 weeks. Booked for C.A.N.C. at 18 weeks. Four visits to out-patient clinic. Iron deficient anaemia, Hb. 9.3 g/dl at 37 weeks. Did not attend for 40 week visit. Admitted in spontaneous labour. F.H.H. 80/min. A.R.M. —meconium. For L.S.C.S. F.H. stopped within 15 minutes of admission. S.V.D. female stillborn infant weighing 3.2 kilograms. Nuchal cord X 1.

Post-mortem: Intra-partum asphyxia.

(62) B.11848. Para 3^{+2}. Age 38. S.E. 3. Gestation 40 weeks. Smoker. Booked at 13 weeks. Noted to have essential hypertension. Attended the renal cftnic but no hypotensives required. Fourteen antenatal visits and no abnormality noted. Spontaneous labour at term. Emergency L.S.C.S. for accidental haemorrhage. 1300 mis. of retroplacental clot. Male infant weighing 3.80 kilograms born with Apgar scores of 0 and 2. Resuscitated but subsequently developed marked cerebral signs prior to N.N.D. at 37 hours of age.

Post-mortem: Refused.

Congenital Malformations

Case 46.

COMPARATIVE TABLE FOR 10 YEARS

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of cases	287	468	610	728	649	550	406	505	378	411
Incidence %	3.7	6.2	8.0	10.0	9.2	7.8	5.4	6.7	4.9	5.7
Perinatal deaths	5	16	26	16	16	9	4	10	16	11
Mortality rate	16.9	33.2	40.7	21.6	24	16.1	9.63	19.5	40	26.7

Bacteriuria

(A positive result is represented by a colony count of over 100,000 organisms per ml. in a pure culture whether symptomatic or asymptomatic.)

Number of cases	332	
Incidence per cent	4.6	
Number of babies delivered	338	
Stillbirths	10	
Neonatal deaths	4	
Perinatal deaths	14	Rate: 41/1,000

Comment: The incidence of bacteriuria was somewhat less than that recorded during the past few years. Only 14 of the 338 babies weighed less than 2.5 kilograms. Fifty-eight of the 332 mothers (17 per cent) developed anaemia, compared with the overall incidence of 5.7 per cent in the hospital population. None of the perinatal deaths was related to the urinary tract infection.

PERINATAL DEATHS

Normal Infants

(15) B.59658. Para 0^{+0} Age 16. Gestation 32 weeks. Non-smoker. Booked at 10 weeks gestation. Admitted at 30 weeks with P.E.T. and accidental haemorrhage. F.H.N.H. Labour accelerated by A.R.M. Delivered stillborn male infant weighing 1.55 kilograms. 1250 ml. retroplacentalclot.

Post-mortem: Intra-uterine anoxia.

(18) B.60472. Para 1^{+0} Age 26. S.E.2. Gestation 34 weeks. Attended booking clinic at 22 weeks gestation. U.T.I, treated with Nitrofurantoin. C.A.N.C. Admitted at 34 weeks with A.P.H. F.H.N.H. Clinically placental abruption. A.R.M. Svntocinon. C.V.P. line. Four units of blood transfused. Puerperal Hb. = 14.i g/dl. Fresh stillborn male infant weighing 2.42 kilograms. Large retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(19) B.7439. Para 2^{+0} Age 34. S.E.3. Gestation 35 weeks. Booked at 14 weeks. C.A.N.C. Uneventful pregnancy until 34 weeks when B.P. = 140/100 and trace proteinuria noted. Admitted with abruptio placentae at 35 weeks. F.H.N.H. Coagulopathy and haemorrhage treated with 6 units of fresh blood under C.V.P. monitor. Spontaneous vertex delivery of a female stillborn infant weighing 1.96 kilograms.

Post-mortem: Intra-uterine anoxia.

(24) B.37207. Para 1^{+5} Age27. S.E.4. Gestation 29 weeks. Previous history: 1972: F.T.N.D. 6 lb. 10 oz. male, alive and well. 1975: 26/40 abortion. 1976: 26/40 abortion. 1977: 20/40 abortion. 1978: 28/40 S.B. 1979: 26/40 abortion. Shirodkar suture inserted in last two pregnancies. Booked at 8 weeks gestation. Smoked 10/daily. Seen at 12,16,18 and 20 weeks. B.P. normal. B.P.D. good growth. Gave up cigarettes. Admitted at 24 weeks gestation. B.P. 150/100. Proteinuria + 2. Uric acid 487. Renal function normal. V.M.A. normal. Treated with Aldomet, Hydrallazine, Trasicor. I.U.D. at 29 weeks. Spontaneous labour and delivery of female infant weighing 539 grams.

Post-mortem: Maceration.

(34) B. 59553. Par a 0^{+0} Age 30. S. E. 3. Gestation 37 weeks. Clinical diabetic 6 years. Booked at 14 weeks from Mater Hospital. Normal outpatient management until admitted at 35 weeks with hypertension 150/90. Albumin + 2. Clinically fundus = dates. B.P. settled in hospital. Ultrasound examination revealed 2 weeks lag in growth. Oestrogens remained normal. C.T.G. satisfactory until term—17 days when non-reactive trace. F.H.N.H. following day. Spontaneous labour at 39 weeks. Macerated stillborn male infant weighing 3.23 kilograms.

Post-mortem: Maceration.

(35) B.59152. Para 0^{+0} Age 27. S.E.2. Gestation 40 weeks. Booked at 15 weeks gestation, glycosuria + 1. Second fasting specimen requested for next visit 4 weeks later. No glycosuria detected on this specimen. Trace of glucose at 23 and 31 weeks. At 33 weeks + 2 glycosuria on a non-fasting specimen. At 38 weeks extensive pregnancy urticaria, treated with antihistamines. No glycosuria at 38 or 39 weeks. G.T.T. at 40 weeks 4.7; 9.6; 8.4; 5.3. Normal = 5; 9.2; 8.0; 6.9. Admitted for induction at 40^{+2}. No F.H. Prostaglandin induction. Clear liquor. Spontaneous delivery of male stillborn infant weighing 3.20 kilograms.

Post-mortem: Intra-uterine anoxia.

(40) B.9919. Para 5^{+0} Age 33. S.E.3. Gestation 41 weeks. Booked at 12 weeks gestation. Appendicectomy at 23 weeks. Subsequent acute pyelitis, septicaemia, pneumonia. At 31 weeks further U.T.I, and renal colic. Renal calculus confirmed on I.V.P. Admitted at 41 weeks for induction but F.H.N.H. the following day. Spontaneous labour. Delivered of stillborn male infant weighing 3.52 kilograms.

Post-mortem: Intra-uterine anoxia.

(63) B.42968. Para 1^{+0} Age 22. S.E.5. Gestation 28 weeks. Admitted at 16 weeks gestation bleeding p.v. Repeated bleeds on and off up to 28 weeks. Serial scans showed good growth. Admitted at 28 weeks by scan. Premature breech rapidly delivered through incompletely dilated cervix. Male infant weighing 1.17 kilograms born with Apgar scores of 2 and 3. Manual removal of small infarcted placenta with retroplacental clot. Baby intubated at 1 minute and ventilated. Subsequently developed jaundice and pneumothorax. Two exchange transfusions. Convulsions prior to cardiac arrest at 48 hours of age.

Post-mortem: Pulmonary disease of the newborn.

(70) B.40830. Para 2^{+1} Age 32. S.E.I. Gestation 41 weeks. Booked at 12 weeks gestation. Normal pregnancy. Admitted at 41 weeks in labour. F.H. 140 and irregular. Cervix 5 cms. dilated. Spontaneous rupture of membranes 40 minutes after admission. Meconium +. Spontaneous delivery 10 minutes later of female infant weighing 3.85 kilograms, born with Apgar scores of 5 and 7. Treated with direct tracheal suction at birth and had a bronchial lavage carried out in the labour ward with some improvement. Transferred to the S.C.B.U. at which stage she had deteriorated with significant cyanosis and poor respiratory effort. The baby was given further bronchial lavage with transient improvement and was nursed in 40% oxygen which was increased to 100% without much improvement in colour. Chest X-ray showed a moderate right pneumothorax + severe consolidation and this was drained with an underwater seal. Repeat X-ray showed re-expansion of the lung. Despite this, however, the baby's ventilatory status remained critical with persisting respiratory and metabolic acidosis, despite additional bicarbonate and high inspired oxygen concentration. The baby was intubated at 2 hours and started on ventilation. At this stage the baby had an episode of stiffness which was felt to be a seizure and was treated with Dexamethasone and Phenobarbitone. Her condition failed to improve despite maximal ventilation and she had a cardiac arrest at 5 hours of age which failed to respond to massage and I/C adrenaline.

Post-mortem: Extensive pulmonary haemorrhage and oedema with the right lung almost completely atelectatic, and the left partially atelectatic. The brain showed extensive petechial haemorrhage.

Congenital Malformations

Cases 41, 46,51, 80 and 85.

COMPARATIVE TABLE FOR 10 YEARS

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of cases	413	616	465	507	413	420	606	694	577	332
Incidence %	5.3	8.1	6.1	7.0	5.9	6.0	8.1	9.2	7.6	4.6
Perinatal deaths	4	18	30	15	14	9	6	22	19	14
Mortality rate	9.5	28.6	61	29.3	34	21.3	9.69	31.1	32	41

Abruptio Placentae

(This includes all patients in whom a retroplacental clot was found at delivery).

Number of cases	116	
Incidence per cent	1.59	
Twins	5	
Number of babies delivered	121	
Stillbirths	15	
Neonatal deaths	7	
Perinatal deaths	22	Rate: 189/1,000

Comment: The number of cases in his category has more than doubled in the last 10 years, though this is partly due to the inclusion, since 1978, of all cases where a retroplacental clot was noted. Thirty-six of the 116 cases (31 per cent) delivered before 37 weeks gestation. Though the incidence was higher the perinatal mortality rate has changed little. Twenty one patients required transfusion, one of whom received 12 units of blood, while one patient developed coagulopathy. Only 4 (11, 15, 18 and 21) of the 15 stillbirths were considered not to have avoidable factors. Two of the neonatal deaths were due to congenital malformations (79 and 91); 4 were associated with prematurity (63, 64, 66 and 69); and 1 (62) was due to cerebral anoxia. Sixteen liveborn babies weighed less than 2.5 kilograms at birth and 15 of these survived; the only neonatal death (91) was due to Edward's syndrome.

PERINATAL DEATHS

Normal Infants

(10) B.30991. Para 2^{+1} Age 29. S.E.3. Gestation 29 weeks. Booked at 12 weeks gestation. C.A.N.C. Admitted at 29 weeks gestation with abdominal pain. Uterus noted to be somewhat hard, otherwise N.A.D. F.H.H. Small A.P.H. next day. I.U.D. four days later. No F.H. PGE induction. Spontaneous delivery of a stillborn female infant weighing 1.50 kilograms. Retroplacental clot.

Post-mortem: Refused.

(11) B.47855. Para 0^{+2} Age 31. S.E.3. Gestation 29 weeks. Past history: 1978 — first trimester abortion. 1979:— PROM at 24 weeks. Booked at 7 weeks gestation. Hypertension and proteinuria at 10 weeks, but subsequently normal. Admitted at 29 weeks witn abruptio placentae. F.H.N.H. Spontaneous vertex delivery of a stillborn female infant weighing 1.8 kilograms.

Post-mortem: Intra-uterine anoxia.

(12) B.38315. Para 2^{+0} Age 28. S.E.4. Gestation 30 weeks. Booked at 17 weeks. Post pill pregnancy. Scan confirmed dates. Regular attender. At 30 weeks presented to district complaining of backache and lower abdominal pain. F.H.H. Following day admitted with severe lower abdominal pain and slight p.v. bleeding. Contracting F.H.N.H. A.R.M. No coagulation defect. Rapid delivery of a stillborn male infant weighing 1.58 kilograms. Early maceration. 16 oz. retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(14) B.13348. Para 2^{+0} Age 38. S.E.4. Gestation 32 weeks. Previous Caesarean section. Booked at 10 weeks. Uneventful progress to 28 weeks when B.P. 160/95 noted — check 120/80. Subsequently admitted at 32 weeks with B.P. 165/110 and 10 hour history of vaginal bleeding. F.H.N.H. Placenta not praevia. PGE induction — female stillborn infant weighing 1.02 kilograms. Large retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(15) B.59658. Para 0^{+0} Age 16. S.E. (Innupta). Gestation 32 weeks. Non-smoker. Booked at 10 weeks gestation. Admitted at 30 weeks with P.E.T. and accidental haemorrhage. F.H.N.H. Labour accelerated by A.R.M. Delivered stillborn male infant weighing 1.55 kilograms. 1250 ml. retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(16) N.B.41086. Para 2^{+0} Age 20. S.E. Gestation 34 weeks. No antenatal care. Admitted with abruptio placentae at 34 weeks gestation. F.H. 96. Transferred to theatre for Caesarean section. F.H. absent in theatre. Membranes ruptured artificially. Fresh stillborn female infant weighing 2.32 kilograms. Large retroplacental clot 120 mis.

