



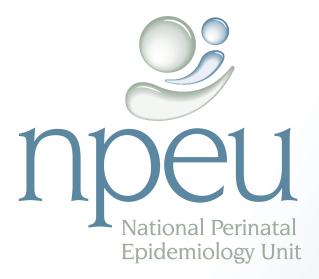
### **Delivered with care:** a national survey of women's experience of maternity care 2010



# **Annual Report 2010**

# National Perinatal Epidemiology Unit

# **Annual Report 2010**



#### **Front Cover**

Illustration of the 'Delivered with Care' report of the findings of the National Maternity Survey 2010: Women's experience of Maternity Care. Details of the project can be found on "National Maternity Survey 2010: Women's Experience of Maternity Care" on page 15 and the full report can be downloaded from our website: *https://www.npeu.ox.ac.uk/delivered-with-care* 

#### Citation for this report:

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# Introduction

Welcome to the 2010 Annual Report for the National Perinatal Epidemiology Unit. The most important news we received during 2010 was that the Department of Health (England) are continuing to provide resources to the NPEU. The DH have supported the NPEU since its inception in 1978, but in 2009, following a strategic review of their support for policy research, they invited competitive applications for a new range of Policy Research Units. One of these was in Maternal Health and Care and we are delighted to say that the Policy Research Unit for Maternal Health and Care (PRU-MHC) was awarded to the NPEU in 2010 (www.npeu.ox.ac.uk/prumhc). This support runs from January 2011 until December 2015.

The other major piece of news for 2010 is that I announced my resignation as Director of the NPEU, effective from 1 April 2011, to become the Director of the Institute for Women's Health at University College London. Dr Jenny Kurinczuk, Deputy Director of the NPEU, was appointed to become Director of the NPEU from 1 April 2011. I will continue to have a role at the NPEU as Co-Director of the PRU-MHC alongside Jenny.

2010 also saw the departure of another longstanding member of the NPEU, Dr Stavros Petrou. Stavros joined the Unit in 1997 as a Health Economist who rapidly became the Unit's Senior Health Economist with a broad range of interests and a prodigious output. Stavros has left to become Professor of Health Economics at the University of Warwick, within the Warwick Clinical Trials Unit and we wish him every success for the future.

The NPEU continues to be successful and productive in terms of its income and output. In 2010 a total of 48 peer reviewed papers were published by NPEU along with 'Delivered with Care' the results of the 2010 national maternity survey and a range of outputs from the Inequalities in Infant Mortality project, including evidence maps, briefing papers and systematic reviews. All of these are available on our website at www.npeu.ox.ac.uk/infant-mortality. We received funding for a range of new UKOSS studies (www.npeu.ox.ac.uk/ukoss), as well as funding from the MRC  $(\pounds 2.5m)$ to follow up the CORONIS trial (also MRC funded). CORONIS is a complex randomised controlled trial (a 2x2x2x2x2

fractional factorial design) to assess the effects of a range of different surgical techniques at the time of caesarean section on short term outcomes for the mother and baby. By the end of 2010, when recruitment stopped, almost 16,000 women were included from centres in Ghana, Kenya, Sudan, India, Pakistan, Argentina and Chile. This new MRC funding will allow us to follow these women up for three years after their participation in CORONIS to assess the longer term impact of these surgical techniques on their general and reproductive health. 2010 also saw the start of the NIHR funded Near-miss Surveillance Programme (UKNeS) which is designed to develop and implement a comprehensive national programme of surveillance and study of near-miss maternal morbidities which will complement the work of the confidential enquiry into maternal deaths and improve outcomes for women and their babies (www.npeu.ox.ac.uk/uknes).

Although I am very sorry to be leaving the NPEU after nearly 17 years, the Unit is in an excellent position to move forward with an exciting and important programme of work with a team of excellent researchers. Jenny Kurinczuk will make a superb Director and the Unit will continue the long history of research excellence in the perinatal field. I wish everyone in the Unit the very best for the future.

Ballehu



NPEU Director 2002-2011: Professor Peter Brocklehurst

# New Director appointed at NPEU 1<sup>st</sup> April 2011

Dr Jenny Kurinczuk was appointed as Director of the National Perinatal Epidemiology Unit from the 1st April 2011 becoming the fifth Director of the NPEU since its inception in 1978. She is also Co-director of the Policy Research Unit in Maternal Health and Care, funded by the Department of Health and recently awarded to the NPEU team (www.npeu.ox.ac.uk/prumhc).

Jenny joined the NPEU in October 2003 as Consultant Clinical Epidemiologist and was promoted to Deputy Director of the Unit and Reader in Perinatal Epidemiology in 2008. Her research expertise lies particularly in the areas of the causes and consequences of neonatal encephalopathy, cerebral palsy and congenital anomalies, and the health outcomes for children born following assisted conception. She is also involved in leading national studies of near miss maternal morbidity (www.npeu.ox.ac.uk/uknes) and the evaluation of paediatric surgical interventions for congenital anomalies (www.npeu.ox.ac.uk/baps-cass).



NPEU Director from 1st April 2011: Dr Jenny Kurinczuk

# **Contact Details**

#### **Telephone numbers:**

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Lynne Roberts (PA to the Director)
Sue Bellenger (Administrator)
Karen Lindsay (Deputy Administrator - Personnel and Purchasing) + 44 (0) 1865 289705
Luke Blount (Deputy Administrator - Grants)

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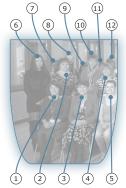
#### Address

National Perinatal Epidemiology Unit University of Oxford Old Road Campus Headington Oxford OX3 7LF

For individual staff contact details and email addresses, please go to: www.npeu.ox.ac.uk/staff

## **NPEU Staff**









- 1. Lynn Lynch
- 2. Angela Garrett
- 3. Linda Mottram
- 4. Lyn Pilcher
- 5. Shannon Armstrong
- 6. Rui Zhao
- 7. Patsy Spark
- 8. Emma Haines
- 9. Barbara Farrell
- 10. Suzanne Williams
- 11. Louise Linsell
- 12. Pauline Rushby
- 13. Karen Lindsay
- 14. Bob Gatten
- 15. Sarah Chamberlain
- 16. Peter Brocklehurst
- 17. Anna Hobson
- 18. Aimee Crowshaw
- 19. Lydia Saroglou
- 20. Mandy Slark
- 21. Nishma Patel
- 22. Katie Lean
- 23. Brenda Strohm
- 24. Edward Gosden
- 25. Paul Heal
- 26. Lynne Roberts
- 27. Marta Nowicki
- 28. David Puddicombe

