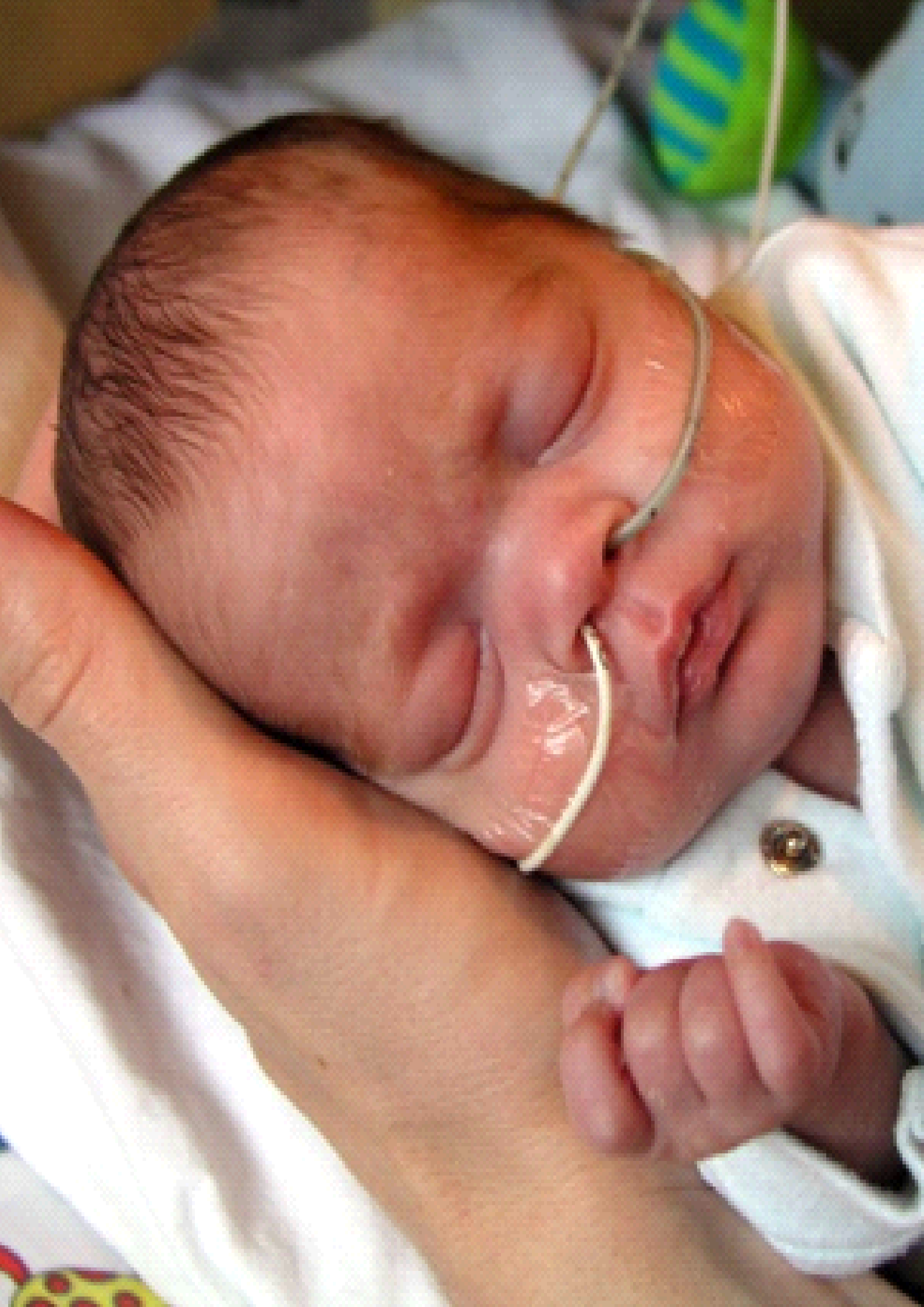

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Abbreviations	
AABR	Auditory Acoustic Brainstem Responses
ANNP	Advanced Neonatal Nurse Practitioner
BAPM	British Association of Perinatal Medicine
BSUH	Brighton and Sussex University Hospitals
CEMACH	Confidential Enquiry into Maternal and Child Health
CPAP	Continuous Positive Airway Pressure
CGA	Corrected gestational age
CVL	Central venous line
DEBM	Donor expressed breast milk
EBA	Early Birth Association
HD	High dependency
HIE	Hypoxic Ischaemic Encephalopathy
IC	Intensive care
IVH	Intraventricular Haemorrhage
KSS	Kent, Surrey and Sussex
MRSA	Methicillin Resistant Staphlococcus Aureus
NND	Neonatal Death
OAE	Otoacoustic emissions
PDA	Patent Ductus Arteriosus
PRH	Princess Royal Hospital
RACH	Royal Alexandra Children's Hospital
ROP	Retinopathy of prematurity
RSCH	Royal Sussex County Hospital
SC	Special Care
SCBU	Special care baby unit
TOF	Tracheo-oesophageal Fistula
TMBU	Trevor Mann Baby Unit
TRPG	Thames Regional Perinatal Group
VRE	Vancomycin Resistant Enterococcus

Data used to compile this report has been collected from SEND. Thanks go to Patricia Walker for data management.

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This report can be found on the BSUH Neonatal website:

http://www.bsuh.nhs.uk/patients/our-services-departments-and-wards/neonatal-services/

Introduction

The Department of Neonatology is based on the Trevor Mann Baby Unit at the Royal Sussex County Hospital and the Special Care Baby Unit at Princess Royal Hospital. It provides a tertiary referral neonatal intensive care and neonatal surgical service for Brighton, East and West Sussex and a special care service for Brighton and mid-Sussex. There are approximately 3,400 deliveries per year in Brighton, 2,400 deliveries per year at the Princess Royal Hospital and 14,000 deliveries per year within Sussex.

The aims of our service are:

- to provide the highest possible standards of neonatal care for babies and their families
- to liaise closely with obstetric colleagues to enable the highest possible standard of perinatal care
- to operate a high quality, safe neonatal transport service
- to improve the quality and safety of care through clinical governance, education and multidisciplinary working.
- to provide the highest possible standards of training for middle grade and junior medical staff, nursing staff and undergraduate students
- to provide comprehensive follow-up of high risk infants until 2 years corrected age

Trevor Mann Baby Unit, Royal Sussex County Hospital

There are 24 cots on the TMBU, including 8 designated for intensive care, 6 for high dependency care and 10 for special care. Expansion and refurbishment of the Unit was completed in May 2008 with an immediate increase of 3 cots. During 2009 there will be a further staged increase in capacity to help provide all the necessary tertiary neonatal care for Sussex babies. A limited transitional care unit operates on the postnatal ward at the RSCH site and plans to improve this service should be completed in 2009. Dr Seddon and the Community Paediatric Nursing Team continue to coordinate the discharge and follow-up of infants requiring home oxygen.

The TMBU is one of two level three units in the Surrey and Sussex Neonatal Network. There is a high risk pregnancy unit for fetal assessment and fetal medicine, and referrals are accepted for perinatal care prior to neonatal surgery. There is a monthly antenatal surgical clinic and neonatal surgery is performed on site at the Royal Alexandra Children's Hospital.

The neonatal department has comprehensive support from paediatric radiology (MRI, spiral CT and nuclear medicine investigations available on site), paediatric surgery, pathology (St Thomas' Hospital, London), dietetics, physiotherapy, pharmacy, speech and language therapy, audiology, ophthalmology and a breast feeding advisor. The neurophysiology department provides an easily accessible EEG service. There is visiting

support from other tertiary specialists including genetics, cardiology, nephrology and neurology.

There is a weekly multidisciplinary Family & Social Meeting on the unit involving a nurse consultant in child protection and a paediatric social worker. We have access to a parent counselor and support from the chaplaincy team.

The Sussex Neonatal Transport Service is based at the TMBU and provides cover between 08:00 and 20:00 seven days a week. An on-call transport registrar provides overnight cover for the SCBU at PRH. The team works closely with transport services in Surrey and Kent to cover the region.

Special Care Baby Unit, Princess Royal Hospital

The SCBU has 8 special care cots.

The unit is one of two in the UK led by a team of ANNPs, supported by consultant neonatologists. The ANNP team is supplemented by 2 long-serving specialist grade doctors.