Post-mortem: Intra-uterine anoxia.

(17) B.57791. Para 0^{+0} Age 21. S.E.3. Gestation 34 weeks. Booked at 16 weeks gestation. Known epileptic on Phenobarbitone and Epilim. Uneventful antenatal care up to 29 weeks when found to be only 24 weeks in size and complained of crampy lower abdominal pains. Admitted. Scan confirmed dates, B.P.D. 28/52. Pains cleared and patient discharged. Seen 3 weeks later in clinic. Small for dates Protein ±. Scan arranged for next visit in two weeks. M.S.U. clear. Two weeks later scan — B.P.D. only 29/30 weeks, breech. No weight gain. B.P. 130/90, proteinuria ±. Admitted for assessment. On admission severe lower abdominal pain. Uterus tense, hard and tender. In strong labour. Fundus=32 weeks. Sedated. A.R.M. — straw coloured liquor. Seven hours later delivered female stillborn infant weighing 1.47 kilograms. Breech delivery with 16 oz. retroplacental clot.

Post-mortem: Maceration.

(18) B.60472. Para 1^{+0} Age 26. S.E.2. Gestation 34 weeks. Attended booking clinic at 22 weeks gestation. U.T.I, treated with Nitrofurantoin. C.A.N.C. Admitted at 34 weeks with A.P.H. F.H.N.H. Clinically placental abruption. A.R.M. Syntocinon. C.V.P. line. Four units of blood tranfused. Puerperal Hb. = 14.1 g/dl. Fresh stillborn male infant weighing 2.42 kilograms. Large retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(19) B.7439. Para 2^{+0} Age 34. S.E.3. Gestation 35 weeks. Booked at 14 weeks. C.A.N.C. Uneventful pregnancy until 34 weeks when B.P. = 140/100 and trace proteinuria noted. Admitted with abruptio placentae at 35 weeks. F.H.N.H. Coagulopathy and haemorrhage treated with 6 units of fresh blood under C.V.P. monitor. Spontaneous vertex delivery of a female stillborn infant weighing 1.96 kilograms.

Post-mortem: Intra-uterine anoxia

(20) B.56154. Para 0^{+0} Age 20. S.E.(unmarried). Gestation 39 weeks. Booked at 12 weeks gestation. Regular A.N.C. B.P. 130/90 at 24,28 and32 weeks. A.P.H. at 34 weeks. B.P.D.=34 weeks. No placenta praevia. Discharged after 3 weeks. Re-admitted at 39 weeks in labour. F.H.N.H. Signs of aoruptio. Spontaneous delivery of stillborn female infant weighing 3.31 kilograms. Retroplacental clot.

Post-mortem: Refused.

(21) B.60310. Para 0^{+0} Age 24. S.E.3. Gestation 40 weeks. Booked at 24 weeks gestation. Normal pregnancy. Admitted at term with concealed abruption. F.H.N.H. A.R.M. Syntocinon. C.V.P. line. Spontaneous delivery of a stillborn male infant weighing 3.47 kilograms. 1,000 ml. retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(22) B.56944. Para 1^{+0} Age 24. S.E.3. Gestation 42 weeks. First attended at 20 weeks. Uneventful A.N.C. Admitted at term + 11 days for assessment re induction. On examination head free, adequate liquor, Cx. uneffaced. Induction deferred. C.T.G. normal. Forty hours later spontaneous onset of labour. F.H.N.H. on admission to delivery suite. S.R.O.M. at 8 cms. dilatation — Grade III meconium. Spontaneous delivery of a fresh female stillborn infant weighing 3.21 kilograms, nuchal cord noted. Small retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(23) B.61268. Para 4. Age 30. S.E.5. Gestation ? 38 weeks. Late booker and onlv two visits. Admitted with abruptio placentae. F.H.N.H. A.R.M. and delivered female stillborn infant weighing 2.8 kilograms. Large retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(57) B.9733. Para 2^{+0} Age 31. S.E.2. Gestation 38 weeks. Smoked 20/daily. Booked at 12 weeks gestation. Normal antenatally. Admitted at 38 weeks with S.R.O.M. — clear liquor. Cervix 3 cms. dilated. Two hours later heavy show. No signs of accidental haemorrhage but F.H.N.H. shortly afterwards. Spontaneous delivery of stillborn male infant weighing 3.28 kilograms. No clinical evidence of causative factor. Post-mortem X-ray=maturity 38-39 weeks.

Post-mortem: Intrapartum asphyxia. No congenital defect.

(61) B.58221. Para 2^{+0} Age 37. S.E.3. Gestation 41 weeks. Non-smoker. Booked at 11 weeks gestation. Normal antenatally. Admitted in labour at 41 weeks. A.R.M. to accelerate. Meconium stained liquor. F.H.N.H. soon after. Normal delivery of a stillborn male infant weighing 4.11 kilograms. Retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(62) B.11848. Para 3^{+2} Age 38. S.E. 3. Gestation 40 weeks. Smoker. Booked at 13 weeks. Noted to have essential hypertension. Attended the renal clinic but no hypotensives required. Fourteen antenatal visits and no abnormality noted. Spontaneous labour at term. Emergency L.S.C.S. for accidental haemorrhage. 1300 mis. of retroplacental clot. Male infant weighing 3.80 kilograms born with Apgar scores of 0 and 2. Resuscitated but subsequently developed marked cerebral signs prior to N.N.D. at 37 hours of age.

Post-mortem: Refused.

(63) B.42968. Para 1^{+0} Age22. S.E. 5. Gestation 28 weeks. Admitted at 16 weeks gestation bleeding p.v. Repeated bleeds on and off up to 28 weeks. Serial scans showed good growth. Admitted at 28 weeks by scan. Premature breech rapidly delivered through incompletely dilated cervix. Male infant weighing 1.17 kilograms born with Apgar scores of 2 and 3. Manual removal of small infarcted placenta with retroplacental clot. Baby intubated at 1 minute and ventilated. Subsequently developed jaundice and pneumothorax. Two exchange transfusions. Convulsions prior to cardiac arrest at 48 hours of age.

Post-mortem: Pulmonary disease of the newborn.

(64) B.56283. Para 1^{+2} Age 22. Gestation 29 weeks. Booked at 9 weeks when B.P. normal. Gross obesity. Uneventful pregnancy to 25 weeks when ±3 proteinuria noted. M.S.U. taken. Seen again one week later. M.S.U. sterile but B.P. 160/105 with ±4 proteinuria. Admitted to hospital. Hypertension persisted and i.v. Hydralazine required. At 26 weeks platelet count reduced, Urea and Uric Acid increased. At 27 weeks commenced on Aldomet and Trasiscor. At 29 weeks ultrasound scan showed growth retardation B.P.D. equivaleant to 26-27 weeks with diminished liquor. C.T.G. non-reactive with dips. Emergency Caesarean section performed. Retroplacental clot present. Birth weight 960 grams. Apgar scores 8 and 10. Intubated at 4 minutes because of secondary apnoea. Following initial period of ventilation the baby was stabilised on intermittent manditary ventilation at a rate of 20 per minute in 35% oxygen. The baby continued fairly well for the first 24 hours. At 48 hours the baby began to deteriorate with mixed metabolic and repiratory acidosis and increased ventilatory requirement. At 49 hours the baby had intermittent myoclonic jerking and a sudden cardiac arrest. The baby was resusciated with cardiac massage and intra-cardiac adrenaline and recovered slowly over about 30 minutes. The baby then had further seizures which were treated with Phenobarbitone. The baby's general condition remained very poor over the next three hours despite maximal ventilation in 100% oxygen. The baby was given additional bicarbonate, was paralysed and given higher pressure ventilation but had a further collapse at 54 hours and did not respond to resuscitation.

Post-mortem: (i) Bilateral intraventricular haemorrhage.
(ii) Hyaline membrane disease.

(66) B.40483 Para 3^{+0} Age 35. S.E. 2. Gestation 28 weeks. First seen at 15 weeks gestation. Admitted at 25 weeks with A.P.H. and leaking membranes. Kept in hospital on bed rest. Premature onset of labour at 28 weeks and spontaneous delivery of live male infant weighing 1.22 kilograms. Baby noted to have low set ears, widely splayed sutures, and limb deformities. Intubated at birth and required I.P.P.V. Cardiorespiratory arrest at 6 hours.

Post-mortem: Pulmonary atelectasis and immaturity.

(69) B.44501. Para 2^{+1} Age 24. S.E.5. Gestation 31 weeks. First visit at 19 weeks confirmed by scan. Shirodkar suture inserted. Uneventful A.N.C. until 28 weeks when admitted with A.P.H. Ultrasound scan excluded placenta praevia. Bled on and off until 31 weeks. Went into labour. Shirodkar suture removed. Delivered of live male infant weighing 1.47 kilograms, born with Apgar scores of 3 and 7. Intubated at 5 minutes. Ventilated and given antibiotics. Developed persisting cyanosis. Did not improve on increased ventilation or Tolazoline. Markea scleroderma. At 30 hours developed right pneumothorax. Later left pneumothorax. Collapsed at 42 hours. Failed to resuscitate.

Post-mortem: Pulmonary atelectasis and immaturity.

Congenital Malformations

Cases 79 and 91.

COMPARATIVE TABLE FOR 10 YEARS

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of cases	52	62	68	40	56	45	76	84	91	116
Incidence %	0.67	0.82	0.89	0.56	0.8	0.64	1.02	1.11	1.18	1.59
Perinatal deaths	19	19	26	12	18	9	13	14	18	22
Mortality rate	358	306.4	371	292	300	196	166	166	233	189

Placenta Praevia

Number of cases	34	
Incidence per cent	0.47	
Stillbirths	1	
Neonatal deaths	0	
Perinatal deaths	1	Rate: 29.4/1,000
Method of delivery:		
L.S.C.S.	30	
Vaginal	4	

Comment: The incidence of this condition was the lowest for ten years. The one perinatal death (28) was due to intra-uterine growth retardation and avoidable factors were present in this case. Eleven patients required blood transfusion, one patient requiring seven units. Only two of the live-born infants weighed less than 2.5 kilograms at birth.

PERINATAL DEATH

Normal infant

(28) B.13706. Para 5^{+2}. Age 40. S.E.2. Gestation 40 weeks. Smoked 15/daily. Previous remature delivery at 27 weeks gestation, alive and well. Booked at 10 weeks. Known essential ypertension. On treatment. B.P. 130/85. Referred to renal clinic and advised to remain on Prestyl. B.P. well controlled. Ultrasound scan at 35 weeks — B.P.D.=31 weeks. Seen again at 36 weeks but patient not keen on admission. Admitted at 37 weeks. F.H.N.H. two days following admission. Spontaneous delivery at 40 weeks of macerated male infant weighing 1.24 kilograms.

Post-mortem: Maceration.

COMPARATIVE TABLE FOR 10 YEARS

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of cases	~56	48	69	54	57	61	47	63	43	34
Incidence %	0.7	0.6	0.9	0.8	0.8	0.9	0.6	0.83	0.56	0.47
Perinatal deaths	2	2	4	2	3	3	5	2	2	1
Mortality rate	34	42	56	37	53	49	106	32	46	29

Antepartum Haemorrhage of Unknown Origin

Number of cases	140	
Incidence per cent	1.92	
Stillbirths	3	
Neonatal deaths	3	
Perinatal deaths	6	Rate: 42.8/1,000

thod of delivery:

Caesarean section	9	
Vaginal delivery	131	

Comment: This problem has remained virtually unchanged over the past ten years. The antepartum haemorrhage appeared to be a contributory factor in one of the six perinatal deaths (13). This patient may well have had a revealed accidental haemorrhage, though there was no retroplacental clot. Sixteen of the 139 live-born infants weighed less that 2.5 kilograms and all of these survived. Twenty one of the 140 mothers delivered before 37 weeks gestation.

PERINATAL DEATHS

Normal Infants

(13) B.49868. Para 1^{+0} Age 21. S.E.2. Gestation 31 weeks. Attended A.N.C. at 26 weeks gestation. All well. Admitted at 31 weeks with substantial A.P.H. F.H. present on admission. Nine hours after admission ultrasound scan to exclude placenta praevia. No. F. H. Anterior wall placenta. Spontaneous labour lasting 1$ hours. Fresh still born female infant weighing 1.53 kilograms. No retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(55) B.57611. Para 0^{+0} Age 30. S.E. 2. Gestation 31 weeks. Booked at 19 weeks. One week history of backache and slight blood-stained discharge. Treated by G.P. for U.T.I. No response. Referred to hospital in labour. Cervix fully dilated \\ hours after admission. Breech on perineum. F.H. present. Assisted breech delivery. Spontaneous delivery of shoulder. Further progress arrested. Cervix clamped tightly around neck. Cord not pulsating. Deep anaesthesia with Halothane. Very difficult delivery with forceps to fetal head. Fresh female stillborn infant weighing 1.04 kilograms.