33. Nina Armstrong34. Mara Violato

29. Jenny Kurinczuk

30. Tricia Boyd

35. Sue Bellenger

31. Marian Knight

32. Rachel Rowe

- 36. Ursula Bowler
- 37. James Griffiths
- 38. Luke Blount
- 39. Oya Eddama
- 40. Shan Rich
- 41. Andy Kirk
- 42. Liz Schroeder
- 43. Ron Gray
- 44. Jane Forrester-Barker
- 45. Ann Kennedy
- 46. Maria Quigley
- 47. Stella Khenia
- 48. Sarah Lawson
- 49. Alex Bellenger
- 50. Ed Juszczak
- 51. Gry Poulsen
- 52. Cath Rounding
- 53. Dominika Misztela
- 54. Kate Fitzpatrick
- 55. Colleen Acosta-Nielsen

- Missing
- Vicki Barber Clara Bowyer Claire Carson Helen Davenport Sara Edwards Pollyanna Hardy Jane Henderson

Jennifer Hollowell Denise Jennings Yvonne Kenworthy Andy King Gwyneth Lewis Kayleigh Morgan Laura Oakley Maggie Redshaw Dimitrios Rovithis Anne Smith Dana Sumilo Julia Sutton Melanie Workman

## Website

#### www.npeu.ox.ac.uk

The NPEU website has steadily grown more popular each month as the Unit continues to grow. There are hundreds of individual visitors each day and new features and facilities continue to be added to provide a better experience for all.

- The website receives more than 1,500 individual visitors each week, viewing over 7,000 pages between them.
- The top three most popular areas of our • site are:
  - 1. "What We Do by Topic" (www.npeu.ox.ac.uk/topics)
  - 2. "UKOSS" (www.npeu.ox.ac.uk/ukoss)

NEWS: Dr Jenny Kurinczuk to become the new Director of On 1<sup>48</sup> March 2011 Professor Ray Fizzatrick, Head of the Departme Kurinczuk as Director of the NPEU from the 1<sup>46</sup> April 2011. Read Mi

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What We Do - by Methodology

Trials Y PIPS Study

Participating Centre

NHS Permissions (R&D Approvals) What's New at the NPEU

UKOSS: Severe Sepsis

UKOSS: HELLP Syndrome

UKOSS: Upcomin Surveillance

UKOSS: Adren Tumours in Pregnancy 252: Recruitm Summary

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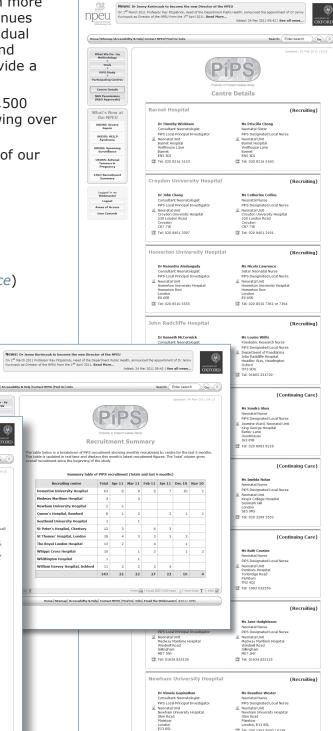
3. "Birthplace" (www.npeu.ox.ac.uk/birthplace)

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**PíP**S

What We Do - by Nethodology



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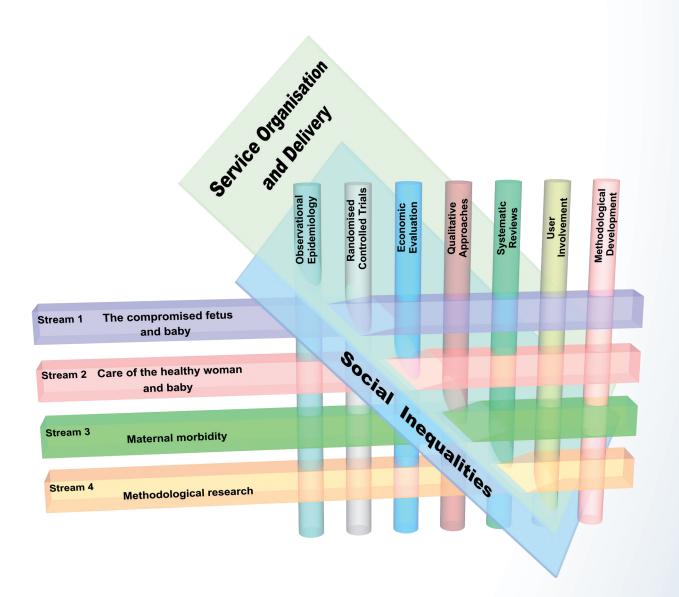
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Some useful pages from PiPS trial website

# **Programme of Work**



### Introduction

The NPEU programme of work for the period 2009 to 2011 is described in this section of the report. The programme of work is conceptualised and illustrated above using the framework of four streams of work with two cross-cutting themes and the rods denoting the different research methodologies used. A summary of all the work in progress and work completed during 2009 and 2010 is given in the following two tables which separate work

in progress, listed in the first table, from completed studies which are given in the second table. Following the summary tables and to avoid the repetition from year to year we have included the full details of only new projects which started in 2010. These are described after the summary table under the headings of the four streams of work. Further information can be found on our website: www.npeu.ox.ac.uk

### **Programme of Work – Ongoing Studies**

#### **NPEU Table of Work Key**

NPEU contact: Most projects involve an NPEU team and often outside collaborators. The postscript (a) means that the grant holder or chief investigator for the project is from outside the NPEU.

The initials of the NPEU researchers are used in the table for brevity and represent the chief investigator or the researcher who is taking the lead for the project at the NPEU:

PB	Peter Brocklehurst	EJ	Ed Juszczak	RR	Rachel Rowe
ΤВ	Tricia Boyd	MK	Marian Knight	LS	Liz Schroeder
OE	Oya Eddama	JK	Jenny Kurinczuk	BS	Brenda Strohm
BF	Barbara Farrell	SP	Stavros Petrou*	MV	Mara Violato
RG	Ron Gray	MQ	Maria Quigley		
JH	Jennifer Hollowell	MR	Maggie Redshaw		

\* Stavros Petrou left the Unit in August 2010.