Women likely to deliver at less than 34 weeks gestation or whose infant is likely to require high dependency or intensive care are transferred to the RSCH before delivery.

There are facilities at PRH for short term ventilation and stabilisation of infants prior to transfer by the neonatal transport service when required.

A weekly follow-up clinic operates as well as a multidisciplinary Family & Social Meeting involving a liaison health visitor and nurse consultant in child protection.

Neonatal Service Developments

Expansion and refurbishment of the TMBU was completed in May 2008. Three new high dependency cots were opened in June with an official opening in September. Although expansion in cot numbers only occurred half way through 2008 it is clear that activity has risen markedly and our 2008 statistics show a doubling of the very preterm admissions in comparison with 2007. We hope this means that more preterm Sussex babies are being cared for locally. The final aim is to increase capacity by a total of 8 cots with the next 3 cots opening in 2009. The process will be overseen by the PCTs and the completed expansion should provide sufficient intensive care facilities for Sussex babies and neonatal surgical capacity for the Surrey and Sussex Neonatal Network. We are particularly pleased with the improved parent facilities provided by the refurbishment. A large proportion of the funding for parent facilities has come from the Surrey and Sussex Network and the Early Birth Association has furnished the new facilities. We hope parents from all over the region will benefit from the improvements.

The SCBU at PRH continues to deliver a high quality, ANNP led special care service. Lisa Chaters has now joined the ANNP team and funding for ANNP training has been secured for 2009. To assess the quality of care provided a multi-disciplinary case review was undertaken during 2007.

During the Summer of 2007 the new Royal Alexandra Children's Hospital opened on the Royal Sussex County site. We have already seen improvements in the care we are able to offer babies by having paediatric colleagues close by. Paediatric surgeons are finding it easier to help us manage surgical patients, an improved system of radiology review and teaching has been introduced and we no longer need to transfer babies across town for surgical procedures. The process of transporting surgical patients has been fully reviewed by a multi-disciplinary team and provision made to maximize the safe transfer of even the most complicated cases such as babies needing diaphragmatic hernia repair.

There have been some important changes in staffing during the last year.

Medical: Dr Rob Bomont has been appointed as Paediatric College Tutor.

Nursing: We welcome all new nursing staff that have joined the team during 2008. Also congratulations go to Natalie Jestico, Marianne Clift, Sarah Quinton, Avryl Way and Heather Rodgers who completed their Neonatal Nurse Pathway in 2008.

Marie Dudley, retired from full time work. She has contributed a very great deal as a senior nurse and will be greatly missed. Fortunately we will continue to benefit from her experience as she plans to continue some nursing shifts. Hilary Denyer retired after her long and dedicated service as Lead Nurse for the PRH Special Care Unit. Sarah Stillwell has taken on her role. Hugh Lavelle also left TMBU to work for the Glasgow transport team. His efficiency and attention to detail is hopefully ingrained in us all. The Sussex transport team will now continue to thrive with Kim Gray as lead nurse.

Other developments:
Educational opportunities continue to be developed within the department. With the introduction of the Specialist Trainee Programme the standard of neonatal education, assessments and appraisals continues to improve for medical trainees. Clare Morfoot, Clinical Practice Educator has worked hard to establish the Neonatal Pathway for nurses. It is now a work based module allowing more staff to complete the training each year. The service actively contributes to local and national research and continues to undertake

postgraduate and undergraduate medical teaching. Particular mention should be made for the success Dr Rabe has had in gaining funding for a number of prospective research projects focused on the non-invasive investigation of circulation.

A major review of departmental guidelines is in progress and a departmental website has been launched. 2008 saw the first complete year of clinical incident reporting using the Datix system which has proved easy to use and will aid analysis of incidents.

Review of the Transport Service for Kent, Surrey and Sussex was completed in 2008 with the aim of rationalizing the service and extending the hours of cover across the Network. Agreement has been reached to launch a 24 hour Network Transport Service pooling the resources of the Kent, Surrey and Sussex teams.

We have monitored our babies for both MRSA and VRE throughout 2008. No cases of VRE were identified. Positive screens for MRSA were recorded for 2 babies and measures were taken to ensure control. Prevention of infection remains a major priority for our department and the BSUH NHS Trust.

The Early Birth Association continues its tireless work for the Department. A parent forum that collaborates with the EBA and network parent representatives is now up and running. The most common feedback we receive from parents is that the standard of parent accommodation provided on the TMBU is inadequate. With the unit expansion complete we hope feedback will be more positive for 2009.

We continue to be fortunate in receiving donations from parents, friends and businesses which have allowed purchase of equipment. Thank you for your generosity and support.

Staffing

Medical Staff

Consultant Neonatologists

Dr Neil Aiton	Special interest in Neonatal Cardiology
Dr Philip Amess	Lead Clinician, Network Clinical Lead
Dr Robert Bomont	Paediatric College Tutor
Dr Ramon Fernandez	Lead for Clinical Governance
Dr Cassie Lawn	Lead for Transport
PD Dr Heike Rabe	Lead for Research
Dr Paul Seddon	Special interest in Paediatric Respiratory Medicine
Dr Ryan Watkins	Clinical Director for Women and Children's Services

Consultant Radiologists: Dr Ian Kenney, Dr Ima Moorthy

Consultant Ophthalmologist: Mr Bruce McLeod

Consultant Audiologist: Mr Rob Low

Consultant Pathologist: Dr Isabella Moore (St Thomas' Hospital)

Consultant Obstetricians:
Mr Richard Howell
Mr Rob Bradley
Mr Des Holden
Mr Tony Kelly
Miss Julia Montgomery
Mr Shane Duffy
Miss Thikra Bashir
Mr Greg Kalu
Mr Barry McKenzie-Gray
Mr Onome Ogueh

Consultant Paediatric Surgeons:
Mr Varadarajan Kalidasan
Miss Ruth Hallows
Miss Anouk van der Avoirt
Mr Anies Mohammed
Mr Timothy Turnbull (Orthopaedics)
Mr Meredydd Harries (ENT)

Visiting Consultants:

Dr Owen Miller	Cardiology
Dr Shelagh Mohammed	Genetics
Dr Chris Reid	Nephrology
Dr Tammy Hedderly	Neurology

Specialist Doctors: Dr Michael Samaan, Dr Fatou Wadda

Junior and Middle Grades Medical Staff:

Middle Grade:	3 Specialist Registrars (1 Core, I year 3/4/5, 1 Grid)
	1 ST4
	6 Trust Clinical Fellows
Junior Grade:	6 ST3

1 Trust Clinical Fellow

All neonatal posts are compliant with European Working Time directive, 2009

Neonatal Nurses (TMBU)

Senior Nursing Staff

Mrs Clare Child	Lead Nurse for Paediatric and Neonatal Nursing
Mrs Chris Dove	Matron Neonatology
Mrs Susanne Simmons	Lecturer Practitioner
Mrs Clare Morfoot	Clinical Practice Educator

Advanced Neonatal Nurse Practitioners

Jamie Blades
Maggie Bloom
Dee Casselden
Caroline McFerran
Kathy Mellor
Sandra Summers
Simone van Eijk
Lisa Chaters

Band 7

Liz Hewitt
Sandra Hobbs
Clare Baker
Jackie Cherry
Karen Marchant
Judith Simpson

Band 6

Linda Barrow, Louise Barton, Tina Evans, Chris Fearn, Cathy Garner, Belinda Gardiner, Chrissie Leach, Jenny Matthews, Teresa Wilkinson, Clare Dickinson, Hilary Sparkes, Nikki Clark, Gill Hobden, Susan McRae, Mia Beales, Emma Binns, Julie Nalletamby, Rebecca Thomas, Val Potter, Alice Le Voi, Wen Chiu, Betina Jahnke, Frances Pante, Libby Emery, Mel Brittain, Naomi Fells, Tracey Joyce, Jo McCaw, Sarah Jones, Sarah Quinton, Mel Parrott, Sharnie Radcliffe, Carly Taylor, Zoe White, Amanda Bensolum, Anna Hughes, Samantha Walters.