Post-mortem: Intra-partum asphyxia.

(58) B.57552. Para 1^{+0} Age 40. S.E. 5. Gestation 31 weeks. Non-smoker. Booked at 9 weeks gestation. Twelve years infertility. Normal to 37 weeks when B.P. 140/95. Admitted for rest. B.P. settled. C.T.G. normal and good fetal movement. Discharged after 3 days. Admitted in spontaneous labour. Difficulty hearing F.H. 2 hours later but complex on monitor. Three hours later F.H.N.H. Spontaneous delivery of a stillborn male infant weighing 3.43 kilograms.

Post-mortem: Intra-uterine anoxia.

(68) B.28416. Para 2^{+0} Age 34. S.E. 3. Gestation 29 weeks. Booked at 15 weeks. Previous atrial septal defect repaired. At 28 weeks, A.P.H. followed by premature labour at 29 weeks. Assisted breech delivery of male infant weighing 1.55 kilograms born with Apgar scores of 5 and 8. Intubated. Initial chest X-ray showed hyaline membrane disease. Collapsed at 3 hours. Left pneumothorax. Drain inserted. Further collapse. Did not respond.

Post-mortem: Pulmonary immaturity and atelectasis.

Congenital Malformations

Cases 88 and 89.

COMPARATIVE TABLE FOR 10 YEARS

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of cases	193	167	188	145	136	158	124	129	127	140
Incidence %	2.5	2.2	2.5	2.0	1.9	2.2	1.6	1.7	1.6	1.92
Perinatal deaths	8	9	15	17	12	12	3	3		16
Mortality rate	41	52	78	114	87	73	23	23	7.8	43

Department of Diagnostic Ultrasound

During the year 3734 patients had 6254 examinations. These figures represent an increase of 18 per cent on the number of patients scanned in 1980 and 13 per cent on the number of examinations performed.

The main indications for ultrasonic examinations were as follows:

Gestational age assessment	1,277
Liquor volume assessment	636
Small for dates	582
First trimester bleeding	509
Placental localisation ...	473
Neonatal examinations ...	384
Multiple pregnancy	281
Fetal abnormality	244
Hypertensive disorders ...	218
Presentation	191
Gynaecological tumours	158
Bad obstetric history	132
Missed abortion	102
Diagnosis of pregnancy	81
Ectopic	73
Clinical/Latent Diabetes	67
Localisation of I.U.CD.	64
Hydatidiform mole	54
Hydrops	54
Intra-uterine death	53
Pre Shirodkar suture	48
Gallstones	35
Maternal kidneys	18

One of the most striking changes in the indications for examination has been the increase of 101 per cent in the number of neonatal scans performed. This large increase, for the second successive year, has been mainly due to the appointment of Dr. Peter Gray as Paediatric Research Fellow. Of the 384 neonatal scans performed, 324 (84 per cent) were done to diagnose intraventricular haemorrhage. All these examinations were performed with real-time scanning equipment. Dr. Gray is currently investigating cerebro-vascular changes in the newborn. The neonatal scans listed above are additional to the 21 included in the Department of Radiology report.

The number of scans for liquor volume assessment has increased by 28 per cent and it would appear that this assessment, together with B.P.D. growth rates, is a useful indication of fetal well-being.

The Department continues to participate in the theoretical and practical training or radiographers attending the Medical Ultrasound Course organised by the School of Radiography, St. Vincent's Hospital.

Essential Hypertension
Pre-Eclampsia
Late Pregnancy Hypertension

Essential Hypertension: (A diastolic blood pressure reading of 90 mm. Hg. or greater on two or more occasions before the 20th week of pregnancy).

Pre-Eclampsia: (A diastolic blood pressure reading of 90 mm. Hg. or greater on two or more occasions after the 20th week of pregnancy accompanied by albuminuria or marked oedema, or both).

Late Pregnancy Hypertension: (A diastolic blood pressure reading of 90 mm. Hg. or greater on two or more occasions after the 20th week of pregnancy with no albuminuria or oedema).

	Essential Hypertension	Pre-Eclampsia	Late Pregnancy Hypertension
Number of cases	109	252	329
Incidence per cent	1.51	3.49	4.05
Primigravidae	15	131	116
Multigravidae	94	121	213
Twins	1	11	2
Number of babies	110	263	331
Stillbirths	3	8	3
Neonatal deaths	1	1	1
Perinatal deaths	4	9	
P.M.R.	30.6/1,000	34/1,000	10.2/1,000
Method of delivery:			
Spontaneous	80	174	266
	23	56	29
Forceps	5	24	23
Breecn	2	6	7
Vacuum	0	3	6

Comment: The incidence of the hypertensive disorders of pregnancy was no different to that of last year. The perinatal mortality rate for each group was worse than those of 1980.

In the Essential Hypertension Group 2 of the 4 perinatal deaths were due to accidental haemorrhages and were deemed unavoidable (11 and 62). In Case 28 intra-uterine growth retardation was missed clinically and therefore was avoidable. There were no avoidable factors in Case 39.

There were 9 perinatal deaths in the Pre-Eclampsia group. Avoidable factors were present in 4 (14,19, 24 and 34) of the 8 stillbirths; the other 4 cases (15, 25, 27 and 39) were deemed unavoidable. It should be noted that Case J9 had Pre-Eclampsia as well as Essential Hypertension. Yet again, accidental haemorrhage was associated with 4 of the 9 perinatal deaths (14, 15,19 and 64).

As expected Late Pregnancy Hypertension did not significantly affect perinatal mortality. While the overall rate was 10.2/1,000, 2 of the 4

perinatal deaths (49 and 78) were due to congenital malformations. The 2 normal perinatal deaths (26 and 58) were both deemed avoidable. Case 26 should have been kept in hospital and Case 58 was an avoidable intra-partum death.

PERINATAL DEATHS

Normal Infants

(11) B.47855. Para 0^{+2}. Age 31. S.E.3. Gestation 29 weeks. Past history: 1978—first trimester abortion. 1979:—PROM at 24 weeks. Booked at 7 weeks gestation. Hypertension and proteinuria at 10 weeks, but subsequently normal. Admitted at 29 weeks with abruptio placentae. F.H.N.H. Spontaneous vertex delivery of a stillborn female infant weighing 1.8 kilograms.

Post-mortem: Intra-uterine anoxia.

(14) B. 13348. Para 2^{+0}. Age 38. S.E.4. Previous Caesarean section. Gestation 32 weeks. Booked at 10 weeks. Uneventful progress to 28 weeks when B.P. 160/95 noted—checked 120/80. Subsequently admitted at 32 weeks with B.P. 165/110 and 10 hour history of vaginal bleeding. F.H.N.H. Placenta not praevia. PGE induction—female stillborn infant weigning 1.02 kilograms. Large retroplacental clot. Placenta unhealthy.

Post-mortem: Intra-uterine anoxia.

(15) B.59658. Para 0^{+0}. Age 16. S.E.(Innupta). Gestation 32 weeks. Non-smoker. Booked at 10 weeks gestation. Admitted at 30 weeks with P.E.T. and accidental haemorrhage. F.H.N.H. Labour accelerated by A.R.M. Delivered stillborn male infant weighing 1.55 kilograms. 1250 ml. retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(19) B.7439. Para 2^{+0}. Age 34. S.E.3. Gestation 35 weeks. Booked at 14 weeks. C.A.N.C. Uneventful pregnancy until 34 weeks when B.P. = 140/100 and trace proteinuria noted. Admitted with abruptio placentae at 35 weeks. F.H.N.H. Coagulopathy and haemorrhage treated with 6 units of fresh blood under C.V.P. monitor. Spontaneous vertex delivery of a female stillborn infant weighing 1.96 kilograms.

Post-mortem: Intra-uterine anoxia.

(24) B.37207. Para 1^{+5}. Age 27. S.E.4. Gestation 29 weeks. Previous history: 1972: F.T.N.D. 6 lb. 10 oz. male, alive and well. 1975: 26/40 abortion. 1976: 26/40 abortion. 1977: 20/40 abortion. 1978: 28/40 S.B. 1979: 26/40 abortion. Shirodker suture inserted in last two pregnancies. Booked at 8 weeks gestation. Smoked 10/daily. Seen at 12,16,18 and 20 weeks. B.P. normal. B.P.D. good growth. Gave up cigarettes. Admitted at 24 weeks gestation. B.P. 150/100. Proteinuria + 2. Uric acid 487. Renal function normal. V.M.A. normal. Treated with Aldomet, Hydralazine, Trasicor. I.U.D. at 29 weeks. Spontaneous labour and delivery of female infant weighing 539 grams.

Post-mortem: Maceration.

(25) B.59392. Para 0^{+0}. Age 26. S.E.3. Gestation 34 weeks. Booked at 16 weeks. Height 4' 10". No previous illness. Group A positive. Cycle irregular 38 - 42 days. Attended monthly to 28 weeks. Uneventful course until 30 weeks when B.P. 130/90. At 32 weeks B.P. 140/90. Slight oedema, no albumin. At 34 weeks B.P. 140/90, oedema + - no albumin. Diuretic given. Two days later F.M.N.F. Admitted. I.U.D. Prostaglandin drip induction. Spontaneous delivery of female infant weighing 1.55 kilograms, stillborn. Very infarcted placenta.

Post-mortem: Maceration.

(26) B.55910. Para 1^{+0}. Age 43. S.E.4. Gestation 36 weeks. Previous C.S. Booked at 16 weeks gestation. Good attender. Smoker. Mild essential hypertension (B.P. 150/86 at 24 weeks). Admitted at 35 weeks when B.P. 175/105. Investigations: B.P. borderline on bed rest. Uric Acid: 310 u mol/1. C.T.G. satisfactory. Allowed home over Christmas holidays. Returned to hospital at 36 weeks gestation. No fetal movements for 48 hours. I.U.D. Spontaneous delivery at term of macerated male stillborn infant weighing 2.94 kilograms. Placenta very unhealthy. Clotting screen normal.

Post-mortem: (i) Congenital Cardiac Anomaly, VSD
(ii) Maceration

(27) B.58598. Para 0^{+0}. Age 31. S.E.3. Gestation 36 weeks. Booked at 14 weeks gestation. B.P. 150/80 at first visit. Pregnancy uneventful until 36 weeks when B.P. 160/110 and F.H.N.H. History of fall 3 days previously and F.M.N.F. since. Complaining of vague lower abdominal pain. F.H. absent on scan and C.T.G. Spontaneous vertex delivery. Normal 3rd stage. Female macerated infant weighing 2.77 kilograms. Cord once tightly around neck.

Post-mortem: Maceration.

(28) B. 13706. Para 5^{+2}. Age 40. S.E.2. Gestation 37 weeks. Smoked 15/daily. Previous premature delivery at 27 weeks gestation, alive and well. Booked at 10 weeks. Known essential hypertension. On treatment. B.P. 130/85. Referred to renal clinic and advised to remain on Prestyl. B.P. well controlled. Ultrasound scan at 35 weeks—B.P.D. = 31 weeks. Seen again at 36 weeks but patient not keen on admission. Admitted at 37 weeks. F.H.N.H. two days following admission. Spontaneous delivery at 40 weeks of macerated male infant weighing 1.24 kilograms.

Post-mortem: Maceration.

(34) B.59553. Para 0^{+0}. Age 30. S.E.3. Gestation 37 weeks. Clinical diabetic 6 years. Booked at 14 weeks from Mater Hospital. Normal outpatient management until admitted at 35 weeks with hypertension 150/90. Albumin + 2. Clinically fundus = dates. B.P. settled in hospital. Ultrasound examination revealed 2 weeks lag in growth. Oestrogens remained normal. C.T.G. satisfactory until term - 17 days when non-reactive trace. F.H.N.H. following day. Spontaneous labour at 39 weeks. Macerated stillborn male infant weighing 3.23 kilograms.

Post-mortem: Maceration.

(39) N.B.61227. Para 7^{+1}. Age 33. S.E.3. Gestation 33 weeks. Booked for delivery in country hospital. Admitted on this pregnancy to a general hospital at 33 weeks with recurrent spontaneous pneumothoraces. Diagnosed as having Hodgkin's disease in March 1981 and had treatment to cervical and mediastinal glands with radiation in the first month of pregnancy. Transferred to Coombe Hospital with I.U.D. at 33 weeks associated with P.E.T., B.P. 180/120, Albumin + 3. Gross placental dysfunction. On admission F.H.N.H. Spontaneous labour. Macerated female infant weighing 1.16 kilograms.

Post-mortem: Not performed.

(58) B.57552. Para 1^{+0}. Age 40. S.E.5. Gestation 38 weeks. Non-smoker. Booked at 9 weeks gestation. Twelve years infertility. Normal to 37 weeks when B.P. 140/95. Admitted for rest. B.P. settled. C.T.G. normal and good fetal movement. Discharged after 3 days. Admitted in spontaneous labour. Difficulty hearing F.H. 2 hours later but complex on monitor. Three hours later F.H.N.H. Spontaneous delivery of a stillborn male infant weighing 3.43 kilograms.