Stream 1: The compromised fetus and baby	Duration	NPEU Contact
1.1 Neonatal encephalopathy, cerebral palsy and oth impairments	er childhood	
Reaching consensus on the definition of neonatal encephalopathy for surveillance purposes	2005-11	ЈК
Secondary analysis of Western Australian case control data to further investigate the relationship between intrapartum events, neonatal encephalopathy and cerebral palsy	2005-12	ЈК
NEST trial – Whole body cooling for neonates undergoing extracorporeal membrane oxygenation (ECMO)	2005-12	EJ(a)
INFANT trial – A multi-centre randomised controlled trial of an intelligent system to support decision making in the management of labour using the cardiotocogram	2009-14	PB
Economic evaluation alongside INFANT trial – cost- effectiveness of an intelligent decision support system	2009-14	PB
Economic evaluation alongside TOBY trial – cost- effectiveness of total body cooling	2006-13	OE
UK TOBY Cooling Register: register of the use of moderate hypothermia in neonates	2007-11	BS
TOBY Children Study – School age outcomes following a newborn cooling trial	2009-13	BS(a)
TOBY Xenon: Neuroprotective effects of hypothermia combined with inhaled xenon following perinatal asphyxia	2009-12	EJ

Stream 1: The compromised fetus and baby	Duration	NPEU Contact
<b>1.2 Child health outcomes following assisted reproduc</b> and related fertility issues	ctive technolo	ogies (ART
International collaborative work using record linkage methods to investigate the risks of cerebral palsy, intellectual disability, hospitalisation and congenital anomalies associated with ART	2003-11	JK(a)
A population-based study of the effect of infertility and its treatment on child health and development	2008-11	MQ
1.3 Congenital anomalies		
CAROBB – Monitoring rates of congenital anomalies for surveillance purposes	2003-11	ТВ
1.4 Preterm birth		
Parents' experience of care following admission of their infant to a neonatal unit	2006-11	MR
PROGRAMS trial – GM-CSF for sepsis prophylaxis in preterm growth-restricted babies	2001-12	PB(a)
BOOST-II UK trial – targeting oxygen saturation levels in preterm babies	2006-12	EJ(a)
PiPS – Probiotics in preterm babies study	2009-13	PB(a)
I2S2 – Iodine supplementation trial – iodine supplementation for premature babies	2009-14	РВ
Economic evaluation alongside PROGRAMS trial – the cost- effectiveness of GM-CSF for sepsis prophylaxis in preterm growth-restricted babies	2001-10	EJ
A population-based study of the health and developmental consequences of preterm birth	2009-11	MQ
ePrime – Evaluation of MR imaging to predict neurodevelopmental impairment in preterm infants	2009-14	MR(a)
1.5 Fetal and infant effects of rare disorders of pregna	ancy (see Str	eam 3)
Development of the British Association of Paediatric Surgeons Congenital Anomalies Surveillance System (BAPS-CASS)	2006-12	МК
BAPS-CASS – Before, during and after birth – how does care affect the future health prospects of infants with congenital diaphragmatic hernia?	2009-12	ЈК
1.6 Infant mortality		
Inequalities in Infant Mortality work programme – follow-on study	2010-11	ЭH

Stream 2: Care of the healthy woman, baby and child	Duration	NPEU Contact
2.1 Attitudes towards pregnancy and childbirth		
Nothing currently in progress under this heading – see table of completed studies for work in this area		
2.2 Recent users' views and experience of maternity c	are	
Nothing currently in progress under this heading – see table of completed studies for work in this area		
2.3 Antenatal screening		
Nothing currently in progress under this heading – see table of completed studies for work in this area		
2.4 Minor problems in pregnancy		
Nothing currently in progress under this heading – see table of completed studies for work in this area		
2.5 Care in labour and delivery		
CORONIS Trial – fractional factorial trial of caesarean section surgical techniques in developing countries	2006-11	BF
Changes in maternity care over time	2007-11	MR
An international comparison of maternity care	2007-11	MR
BUMPES – Upright maternal position in second stage labour in women with epidural analgesia; a randomised controlled trial	2009-13	PB
Cochrane review: Psychosocial and educational interventions in latent phase or early labour for improving birth outcomes	2009-11	MQ(a)
2.6 Postnatal health and care		
The impact of family income on child cognitive and behavioural outcomes in the United Kingdom	2007-11	MV
Maternal health and wellbeing in the perinatal period	2010-11	MR
Cost analysis of breastfeeding outcomes in the UK	2010-12	MQ
Improving the evidence base on breastfeeding	2011-12	MQ
2.7 Organisation of maternity care		
Birthplace in England Research Programme (incorporating the Evaluation of Maternity Units in England (EMU) research programme)	2006-11	JH
Birth at Home Study	2006-11	JH

Stream 2: Care of the healthy woman, baby and child	Duration	NPEU Contact
Modelling efficiency and cost-effectiveness in maternity care in the UK	2007-11	LS
Transfer from midwifery unit to obstetric unit during labour: rates, process, outcomes and women's experience	2007-11	RR
2.8 The healthy child		
Nothing currently in progress under this heading – see table of completed studies for work in this area		
Stream 3: Maternal morbidity	Duration	NPEU Contact
3.1 Maternal mental illness		
Nothing currently in progress under this heading – see table of completed studies for work in this area		
3.2 Obesity and outcome of pregnancy		
Nothing currently in progress under this heading – see table of completed studies for work in this area		
3.3 Smoking, alcohol and drug misuse in pregnancy		
Nothing currently in progress under this heading – see table of completed studies for work in this area		
3.4 Surveillance of rare disorders of pregnancy		
Continued development of the UK Obstetric Surveillance System (UKOSS)	2005-14	МК
Surveillance of amniotic fluid embolism	2005-12	МК
Surveillance of pulmonary vascular disease	2006-12	МК
Surveillance of myocardial infarction in pregnancy	2006-11	МК
Surveillance of pregnancy in women following non-renal solid organ transplant	2007-12	МК
Surveillance of uterine rupture	2009-11	МК
Surveillance of failed intubation	2008-11	MK(a)
Surveillance of aortic dissection/dissecting aortic aneurysm in pregnancy	2009-12	МК
Surveillance of pituitary tumours in pregnancy	2009-12	MK(a)
Surveillance of myeloproliferative disorders in pregnancy	2010-13	MK(a)
Before, during and after birth – how does care affect the future health prospects of infants with congenital diaphragmatic hernia? (UKOSS study)	2009-12	МК