Band 5

Nelly Philison, Leonora Enriquez, Terisito Carpo, Iva Richardsova, Hui Chen Lin, Lauren Devoy, Leanne Wilmont, Natalie Jestico, Jenna Jarvis, Michelle Aldridge, Heather Rogers, Jenna Smith, Tanya White, Marianne Clift, Ami Cameron, Clare Watson, Katie Hogbin, Nicola Ford, Leanne Medcraft, Annika Laker, Lucy Reeves- Fowkes, Sharon Randell, Kerry Evans, Beena George, Latha Alosios, Hannah Stanley, Elaine Markwick, Jenette Dobson, Annika Laker, Rachel Beston, Nikki Pernetta, Rachel Burton, Francesca Candini, Charlotte Moore, Hannah Fraser.

Band 4

Jacki Mason, Mavis Dawson, Amy Boreham

Band 2

Jenny Perry, Julie Munro

Neonatal Nurses (PRH)

Senior Nursing Staff
Sarah Stillwell, Judy Edwards

Band 6
Debbie Collen, Sarah Gray, Pauline Taylor, Kathi Wood, Jessical Stottell, Dede Atkinson, Alyson Ettiene, Sarah Hampson, Sue Robinson, Michelle Wilmont.

Band 5
Sue Nightingale, Irene Silander, Jenny Karkar, Avril Way, Francesca Mavesa, Katrina Page, Rhian Golwell..

Band 4
Judy Chadd, Chris Pitt, Jo Rimmington

Support Staff

Speech and Language Therapists
Rachelle Mayo
Alex Lazell

Pharmacist
Mr Mike Pettit

Physiotherapy
Chris Young

Dietician
Chris Smith

Counsellor
Sally Meyer

Secretarial support
Patricia Walker
Jane Searle
Emma Morris

Admissions, Activity and Mortality
Trevor Mann Baby Unit

TMBU Admissions 2000 - 2008	Total Admissions per year
2000	**497**
2001	**424**
2002	**364**
2003	**450**
2004	**404**
2005	**444**
2006	**415**
2007	**465**
2008	**524**

(Figures include re-admissions)

TMBU Admissions	2007	2008
Total number of Livebirths	3356	**3516**
Total admissions (including re-admissions)	465	**524**
Total inborn admissions	359	**376**
Total ex-utero admissions	106	**127**
Total no of re-admissions	N/A	**21**
Percentage of live births admitted to TMBU	**11%**	**11%**

Admission details	**2006**		**2007**		2008	
	No	**%**	**No**	**%**	**No**	%
Total admissions	415		465		524	
Inborn	341	82%	359	77%	376	**72%**
Outborn	74	18%	106	23%	127	**24%**
Re-admissions					21	**4%**
Gestation						
<26 weeks	15	3.5%	12	3%	25	**5%**
<28 weeks	18	4%	17	4%	31	**6%**
<31 weeks	36	8.5%	51	11%	56	**11%**
Birthweight						
<500g	1	0.2%	2	0.4%	3	**0.5%**
<750g	15	3.5%	9	2%	27	**5%**
<1000g	23	5%	25	5%	31	**6%**
<1500g	38	9%	50	11%	53	**10%**
Multiple births (no of babies)						
Twins	45	11%	77	16%	98	**19%**
Triplets	**8**	**2%**	**8**	**2%**	**6**	**1%**

Transfers	**2007 (updated figures)**	**2008**
In-Utero - RSCH		
Transfers out	N/K	N/K
Transfers in	65	83
Refused	124	120
Ex-Utero - TMBU		
Transfers out	146	188
Transfers in	106	127

Transfers in Refused	27	23

Cot occupancy	2007		2008	
Cots	**Days**	**% occupancy**	**Days**	% occupancy
IC	1703	59	2119	**73%**
HD	1647	151	1937	**112%**
IC & HD (total)	3350	83	4056	**87%**
SC	3914	98	3949	**108%**
Total	7264	91	8005	96%

TMBU Care Categories 2008			
Gestation at birth (completed weeks)	**Total number of babies receiving IC**	**Total number of babies receiving HD care**	**Total number of babies receiving SC only**
< 23	0	0	0
23	1	1*	0
24	16	5	0
25	7	5	0
26	10	7	1*
27	19	19	0
28	19	15	0
29	17	16	0
30	14	10	2
31	26	13	5
32	20	7	4
33	7	3	9
34 – 36	43	18	63
37 - 41	74	30	121
> 41	0	2	2
Total	**273**	**151**	**207**

*2001 BAPM definition for care levels, see **Appendix 1***
**Late admission to Unit*

Mean lengths of stay on TMBU (days)* 2008		
Gestation	**Discharged Home**	**Discharged back to Referring hospital**
23	0	16 **
24	95	65
25	0	27
26	0	34
27	77	38
28	86	19
29	54	22
30	50	12
31	37	10
32	23	9
33	16	9
34-36	17	10
37-41	8	7
>41	2	0

**Does not include babies who died whilst on TMBU*

** Baby 1 returned to Woolwich. Baby 2 late admission.

Discharges 2008													
	23	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33-36**	**> 37**	Total
Discharged home		2	1		3	2	7	6	14	13	43	54	145
Transferred to ward											44	87	131
Transfer to local care	1	2	2	7	14	15	11	11	16	18	37	36	170
Transfer to cardiac care		2										1	3
Transfer to specialist care						1	1				1	6	9
Transfer to surgical care		**2**	**1**	**1**			**1**				**3**	**7**	15

Perinatal Statistics (RSCH)	2007	2008
Total deliveries	3371	**3528**
Total livebirths	3356	**3516**
Total stillbirths	15	**12**
Early neonatal deaths*	5	**6**
Late neonatal deaths*	3	**4**
Post neonatal deaths (>28 days)*	0	**4**
Still birth rate	4.4	**3.4**
Perinatal mortality rate	5.9	**5.1**
Neonatal mortality rate	**2.3**	**2.8**

** inborn only*
*For definitions see **Appendix 2***

Deaths and survival by gestation						
GA	**Total admissions***	**<7d**	**7-28d**	**>28d**	**Total deaths**	**% survived to discharge**
23	2				0	100%
24	15	5	3	2	10	33%
25	8		1	1	2	75%
26	11	1		1	2	92%
27	20	1			1	95%
28	19	1		1	2	89.5%
29	21		1	1	2	90%
30	16			1	1	94%
31	31					100%
32	27	1			1	96%
33-36	128					100%
37-42	204	6		2	8	96%
>42	1					100%

Total	503	15	5	9	29	94.5%

*not including re-admissions

TMBU deaths (in-born and ex-utero transfers) 2008						
Booked	**Delivered**	**GA**	**BW**	**Age d**	**PM**	**Reason**
Preterm Infants (deaths related to sepsis)						
RSCH	RSCH	29	540	94	N	Klebsiella, IUGR, liver dysfunction
RSCH	RSCH	24	444	144	N	Klebsiella, NEC, ROP stage 3
RSCH	RSCH	25	730	31	Y	Klebsiella, IVH Grade 3, NEC
Conquest (twin)	Conquest	24	740	36	N	Staphylococcus aureus, Grade 3 IVH
PRH (twin)	PRH	24	700	8	N	Staphylococcus aureus , IVH Grade 4
RSCH	RSCH	24	574	3	Y	E. Coli pneumonia
Whittington	RSCH	24	654	19	N	Chorioamnionitis, surfactant deficient lung disease
RSCH	RSCH	24	525	2	N	Chorioamnionitis, pulmonary hypoplasia
Preterm Infants (deaths related to NEC)						
PRH	RSCH	25	985	21	Y	NEC, overwhelming sepsis, cardiopulmonary failure,
Eastbourne	RSCH	24	615	12	N	NEC, multi-organ failure,
Mayday (twin)	Mayday	28	800	31	N	Transfer for severe NEC
Worthing	St George's	26	785	52	N	NEC, Enterobacter sepsis
Preterm Infants (deaths related to pulmonary haemorrhage)						
PRH (twin)	PRH	24	690	1	N	Pulmonary haemorrhage
Eastbourne	RSCH	27	531	3	N	Pulmonary haemorrhage, IUGR
Guildford (triplet)	RSCH	24	670	6	N	Pulmonary haemorrhage
Preterm Infants (deaths related to other causes)						
East Surrey (twin)	East Surrey	32	2290	6	Y	Intracerebral haemorrhage, twin twin transfusion, PPHN
RSCH (twin)	RSCH	28	550	4	N	Bilateral pneumothorax, severe RDS, PPHN
Worthing (twin)	RSCH	26	1060	5	N	Surfactant deficiency lung disease, severe IVH
RSCH	RSCH	29	942	14	Y	Cardiorespiratory arrest, multi-organ failure
Conquest (twin)	Conquest	24	740	1	N	Extreme prematurity, RDS
Worthing	Queen Charlotte's	30	970	43	Y	Acute unexplained deterioration
Term infants (deaths related to perinatal HIE)						
PRH	PRH	41	3810	3	Y	Severe HIE
Worthing	Worthing	41	3870	4	Y	Severe HIE
Eastbourne	Eastbourne	39	3500	1	N	Severe HIE
Worthing	Worthing	38	2665	2	N	Severe HIE
Worthing	Worthing	38	2500	84	Y	Severe HIE
East Surrey	East Surrey	41	3300	1	Y	Severe HIE
Term Infants (deaths related to other causes)						
RSCH	RSCH	41	2580	29	Y	NEC