Post-mortem: Intra-uterine anoxia.

(62) B.11848. Para 3^{+2}. Age 38. S.E.3. Gestation 40 weeks. Smoker. Booked at 13 weeks. Noted to have essential hypertension. Attended the renal clinic but no hypotensives required. Fourteen antenatal visits and no abnormality noted. Spontaneous labour at term. Emergency L.S.C.S. for accidental haemorrhage. 1300 mis. of retroplacental clot. Male infant weighing 3.80 kilograms born with Apgar scores of 0 and 2. Resuscitated but subsequently developed marked cerebral signs prior to N.N.D. at 37 hours of age.

Post-mortem: Refused.

(64) B.56283. Para 1^{+2}. Age 22. Gestation 29 weeks. Booked at 9 weeks when B.P. normal. Gross obesity. Uneventful pregnancy to 25 weeks when + 3 proteinuria noted. M.S.U. taken. Seen again one week later. M.S.U. sterile but B.P. 160/105 with + 4 proteinuria. Admitted to hospital. Hypertension persisted and i.v. Hadrallazine required. At 26 weeks platelet count reduced, Urea and Uric Acid increased. At 27 weeks commenced on Aldomet and Trasicor. At 29 weeks ultrasound scan showed growth retardation B.P.D. equivalent to 26-27 weeks with diminished liquor. C.T.G. non-reactive with dips. Emergency Caesarean section performed. Retroplacental clot present. Birth weight 960 grams. Apgar scores 8 and 10. Intubated at 4 minutes because of secondary apnoea. Following initial period of ventilation the baby was stabilised on intermittent manditary ventilation at a rate of 20 per minute in 35% oxygen. The baby continued fairly well for the first 24 hours. At 48 hours the baby began to deteriorate with mixed metabolic and respiratory acidosis and increased ventilatory requirement. At 49 hours the baby had intermittent myoclonic jerking and a sudden cardiac arrest. The baby was resuscitated with cardiac massage and intra-cardiac adrenaline and recovered slowly over about 30 minutes. The baby then had further seizures which were treated with Phenobarbitone. The baby's general condition remained very poor over the next three hours despite maximal

ventilation in 100% oxygen. The baby was given additional bicarbonate, was paralysed and given higher pressure ventilation but had a further collapse at 54 hours and did not respond to resuscitation.

Post-mortem: *(i)* Bilateral intraventricular haemorrhage.
(ii) Hyaline membrane disease.

Congenital Malformations

Cases 49 and 78.

Eclampsia

Number of cases	8
Incidence per cent	0.1
Perinatal deaths	Nil
Method of delivery:	
Vaginal delivery	6
Caesarean section	2

Comment: The incidence of eclamptic fits has remained unchanged since 1980. There were no perinatal deaths associated with eclampsia despite the fact that 3 patients had antepartum and 3 patients had intra-partum convulsions. These patients are routinely managed with intravenous heminevrin and hydralazine.

COMPARATIVE TABLE FOR 10 YEARS

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of cases	8	3	6	3	10	8	7	4	7	8
Incidence %	0.10	0.03	0.07	0.04	0.14	0.11	0.09	0.05	0.09	0.1
Perinatal deaths	Nil	1	1	1	2	1	Nil	1	2	Nil
Mortality rate	Nil	333	166	333	200	125	Nil	250	285	Nil

Multiple Pregnancy

Number of cases	65	
Incidence per cent	0.9	
Number of babies delivered	130	
Stillbirths	3	
Neonatal deaths	3	
Perinatal deaths	6	Rate: 46.2/1,000

Comment: There were 65 cases of multiple pregnancy during 1981, 56 per cent of the number recorded during 1980. Fourteen mothers (21.5 per cent) delivered before 37 weeks gestation and 41 infants (32 per cent) weighed less than 2.5 kilograms at birth. Of the 3 stillbirths, Case 32 was associated with unrecognised growth retardation of the second twin and in Cases 33 and 56 late booking compromised antenatal care. Two neonatal deaths (77 and 86) were due to lethal congenital anomalies and the third (71) died from necrotising enterocolitis despite vigorous management. It is interesting to record that in 45 mothers (69 per cent) the second twin was found to be heavier that the first and overall the mean birthweight of the first twin was 2650 grams and the second twin 2700 grams.

PERINATAL DEATHS

Normal Infants

(32) B.35566. Para 2^{+0}. Age 26. S.E. 2. Gestation 38 weeks. Booked at 15 weeks gestation. Large for dates. Multiple pregnancy confirmed by ultrasound scan at 26 weeks. Uneventful pregnancy. Labour induced at 38 weeks. 1st twin S.V.D. female infant weighing 3.35 kilograms. Twin II S.V.D. female, early macerated S.B. weighing 1.72 kilograms.

Post-mortem: Maceration.

(33) B.59419. Para 2^{+0}. Age 29. S.E.4. Gestation ? term. Booked at ? 36 weeks. Smoked 20/per day. Fundus large. Family history of twins. X-ray twins. Gestation suggested as only 28/29 weeks. Admitted one month later when scans put gestation at 31-32 ana 32-33 weeks. Scan following week. B. P. D. not possible. No fetal abnormalities. Liquor adequate. Following week scan put gestation at 36-37 weeks. Two days later delivered twins. First spontaneous vertex female weighing 3.43 kilograms — good Apgars. Second twin F.H. not heard. Breech delivery forceps to aftercoming head, macerated male infant weighing 3.60 kilograms.

Post-mortem: None.

(56) N,B.57882. Para 4^{+0} Age 40. S.E.5. Gestation 36 weeks. No antenatal care. Uncertain dates. First attended G.P. a day prior to admission to Coombe Hospital complaining of haematemesis. On admission (12/2/'81) twin pregnancy noted. Spontaneous onset of labour 16.30 on 13/2/'81. Examined on ward. F.H.X2 present. Cervix 6-8 cms. dilated. Transferred to delivery suite where immediate S.R.O.M. Meconium^{++} Breech on perineum. Assisted breech delivery of Twin I. Cord not pulsating. Fresh stillborn male infant weighing 3.04 kilograms. Second sac punctured. F.H. dropped to 60. Thick meconium $^{++}$. Rapid breech extraction of Twin II, female infant weighing 2.58 kilograms born with Apgar scores of 1 at one and 9 at five minutes. Third stage uncomplicated. Hb. 7.3 grams %. Transfusion commenced immediately following delivery of placenta.

Post-mortem: Intra-uterine anoxia.

(71) B. 13431. Para 4^{+1}. Age 27. S.E.4. Gestation 35 weeks. Booked at 14 weeks gestation. Twins diagnosed at 19 weeks. Normal antenatal course until admitted in premature labour at 35 weeks gestation. Twin I: spontaneous vertex delivery female infant weighing 1.89 kilograms born with Apgar scores of 9 and 10. During the first day, the baby developed hypoglycaemia which responded to i.v. fluids. The baby also had early jaundice and hypocalcaemia. At the age of 2 days the baby developed frank melaena and X-ray at this time revealed multiple fluid levels with evidence of necrotising enterocolitis. The baby, dispite fullest support, rapidly deteriorated and was subsequently transferred to another hospital for surgical intervention, but died prior to surgery being undertaken on the fourth day of life. Twin II: assisted breech delivery of male infant weighing 1.95 kilograms born with Apgar scores of 6 and 9 which survived.

Post-mortem: Necrotising enterocolitis.

Congenital Malformations

Cases 77 and 86.

Breech Delivery

Number of mothers	159	
Incidence per cent	2.1	
Twins	24	
Number of babies delivered	166	
Stillbirths	10	
Neonatal deaths	5	
Perinatal deaths	15	Rate: 94/1,000

Singleton Breech Delivery

Primigravidae:

Number of cases	37	
Incidence per cent	1.7	
Stillbirths	3	
Neonatal deaths	2	
Perinatal deaths	5	Rate: 135/1,000

Multigravidae:

Number of cases	100	
Incidence per cent	1.9	
Stillbirths	5	
Neonatal deaths	3	
Perinatal deaths	8	Rate: 80/1,000

Comment: The number of breech delivered infants dropped slightly during 1981 but this drop was entirely due to a decreased incidence of breech presentation in association with multiple pregnancy. When singleton breech deliveries are considered separately the actual incidence increased both in primigravidae and multiparae.

Term Breech:

Table 1 includes all singleton vaginal breech deliveries weighing more than 2.5 kilograms; a further 112 patients with breech presentation were delivered by Caesarean section. None of the 3 perinatal deaths (4, 48 and 49) was related to mode of delivery.

Pre-term Breech:

Twenty-nine singleton babies weighing less than 2.5 kilograms were delivered by the breech and 10 of these died, 5 being stillborn and 5 dying in the neonatal period. One of the 5 stillbirths (55) suffered from a complication typically associated with pre-term breech aelivery in that the after-coming head was caught in an incompletely dilated cervix; the other 4 stillbirths had either died before labour commenced (13, 17 and 28) or were abnormal (51). One of the neonatal deaths (63) followed a difficult delivery; one (67) died as a result of an intraventricular cerebral haemorrhage; one (68) died from respiratory complications; and two (84 and 87) died as a result of major abnormalities. In addition to the 29 vaginal deliveries a further 15 pre-term babies presenting by the breech were delivered by Caesarean section.

TABLE 1

ANALYSIS OF PERINATAL DEATHS FOLLOWING SINGLETON BREECH DELIVERY

	No.	S.B.	N.N.D.	F/A	I.U.D.	P.N.M.
Term:	108	3		2	1	27.7
Pre-term:	29	5	5	3	3	34.4
Total:	137	8	5 «	5	4	94.8

PERINATAL DEATHS

Normal Infants

(4) B. 19729. Para 3^{+0}. Age 39. S.E.4. Gestation 36 weeks. Booked at 14 weeks gestation. Blood group B Negative. Serum contained anti J.K.[a] Three full term normal deliveries. No jaundice. Anti J.K.[a] in 3rd pregnancy. Husband A Positive, J.K.[a] positive. Amniocentesis suggested non-affected fetus. I.U.D. at 36 weeks. Spontaneous labour and delivery of male stillborn infant weighing 3.14 kilograms. Nuchal cord x 3. Skeletal survey — N.A.D.

Post-mortem: Maceration. No evidence of erythroblastosis.

(13) B.49868. Para l^{+0}. Age 21. S.E.2. Gestation 31 weeks. Attended A.N.C. at 26 weeks gestation. All well. Admitted at 31 weeks with substantial A.P.H. F.H. present on admission. Nine hours after admission ultrasound scan to exclude placenta praevia. No. F.H. Anterior wall placenta. Spontaneous labour lasting lj hours. Fresh stillborn female infant weighing 1.53 kilograms. No retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(17) B.57791. Para 0^{+0}. Age 21. S.E.3. Gestation 34 weeks. Booked at 16 weeks gestation. Known epileptic, on Phenobarbitone and Epilim. Uneventful antenatal care up to 29 weeks when found to be only 24 weeks in size ana complained of crampy lower abdominal pains. Admitted. Scan confirmed dates, B.P.D. 28/52. Pains cleared and patient discharged. Seen 3 weeks later in clinic. Small for dates. Protein ±. Scan arranged for next visit in two weeks. M.S.U. clear. Two weeks later scan — B.P.D. only 29/30 weeks, breech. No weight gain. B.P. 130/90, proteinuria ±. Admited for assessment. On admission severe lower abdominal pain. Uterus tense, hard and tender. In strong labour. Fundus=32 weeks. Sedated A.R.M. — straw coloured liqour. Seven hours later delivered female stillborn infant weighing 1.47 kilograms. Breech delivery with 16 oz. retroplacental clot

Post-mortem: Maceration.

(28) B.13706. Para 5^{+2}. Age 40. S.E.2. Gestation 40 weeks. Smoked 15/daily. Previous premature delivery at 27 weeks gestation, alive and well. Booked at 10 weeks. Known essential hypertension. On treatment. B.P. 130/85. Referred to renal clinic and advised to remain on

Prestyl. B. P. well controlled. Ultrasound scan at 35 weeks — B.P.D.=31 weeks. Seen again at 36 weeks but patient not keen on admission. Admitted at 37 weeks. F.H.N.H. two days following admission. Spontaneous delivery at 40 weeks of macerated male infant weighing 1.24 kilograms.

Post-mortem: Maceration.

(33) B.59419. Para 2^{+0} Age 29. S.E.4. Gestation ? term. Booked at ? 36 weeks. Smoked 20/per day. Fundus large. Family history of twins. X-ray twins. Gestation suggested as only 28/29 weeks. Admitted one month later when scans put gestation at 31-32 and 32-33 weeks. Scan following week B.P.D. not possible. No fetal abnormalities. Liquor adequate. Following week scan put gestation at 36-3/ weeks. Two days later delivered twins. First spontaneous vertex female weighing 3.43 kilograms good Apgars. Second twin F.H. not heard. Breech delivery forceps to after coming head, macerated male infant weighing 3.60 kilograms.