Stream 3: Maternal morbidity	Duration	NPEU Contact
Surveillance of sickle cell disease in pregnancy	2010-12	MK(a)
Surveillance of placenta accreta	2010-11	МК
3.5 Pregnancy complications		
Factors associated with progression from near-miss maternal morbidity to fatality	2010-11	МК
Long-term follow-up of women and their infants affected by near-miss morbidity	2010-12	МК
Economic evaluation of different second-line therapies for peripartum haemorrhage	2010-11	MK
UKNeS – Beyond maternal death: Improving the quality of maternity care through national studies of 'near-miss' maternal morbidity	2010-14	МК
3.6 Pregnancy, disability and chronic illness		
Nothing currently in progress under this heading – see table of completed studies for work in this area		
Methodology	Duration	NPEU Contact
4.1 Methodological developments		
Dealing with childhood deaths in randomised trials (BRACELET)	2008-12	PB(a)
Health, medicines and self-care choices made by children, young people and their families: information to support decision making	2006-11	РВ
Evidence into practice: evaluating a child-centred intervention for diabetes medicine management	2008-11	PB

### **Programme of Work – Studies Completed in 2009-10**

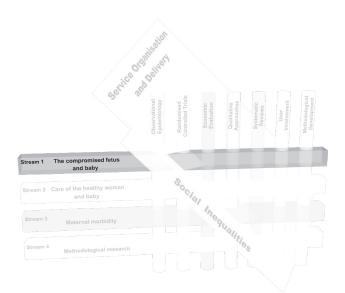
Stream 1: The compromised fetus and baby	Duration	NPEU Contact
TOBY trial – whole body cooling for babies born with neonatal encephalopathy	2002-09	BS
4Child – Monitoring rates of cerebral palsy, particularly in high risk subgroups	2003-10	ЈК
4Child – Monitoring rates of vision loss and hearing loss in children	2003-10	ЈК
UKCP Collaboration: Analysis of survival and regional variations in CP rates	2006-10	ЭК
Economic evaluation of progesterone for the prevention of preterm birth in twins	2005-09	OE
Economic evaluation of outpatient cervical ripening prior to induction of labour	2005-09	OE
Experience of parents of children with cerebral palsy	2007-10	JK(a)
Explore the possibility of using the HFEA database for record linkage work with regional congenital anomalies registers to further investigate the relationship between ART and risk of congenital anomalies	2006-10	λ
The effects of psychosocial stress on time to conception	2005-09	RG
Epidemiology of twinning and the effects of ART	2006-10	ЈК
A comparison of the early parenting experience of parents of multiples and singletons arising from natural conception and infertility treatment	2006-10	MR
Experiences, information and support needs of women and men who go through treatment for infertility and sub-fertility	2006-10	JK(a)
Clinical and cost-effectiveness of elective single embryo versus double embryo transfer policy in assisted reproduction	2008-10	JK(a)
HFEA data: Analysis of long-term trends and outcomes following ART treatment in 2006	2009-10	ЈК
FOCaL – Feasibility of investigating the long-term outcomes of specific congenital anomalies using congenital diaphragmatic hernia as the examplar	2006-10	ЭК
EUROCAT – European Surveillance of Congenital Anomalies – Survey of prenatal diagnosis screening methods across Europe Perinatal screening for birth defects in Europe – a EUROCAT study of the impact of different national policies	2005-10	TB(a)
Cognitive and behavioural outcomes of children with an extra sex chromosome	2006-09	TB(a)

Stream 1: The compromised fetus and baby	Duration	NPEU Contact
Prenatal diagnosis and outcome of pregnancy of sex chromosome trisomies in Europe	2007-09	ТВ
Terminations of pregnancy at $\geq$ 24 weeks of gestation after prenatal diagnosis of fetal abnormality in Europe	2007-09	TB(a)
To assess information availability on prevalence and prenatal detection rates of congenital anomalies in the South East Region to allow the monitoring of screening programmes	2009-10	ТВ
Evaluation of prenatal diagnosis rates for major structural congenital anomalies across areas covered by BINOCAR register 2005-2006	2009-10	ТВ
Genetic association study of preterm birth	2006-10	RG(a)
Economic impact of preterm birth	2005-09	SP
ADEPT trial – early versus delayed enteral feeding for babies born with absent or reversed end-diastolic flow and growth restriction	2005-09	EJ
INIS trial – International Neonatal Immunotherapy Study – intravenous immunoglobulin for babies with sepsis	2000-10	BF
Economic impact of preterm birth (II)	2006-09	SP
Neonatal unit survey of communication, facilities and support for parents of preterm babies	2007-09	MR
Neonatal Taskforce Workforce: neonatal staff survey analysis	2008-09	MR
BAPS-CASS – A population-based national study of surgical outcomes of infants born with gastroschisis	2006-10	МК
BAPS-CASS – A population-based national study of surgical outcomes of infants born with oesophageal atresia	2008-10	МК
Inequalities in Infant Mortality work programme	2007-10	RG
Stream 2: Care of the healthy woman, baby and child	Duration	NPEU Contact
Analysis of trust-based data from National Maternity Surveys on women's experience of care	2009-10	MR
National Maternity Survey 2010: Women's Experience of Maternity Care	2010	MR
Women's experience of support for breastfeeding	2009-10	MR
Multiple births and women's experience of maternity care	2010	MR
Cost-effectiveness of alternative prevention and treatment strategies for GBS	2005-09	LS

Stream 2: Care of the healthy woman, baby and child	Duration	NPEU Contact
Health and wellbeing in pregnancy	2008-09	MR
ELSA trial of home versus hospital support in early labour	2004-09	MQ(a)
EUPHRATES trial – trial of blood collector bag in third stage of labour	2001-09	EJ(a)
CAESAR trial – factorial trial of caesarean section surgical techniques	2001-09	MQ
Women's experience of caesarean section: a qualitative study	2007-09	MR
Women's worries about labour and birth: social and ethnic differences	2007-10	MR
Women's perceptions of maternity care	2007-10	MR
The protective effects of breastfeeding in a national UK survey	2005-09	MQ
Feeding twins, triplets and higher order multiples: a systematic review, secondary data analysis and development of evidence-based guidelines	2007-10	MQ
The effect of breastfeeding on child development	2009-10	MQ
Relationship between family income and child asthma: an econometric perspective	2006-09	RG
Birth and beyond: antenatal education and preparation for parenthood – a review of the literature and current service provision	2009	MR
Having a baby in rural areas in England	2009	MR
Stream 3: Maternal morbidity	Duration	NPEU Contact
Surveillance of extreme obesity in pregnancy	2007-10	МК
Effects of prenatal alcohol consumption and alcohol metabolising genes on child growth and neurodevelopment in the ALSPAC study	2008-10	RG
The association between alcohol consumption in pregnancy and emotional and behavioural problems in childhood	2007-09	MQ
Effect of maternal alcohol consumption on fetal growth, preterm birth, birth defects and child behaviour problems	2007-09	JK
Surveillance of fetomaternal alloimmune thrombocytopenia	2006-09	МК
Surveillance of gastroschisis	2006-09	МК
Surveillance of different methods of treating obstetric haemorrhage	2007-09	МК