PRH	PRH	40	2145	1	N	Congenital CMV

TMBU, 3 year rolling mortality									
	Total Admissions:				Deaths				Survival
	2008	2007	2006	Total	2008	2007	2006	Total	(%)
Inborn	376	359	341	***1076***	14	8	13	***35***	97%
Outborn	127	106	74	***307***	15	10	9	***34***	89%
<26 weeks	25	12	15	***52***	12	5	3	***20***	62%
<28 weeks	31	17	18	***66***	3	1	6	***10***	85%
<31 weeks	56	51	36	***143***	5	4	6	***15***	90%
31-42 weeks	391	368	346	***1105***	9	8	7	***24***	98%
<500g	3	2	1	***6***	1	2	0	***3***	50%
<750g	27	9	15	***51***	14	2	8	***24***	53%
<1000g	31	25	23	***79***	4	4	4	***12***	85%
<1500g	53	50	38	***141***	1	1	3	***5***	97%
>1500g	389	362	338	***1089***	9	9	7	***25***	98%

Special Care Baby Unit, Princess Royal Hospital

SCBU Admissions	2007	2008
Total number of Livebirths	2349	**2451**
Total number of stillbirths	8	**11**
Total admissions	249	**275**
Percentage of live births admitted to SCBU	**11%**	**11%**

Admission details	2006		2007		2008	
	No	**%**	**No**	**%**	**No**	%
Total admissions	277		249		**275**	
Inborn	225	84	192	77	**218**	**79**
Outborn	52	16	57	23	**57**	**21**
Gestation						
<26 weeks	6	2	1	0.5	**3**	**1**
<28 weeks	2	1	3	1	**6**	**2**
<31 weeks	15	6	16	6	**17**	**6**
Birthweight						
<500g	0	-	0	-	**0**	
<750g	1	<0.5	2	1	**3**	**1**
<1000g	8	3	3	1	**2**	**1**
<1500g	17	6	15	6	**18**	**6**
Multiple births (no of babies)						
Twins	34	13	39	16	**60**	**22**
Triplets	**3**	**1**	**3**	**1**	0	**0**

Transfers	**2007**	**2008**
In-Utero		
Transfers out	N/K	N/K
Transfers to Brighton	N/K	N/K
Transfers elsewhere	N/K	N/K
Ex-Utero*		
Transfers out to Brighton	27	33
Transfers out to elsewhere	13	7
Transfers in from Brighton	65	56
Transfers in from elsewhere	11	2

(*KSS transfers only, from 1.4.08 – 31.12.08)

Cot occupancy	2007		2008	
Cots	**Days**	**% occupancy**	**Days**	% occupancy
IC	73		89	
HD	108		94	
SC	1904		2491	
Total	2085	71.4	2674	91.6

Perinatal Statistics (PRH)	2007	2008
Total deliveries	2357	**2451**
Total livebirths	2349	**2440**
Total stillbirths	8	**11**
Early neonatal deaths	3	**0**
Late neonatal deaths	0	**0**
Postnatal deaths	0	**0**
Stillbirth rate	3.4	**4.4**
Perinatal mortality rate	4.7	**0**
Neonatal mortality rate	**1.3**	**0**

Summary of Clinical Activity (TMBU)

Respiratory support	Number of days					
	2007	2008				
	Total	**<26**	**26-30**	**31-36**	**>36**	Total
Ventilation not CPAP	**804**	494	418	78	209	1199
CPAP and vapotherm	**1311**	464	1218	354	77	2113
Oxygen therapy	**1084**	224	603	153	68	1048
Surfactant (doses / babies)	46/41	**66/57**				
Nitric Oxide (days / babies)	**23/10**	**71/16**				

Respiratory diagnoses	Number of Babies	
	2007	2008
Respiratory Distress Syndrome	280	**219**
Transient Tachypnoea	29	**25**
Persistent Pulmonary Hypertension	12	**15**
Meconium aspiration	16	**22**
Cystic Fibrosis	1	**0**
Congenital pneumonia	12	**23**
Acquired pneumonia	**13**	**6**

Respiratory Complications	2007	2008
Pulmonary haemorrhage	2	**4**
Pulmonary air leak requiring drain	**5**	**16**

Chronic lung disease	2007	2008
Oxygen dependent at 28 days	9	**6**
Oxygen dependent at 36 weeks gestation	10	**7**
Oxygen dependent at discharge home	2	**7**
Treated with dexamethasone	**8 (16 courses)**	**8 (12 courses)**

Management of PDA	2007	2008
Patent Ductus Arteriosus (PDA)	33	**54**
PDA treated with indomethacin	25 (29 courses)	**33**
PDA ligated	**3**	**7**

Necrotising Enterocolitis	2007	2008
NEC	24	**35**
Perforated NEC	4	**4**
NEC requiring surgical treatment	**5**	**5**

Other Surgical Cases	Number of Babies	
	2007	2008
Gastroschisis	3	**3**
Exomphalos	4	**5**
Hirschsprungs	4	**2**
Malrotation	5	**0**
Meconium ileus	0	**2**
Spontaneous perforation	0	**4**
Oesophageal Atresia / TOF	3	**4**
Pyloric stenosis		**15**
Intestinal atresia	1	**5**
Inguinal hernia repair		**13**
Imperforate anus	0	**5**
Congenital Cystic Adenomatoid Malformation	1	**0**
Diaphragmatic eventration	0	**2**
Drainage of abscess		**4**
Other procedures, including CVL insertion		**28**

Infection	Number of Babies	
	2007	2008
Presumed sepsis	91	**93**
Proven sepsis	71	**53**
Congenital pneumonia	12	**23**
Meningitis	2	**4**
MRSA (screening positive)	5	**2**
VRE (screening positive)	0	**0**
	Number of Blood Cultures	
Total positive	116	**101**
Acinebacter baumannii	1	**0**
Alpha Haemolytic Streptococcus	1	**0**
Beta Haemolytic Streptococcus group B	2	**2**
Coagulase-negative Staphylococcus	89	**67**
Diphtheroids	3	**2**
Enterobacter aerogenes	0	**2**
Enterobacter cloacae	1	**3**
Enterococcus faecalis	5	**3**
Escherichia Coli	0	**3**
Klebsiella pneumoniae	0	**8**
Listeria Monocytogenes	0	**0**
Micrococcus species	4	**1**
MRSA	1	**0**
Pseudomonas aeruginosa	1	**1**
Staphylococcus aureus	5	**4**
Streptococcus agalactiae	**3**	**1**

Cranial Ultrasound Diagnoses*	Number of Babies	
	2007	2008
IVH with parenchymal involvement	2	**8**
Post haemorrhagic hydrocephalus requiring surgical intervention	1	**4**
Infarction without IVH	0	**1**
Periventricular ischaemic injury with cyst formation	**1**	**1**

**all babies <32 weeks gestation at birth have routine cranial ultrasound examination*

Hypoxic Ischaemic Encephalopathy	2007	2008
Apgar <4 at one minute	8	**17**
HIE grade 1	5	**13**
HIE grade 2	5	**19**
HIE grade 3	4	**9**
Hypothermia therapy	**5**	**14**

Retinopathy of Prematurity	2007	2008
ROP grade 2	2	**7**
ROP grades 3/4	0	**2**
ROP treated with laser therapy	**0**	**2**

Screening as per recommendations from Royal College of Ophthalmologists

Hearing Screening	2007	2008
Total number of babies screened	176	**187**
Normal hearing screens	147	**155**
Babies not screened	256	**276**
Reasons for not screening		
Discharged <48 hr on Unit	106	**89**
No consent	47	**59**
Died	18	**28**
Transferred <35/40	61	**87**
No screening/time	20	**13**
Too poorly – trans to other hospital	3	**0**
Parent refused screen	**1**	**0**

Universal screening (AABR) offered to all babies admitted for >48 hrs and ≥ 35 wks CGA)

	No clear response unilateral	No clear response bilateral
OAE	13	**8**
AABR	7	**5**
Incomplete testing		
Incomplete testing occurred in 12 babies. This was usually for OAE and related to environmental noise / recording interference.		