Post-mortem: None.

(55) B.57611. Para 0^{+0}. Age 30. S.E. 2. Gestation 31 weeks. Booked at 19 weeks. One week history of backache and slight blood stained discharge. Treated by G.P. for U.T.I. No response. Referred to hospital in labour. Cervix fully dilated 1| hours after admission. Breech on perineum. F.H. present. Assisted breech delivery. Spontaneous delivery to shoulders. Further progress arrested. Cervix clamped tightly around neck. Cord not pulsating. Deep anaesthesia with Halothane. Very difficult delivery with forceps to fetal head. Fresh female stillborn infant weighing 1.04 kilograms.

Post-mortem: Intra-partum asphyxia.

(56) N.B.57882. Para 4^{+0}. Age 40 S.E. 6. Gestation 36 weeks. No antenatal care. Uncertain dates. First attended G.P. a day prior to admission to Coombe Hospital complaining of haematemesis. On admission (12/2/'81) twin pregnancy noted. Spontaneous onset of labour 16.30 on 13/2/'81. Examined on ward. F.H.X2 present. Cervix 6-8 cms. dilated. Transferred to delivery suite where immediate S.R.O.M. Meconium ± Breech on perineum. Assisted breech delivery of Twin I. Cord not pulsating. Fresh stillborn male infant weighing 3.04 kilograms. Second sac punctured. F.H. dropped to 60. Thick meconium ±. Rapid breech extraction of Twin II, female infant weighing 2.58 kilograms born with Apgar scores of 1 at one and 9 at five minutes. Third stage uncomplicated. Hb. 7.3 grams %. Transfusion commenced immediately following delivery of placenta.

Post-mortem: Intra-uterine anoxia.

(63) B.42968. Para 1^{+0}. Age 22. S.E. 5. Gestation 28 weeks. Admitted at 16 weeks gestation bleeding p.v. Repeated bleeds on and off up to 28 weeks. Serial scans showed good growth. Admitted at 28 weeks by scan. Premature breech rapidly delivered through incompletely dilated cervix. Male infant weighing 1.17 kilograms born with Apgar scores of 2 and 3. Manual removal of small infarcted placenta with retroplacental clot. Baby intubated at 1 minute and ventilated. Subsequently developed jaundice and pneumothorax. Two exchange transfusions. Convulsions prior to cardiac arrest at 48 hours of age.

Post-mortem: Pulmonary disease of the newborn.

(67) B.48168. Para 1^{+0}. Age 28. S.E. 2. Gestation 28 weeks. Booked at 19 weeks gestation. Admitted at 27 weeks with mid-trimester bleeding. One week later spontaneous breech delivery of female live infant weighing 1.10 kilograms born with Apgar scores of 2 and 5. Transferred immediately to S.C.B.U. The infant had evidence of marked respiratory distress and was intubated and commenced on I.P.P.V. There was some good response following this, but at the age of 6 hours the infant had intermittent hypoxic episodes which became persistent and Tolazoline was administered without a good response. Subsequently, the baby developed evidence of pneumothorax and pneumoaoomen associated with findings consistent with intracranial haemorrhage . The baby died at the age of 17 hours.

Post-mortem: (i) Intraventricular cerebral haemorrhage.

(ii) Pulmonary atelectasis.

(68) B.28416. Para 2^{+0}. Age 34. S.E. 3. Gestation 29 weeks. Booked at 15 weeks. Previous atrial septal defect repaired. At 28 weeks, A.P.H. followed by premature labour at 29 weeks. Assistea breech delivery of male infant weighing 1.55 kilograms born with Apgar scores of 5 and 8. Intubated. Initial chest X-ray showedhyaiine membrane disease. Collapsed at 3 hours. Left pneumothorax. Drain inserted. Further collapse. Did not respond.

Post-mortem: Pulmonary immaturity and atelectasis.

Congenital Malformations

Cases, 48, 49, 51, 84 and 87.

External Version

Number of cases	55
Incidence per cent	0.7
Number of babies delivered	56
Stillbirths	2
Neonatal deaths	Nil
Perinatal deaths	2 Rate: 35.7/1,000

Comment: The number of cases of external version recorded during the year was similar to that noted in 1980. One of the mothers on whom external cephalic version was performed at 34 weeks was subsequently found to have a twin pregnancy. The presentation reverted to breech on o occasions and 3 of these babies were delivered by Caesarean section. Furthermore, one of the vaginal breech deliveries (60) was, in fact, an undiagnosed shoulder presentation and should be considered as an avoidable intrapartum death. Caesarean section was required for only 2 of the 49 cephalic presentations. Neither of the 2 stillbirths were related to the performance of external cephalic version during the antenatal period.

PRESENTATION AT DELIVERY

Cephalic		Breech	
Vaginal Delivery	L.S.C.S.	Vaginal Delivery	L.S.C.S.
48	2	3	3

PERINATAL DEATHS

Normal Infants

(4) B.19729. Para 3^{+0} Age 39. S.E.4. Gestation 36 weeks. Booked at 14 weeks gestation. Blood group B Negative. Serum contained anti J.K.[a] Three full term normal deliveries. No jaundice. Anti J.K.[a] in 3rd pregnancy. Husband A Positive, J.K.[a] positive. Amniocentesis suggested non-affected fetus. I.U.D. at 36 weeks. Spontaneous labour and delivery of male stillborn infant weighing 3.14 kilograms. Nuchal cord x 3. Skeletal survey — N.A.D.

Post-mortem: Maceration. No evidence of erythroblastosis.

(60) B.12538. Para 2^{+0}. Age 30. S.E. 4. Gestation 40 weeks. Previous history: 1973 — induced for pre-eclampsia, 5 lb. 4oz. at 38/40. 1975 — induced for pre-eclampsia, 6 lb. 10 oz. at 41/40. Booked at 18 weeks gestation. Seven A.N. visits. N.A.D. At 40 ± weeks admitted with show and pains. F.H.H. Breech. Cervix 9 cms. F.H.N.H. Prolapsed arm. E.U.A. — shoulder presentation with prolapaed arm. Internal podalic version. Breech extraction, normal female weighing 3.03 kilograms, stillborn.

Post-mortem: Refused.

Amniocentesis

Total Patients	43
Total amniocenteses	140
Indications for amniocentesis:	
Rhesus iso immunisation	117
L/S ratio	23

All cases had placental localisation by ultrasound prior to amniocentesis. There were no perinatal losses or other complications. The figures are similar to those recorded during 1980.

Varicose Vein Clinic

During the year 114 patients were seen at the clinic with an average of 3 visits per patient. These figures are almost identical to those of 1980. Forty-four patients were treated actively by compression sclerotherapy (36 in 1980). Seven patients were treated primarily for superficial thrombophlebitis. Two patients were admitted from the clinic, one for bed rest, and the other for treatment of an antepartum deep venous thrombosis.

Age

< 20 years	1
20-24	10
25-29	31
30-34	38
35-39	27
40+	7

Parity
(recorded in 111)

0	3
1	24
2	19
3	27
4	20
5 +	18

Induction of Labour

Number of cases	... 1,669	
Incidence per cent	... 23.1	
Multiple pregnancy	... 22	
Number of babies delivered	... 1,691	
Stillbirths	17	
Neonatal deaths	3	
Perinatal deaths	20	Rate: 11.8/1,000

TABLE I—PARITY

	Prim.	Mult.
Total cases	486	1,183
Incidence per cent	23	23.2
Total babies	489	1,202

TABLE II—INDICATIONS FOR INDUCTION

	Prim.	Mult.
Past 40 weeks gestation ...	269(12.8%)	601(11.8%)
P. E. T./Hypertension ...	128 (6.1%)	178 (3.5%)
Retarded intrauterine growth	20	42
Distance from hospital ...	—	22
Diabetes/Latent Diabetes	4	40
Poor weight gain	6	17
Poor obstetrical history/Infertility	4	32
Antepartum haemorrhage ...	11	28
Incipient labour ...	17	40
Antibodies	—	21
Elective epidural	3	15
Maternal Age ...	3	17
1st or 2nd trimester bleeding	2	5
Multiple pregnancy	1	16
Dead fetus	3	8
PoorC.T.G.	1	12
Reduced fetal movements	4	18
Reduced liquor volume	4	9
Miscellaneous ...	6	62
Total (mothers) ...	486	1,183

Figures in brackets refer to the incidence in all patieiits of that parity.

TABLE III—MODE OF DELIVERY

	Prim.	Mult.
Spontaneous vertex ...	339(69.0%)	1,070(89.0%)
Forceps/Vacuum ...	102(21.0%)	76 (6.3%)
Breecn	6	20
Caesarean section ...	42(8.6%)	36* (3.0%)
Total (babies)	489	1,202

*This figure includes one set of twins and so represents 35 mothers.

TABLE IV—CAESAREAN SECTION

Indication for Induction	Prim.	Mult.
Past 40 weeks gestation	9 (7.0%)	19(3.0%)
P.E.T./Hypertension	4(11.0%)	4(2.0%)
Retarded intra-uterine growth	2(10.0%)	
Diabetes/Latent Diabetes	1	1
Rhesus incompatibility ...		2
Antepartum haemorrhage	1	
Poor obstetric history ...		1
Incipient labour	1	4(10.0%)
Multiple pregnancy		2*
Post-Shirodkar suture ...	1	
Fetus thought to be "large"		1
Weight loss at term	1	
Primieravid Aged 41 years	1	
Breech presentation	1	
Distance from hospital ...		1
Mid trimester bleed		1
Total (babies)	42	36

Figures in brackets show the incidence of Caesarean section in patients induced for that particular indication.

*This figure represents two babies but only one mother.

Comment: A slight rise in the number of inductions performed in 1981 means that the incidence remains at approximately 22 per cent for the past four years. The increase in 1981 was entirely due to more primigravidae being induced, the rate for multiparous patients remaining the same.

Among the indications for induction, the number performed for uncomplicated post-maturity has fallen slightly. It may be open to argument as to whether a planned epidural is reason enough to terminate a pregnancy and perhaps reduced fetal movements or a fall in the amount of clinically estimated liquor, are not sufficient without more definitive investigations of fetal wellbeing.

Regretfully, there was a further increase in the number of induced patients who had to be delivered by Caesarean section. This change was restricted to primigravidae and closer examination of the figures (Table IV) shows that the trend was not amongst patients induced for post-maturity. Compared with 1981, this rate was the same in primigravidae and slightly reduced in multiparous patients. In contrast, primigravidae induced for pre-eclampsia or hypertension had double the section rate compared with 1980.

One interesting feature is the continued appearance in the section table of patients who were induced for "incipient labour". These are mothers who come into hospital at or about term with contractions or a show. The contractions stop, and they appear to go "out of labour". One can be excused for assuming that rupture of the membranes and stimulation with an oxytocic in such cases would result in a fairly speedy labour, but in no less than 10 per cent of multiparous women for whom this was done in 1981, abdominal delivery was eventually required.

Of the 17 stillbirths, all were either dead before induction or suffered from serious congenital malformation. However, Cases 9 and 29 might not have died had labour been induced earlier. More prompt attendance at the antenatal booking clinic and subsequent improved assessment might have avoided a stillbirth in Case 23, and delivery should possibly have been effected in Case 36, despite the low L.S. ratio. The three neonatal deaths were all due to congenital malformation.

PERINATAL DEATHS

Normal Infants

The following infants had died before induction took place and changes in management would not have affected their outcome (1, 4, 5, 7, 8,10,14, 18, 21 and 32). The next four cases have been referred to in the comment above:

(9) B.26961. Para 2^{+3}. Age 31. S.E.5. Gestation 41 weeks. Smoked 10/daily. Booked at 12 weeks gestation. Admitted at 39 weeks, irregular pains, not in labour, discharged home. Re-admitted at 40 weeks, ? S.R.O.M. Not in labour. Pyridium test. Discharged three days later. Re-admitted at 41 weeks with pains. Cervix multips os. F.H.H. Unsuitable for A.R.M. Eight hours later F.H.N.H. Prostaglandin infusion. Spontaneous delivery of male stillborn infant weighing 3.17 kilograms. No nuchal cord/retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(23) B. 61268. Para 4. Age 30. S.E.5. Gestation ? 38 weeks. Late booker and only two visits. Admitted with abruptio placentae. F.H.N.H. A.R.M. and delivered female stillborn infant weighing 2.8 kilograms. Large retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(29) B.55551. Para 0^{+0}. Age 25. S.E.2. Gestation 38 weeks. Booked at 11 weeks gestation. Antenatal course totally uneventful until 36 weeks when suspected clinically as smallish, although ultrasound scan at 37 weeks. B.P.D. 9.12 (34-35 weeks). Seen one week later. Ultrasound scan — no fetal heart detected. Prostaglandin induction at 38 weeks. Spontaneous delivery of macerated stillborn male infant weighing 2.01 kilograms.