Stream 3: Maternal morbidity	Duration	NPEU Contact
Surveillance of pregnancy in women with a renal transplant	2007-10	MK
Surveillance of antenatal stroke	2007-10	MK
Surveillance of multiple repeat caesarean section	2009-10	MK(a)
Surveillance of A/H1N1v influenza in pregnancy	2009-10	MK
Antenatal detection of shoulder dystocia	2007-09	MQ(a)
Methodology	Duration	NPEU Contact
Investigation of the completeness of case ascertainment by UKOSS using FMAIT as one of the candidate conditions	2006-09	МК
Investigation of the completeness of case ascertainment by UKOSS using gastroschisis as one of the candidate conditions	2006-09	МК
Comparison of different sources of incidence data for rare disorders of pregnancy	2007-10	МК
INLET trial – cluster trial of newsletters and educational supplements to centres participating in INIS trial	2006-10	EJ(a)
Programme of methodological research on economic aspects of perinatal and paediatric health care	2006-10	SP
Study of women's preferences for alternative management methods for first trimester miscarriage (MIST)	2006-09	SP
Validation of a perceptions of care adjective check list for labour and birth	2007-09	MR
Preference-based Health Utilities Index scores for childhood conditions	2007-09	SP
Development and validation of instrument measuring aspects of the working environment in maternity and healthcare	2008-10	MR

### **Projects started in 2010**



This further work will involve a synthesis of the relevant UK qualitative literature to identify the barriers to and facilitators of early initiation of antenatal care in socially disadvantaged and vulnerable women; and a cross-study synthesis to identify the extent to which the interventions identified in the earlier NPEU effectiveness review address barriers and facilitators relevant to disadvantaged and vulnerable women in the UK.

Contact person:Jennifer HollowellFunding:DHStatus of project:In progress

#### Stream 1: The compromised fetus and baby

#### **1.6 Infant mortality**

Inequalities in Infant Mortality work programme – follow-on study Chief investigator: NPEU:

Jennifer Hollowell.

#### Other investigators:

(Listed alphabetically)

#### External:

Josephine Kavanagh (*Eppi-Centre, London*).

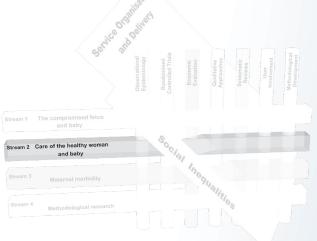
#### NPEU:

Peter Brocklehurst, Ron Gray, Jenny Kurinczuk.

#### **Other NPEU staff involved:**

Laura Oakley.

This follow-on study is being undertaken to enhance the NHS relevance of the findings of a systematic review of the effectiveness of interventions to increase the early initiation of antenatal care by disadvantaged and vulnerable women, recently completed by the NPEU as part of the Inequalities in Infant Mortality project.



#### Stream 2: Care of the healthy woman, baby and child

## **2.2 Recent users' views and experience of maternity care**

#### National Maternity Survey 2010: Women's Experience of Maternity Care Chief investigator: NPEU: Maggie Redshaw.

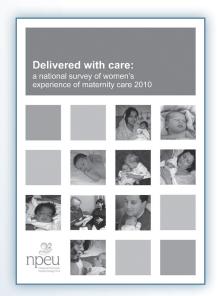
#### Other investigator:

**NPEU:** Katriina Heikkila. A new national maternity survey was undertaken by the NPEU in 2010 using the same methods as were employed in 2006, the results of which were reported as 'Recorded Delivery' (2007). The target sample size was increased to 10,000 and additional sections included on fathers' involvement and on women whose babies were admitted to neonatal care. Mailings of questionnaires went out to women at three months after the birth and an online questionnaire option was made available.

The survey provides new data on fathers' engagement and updated information about choice and information, care and services from the perspective of women who had recently given birth. It looks at the experience of different groups of women and makes some comparisons across time and between women receiving care in different geographical areas of England.

Over five thousand women responded and key findings have been published on the NPEU website in a report 'Delivered with care: a national survey of women's experience of maternity care 2010'.

Contact person:Maggie RedshawFunding:DHStatus of project:Completed



Multiple births and women's experience of maternity care Chief investigator: NPEU: Maggie Redshaw.

#### **Other investigators:**

### (Listed alphabetically)

Jane Henderson, Jenny Kurinczuk.

Using data from the 2006 survey of women's experience of maternity care, published as 'Recorded Delivery' (2007) and from Hospital Trust based surveys of women carried out in 2007 as part of the Healthcare Commission maternity review, published as 'Towards Better Births' (2008), the aim was to describe the experience of maternity care of women having twins or triplets and to compare this with that of women having singleton births.

As little is recently known of women's experience of care during pregnancy, labour and birth and postnatally, in relation to multiple birth, these national data provide some baseline information on this important topic.

A report is being finalised for the funding organisations and this will be published on their websites. The findings will inform the development of future work on the needs and views of women and their partners experiencing multiple pregnancy and birth.

Contact person:Maggie RedshawFunding:DH, MBF and TAMBAStatus of project:Completed

#### 2.6 Postnatal health and care

Maternal health and wellbeing in the perinatal period Chief investigator: NPEU: Maggie Redshaw.

**Other investigators:** (Listed alphabetically) **NPEU:** Reija Klemetti, Jenny Kurinczuk.

Women report a range of physical and other symptoms in pregnancy and postnatally, ranging from backache to stress incontinence, depression and sleep problems. Understanding which groups of women experience these problems has implications for practice and will enable midwives and other health professionals to better support women during pregnancy and after childbirth. Factors associated with women's health problems during the perinatal period are being investigated using data from studies of women's experience of maternity care (Recorded Delivery 2007). The impact of maternal age and associations between antenatal and postnatal problems, clinical factors and social and ethnic backgrounds will also be examined.

Contact person:Maggie RedshawFunding:DHStatus of project:In progress

# *Cost analysis of breastfeeding outcomes in the UK*

**Chief investigator:** *External:* Mary Renfrew (*University of York*).

#### Other investigators:

(Listed alphabetically)

#### External:

Rosie Dodds (*NCT*), Julie Glanville (*York Health Economics Consortium*), Felicia McCormick (*University of York*), Alison McFadden (*University of York*), Subhash Pokhrel (*Brunel University*), Paul Trueman (*Brunel University*), Anthony Williams (*St George's Hospital, London*).

#### NPEU:

Maria Quigley.