The British Association of Perinatal Medicine (BAPM) have suggested collecting data on the following indicators of morbidity:

BAPM Dataset	Number of Babies	
	2007	2008
PDA ligated	3	**7**
Operated on for NEC	5	**5**
Chest drain for pulmonary air leak	5	**16**
Surgical intervention for post haemorrhagic hydrocephalus	1	**4**
Laser treatment for ROP	**0**	**2**

We also collect information on clinical incidents using the Datix system. Our trigger list includes:

Sub-optimal resuscitation
IV extravasation
Admission of infant with encephalopathy
Pneumothorax
Cross Infection
Medication errors
Accidental extubation
Birth injury
Longline infection
Stage 3 ROP

Since 2005 a departmental risk profile has been compiled annually. Clinical incidents are reviewed every 3 months with the aim of identifying common themes or trends and addressing issues of clinical risk. Information on clinical risk is disseminated at clinical governance meetings and via the 'Baby Watch' leaflet which is produced every 3 months.

Category	2005	2006	2007	2008
Access / admission - unplanned admission / transfer to specialist care unit	1	1	0	**2**
Access, admission, transfer, discharge (including missing patient)	12	4	8	**8**
Clinical assessment (including diagnosis, scans, tests, assessments)	6	7	3	**10**
Consent, communication, confidentiality	8	8	5	**18**
Disruptive, aggressive behavior	0	1	0	**0**
Documentation (including records, identification)	11	9	9	**20**
Implementation of care and ongoing monitoring / review	13	3	1	**3**
Infection Control Incident	3	3	5	**1**
Infrastructure (including staffing, facilities, environment)	22	18	21	**17**
Medical device / equipment	13	9	12	**24**
Medication	43	34	25	**69**
Other Incident	0	1	1	**3**
Patient accident	2	3	0	**1**
Treatment, procedure	12	14	17	**44**
Total	146	115	107	223

Grade	2005	2006	2007	2008
No Harm: Impact Prevented	55	21	36	**51**
No Harm: Impact not Prevented	49	65	51	**128**
Low	42	29	20	**37**
Moderate	0	0	0	**7**
Death	0	0	0	**0**
Not graded	0	0	0	**0**

Total	146	115	107	223

Summary of Developmental Outcomes

Developmental follow-up takes place in a baby clinic and in the Joint Neonatal and Community clinic held at the Seaside View Children's Developmental Centre with Dr Yasmin Khan and the Specialist Health Visitors. For those babies cared for at PRH, Dr Fiona Weir and Dr Ian Male are the community contacts at the Nightingale Centre, Haywards Heath.

All babies who are likely to have developmental problems are referred early for developmental follow-up. Term babies diagnosed as having grade 2 or 3 hypoxic ischaemic encephalopathy are reviewed formally at 2 years in line with the TOBY Cooling Register recommendations.

All preterm infants born at < 29 weeks gestation and/or <1000g and cared for on the TMBU during the first 24 hours of life have been entered into a formal neurodevelopmental follow-up programme since 1st October 2002

Follow-up schedule for pre-term babies:

Prior to discharge / at term corrected gestational age
- Hammersmith neurological examination and movement studies
- Physiotherapy and / or speech and language therapy assessment
- Audiology screening
- Screening for Retinopathy of Prematurity
- Arrange Joint Developmental Clinic follow-up.

At 3 months corrected gestational age
- Repeat movement study
- Review of development by consultant in baby clinic.
- Refer to specialist services as appropriate.

At 12 months' corrected gestational age
- Hammersmith infant neurological examination
- Schedule of Growing Skills assessment by Specialist Health Visitor
- Refer to specialist services as appropriate.

At 24 months' corrected gestational age
- Schedule of Growing Skills assessment
- Thames Regional Perinatal Group (TRPG) Health Status Questionnaire
- Refer to specialist services as appropriate or discharge if no concerns.

Developmental Outcome has been analysed for a cohort of 80 preterm infants born at <29 weeks gestation and or <1000g and cared for within the first 24 hours of life on the TMBU. The babies were born between 1st October 2002 and 30th September 2006.

Outcome according to TRPG Health Status Questionnaire at 24 months CGA

Outcome	<26 weeks	26-28 weeks	Total (% of Total)
Normal	9	30	39 (49%)
Impaired	8	12	20 (25%)
Severe disability	7	4	11 (14%)
Lost to follow-up	3	7	10 (12%)

TOTAL	**27**	**53**	**80**

Outcome according to Schedule of Growing Skills Assessment 2002-2006 (babies <29 weeks GA and/or <1000g)

	Locomotor			Speech and Language			Cognitive		
CGA	Normal	Impaired	Severe disability	Normal	Impaired	Severe disability	Normal	Impaired	Severe disability
12 months n=75	57	14	4	64	8	3	41	29	3
24 months n=71	58	9	4	55	12	4	41	27	3

Transport

The Sussex Neonatal Transport Service continues to operate 12 hours a day, 7 days a week for patients in the Sussex Network area. There were 421 Sussex transfers in 2008, 313 of these were planned and 108 were emergencies.

Planned & Unplanned Transfers within Kent Surrey & Sussex 01/01/2008-31/12/2008 by KSS Teams

Transfer	Kent	Surrey	Sussex
Unplanned	142	74	108
Planned	256	153	313
Total	**398**	**227**	**421**

The Neonatal Transport Service continues to be staffed on a daily basis by a middle grade doctor, senior trainee, dedicated transfer nurse and transfer consultant.

Team availability	% availability
Full team available	**81%**
No team available	**5%**
Doctor only	**3.5%**
Nurse only	**11%**

In Sussex there were 76 (4 by Team for London 72 by KSS teams) postnatal transfers for medical IC: 50% were kept within Surrey & Sussex Neonatal Network and 50% were transferred out, either to Kent or London.

Postnatal transfers for medical intensive care within 2008 for Kent, Surrey & Sussex showing proportions of those receiving care within region or outside region

	Kent	Surrey	Sussex
Total postnatal referrals for medical IC	56	15	76
Required medical IC and received within region	27 (48.21%)	7 (46.67%)	38 (50%)
Required medical IC and received out of region	29 (51.79%)	8 (53.33%)	38 (50%)

Team for London transferred 4 Sussex patients out of region

There is no surgical service in Kent or Surrey so many new surgical postnatal referrals are transferred out of region. Of the 55 new surgical referrals, referred postnatally, in Kent and Surrey, 51 went to London or regions other than Sussex for their surgery in 2008. In Sussex 9 out of 45 patients, who were referred postnatally via the transfer service, received their surgical care outside of Sussex.

	Kent	Surrey	Sussex
Out to London or other for surgery	31	20	9
Into Sussex for surgery	0	4	36

Proposals have been made to extend the KSS transport operating hours to 24/7. The night time 8 p.m. to 8 a.m. service would cover the entire region and be based at one of the tertiary neonatal centres. Sussex has bid for this service.

Guidelines and Audit
(Appendix 3)

There is an active programme of clinical governance within the department including 3 monthly multidisciplinary clinical governance meetings. There are common medical, nursing and drug protocols for both units. There is a rolling programme of guideline review and a multidisciplinary standards group meets four times a year to discuss and write new guidelines. Guidelines are now available on the new departmental website http://www.bsuh.nhs.uk/patients/our-services-departments-and-wards/neonatal-services/. We are committed to audit and have a well developed programme under the supervision of Dr Fernandez.

Research
(Appendix 4)

There is an active departmental research programme led by PD Dr. Rabe. A research nurse has been appointed to work on current projects.

Monthly multidisciplinary research meetings are held and links have been made with various groups such as the Asthma Research Group at the RACH, the Department of Clinical Pathology, Department of Psychology (University of Sussex) and with the School of Pharmacy & Biomolecular Sciences (University of Brighton).