Post-mortem: (i) Congenital cardiac anomaly, (ii) Maceration.

(36) B.59332. Para 1+°. Age 28. Gestation ? 30 weeks. Booked at approximately 26 weeks gestation but dates unknown. Previous haemolytic disease developed during her first pregnancy and high antibody level noted at first visit. Consort found to be heterozygous for the rhesus factor. Amniocentesis showed severely affected fetus. Admitted to hospital for planned induction but L.S. ratio only 1.4 despite course of Dexamethasone. Delivery therefore deferred and I.U.D. at approximately 30 weeks gestation. Prostaglandin induction and spontaneous delivery of macerated stillborn male infant weighing 1.84 kilograms.

Post-mortem: None.

Congenital Malformations

Cases 45,47,50,73, 75, and 91.

Management of Labour

This chapter relates to the management of all patients who went into spontaneous labour after 28 weeks gestation. The figures presented here should be considered in conjunction with the intrapartum deaths which have already been referred to in the stillbirth section.

Continuous fetal heart rate monitoring

The general principles of management of labour were unaltered during 1981. A total of 1,739 patients were managed with continuous fetal heart rate monitoring during the year. This represents 24 per cent of the patients who went into labour and is greater than that recorded in 1980. The increased use of fetal monitoring was associated with the availability of one additional monitor. Two hundred and fifty nine of the 1,739 patients (14.8 per cent) had a pH performed in addition to the continuous fetal monitoring, while 195 of the 1,739 monitored patients (11.2 per cent) were delivered by Caesarean section. Eighty-seven of the 195 patients requiring Caesarean section had the operation done for fetal distress, an incidence of 5.0 per cent amongst the monitored patients. One of the 1,739 monitored patients (Case 58) delivered a fresh stillborn infant and in this instance a type II deceleration was not noted and acted upon.

Epidural Analgesia

Epidural analgesia was administered during labour to 423 patients (5.8 per cent) of whom 270 (64 per cent) had continuous fetal heart rate monitoring. Two hundred and twenty-one of the 423 mothers (52 per cent) delivered spontaneously; 143 (34 per cent) were delivered with the aid of forceps; 39 (9 per cent) were delivered by Caesarean section; while 20 (5 per cent) were delivered with the aid of ventouse.

Prolonged Labour—Primigravidae

(Labour lasting longer than 12 hours)

Number of cases	285
Incidence	13%

Comment: The duration of labour exceeded 12 hours in 285 primigravidae which represents an increase in the number recorded in 1981. In addition, the induction/delivery interval exceeded 12 hours in 93 of the 486 primigravidae in whom labour was induced. The reason for the increased incidence of prolonged labour is not apparent, for there was no alteration in general labour ward policy. Three perinatal deaths occurred among the 285 patients: 2 of these (58 and 61) were considered avoidable intrapartum deaths; the one neonatal death (83) was due to a congenital malformation.

Transverse and oblique lie in labour

Number of cases	21
Incidence per cent	0.29
Perinatal death	1

Method of delivery:

Caesarean Section	15
Breech	3
Spontaneous	2
Vacuum	1

Comment: One case was associated with premature labour, nine with a parity of 5 or more and one with multiple pregnancy. Cord prolapse was only noted twice. The perinatal death (60) was an avoidable intrapartum death where a shoulder presentation was misdiagnosed as a breech presentation.

Persistent posterior position of the occuput and transverse arrest

Number of cases	184
Incidence per cent	2.5
Deep transverse arrest	83
Persistent occipito-posterior	101

Comment: The 2.5 per cent incidence of these malpositions was slightly greater than that recorded during 1980. Labour was induced in 42 of the 184 cases (23 per cent) and was prolonged in 44 instances. Epidural analgesia was associated with 22 per cent of the cases. Forceps delivery was required in 46 per cent of cases, vacuum extraction in 20 per cent, while 8 per cent were delivered by Caesarean section. Three babies weighed less than 2.5 kilograms and these were born at 33, 34 and 37 weeks gestation respectively. There were no perinatal deaths.

Disproportion

Number of cases	29
Incidence per cent	0
Perinatal deaths	Nil
Primigravidae	6
Multigravidae	23
Management:	
Elective L.S.C.S.	24
Trial of labour	5

Comment: There were 7 new cases of disproportion during 1981: 4 primigravidae had a trial of labour, while 2 were delivered by elective Caesarean section. In addition, 1 multigravida patient, who had had a previous Caesarean section had an unsuccessful trial of labour. There were **no perinatal** deaths.

Face and brow presentation

Face:	
Number of cases	9
Incidence per cent	0.12
Stillbirths	1
Neonatal deaths	0
Perinatal deaths	1
Method of delivery:	
Spontaneous ...	**7**
Caesarean Section	**2**
Brow:	
Number of cases	8
Incidence per cent	0.1
Perinatal deaths	Nil

Comment: The number of face presentations was identical with that recorded last year. Two of the nine cases required Caesarean section, the others all being delivered spontaneously. The only perinatal death (47) was unrelated to the mode of delivery. The incidence of brow presentation increased and all these babies were delivered by Caesarean section.

PERINATAL DEATHS

Normal Infants

(58) B.57552. Para 1^{+0}. Age 40. S.E.5. Gestation 38 weeks. Non-smoker. Booked at 9 weeks gestation. Twelve years infertility. Normal to 37 weeks when B.P. 140/95. Admitted for rest. B.P. settled. C.T.G. normal and good fetal movement. Discharged after 3 days. Admitted in spontaneous labour. Difficulty hearing F.H. 2 hours later but complex on monitor. Three hours later F.H.N.H. Spontaneous delivery of a stillborn male infant weighing 3.43 kilograms.

Post-mortem: Intra-uterine anoxia.

(60) B.12538. Para 2^{+1}. Age 30. S.E.4. Gestation 40 weeks. Previous history: 1973—induced for pre-eclampsia, 5 lb. 4 oz. at 38/40. 1975—induced for pre-eclampsia, 6 lb. 10 oz. at 41/40. Booked at 18 weeks gestation. Seven A.N. visits. N.A.D. At 40 + weeks admitted with show and pains. F.H.H. Breech. Cervix 9 cms. F.H.N.H. Prolapsed arm. E.U.A.—shoulder presentation with prolapsed arm. Internal podalic version. Breech extraction, normal female weighing 3.03 kilograms, stillborn.

Post-mortem: Refused.

(61) B.58221. Para 2^{+0}. Age 37. S.E.3. Gestation 41 weeks. Non-smoker. Booked at 11 weeks gestation. Normal antenatally. Admitted in labour at 41 weeks. A.R.M. to accelerate. Meconium stained liquor. F.H.N.H. soon after. Normal delivery of a stillborn male infant weighing 4.11 kilograms.

Post-mortem: Intra-uterine anoxia.

Congenital Malformations

Cases 47 and 83.

Prolapse and Presentation of the Co id

Number of cases	23	
Incidence per cent.	0.32	
Twins	2	
Number of babies delivered	25	
Stillbirths	2	
Neonatal deaths	Nil	
Perinatal deaths	2	Rate: 80/1,000
Method of delivery:		
Caesarean section.	18	
Breech	2	
Forceps	2	
Spontaneous vertex	2	
Ventouse	1	

Comment: The incidence of this complication is similar to that recorded in previous years. Three of the 23 cases occurred in primigravidae, and two were found in association with a transverse lie in labour. Both stillbirths were deemed to be avoidable intrapartum deaths: there was delay in getting Case 54 to theatre and Case 60 was a missed shoulder presentation which had incorrectly been diagnosed as a breech presentation.

PERINATAL DEATHS

Normal Infants

(54) B.57083. Para 0^{+1}. Age 25. Gestation 31 weeks. Smoked 30/daily. Previous termination of pregnancy. First booking at 11 weeks gestation. Threathened miscarriage at 14 weeks. Further episode of vaginal Bleeding and ? S.R.O.M. at 27 weeks, — admitted. Ultrasound scan=23/24 weeks gestation. Pyridium test negative for Iiauor. Definite S.R.O.M. at 29 weeks. Spontaneous labour at 31 weeks. Prolapsed cord. F. H. 60/min. L.S.C.S. fresh female stillborn delivered weighing 1.13 kilograms.

Post-mortem: Intra-uterine anoxia

(60) B.12538. Para 2^{+0} Age 30. S.E. 4. Gestation 40 weeks. Previous history: 1973 — induced for pre-eclampsia, 5 lb. 4 oz. at 38/40. 1975 — induced for pre-eclampsia, 6 lb. 10 oz. at 41/40. Booked at 18 weeks gestation. Seven A.N. visits. N.A.D. At 40+ weeks admitted with show and pains. F.H.H. Breech. Cervix 9 cms. F.H.N.H. Prolapsed arm. E.U.A. — shoulder presentation with prolapaed arm. Internal podalic version. Breech extraction, normal female weighing 3.03 kilograms, stillborn.

Post-mortem: Refused.

COMPARATIVE TABLE FOR 10 YEARS

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of cases	23	25	25	20	29	34	26	20	32	23
Incidence %	0.25	0.29	0.3	0.3	0.28	0.41	0.5	0.35	0.43	0.32
Perinatal deaths	2	1	5	3	4	5	1	1	3	2
Mortality rate	74.0	40	200	130.4	125	135.1	38.4	45.5	90.9	80

Forceps Delivery

Number of cases	471	
Incidence per cent	6.5	
Twins	8	
Number of babies delivered	474	
Stillbirth	1	
Neonatal deaths	0	
Perinatal death	1	Rate: 2.1/1,000

Indications:

Failure to advance	302
Fetal distress	153
A.P.H.	7
Prematurity	6
P. E.T./Eclampsia	4
Hypertension	2

Type of anaesthetic used:

Local infiltration	328
Lumbar epidural	143

Comment: The incidence of forceps delivery continues to decline and at 6.5 per cent it was the lowest recorded in recent years. The number of forceps deliveries performed for failure to advance in the second stage increased by 10 per cent but those done for fetal distress decreased by 2 per cent. There was only one stillbirth and this was not related to the mode of delivery but was due to an accidental haemorrhage. There were no cases of traumatic intracranial haemorrhage. Rotation with forceps for deep transverse arrest was performed on 26 occasions. Fourteen babies weighed less than 2.5 kilograms, ranging in weight and gestation from 1.33 kilograms at 29 weeks to 2.49 kilograms at 36 weeks. Seventyfive of the 474 infants (16 per cent) were admitted to the Special Care Unit for observation.

PERINATAL DEATH

Normal Infant

(15) B.59658. Para 0^{+0}. Age 16. S.E. (Innupta). Gestation 32 weeks. Non-smoker. Booked at 10 weeks gestation. Admitted at 30 weeks with P.E.T. and accidental haemorhage. F.H.N.H. Labour accelerated by A.R.M. Delivered stillborn male infant weighing 1.55 kilograms. 1250 ml. retroplacentalclot.

Post-mortem: Intra-uterine anoxia.

Vacuum Extraction

Number of cases	73
Incidence per cent	1.0
Number of babies delivered	73
Perinatal deaths	Nil

Comment: Seventy three babies were delivered by vacuum extraction during the year, an increase of 17 on the figures for 1980. Forty three (59 per cent) were primigravidae. The main indications were second stage delay associated with malrotation of the occiput (49 per cent) and fetal distress (45 per cent). In addition, there were 2 cases oi failed vacuum extraction; iorceps were required to effect delivery of a healthy infant in each case. Local analgesia was used in 73 per cent of cases and epidural analgesia in the remaining 27 per cent. Labour had been induced in 25 cases (34 per cent) and was prolonged in 26 cases. Sixteen of the 73 babies (22 per cent) were admitted to the Special Care Unit for observation. There were no perinatal deaths and no infant weighed less than 2.5 kilograms.

Caesarean Section

Number of cases	628	
Incidence per cent	8.7	
Twins	3	
Number of babies delivered	631	
Stillbirth	1	
Neonatal deaths	5	
Perinatal deaths	6	Rate: 9.5/1,000

in indications in each case:

Fetal distress	129
Repeat elective	109
Breech	93
Failure to advance	80
Unstable lie	33
Disproportion	29
Pre-Eclampsia	27
Placenta praevia	19
A.P.H.	19
Cord prolapse	18
Abnormal CTG	15
Retarded intra-uterine growth	13
Brow	6
Rhesus	4
Failed forceps	4
Age	4
Bad history	3
Previous vaginal surgery	2
Eclampsia	2
Metroplasty	2
Miscellaneous	17

Comment: There was a further rise in the incidence of Caesarean section during 1981 with a 36 per cent increase in the number of Caesarean sections performed for fetal distress. It is disturbing to note that 30 (23 per cent) of the patients who had Caesarean sections for this reason had neither fetal heart monitoring nor fetal scalp pH measurements performed. The one stillbirth (54) was associated with a cord prolapse and delay in getting the patient to theatre; one of the neonatal deaths (62) was associated with an accidental haemorrhage, one (64) with retarded intra-uterine growth in a hypertensive patient, while three (83, 88 and 91) were due to congenital abnormalities. Two hundred and thirtytwo of the 631 babies (36.7 per cent) were admitted to the S.C.B.U. for observation.