Despite strong evidence about the negative impact of not breastfeeding on the health and wellbeing of the infant and the mother, a cost analysis of health outcomes related to breastfeeding has never been conducted. This work will provide policy leads with evidence on the value of breastfeeding to UK health services.

Four inter-related work packages will be included in this project:

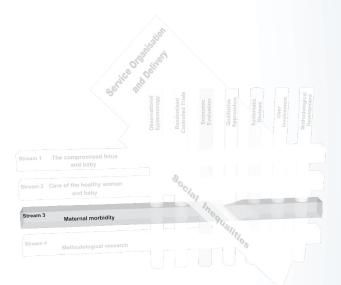
Work Package 1 - Systematic reviews.

Work Package 2 - Estimating risk ratios for health outcomes.

Work Package 3 - Economic analyses and modelling.

Work Package 4 - Methodological and policy analysis, potential impact, dissemination.

Contact person:	Maria Quigley
Funding:	UNICEF UK Baby
	Friendly Initiative
Status of project:	In progress



# Stream 3: Maternal morbidity

# **3.4 Surveillance of rare disorders of pregnancy**

#### Surveillance of myeloproliferative disorders in pregnancy Chief investigator:

#### External:

Susan Robinson (*Guy's and St Thomas' Hospital, London*).

#### **Other investigators:**

#### (Listed alphabetically)

#### External:

Susan Bewley (*Guy's and St Thomas' Hospital, London*), Gabriella Gray (*Guy's and St Thomas' Hospital, London*), Claire Harrison (*Guy's and St Thomas' Hospital, London*), Susan Robinson (*Guy's and St Thomas' Hospital, London*).

#### **NPEU:**

Marian Knight.

#### **Other NPEU staff involved:**

(Listed alphabetically)

Carole Harris, Patsy Spark.

Myeloproliferative disorders (MPDs) are rare and generally indolent haematological cancers. Many patients are likely to be diagnosed prior to, or during, pregnancy using well defined diagnostic criteria (eg WHO). However many MPD patients also have a 'prodromal' period preceding diagnosis where symptoms and abnormal blood counts are present but the MPD is undiagnosed. Each sub-type of MPD differs slightly with respect to laboratory and clinical features, likelihood of complications and prognosis. Many of the reports on pregnancy outcome represent the experience of single specialist institutions, and are therefore likely to be biased. MPDs in pregnancy are thus under-researched, our understanding of them is poor and any interventions used in current clinical practice are rarely based on robust evidence.

By prospectively collecting data on known and occult MPDs in pregnancy using the UK Obstetric Surveillance System this study will provide valuable information about the epidemiology and complications of MPD in pregnancy with a minimal risk of significant bias.

Contact person:	Marian Knight
Funding:	Guy's and St 1
	Hospital Chari

Guy's and St Thomas' Hospital Charity

Status of project: In progress

UK Obstetric Surveillance System					

#### Surveillance of sickle cell disease in pregnancy

#### Chief investigator:

#### External:

Jo Howard (*Guy's and St Thomas' Hospital, London*).

#### Other investigators: External:

Eugene Oteng-Ntim (*Guy's and St Thomas' Hospital, London*).

#### NPEU:

Marian Knight.

#### **Other NPEU staff involved:**

(Listed alphabetically)

Carole Harris, Patsy Spark.

Sickle cell disease (SCD) is the most common genetic disorder worldwide and in the UK, with 12-15,000 affected individuals in the UK alone. The term SCD refers to homozygous HbSS (inheritance of two HbS genes) and also to the compound heterozygotes (coinheritance of one HbS gene and another abnormal haemoglobin gene, for example, haemoglobin (Hb) C, HbE, HbD, or the B thalassaemia gene). SCD is a multi-organ disorder characterised by intermittent episodes of severe pain which may require hospital admission for treatment, and other complications including chest disease, pulmonary hypertension, stroke, retinopathy, renal failure, avascular necrosis and leg ulcers.

There are some historical data, mostly from outside the UK, showing a high incidence of maternal and fetal complications in SCD, but no contemporary or recent prospective data from the UK.

The numbers of deliveries in women with SCD has increased markedly over recent years, from 25-30 deliveries across the whole UK in the 1970s, to the current situation of approximately 150-250 deliveries per year. SCD has great geographical variability across the UK, with the greatest numbers of deliveries occurring in London or other major conurbations such as Manchester and Birmingham, but with small numbers of deliveries distributed across the rest of the UK.

There is a lack of consensus about the best management strategies for optimum care of these women, although it is clear that good committed obstetric care is of vital importance. The lack of knowledge about incidence of pregnancy in affected women, makes it difficult to plan services, to plan optimal care, or in the long term to plan further trials into best practice.

This study will collect data about the incidence across the UK and identify patterns of management practice.

Contact person:Marian KnightFunding:Guy's and St Thomas'Hospital CharityStatus of project:In progress

#### Surveillance of placenta accreta Chief investigator: NPEU: Marian Knight.

Other investigators:

(Listed alphabetically) External:

Susan Sellers (*St Michael's Hospital, Bristol*).

#### NPEU:

Peter Brocklehurst, Jenny Kurinczuk.

#### **Other NPEU staff involved:**

(Listed alphabetically)

Jane Forrester-Barker, Carole Harris, Patsy Spark.

Placenta accreta refers to a group of uterine diseases which are characterised by an abnormally adherent placenta. This group of conditions arise from abnormal placentation where the placental chorionic villi interdigitate with the surface or invade the myometrium in the absence of an intervening decidual plate. As a consequence the pathologically adherent placenta fails to separate from the uterine wall during the third stage of labour. The associated haemorrhage can be torrential and leads to death in some cases still.

Whilst improved strategies to resuscitate women are now available placenta accreta nevertheless often necessitates emergency, life-saving management, the options for which include arterial occlusion, embolisation or ligation, or hysterectomy, the latter with its associated loss of future fertility. Where it is essential to attempt to retain fertility potential, and provided not contraindicated by the extent of haemorrhage, the intact placenta or pieces of retained placenta may be left *in situ*.

This study will determine the national incidence of placenta accreta in the UK and identify the extent to which previous caesarean section is a risk factor in this population. The study will also describe current management and outcomes. This will enable appropriate future service planning, provide accurate information which can be used when counselling women about the risks associated with caesarean section, and provide a baseline incidence against which future trends can be monitored if caesarean delivery rates continue to rise nationally.

Contact person:Marian KnightFunding:NIHRStatus of project:In progress

#### 3.5 Pregnancy complications

Factors associated with progression from near-miss maternal morbidity to fatality Chief investigator: NPEU: Marian Knight.