The international collaboration with Dr Holger Jungmann, Research Laboratories, MBR Optical Systems, Germany continues. Funding has been obtained for a joint project on anaemia and nutrition in preterm infants with chronic lung disease at the Kangoroo Project in Bogota, Columbia, run by Dr Nathalie Charpak. All studies are performed in close collaboration with the BSUH Research and Development department and we express our thanks to Scott Harfield and Dr David Crook for their ongoing support.

Funding has been secured from the Research for Patient Benefit scheme (National Institute for Health Research) for studying lung function in preterm infants on CPAP and for novel analysis of pulse oximetry waveforms and white light spectroscopy measurements of microcirculation in the skin.

The department is an active member of the new Kent, Surrey & Sussex Paediatric and Neonatal Research Network. On behalf of the network we organized the second Regional Paediatric and Neonatal Research Day, which was very well attended. A further similar event is planned for 2009.

Education

Neonatal Nurse Pathway
The Neonatal Pathway was designed to acknowledge the recommendations from key documents relating to neonatal care, by offering nursing staff a qualification in the specialty. The aim is to address the serious shortfall in staff holding a neonatal qualification. The pathway promotes the opportunity for local neonatal units to develop highly skilled neonatal staff from among their current workforce.

The pathway is held at the University of Brighton and led by Senior Lecturer Susanne Simmons. It comprises two modules: a 20 credit work based learning module: Foundations in Neonatal Practice and a 30 credit taught module: Neonatal High Dependency and Intensive care.

Mentors (approved by the unit manager and pathway leader) support, supervise and assess students in practice. They meet with the student at the beginning of each module; supervise the student's completion of skills; meet with the student mid-way through the module to discuss progress; liaise with the pathway leader on the student's progress; and meet with the student at the end of the module to check completion of clinical skills. Practice is assessed using clinical skills inventories. Students from level 1 and 2 units have a practice placement in a level 3 unit to gain experience in neonatal high dependency and intensive care.

Students on completion of the two neonatal modules receive a neonatal pathway certificate. They then have the opportunity to continue their studies to gain a degree in Acute Clinical Practice awarded by the University of Brighton.

Undergraduate Medical Education
The Department has continued its involvement in the delivery of module BSMS 305 Reproductive and Child Health. The students attend seminars on selected topics in Peri/Neonatology, neonatal teaching sessions and tutorials, ward rounds and learn to carry out newborn examination. Consultants and registrars are involved in the student assessments at the end of the module and in the end of year three and year five OSCE's.
A number of students chose to attend the student selected module (SSC) BSMS 307. During this module they learned about the clinical course of one baby and how to complete a structured literature search and appraisal on a focused topic related to that baby.

The Department also supervises 5th year students during their Paediatric module to develop further their understanding of newborn medicine.

Two 4th year students spent their BSMS 404 module on a research project with us and presented at an International Conference in Nice.

Individual consultants have been supporting the Medical School in other tasks such as admission interviews, designing exam questions and online learning modules, organizing and supervising elective placements and tutoring small groups.

Postgraduate Education
The department continues its commitment to providing a high quality, structured training assessment and appraisal programme for Neonatal Medical and Nursing Staff. In addition staff organise, host and deliver many additional educational sessions including the

Network Neonatal Club, Deanery Registrar Days and the Neonatal Life Support Course. We will deliver our first ST1 – ST3 Deanery Study Day in June 2009.

Maternal Substance Misuse Clinic (One-Stop Clinic)

The One-Stop clinic is a multidisciplinary, multi-agency clinic for pregnant mothers with substance misuse. It is held twice monthly at The Royal Sussex County Hospital. No appointment is necessary and referrals can come from any source: health or social care professionals in the community, or clients themselves. The clinic was set up in January 2002 by Dr Aiton and representatives from other services to meet the increasing local need.

The following staff contribute regularly to the clinic:

- Specialist midwife with responsibility for substance misuse
- Charge-Nurse from the Substance-Misuse service
- Liaison Health Visitor
- Social Worker from Dept, Social Care & Health
- Consultant Neonatologist

The aims of the clinic are:

- to offer an open-access service, offer appropriate advice to clients on substance misuse, harm minimisation, and to deal with the wide variety of issues surrounding substance misuse in pregnancy
- to provide the level and degree of care and support appropriate to the client during their pregnancy and to the newborn baby.

The clinic was extended to include postnatal infants and their mothers with particular emphasis on babies prescribed medication to deal with symptoms of withdrawal.

Some mothers receive nearly all their antenatal and healthcare through the clinic, whereas others may only need to come for one appointment and continue to access normal services.

Further work is being undertaken to improve issues to develop a similar service at Princess Royal Hospital in 2009.

Speech & Language Therapy Service (SALT)

This service is provided by Speech and Language Therapists Rachelle Mayo and Alex Lazell for 14 hours/week on TMBU and approximately 3.5 hours per week in various outpatient clinics (e.g. SALT clinics, BPD clinics).

The service provides assessment and management of feeding difficulties for all babies admitted to TMBU. Difficulties may occur due to;

- neurological anomalies; e.g. HIE
- anatomical anomalies; e.g. TOF, Cleft palate
- babies with syndromes; e.g. Down Syndrome
- slow/difficult to feed because of prematurity/ non-specific reasons.
- Neonatal Abstinence Syndrome

There was a 27% increase in referrals from the previous year. This is explained by the increased cots now available on the Unit.

Other services provided include:

- Videofluoroscopic swallowing studies
- Teaching for new staff
- Involvement with neurodevelopment team
- Liaison/advice for dysphagia therapists in neighbouring trusts for babies from outside the Brighton and Hove catchment area.

There is currently no cover for babies that are transferred to PRH, nor for babies that are discharged home and live outside of the Brighton and Hove area. Babies transferred to the RACH will continue to be seen by the department. Increasing numbers of infants requiring speech and language therapy input have been transferred to the RACH this year.

Outpatient follow-up is provided on an 'as needed' basis for those babies who reside in the Brighton and Hove area.

Case Mix	Numbers of babies 2008
Neurological causes	16
Anatomical	7
Syndromic / dysmorphic	6
Prematurity (28 weeks or less)	10
Slow to feed/non specific cause	20
NAS	2
Other	2
Total	**63**

Satellite Breast Milk Bank

The essential elements of a satellite donor expressed breast milk bank service are that donors are recruited locally and the breast milk is pasteurised by the Breast Milk Bank in Southampton. Southampton then retains a small percentage of the milk as 'payment' and the remainder is returned, free of charge, to BSUH for use.

Purpose
The purpose of providing a regular cost effective supply of donor breast milk is to promote infant health. The objectives of the DEBM Bank Service are:-

- To supplement and or complement maternal breast milk in the new-born period.
- To make available DEBM for preterm and sick babies on the TMBU and SCBU PRH, when maternal breast milk is not available, so that feeding may be established at the optimum time in the baby's management.
- To make DEBM available for the introduction of feeding post-neonatal surgery when maternal breast milk is not available.
- To make available DEBM to babies whose mother wishes to breastfeed where there is a short-term interruption in maternal supply eg if mother undergoing an operation.

Counselling

There is a dedicated counsellor who works part time (0.6WTE) as part of the Department of Women & Children's Health and provides counselling services for maternity, gynaecology and parents on TMBU.

Parent Information

A wide range of information for parents is available. Around the time of admission, parents are given a booklet specifically about the TMBU or SCBU. In addition all parents receive a copy of the BLISS Parent Information Guide. Unfortunately both of these publications are only printed in English. However, we freely access the Trust funded Sussex Interpreting Service to facilitate communications with parents whose first language is not English.

A Parent Information Room provides health promotion information leaflets on a variety of baby, maternal and family health issues. There is also travel information for parents whose baby is transferred to London and Social Security benefits information. Information on consent and how to access the hospital Patients Advocacy and Liaison Service (PALS) is displayed in the information room alongside parent support group information. Planned future developments for the Information Room include internet access to enable parents to do supported literature searches and the installation of a TV and video/DVD for health promotion information.

Main stream diagnostic specific information is available on the TMBU but more unusual diagnosis information is obtained as required ensuring that it is up to date and accurate. The Contact-A-Family Directory is used regularly to access accurate contact details for parent support organisations.