PERINATAL DEATHS

Normal Infants

(54) B.57083. Para 0^{+1} Age 25. Gestation 31 weeks. Smoked 30/daily. Previous termination of pregnancy. First booking at 11 weeks gestation. Threatened miscarriage at 14 weeks. Further episode of vaginal bleeding and ? S.R.O.M. at 27 weeks, — admitted. Ultrasound scan=23/24 weeks gestation. Pyridium test negative for liquor. Definite S.R.O.M. at 29 weeks. Spontaneous labour at 31 weeks. Prolapsed cord. F.H. 60/min. L.S.C.S. fresh female stillborn delivered weighing 1.13 kilograms.

Post-mortem: Intra-uterine anoxia.

(62) B.11848. Para 3^{+2} Age 38. S.E.3. Gestation 40 weeks. Smoker. Booked at 13 weeks. Noted to have essential hypertension. Attended the renal clinic but no hypotensives required. Fourteen antenatal visits and no abnormality noted. Spontaneous labour at term. Emergency L.S.C.S. for accidental haemorrhage. 1300 mis. of retroplacental clot. Male infant weighing 3.80 kilograms born with Apgar scores of 0 and 2. Resuscitated but subsequently developed marked cerebral signs prior to N.N.D. at 37 hours of age.

Post-mortem: Refused.

(64) B.56283. Para 1^{+2} Age 22. Gestation 29 weeks. Booked at 9 weeks when B.P. normal. Gross obesity. Uneventful pregnancy to 25 weeks when ±3 proteinuria noted. M.S.U. taken. Seen again one week later. M.S.U. sterile but B.P. 160/105 with ±4 proteinuria. Admitted to hospital. Hypertension persisted and i.v. Hydrallazine required. At 26 weeks platelet count reduced, Urea and Uric Acid increased. At 27 weeks commenced on Aldomet and Trasicor. At 29 weeks ultrasound scan showed growth retardation B.P.D. equivalent to 26-27 weeks with diminished liquor. C.T.G. non-reactive with dips. Emergency Caesarean section performed. Retroplacental clot present. Birth weight 960 grams. Apgar scores 8 and 10. Intubated at 4 minutes because of secondary apnoea. Foil owing initial period of ventilation the baby was stabilised on intermitent manditary ventilation at a rate of 20 per minute in 35% oxygen. The baby continued fairly well for the first 24 hours. At 48 hours the baby began to deteriorate with mixed metabolic and respiratory acidosis and increased ventilatory requirement. At 49 hours the baby had intermittent myoclonic jerking and a sudden cardiac arrest. The baby was resuscitated with cardiac message and intra-cardiac adrenaline and recovered slowly over about 30 minutes. The baby then had further seizures which were treated with Phenobarbitone,. The baby's general condition remained very poor over the next three hours despite maximal ventilation in 100% oxygen. The baby was given additional bicarbonate, was paralysed and given higher pressure ventilation but had a further collapse at 54 hours and did not respond to resuscitation.

Post-mortem: (i) Bilateral intraventricular haemorrhage.

(ii) Hyaline membrane disease.

Congenital Malformations

Cases 83,88 and 91.

Labour Following Previous Caesarean Section

Number of cases	256	
Incidence per cent	3.5	
Twins	3	
Number of babies delivered	259	
Stillbirths	3	
Neonatal deaths	0	
Perinatal deaths	3	Rate: 11.7/1,000

Method of delivery:

Spontaneous	199
L.S.C.S.	35
Forceps	21
Breech	2

Comment: Two hundred and fifty six patients who had previously had a Caesarean section performed, laboured. Thirty five of these (13.7 per cent) required repeat emergency Caesarean section. One hundred and ninety nine patients (77.6 per cent) delivered spontaneously, while 21 (8.2 per cent) were delivered by forceps. Labour was induced in 57 cases (22 per cent) and was prolonged in 25 (9.8 per cent). None of the 3 stillbirths were associated with labour or delivery, as in each case intrauterine death had occurred prior to the onset of labour; 2 of the 3 cases (9 and 14) were delivered following induction of labour with prostaglandin infusion, while the third (26) went into spontaneous labour. Ten of the 259 babies weighed less than 2.5 kilograms, their birth weights ranging from 1.87 kilograms at 34 weeks to 2.29 kilograms at 39 weeks respectively. Scar dehiscence occurred on two occasions and both patients required hysterectomy.

PERINATAL DEATHS

Normal Infants

(9). B.26961. Para 2^{+3} Age 31. S.E.5. Gestation 41 weeks. Smoked 10/daily. Booked at 12 weeks gestation. Admitted at 39 weeks, irregular pains, not in labour, discharged home. Re-admitted at 40 weeks, ? S.R.O.M. Not in labour. Pyridium test. Discharged three days later. Re-admitted at 41 weeks with pains. Cervix multips os. F.H.H. Unsuitable for A.R.M. Eight hours later F.H.N.H. Prostaglandin infusion. Spontaneous delivery of male stillborn infant weighing 3.17 kilograms. No nuchal cord/retroplacental clot.

Post-mortem: Intra-uterine anoxia.

(14). B.13348. Para 2^{+0} Age 38. S.E.4. Previous Caesarean section. Gestation 32 weeks. Booked at 10 weeks. Uneventful progress to 28 weeks when B.P. 160/95 noted — checked 120/80. Subsequently admitted at 32 weeks with B.P. 165/110 and 10 hour history of vaginal bleeding. F.H.N.H. Placenta not praevia. PGE induction—female stillborn infant weighing 1.02 kilograms. Large retroplacental clot. Placenta unhealthy.

Post-mortem: Intra-urterine anoxia.

(26) B.55910. Para l^{+0} Age 43. S.E. 4. Gestation 36 weeks. Previous C.S. Booked at 16 weeks gestation. Good attender. Smoker. Mild essential hypertension (B.P. 150/86 at 24 weeks). Admitted at 35 weeks when B.P. 175/105. Investigations: B.P. borderline on bed rest. Uric Acid: 310 u mol/1. C.T.G. satisfactory. Allowed home over Christmas holidays. Returned to hospital at 36 weeks gestation. No fetal movements for 48 hours. I.U.D. Spontaneous delivery at term of macerated male stillborn infant weighing 2.94 kilograms. Placenta very unhealthy. Clotting screen normal.

Post-mortem: (i) Congenital Cardiac Anomaly, VSD

(ii) Maceration

Thrombosis

Ante-Natal:	
Superficial	5
Deep Venous Thrombosis	4
Puerperal:	
Superficial	34
Deep Venous Thrombosis	Nil

Comment: The incidence for deep venous thrombosis remains very low indeed and surprisingly, all 4 cases presented antenatally when the diagnosis has to be presumptive because venography is not used in pregnancy. Superficial thrombophlebitis also seems quite rare in view of the frequency of severe varicositis that are seen at clinics. Thrombosis was not implicated as significant in the one stillbirth in this group. The number of cases of postnatal superficial thrombosis was somewhat less than that recorded in 1980.

PERINATAL DEATH

Normal Infant

(4) B. 19729. Para 3^{+0}. Age 39. S.E. 4. Gestation 36 weeks. Booked at 14 weeks gestation. Blood group B Negative. Serum contained anti J.K.^{a} Three full term normal deliveries. No jaundice. Anti J.lC^{a} in 3rd pregnancy. Husband A Positive, J.K.^{a} positive. Amniocentesis suggested non-affected fetus. I.U.D. at 36 weeks. Spontaneous labour and delivery of male stillborn infant weighing 3.14 kilograms. Nuchal cordx3. Skeletal survey — N.A.D.

Post-mortem: Maceration. No evidence of erythroblastosis.

Manual Removal of Placenta

Number of cases	82
Incidence per cent	1.12
Twins	1

Method of delivery:

Spontaneous	64
Breech	8
Forceps	8
Vacuum	2

Comment: The number of manual removals of the placenta has slightly decreased over previous years. Eight of the eighty-two cases were associated with primary postpartum haemorrhage. The overall morbidity remained low with three of the 82 patients developing a puerperal infection.

COMPARATIVE TABLE FOR 10 YEARS

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of cases	140	140	129	118	155	109	124	104	109	82
Incidence %	1.8	1.9	1.7	1.6	2.2	1.6	1.6	1.4	1.4	1.12

Postpartum Haemorrhage

Number of cases 176
Incidence per cent 2.4
Twins 3

Aetiology:

MODE OF DELIVERY

	S.V.D.	V.E.	C.S.	Forceps	Breech	Twins	Total
Placental fragments	75	—	4	4	3	—	86
Whole placenta	4	—	—	—	—	—	4
Traumatic	9	1	2	2	1	—	15
Uterine atony	47	2	**3**	5	11	3	71
Total:	135	3	9	11	15	3	176
Primary	52	3	3	6	8	3	72
Seconclary	86	—	6	5	7	—	104

Comment: The incidence of postpartum haemorrhage has varied little over the last ten years. Labour was induced in 51 patients (29 per cent} and had been prolonged in 12 patients. Twenty-eight patients (16 per cent) had previously had 4 or more cnildren. Twelve patients required 4 or more units of blood. Three of the 72 patients with primary postpartum haemorrhage required hysterectomy to control the bleeding, as well as one of the 104 patients with a secondary haemorrhage.

COMPARATIVE TABLE FOR 10 YEARS

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of cases	183	168	191	177	145	165	125	151	129	176
Incidence %	1.7	2.2	2.5	2.4	2.1	2.3	1.7	2.0	1.7	2.4
Twins	—		1	9	5	1	6	4	3	3

Puerperal Pyrexia

Number of cases		99
Incidence per cent		1.3
Genital Infection	Number of cases	38
Method of delivery:		
Spontaneous		24
Caesarean section		9
Breech		3
Forceps		2
B Non-Genital Infection	Number of cases	61
Respiratory tract infection		24
Breast lesions		13
Wound infection		11
Urinary tract infection		3
Other causes		10

Comment: The incidence of puerperal pyrexia was less than in recent years. Thirty-seven of the 628 women delivered by Caesarean section developed puerperal pyrexia with 9 cases suffering from genital infection and 28 from non-genital wound infection. Haemolytic streptococci were responsible for only one of the 38 cases of genital infection, while E-coli, anaerobic organisms or proteus were more commonly isolated.

COMPARATIVE TABLE FOR 10 YEARS

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of cases	71	153	81	91	82	130	111	112	150	99
Incidence %	0.9	2.0	1.1	1.2	1.2	1.9	1.5	1.5	1.9	1.3

Physiotherapy and Parentcraft

ANTE-NATAL PHYSIOTHERAPY

The Preparation for Childbirth Classes were well attended during the year 1981. Of the 1,362 primigravidae notified to attend, 1,245 actually attended: of these 225 were private patients, 446 semi-private and 481 public patients.

The course in preparation for childbirth and motherhood is comprised of eight classes. The introductory class is given by an Assistant Master in which the ailments of pregnancy and the three stages of labour are outlined. In subsequent classes the physiotherapist expands on these topics, and in addition, teaches breathing and relaxation which are used during labour. Each physiotherapy class lasts for one hour and is then followed by a mothercraft class tor half an hour. The Parentcraft Nurse covers all aspects of baby-care, with particular emphasis being placed on breast feeding. The course of classes concludes with a visit to the delivery suite which the young expectant mothers found most encouraging. A refresher class is held every Friday morning for multigravidae. The attendance at these classes was 335 during the year. The total attendance at antenatal classes during 1981 was 8,236.

On the last Thursday of every month, Mr. Roger Waugh from Richardson-Merrell Ltd. showed three films — Ready for Baby, Where Love Ends, and the Joy of Nursing. A total of 1,129 husbands and wives attended during 1981.

PAEDIATRIC PHYSIOTHERAPY

The paediatric aspect of physiotherapy involved 80 per cent of our working day, and can be divided into three categories:

ORTHOPAEDIC PAEDIATRIC PHYSIOTHERAPY

Babies with subluxated or 'click' hips were treated in the Coombe when a diagnosis had been made. These babies were fitted with a pelvic harness and reviewed forthnightly in the physiotherapy department until Mr. Dowling, our Orthopaedic Consultant confirmed that the fault had been corrected. Other orthopaedic conditions requiring treatment were talipes equino varus which often required strapping and stretching exercises, while some babies with torticollis necks required stretching and correct handling. Four hundred and forty-six orthopaedic treatments were carried out in 1981.

PAEDIATRIC CHEST PHYSIOTHERAPY

Chest physiotherapy was carried out on those babies with chest conditions, such as pneumonia, bronchiolitis, and respiratory distress syndrome. During the year 1,571 babies were treated.