#### **Other investigators:**

(Listed alphabetically) **External:** Shona Golightly (*CMACE*).

#### **NPEU:**

Peter Brocklehurst, Jenny Kurinczuk.

### **Other NPEU staff involved:** (Listed alphabetically)

Jane Forrester-Barker, Carole Harris, Gilles Kayem, Patsy Spark.

The UK led the world in the development of confidential enquiries into maternal deaths. Since the introduction of these confidential enquiries, maternal mortality has decreased 10-fold. Data from UKOSS studies have been used to provide contextual information about underlying maternal morbidity to complement the detailed examination of mortality, but formal comparison between the information concerning women who suffered near-miss maternal morbidity and those who died from the same conditions has not been undertaken.

Information about women who died from specific causes (acute fatty liver of pregnancy, antenatal pulmonary embolism, amniotic fluid embolism, antenatal thromboembolic and haemorrhagic stroke, eclampsia) identified through the CMACE maternal deaths enquiry 2006-2008 will be compared with information on women with near-miss morbidity due to the same conditions identified through previous or current UKOSS studies of near-miss morbidity. The study will identify factors associated with fatality and survival and make recommendations for changes in practice concerning diagnosis and management in order to lead to improved outcomes for women.

Contact person:Marian KnightFunding:NIHR and DH-PRPStatus of project:In progress

#### Long-term follow-up of women and their infants affected by near-miss morbidity

#### Chief investigator: NPEU:

Marian Knight.

#### Other investigators:

(Listed alphabetically) **External:** Louise Locock (University of Oxford).

#### NPEU:

Peter Brocklehurst, Jenny Kurinczuk.

#### **Other NPEU staff involved:**

(Listed alphabetically)

Kate Fitzpatrick, Jane Forrester-Barker, Carole Harris, Patsy Spark.

Most studies of near-miss maternal morbidity, because of their retrospective hospital-based nature, report relatively short-term outcomes for women, for example, admission to intensive care or the need for hysterectomy to control haemorrhage. However, nearmiss morbidities may have significant long-term impacts, both physical and psychological, on parents, their infants and other children. Exploration of these wider impacts is important to inform service provision.

This project will investigate the feasibility of long-term follow-up of affected women and their infants through both qualitative and quantitative studies of women affected by near-miss maternal morbidities.

Contact person:Marian KnightFunding:NIHR and DH-PRPStatus of project:In progress

#### *Economic evaluation of different second-line therapies for peripartum haemorrhage*

Chief investigator: NPEU: Marian Knight.

**Other investigators:** (Listed alphabetically) **NPEU:** Nishma Patel, Dean Regier.

Randomised controlled trials of treatments for conditions which are both rare and occur in emergency situations are particularly difficult due to issues of informed consent as well as the large collaboration needed to conduct studies of sufficient size. Studies of effectiveness and particularly cost-effectiveness are thus rarely undertaken in this setting. National observational data, such as those obtained through UKOSS have fewer of the biases classically attributed to observational studies. This information may therefore be used to assess effectiveness of different current treatments for near-miss maternal morbidities. However, given the known variation in the use of specific interventions, national recommendations will rely on these data supplemented by economic data. For example, providing uterine artery embolisation for postpartum haemorrhage involves substantial capital outlay associated with the provision of a dedicated out-of-hours interventional radiology service.

A national observational study collecting information on health outcomes in women managed with three secondline treatments for severe peripartum haemorrhage (B-Lynch or brace sutures, factor VIIa, major vessel embolisation or ligation) has recently been completed. This project will undertake a preliminary modelling analysis to explore the use of these previously collected observational data and other data obtained through literature review to conduct an economic evaluation of these therapies.

Contact person:Marian KnightFunding:NIHRStatus of project:In progress



UKNeS - Beyond maternal death: Improving the quality of maternity care through national studies of "near-miss" maternal morbidity Chief investigator: NPEU: Marian Knight.

#### Other investigators:

(Listed alphabetically)

#### External:

Alison Burton (*Oxfordshire PCT*), Jenny Furniss (*Lay investigator*), Shona Golightly (*CMACE*), Mervi Jokinnen (*Royal College of Midwives*), Louise Locock (*University of Oxford*), Susan Sellers (*St Michael's Hospital, Bristol*), James Walker (*University of Leeds*).

#### NPEU:

Peter Brocklehurst, Jenny Kurinczuk, Gwyneth Lewis, Maria Quigley.

#### **Other NPEU staff involved:**

(Listed alphabetically)

Jane Forrester-Barker, Carole Harris, Nishma Patel, Patsy Spark.

A comprehensive programme of study of maternal deaths has been undertaken in the UK for more than 50 years. It is now recognised that in countries such as the UK, where maternal deaths are rare, study of 'near-miss' severe maternal morbidity (defined as a severe life-threatening obstetric complication necessitating urgent medical intervention in order to prevent likely death of the mother) provides additional important information to aid disease prevention, treatment and service provision. The national collaboration of clinicians contributing to the UK Obstetric Surveillance System (UKOSS) provides a unique opportunity to undertake a programme of study of 'near-miss' severe maternal morbidity (UKNeS).

This programme will employ observational epidemiological elements with primary data collection and secondary data analysis, literature review, economic evaluation and qualitative techniques to investigate severe maternal morbidity on a national basis (see individual project descriptions).

The workstreams will describe disease incidence, risk factors, management and outcomes and investigate factors associated with disease progression from severe morbidity to death. In addition, component studies will undertake economic evaluation of different treatments for severe morbidity, explore methods for improving local learning from near-miss events and investigate women's experiences and long-term outcomes of severe maternal morbidity. Contact person:Marian KnightFunding:NIHRStatus of project:In progress

#### Incidence, risk factors and outcomes of maternal sepsis in a Scottish region over 23 years Chief investigator:

**NPEU:** Marian Knight.

#### Other investigators:

(Listed alphabetically) **External:** Sohinee Bhattacharya (University of

#### NPEU:

Aberdeen).

Colleen Acosta-Nielsen, Jenny Kurinczuk.

Severe sepsis is a potentially lifethreatening condition, which is characterized by systemic inflammatory response syndrome (SIRS) with infection, organ dysfunction, hypoperfusion and hypotension. If untreated, this condition can rapidly progress along a continuum of severity to septicaemic shock and eventually death. Pregnant and postnatal women represent a particularly vulnerable population for developing severe sepsis due to changing physiology, biochemistry, and immune response, as well as heightened susceptibility to wound infection during delivery.