Information packs are available for Down Syndrome and other information packs are complied as required.

The Trust supports the hiring of registered sign language interpreters and two members of staff have a basic knowledge of British Sign Language.

Where parent information is available in languages other than English these are downloaded from the Internet as required eg Reducing the Risks of Cot Death leaflet.

A small but growing Parents Library contains a selection of books on premature babies and neonatal units. There are also some books specifically for children of Special Care Babies.

Training sessions for parents on infant resuscitation techniques are held regularly.

When a baby dies parents are given an 'Annabel Harwood' pack which contains books, leaflets and contact details of support organisations to help and support parents following the death of their baby. This pack is complimented by a 'Memories Folder'.

Early Birth Association and Fundraising

The Early Birth Association is a group of parents who have had premature or sick babies in special care units. It was formed on TMBU 22 years ago and offers help and support to new parents who are facing the same worrying experiences that they once faced.

EBA is a registered charity. Money raised is spent on items for TMBU, ranging from winceyette sheets for the incubators, wool for blankets and shawls (some of these are for bereaved parents so they will have a keepsake), incubator bonnets, triangular pillows and the fabric for covers, to vital lifesaving equipment.

For 2008 all efforts were concentrated towards furnishing the new parents accommodation including beds, seating, lighting and televisions. The environment for families has been much improved by this work and we are already receiving good feedback.

As many parents want to maintain close ties with TMBU, the EBA publish quarterly newsletters that keep members informed of the various fundraising activities, invitations for social events and general up-to-date information about the unit.

Parent Forum

The Parent Forum meets regularly on the TMBU. It aims to provide an opportunity for parents to have an input into the development of the neonatal service. Sharing the experiences of parents at the parent forum and by the use of parent questionnaires has become well established.

Appendices

Appendix 1

BAPM Categories of Neonatal Care 2001

In this new edition only babies that are so sick or have a high likelihood of acute deterioration such that they need 1:1 care by a nurse with a neonatal qualification and the immediate presence of a competent doctor have been classified as receiving *intensive care*. In the absence of prospectively collected data the new 'Categories of Neonatal Care' are based upon clinical experience. Wide consultation amongst the members of BAPM and the NNA has taken place which has resulted in these new designations.

The major change has been to move babies five days old, who are clinically stable but still receiving nasal CPAP (NCPAP), from the intensive to the high dependency category. This will have impact upon the number of days of intensive and high dependency care activity recorded by a unit and it is important that departments record when they begin to use the new definitions.

These categories reflect the care a baby receives on any part of the day in question irrespective of whether or not the hospital aims normally to provide care at that level. Babies requiring **transport** inevitably need at least 1:1 nursing and will often need medical support. Transport activity should be recorded separately and has been excluded from the 'Categories'.

Intensive Care
These babies have the most complex problems. They need 1:1 care by a nurse with a neonatal qualification. The possibility of acute deterioration is such that there should be the constant availability
of a competent doctor.

1. receiving any respiratory support via a tracheal tube and in the first 24 hours after its withdrawal
2. receiving NCPAP for any part of the day and less than five days old
3. below 1000g current weight and receiving NCPAP for any part of the day and for 24 hours after withdrawal
4. less than 29 weeks gestational age and less than 48 hours old
5. requiring major emergency surgery, for the pre-operative period and post-operatively for 24 hours
6. requiring complex clinical procedures:
   Full exchange transfusion
   Peritoneal dialysis
   Infusion of an inotrope, pulmonary vasodilator or prostaglandin and for 24 hours afterwards
7. any other very unstable baby considered by the nurse-in-charge to need 1:1 nursing: *for audit, a register should be kept of the clinical details of babies recorded in this category*
8. a baby on the day of death.

High Dependency Care
A nurse should not be responsible for the care of more than two babies in this category –

1. receiving NCPAP for any part of the day and not fulfilling any of the criteria for intensive care
2. below 1000g current weight and not fulfilling any of the criteria for intensive care
3. receiving parenteral nutrition
4. having convulsions
5. receiving oxygen therapy and below 1500g current weight
6. requiring treatment for neonatal abstinence syndrome
7. requiring specified procedures that do not fulfil any criteria for intensive care:
   Care of an intra-arterial catheter or chest drain
   Partial exchange transfusion
   Tracheostomy care until supervised by a parent
8. requiring frequent stimulation for severe apnoea.

Special Care
A nurse should not be responsible for the care of more than four babies receiving Special or Normal Care.

- Special care is provided for all other babies who could not reasonably be expected to be looked after at home by their mother.
- Is provided for babies who themselves have no medical indication to be in hospital.

Appendix 2

Definitions according to CEMACH 2006	
Stillbirth	**A baby delivered with no signs of life after 24 completed weeks of pregnancy is registered as a stillbirth. Any babies known to have died between 22-24 weeks gestation are reported as a late fetal loss. Any babies known to have died before 22 weeks gestation are not included in this report.**
Early neonatal death	**Death of a liveborn baby occurring less than 7 days from the time of birth.**
Late neonatal death	**Death of a liveborn baby occurring after the 7th day and before 28 completed days from the time of birth.**
Stillbirth rate	**Number of stillbirths per 1000 livebirths and stillbirths.**
Perinatal mortality rate	**Number of stillbirths and early neonatal deaths per 1000 livebirths and stillbirths.**
Neonatal mortality rate	**Number of neonatal deaths per 1000 livebirths.**

Appendix 3 CLINICAL GOVERNANCE PERFORMANCE 2008

AUDIT OR GUIDELINE	COMPLETED	PRESENTED	DATE	COMMENTS & ACTIONS	ACTIONS COMPLETED
Nationally Commissioned Audits					
EPICURE 2 (National Audit)	Yes	Some results published	2008/2009	• Overall improved mortality, but not morbidity • Maybe increasing rate of infection and NEC • Develop more stringent nutrition and NEC guideline	
National Neonatal Audit Database	Ongoing	Regular reports circulated via e-mail + discussed at senior staff meetings	Throughout 2008, full report in May 2009	• Overall improved reporting quality, but getting worse towards end of the year • Remind all members of staff about the need to have temperature and BP recorded within the first hour of life • Make sure a senior member of staff speaks with parents within first 24 h and this is documented	√ √
National Targets and Projects					
Essence of Care benchmarking by nursing staff	Ongoing	Yes, at nursing staff away days		• No change	√
Essence of Care benchmarking by medical staff	Ongoing/in development	No			
Neurodevelopmental outcome	Ongoing	Yes, published in peer-reviewed journals	Epub. 2009	• Plans for extending neurodevelopmental follow-up to Neonatal Network (Surrey, Sussex and Kent) ongoing	√
Neonatal hearing screening	Ongoing	No		• Organise presentation	
Neonatal Transport Service: Regional Activity	Ongoing	Reports circulated via		• Plans to secure funding for a 24/7 service for Kent, Surrey and Sussex are on the way	

		e-mail + discussed at senior staff meetings		• Currently the Sussex transport team undertakes the most unplanned and planned transfers of all 3 existing teams in Kent, Surrey & Sussex	
Nationally Produced Guidance					
CEMACH – Guidance (27/28 project, diabetes in pregnancy)	Yes	Circulated via e-mail + discussed at senior staff meetings		• All requirements fulfilled	√
Early Neonatal Sepsis/Intrapartum Care (NICE)	Yes	Yes, at local Clinical Governance meeting		• New guideline introduced including NICE guidance on management of newborns born after PROM • Concerns about NICE recommendations addressed through communication with NICE team and publication in peer-reviewed journal	√ √
Diabetes in pregnancy: management of diabetes and its complications from pre-conception to the postnatal period (NICE)	YES	Circulated via e-mail + discussed at senior staff meetings		• Local guideline more strict to increase patient safety • Concerns about NICE recommendations addressed through communication with NICE team and publication in peer-reviewed journal	√ √
Audit of Perinatal Management of Infants Born to HIV Pos. mothers	Yes	No		• Protocol updated	√
Trust Identified Projects					
Infection Control Environmental Audit	Ongoing	Regular reports circulated via e-mail + discussed at senior staff		• Overall good performance – hand washing needs reinforcing • New central care and peripheral line care bundle as well as phlebitis score discussed, amended and implemented	√ √