NEURO-DEVELOPMENTAL PHYSIOTHERAPY

Nineteen eighty-one saw a continuation in the number of babies referred to the physiotherapy department for neurodevelopmental assessments and treatments. Many of the babies were seen in the paediatric unit from day one by the physiotherapist and then reviewed regularly after discharge from the hospital. One thousand and fifty-one treatments were performed.

DEPARTMENTAL TREATMENTS

Both in-patients and out-patients received heat treatments for such conditions as sore, bruised, and slow-healing perineums, open or infected wounds following abdominal hysterectomies and Caesarean sections, back-aches (sacro-iliac strain), frozen shoulders, cervical-spandylosis, and various other ailments. There were 317 infra-red radiation treatments, and 530 short wave diathermy treatments during the year. No treatments of vaginal faradism were carried out as it was felt that if sufficient time is spent by the physiotherapist in teaching the patient how to contract her pelvic floor muscles, this can be as, if not more so, effective and the discomfort of vaginal faradism can be avoided.

POST-NATAL PHYSIOTHERAPY

Post-natal classes were held daily in the physiotherapy gym. Unfortunately, attendances at these classes continued to be poor despite constant reminders to the patients. Post-natal exercise sheets were also handed around to all patients in the wards. Patients who had undergone Caesarean section were advised to attend the classes once the stitches had been removed or approximately six days post-operatively when subcuticular sutures had been inserted.

PRE- AND POST OPERATIVE PHYSIOTHERAPY

All patients undergoing major surgery were routinely seen by the physiotherapist pre-operatively. Post-operative physiotherapy was carried out ideally a few hours following surgery. This consisted of breathing and leg and foot exercises to prevent unnecessary chest and circulatory complications. During 1981, 3,883 pre- and post-operative treatments were given.

Department of Pathology

The total units of work carried out during the past year was 294,402. The breakdown into the various categories is as follows:

Bacteriology	95,515
Biochemistry	75,488
Haematology	60,698
Blood Bank	44,353
Histology	6,097
Cytology	12,251
Total:	294,402

There was a total of 104 autopsies performed during the year; 80 of these were in the perinatal category and they are set out in the table as follows:

Category	Total Number of Cases	Number of Autopsies	Percentage Autopsy Rate
Still-births	61	51	83.6%
Neonatal Deaths	31	29	93.5%
Total:	92		86.9%

Congenital anomalies incompatible with life accounted for 36.9% of the deaths in the autopsy series. They include anomalies of the central nervous system (18), cardiac (4), renal tract (4), diaphragmatic hernia (2), chromosomal and multiple anomalies *(6).*

A close liaison has developed oetween the cytology and colposcopy services and all patients with abnormal smears are routinely referred for colposcopy examination. There were 25 Grade IV, 38 Grade III B, and 23/ Grade III smears last year. Histologic examination of the lesions were carried out in 21 of the patients who had Grade IV smears, 9 of these had invasive squamous carcinoma, 10 in-situ carcinoma, 1 severe dysplasia and 1 adenocarcinoma. The 38 patients with Grade III B cytology were interesting in that 9 progressed during the year to grade IV lesions, while in 6 others the lesion regressed. Of the remaining 23 patients, 15 are under review and 8 had surgery carried out, one of these had early micro-invasive

squamous carcinoma, 4 had in-situ carcinoma, 2 severe dysplasia and 1 mild dysplasia.

During the year there were 27 new cases of malignant disease, comprising — uterine adenocarcinoma (8), uterine sarcoma (1), cervical squamous carcinoma (10), ovarian carcinoma (5), vulval squamous carcinoma (2), breast (1). In addition, there were 14 cases of in-situ carcinoma of cervix.

A point of considerable interest is the decline in rhesus disease in recent years. On comparing the figures with the annual report of seven years ago, there were then 108 new cases of rhesus antibodies, the vast majority of which were straightforward Anti-D, or Anti-C+D. This year there were only 4 new cases of Anti-D and 4 of Anti-C+D antibodies. Other antibodies encountered included Anti-E (7), Anti-C+E (1), Anti-K (10), Anti-Fy^a (1), Anti-Lu^a (1), Anti-Le^a (12), Anti-Le^b (6), Anti-Pi (16), Anti-HI (7), Anti-Bg(6).

Gynaecological Department

Number of Admissions ...	2,874
Deaths	Nil
Number of Operations:	
Major	397
Minor	1,332
Evacuations	597

Major Operations:

Operations on Uterus:	
Hysterectomy	179
Wertheims	2
Myomectomy	6
Gilliam Suspension	20
Marshall Marchetti	3
Operations on Tubes and Ovaries:	
Salpingo-oophorectomy ...	11
Ovarian Cystectomy/Wedge Resection	30
Salpingectomy ...	20
Salpingostomy ...	2
Tubal Microsurgery	6
Abdominal Wound Dehiscence	16
Vaginal Operations:	
Vaginal Hysterectomy	20
Repair Operation	81
Vulvectomy	1

Investigational Procedures:

Dilatation and Curettage	699
Dilatation and Curettage/Cautery/Biopsy/Tubins	203
Laparoscopy	146
Cystoscopy	29
Cone Biopsy	15
Shirodkar Suture	45
Bartholin's Cyst/Abscess	27
Other Procedures	168

Gynaecological clinics

First Visits	2,194
Return Visits	3,023

Comment: The number of patients attending the gynaecological clinic was similar to that noted during 1980. In addition to the patients listed above, a total of 1,253 visits were made to the infertility and colposcopy clinics. Surgical operations performed during 1981 were generally similar

to those noted in other years, the only notable exception being the advent of tubal microsurgery. This procedure was introduced during the year and 6 patients were operated on. To-date one of these patients has become pregnant but unfortunately miscarried. It is anticipated that this service will increase during 1982.

During the year 27 new cases of malignant disease were encountered, comprising uterine (9), ovary (5), cervix (10), vulva (2) and breast *(I)*. In addition, one patient was found to have an invasive hydatidiform mole and required 8 courses of Methotrexate before making a complete recovery.

There were no deaths in the gynaecological department during 1981.

Colposcopy Clinic

Total Visits 376

The number of patients attending the colposcopy clinic was similar to that reported during 1980. During the year the clinic was taken over by Dr. F. Lynch under the supervision of the Master.

A total of 127 colposcopic examinations were performed on patients with abnormal cervical smears (Grade III and IV). Fifteen cone biopsies were performed and in 14 cases the histology concurred with the colposcopic diagnosis. In only one case was the cervical intraepithelial neoplasia of less severity than colposcopically suspect. Nine patients with abnormal cytology in pregnancy were managed conservatively. There were 2 cases of micro invasive carcinoma of the cervix. In one the cone biopsy completely excised the lesion and was deemed sufficient therapy, whereas in the other, the cone biopsy excision was incomplete and the patient required an abdominal hysterectomy. One case of stage I occult invasive carcinoma of the cervix was diagnosed colposcopically in the absence of abnormal cytology. This patient had a Wertheim's hysterectomy and lymphadenectomy performed. Two further patients with invasive carcinoma of the cervix were seen at this clinic in 1981 and were managed with radical surgery (1) and radiotherapy

Endocrine and Infertility Clinics

Total Visits 877

The work load of the endocrine clinics was similar to that recorded in earlier years. The clinics have continued to be held twice weekly with joint attendance between gynaecologist and endocrinologist. As already mentioned, the only innovation during 1981 was the commencement of tubal micro surgery for patients with tubal disease. As yet it is too early to assess the effectiveness of this form of treatment for the infertile patients attending the clinic.

Social Service Department

The following is an analysis of the work of this Department for 1981:

Advice to Unmarried Mothers	536
Extra Nourishment	275
Housing	240
Baby Clothes	231
Care of Children	124
Advice on Domestic Problems	106
Home Visits	59
Samaritan Fund	56
Adult Clothing and Bedding	42

During the year 536 single patients were interviewed: of these 32 married shortly after their first visit, 14 had no ante-natal care, 9 had stillbirths, 6 had neonatal deaths and 6 were admitted with abortions. Thirteen patients were confined elsewhere; 20 were follow-up contacts from 1980 and 30 others are still to be confined.

Once again there was an increase in the number of unmarried mothers who kept their babies; of these 71 were co-habiting. Adoption arrangements were made for the baby in only 59 instances.

There was an increase in the number of referrals from the Paediatric Staff. It is important that some follow-up service be made available in those instances where the baby is thought to oe at risk or to have special needs. Included in this group were those patients with a drug problem who were referred to the appropriate Health Board.

During the year a Casework Service was given to 616 patients. This frequently involved working with the patient over a period of three or more months. Included in this group were 106 patients with a domestic or marital problem, 36 of whom were separated or deserted. Fifty nine home visits were made in connection with tnese patients.

Our thanks again are due to the members of the Linen Guild for sustained support and increase in provision of Layettes and Christmas Hampers.

Department of Radio

Obstetrical/Gynaecological		General			
Maturity		Chest	443	Chest	607
Position >	257	Abdomen	36	Abdomen	87
Fetal Abnormality J		Spine	152	Spine	347
Multiple	1	Skull & Pit. Fossa	37	Skull	88
Pelvimetry	117	Sinuses	5	Sinuses	1
Fetal Death	2	Hips	5	Hips	254
Salpingography	56	Pelvis	8	Pelvis	31
Intra-uterine Exchange Transfusion	6	Bones	54	Bones	77
		I.V.P.	57	I.V.P.	13
		Port. Chest	20	Mict. Cystogram	5
		Port. Abdomen	1	Port. Chest	1,351
				Port. Abdomen	258
				Port. Skull	2
				Port. Spine	5
				Port. Bones	2
				B. Swallow	1
				Ultrasound Scan	21
Total	439		818		3,510

Comment: The work load in the Radiology Department was similar to alteration was the commencement of ultrasound scans in the neonatal unit following the introduction of new improved ultrasound equipment.

Research and Publications

The highlight of the year was the news that Dr. B. Stuart had been awarded a William and Florence Blair Bell Memorial Lecture by the Royal College of Obstetricians for a lecture entitled "The Feto Placental Circulation". While Dr. Stuart is the fourth Irish person to be honoured with this prestigious award it is the first occasion that research works performed in Ireland have been so rewarded.

Dr. Peter Gray commenced research work in the neonatal unit. Initially he was involved with Dr. Griffin in a study of a new aminoacid solution for intravenous alimentation. The results of this study have subsequently been presented to a meeting in San Francisco. Laterally, Dr. Gray commenced a detailed study into the association between cerebral blood flow and intraventricular haemorrhage. It is anticipated that this study will take up to two years.

Dr. Anne Keane continued her long term follow-up study of breech born infants, and in association with the Angiology Research Group, Irish Foundation for Human Development, a detailed psychological study of these infants at 4 years of age was commenced. It is hoped to have this particular work completed within another twelve months.

During the year, Dr. Duignan presented the results of his study on breech labour and delivery at meetings in Manchester and Leeds, as well as at the Senior Registrars Conference in the Royal College of Obstetricians and Gynaecologists in London.

In conjunction with the other maternity hospitals in Dublin, details were finalised at the end of the year for the start of a joint study into the effectiveness of vitamin therapy in the prevention of neural tube defects. It is anticipated that this study will continue for four years.

PUBLICATIONS BY MEMBERS OF THE MEDICAL STAFF, 1981

Briggs, L.P. and others (1981): Use of di-isopropyl phenol as main agent for short procedures. Br. J. Anaesth. (1981), 53,1197.

Briggs, L.P. and others (1981): Continuous infusion anaesthesia with di-isopropyl phenol. Acta Anaesthesiologica Scandinavica Supplement No. 72, Vol. 25,1981.

Briggs, L.P. and others (1981): Evaluation of midazolam as an intravenous induction agent. Anaesthesia, Vol. 36, 9.

Briggs, L.P. and others (1981): An evaluation with and without pre-medication. Anaesthesia, Vol.36.

Clinch, J. (1981): Is Perinatal Mortality Improving? Irish Medical Journal, *74*, 350.

DeCosta, C. (1981): The Vacuum Extractor — A Re-Appraisal. Irish Journal of Medical Science, *150*, 372.

Drumm, J.E. (1981): The value of ultrasonography in the management of first trimester naemorrhage. Progress in Obstetrics and Gynaecology, Vol.1, p. 30.

Duignan, N.M. (1981): Breech Delivery. Has it a place in modern obstetrics? Postgraduate Doctor (Middle East), 4,110.
Griffin, E., Mulhern, B. (1981): An epidemic of Gentamicin/Cloxacillin Resistant Staphlococcal Infection in a Neonatal Unit. Irish Medical Journal, *74*, 228.
Hone, R., Martin, F. et al (1981): Bacteraemia in Dublin due to gentamicin resistant staphylococcus aureus. Journal of Hospital Infection, *2,* 119-126.
Stuart, B., Drumm, J., FitzGerald, D.E., Duignan, N. (1981): Fetal Blood Velocity Waveforms in Uncomplicated Labour. British Journal of Obstetrics and Gynaecology, *88,* 865.

Printed by Cahill Printers Limited, East Wall Road, Dublin 3.