		meetings			
Parent Satisfaction Survey	Ongoing	Regular reports circulated via e-mail		• Overall very good response – > 90 % of parents feel unit is organised, safe, respects patient privacy and confidentiality	√
Speciality Identified Projects					
Guideline: management of congenital CMV infection	YES	YES	30/01/2008	• Approved - for editing and peer-review before implementation	√
Guideline: early onset neonatal sepsis	YES	YES	30/01/2009	• New nice guidance and CDC recommendations merged on one algorithm implemented into practice	√
Audit: chronic lung disease	YES	YES	30/01/2008	• Outcome within range of published data despite increasingly less intubation and surfactant application	
Audit: MRCN – priorities in medicine for neonates	YES	YES	30/01/2008	• General problem of using many drugs off-label in newborns highlighted • Local representive involved in the development of European and transatlantic research projects	√
Audit: new Gentamicin regime	YES	YES	30/01/2008	• New Gentamicin dosage agreed and schedule changed in drug protocol	√
Audit: HBV vaccination	YES	YES	23/04/2008	• Overall very good compliance with protocol • Suggestions for improvement: joint antenatal/postnatal documentation folder • Seek antenatal consent for substance misuse mothers • Keep local stock of HBV vaccine on unit	
Guideline: gastrooesophageal reflux disease	YES	YES	23/04/2008	• Approved after minor changes - for editing and peer-review before implementation	√

Guideline: metabolic bone disease of prematurity	YES	YES	23/04/2008	• Finetune guideline	
Audit: Infection control (nurse-lead)	YES	YES	23/04/2008	• Increase awareness of infection control at med. trainee at induction • Online learning modules on MRSA C.difficile to be compulsory for all trainees during stay on unit	√
Audit: prophylactic indomethacin for PDAs	YES	YES	23/04/2008	• Review outcome of babies 28 – 32 weeks GA that did not receive indomethacin	Ongoing
Audit: developmental dysplasia of the hip	YES	YES	16/07/2008	• Review guideline in the light of NIPE tool recommendations	Ongoing
Audit: pulmonary haemorrhages	YES	YES	16/07/2008	• Change mode of indomethacin application to infusion over 30 minutes in drug formulary	In practice
Audit: chest x-ray image quality	YES	YES	16/07/2008	• Improve cover of vulnerable tissues • New joint guidance between TMBU and Paed. Radiology for safe and correct x-ray imaging on TMBU implemented	√ √
Audit: NEC (surgical cases) – joint meeting with Dept. of Paediatrics	YES	YES	18/07/2008	• NEC rate within range of published data	
Guideline: Safe transfer for congenital diaphragmatic hernia repair at RAH	YES	YES	18/07/2008	Preparation for reinstating local CDH repair at RAH near completion	√
Audit: dehydration and re-admission	YES	YES	15/10/2008	• Training needs to improve clinical recognition of jaundice and dehydration addressed and planned • Development needs for a more effective support of breastfeeding mothers at risk of late lactogenesis identified	√ √
Guideline: Congenital syphilis	YES	YES	15/10/2008	• Approved - for editing and peer-review before implementation	√
Use of the posterior lateral fontanelle for better visualisation of the posterior	YES	YES	15/10/2008	• Approved - amendments to enter into current ultrasound guideline	√

fossa using ultrasound: implications for a clinical guideline					
Guideline: Prevention and treatment of fungal infections	YES	YES	15/10/2008	• Approved - for editing and peer-review before implementation	√
Guideline: posthaemorraghic hydrocephalus	YES	YES	2008	• Approved – for editing and peer-review after minor changes before implementation	√
Guideline: Neonatal muscular hypotonia	YES	YES	2008	• Approved – for editing and peer-review after minor changes before implementation	√
Guideline: HBV	YES	YES	2008	• Approved - for editing and peer-review before implementation	
Guideline: HCV	YES	YES	2008	• Approved - for editing and peer-review before implementation	
Invited presentation: Update on infant nutrition, C. Smith, chief dietician, RAH	YES	YES	15/10/2008	• Plans to organise joint nutrition ward round on TMBU, in particular for surgical patients, are taken forward	√
Invited presentation: Safety in Neonatology & Obstetrics, Prof. Halligan, BSUH	YES	YES	16/07/2008	• Changing attitude and behaviour is key to successful improvement of safety measures	

Appendix 4

Research

Studies initiated locally:

Neurology
Standardized Follow-up of preterm infants (inborns, less than 29 weeks or less than 1000g)
This study is now successfully going into its 6th year, thus investigating the outcome at 4 years of age. Contact person: Dr P Amess

Microcirculation/Non-invasive methods
Non-invasive transcutaneous spectroscopic measurements with the Mediscan 2000 in infants
Contact person: Dr H Rabe, Research Nurse Denise Stilton

New waveform analysis of pulse oxymetry and Mediscan in babies with non-invasive lung function monitoring
Contact persons: Dr P Seddon, Dr H Rabe

Non-invasive comparative lung function measurements in infants on NCPAP versus Bubble CPAP versus Vapotherm versus Medijet, start in Dec 2008
Contact persons: Dr P Seddon, Dr H Rabe

Prospective cohort study of filaggrin receptor mutations on cord bloods in newborn infants, start April 2009
Contact persons: Prof S Mukhopadyay, Dr H Rabe, Dr A Roueche

Parent's perception of randomized trials
Parental perceptions of their baby's participation in randomized controlled trials in neonatal medicine.
The study consists of structured interviews with parents. Interesting lessons have been learned from the preliminary results. The parents' recommendations on improving information about studies have been implemented in 2007.
Contact persons: Dr H Rabe, Dr S Ayers

Randomised trial: Slight delay in cord clamping time (30 s) versus milking of the cord (4 times)
Randomised trial in preterm infants < 33 weeks gestation, singletons, inborns at RSCH
Contact person: Dr H Rabe

Multicentre trials:

ADEPT
Randomised controlled trial on early versus late enteral feeding in infants < 35 0/7 weeks GA with IUGR and absent or reversed end diastolic flow antenatally.
Contact persons: Dr H Rabe, Dr JR Fernandez Alvarez

CMV Database and viral load and immunology study
Register and follow-up treatment of babies with congenital cytomegaly infection
Contact persons: Dr H Rabe, Dr JR Fernandez Alvarez

Papers

Rabe H, Fernandez Alvarez JR, Seddon P, Lawn C, Amess PN: A management guideline to reduce the frequency of blood transfusion in very low birth weight infants. Am J Perinat 2008; Dec 15 (epub ahead of print)

Wertheim D, Olden C, Savage E, Seddon P. Respiratory data from pulse oximetry in newborns. Arch Dis Child Fetal Neonatal Ed. 2008 Nov 17. (Epub ahead of print)

Amess P, McFerran C, Khan Y, Rabe H: Early prediction of neurological outcome by Term Neurological Examination and cranial ultrasound in very preterm infants. Acta Paediatr 2008; Oct 22 (epub ahead of print)

Brand PL, Baraldi E, Bisgaard H, Boner AL, Castro-Rodriguez JA, Custovic A, de Blic J, de Jongste JC, Eber E, Everard ML, Frey U, Gappa M, Garcia-Marcos L, Grigg J, Lenney W, Le Souëf P, McKenzie S, Merkus PJ, Midulla F, Paton JY, Piacentini G, Pohunek P, Rossi GA, Seddon P, Silverman M, Sly PD, Stick S, Valiulis A, van Aalderen WM, Wildhaber JH, Wennergren G, Wilson N, Zivkovic Z, Bush A. Definition, assessment and treatment of wheezing disorders in preschool children: an evidence-based approach. Eur Respir J. 2008 Oct;32(4):1096-110

Rabe H, Reynolds G, Diaz-Rossello J. A systematic review and meta-analysis of a brief delay in clamping the umbilical cord of preterm infants. Neonatology. 2008; 93:138-44

Letter

Alvarez JRF, Aiton N, Amess P, Bomont R, Lawn C, Seddon P, Watkins R, Rabe H: Concerns about the new NICE guidelines on intrapartum care and diabetes in pregnancy. Arch Dis Child Fetal Neonatal Ed 2008; 93:F474-5

Book Chapter

Rabe H: Ethical aspects of the new Paediatric Drug Regulation in the European Union. In Griffin JP, O'Grady J: Textbook of Pharmaceutical Medicine, 6th ed. BMJ Blackwell Publ. Oxford, UK 2009