Although death as a result of pregnancy related sepsis is uncommon in the United Kingdom (UK) and other high-income countries, mortality rates have more than doubled over the last two decades in the UK and have also increased in other European countries. However, there is very little information on corresponding trends in sepsis morbidity. The aim of this study is to describe the incidence, risk factors and outcomes of maternal sepsis using data from the Aberdeen Maternal and Neonatal Databank.

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- NPEU 99 Knight M, Kurinczuk JJ, Spark P, Brocklehurst P. UKOSS Annual Report 2009. Oxford: NPEU; 2009.
- NPEU 100 Kurinczuk JJ, Hollowell J, Brocklehurst P, Gray R. Infant mortality: overview and context. Inequalilties in Infant Mortality Project Briefing Paper 1. Oxford: NPEU; 2009.
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- NPEU 102 Hollowell J, Allen F, Gray R, Oakley L, Kurinczuk JJ, Brocklehurst P. The effectiveness of interventions targeting infant mortality: a user's guide to the systematic review evidence. Inequalities in Infant Mortality Project Evidence Map Report 1. Oxford: NPEU; 2009.
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- NPEU 111 Knight M, Spark P, Kayem G, Kurinczuk JJ, Brocklehurst P on behalf of UKOSS. UKOSS Fourth Annual Report 2010. Oxford: NPEU; 2010.

- NPEU 112 Hollowell J, Kurinczuk JJ, Brocklehurst P, Gray R. Draft Final report to the Department of Health. Policy Research Programme Project 0160108. Inequalities in Infant Mortality Project: building the evidence base on interventions to reduce infant mortality and narrow the health inequalities gap. Project overview. Oxford: NPEU; 2010.
- NPEU 113 Redshaw M, Heikkila K. Delivered with care: a national survey of women's experience of maternity care. Oxford: NPEU; 2010.

### **Forthcoming Papers**

- 1\* Petrou S, Eddama O, Mangham L. A structured review of the recent literature on the economic consequences of preterm birth. Arch Dis Child Fetal Neonat Ed.
- 2\* Louis GMB, Lum KJ, Sundaram R, Chen Z, Kim S, Lynch CD, Schisterman EF, Pyper C. Stress reduces conception probabilities across the fertile window: evidence in support of relaxation. Fertil Steril.
- 3\* Violato M, Petrou S, Gray R, Redshaw M. Family income and child cognitive and behavioural development in the United Kingdom: Does money matter? Health Economics.
- 4\* Gray R. Commentary: Sullivan on the offspring of the female criminal alcoholic. Int J Epidemiol.
- 5\* Homer CS, Kurinczuk JJ, Spark P, Brocklehurst P, Knight M. Mode of birth in women with extreme obesity. Br J Obstet Gynaecol.
- 6\* Hinton L, Kurinczuk J, Ziebland S. Infertility, isolation and the internet: A qualititative interview study. Patient Educ Couns.
- 7\* Kelly YJ, Sacker A, Gray R, Kelly J, Wolke D, Head J, Quigley MA. Light drinking in pregnancy: still no increased risk for socioemotional difficulties or cognitive deficits at 5 years of age? J Epidem Community Health.
- 8\* Knight M. Studies using routine data versus specific data collection: What can we learn about the epidemiology of eclampsia and the impact of changes in management of gestational hypertensive disorders? Pregnancy Hypertension.
- 9\* Henderson J, Redshaw M. Midwifery factors associated with successful breastfeeding. Child: Care, Health Dev.
- 10\* Boyd P, Hauesler M, Barisic I, Loane M, Garne E, Dolk H. The EUROCAT Network: Organisation and Processes. Supplement of Birth Defects.
- 11\* Bishop DVM, Jacobs PA, Lachlan K, Wellesley D, Barnicoat A, Boyd PA, Fryer A, Lachlan K, Wellesley D, Jacobs P, Middlemiss P, Smithson S, Leggett V, Nation K, Scerif G. Autism, language and communication in children with sex chromosome trisomies. Arch Dis Child.
- 12\* Stavros P, Taher S, Abangma G, Eddama O, Bennett P. Cost-effectiveness analysis of prostaglandin E2 gel for induction of labour at term. Br J Obstet Gynaecol.

# **NPEU Advisory Committee 2010**

### **Department of Health Liaison Officer**

Zoltan Bozoky	Senior Principal Research Officer, Maternal, Child, Adolescent
	and Family Health Policy Research Programme, Research and
	Development Directorate, Department of Health

### **Royal College and Faculty Representatives**

Sabaratnam Arulkumaran	President, Royal College of Obstetricians and Gynaecologists (until 24 September 2010) <i>Royal College of Obstetricians and Gynaecologists</i> <i>Representative</i>
Anthony Falconer	President, Royal College of Obstetricians and Gynaecologists (from 24 September 2010) <i>Royal College of Obstetricians and Gynaecologists</i> <i>Representative</i>
David James	Emeritus Professor of Fetomaternal Medicine, University of Nottingham and Clinical Co-director NCC-WCH Royal College of Obstetricians and Gynaecologists Representative (alternate)
Liz Stephens	President, Royal College of Midwives. Head of Midwifery, Ealing Hospital Trust <i>Royal College of Midwives Representative</i>
Mervi Jokinen	Practice and Standards Development Adviser, Royal College of Midwives Royal College of Midwives Representative (alternate)
Andrew R Wilkinson	Professor of Paediatrics and Perinatal Medicine, University of Oxford, Honorary Consultant Paediatrician, John Radcliffe Hospital, Oxford Royal College of Paediatrics and Child Health Representative
Sandra Calvert	Consultant Neonatologist, Department of Child Health, St George's Hospital, London Royal College of Paediatrics and Child Health Representative (alternate)
Nicholas Hicks (Chairman)	Chief Executive, Milton Keynes Primary Care Trust and Director of Public Health Milton Keynes Primary Care Trust and Milton Keynes Council <i>Faculty of Public Health Representative</i>
Jean Chapple	Consultant in Perinatal Epidemiology/Public Health, NHS Westminster Faculty of Public Health Representative (alternate)
Sarah Purdy	Consultant Senior Lecturer, University of Bristol Royal College of General Practitioners Representative Alternate Representative of Royal College of General Practitioners (vacant)

### **General Advisory Group Members**

Jane Abbott	Head of Programmes, Bliss, the special care baby charity
John Cairns	Professor of Health Economics, London School of Hygiene and Tropical Medicine
David Dunn	Senior Statistician, HIV and Infections Group, MRC Clinical Trials Unit, London
Pat Doyle	Professor, Department of Non-communicable Disease Epidemiology, Faculty of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine
Jonathan Evans	Consultant Senior Lecturer in Psychiatry, Academic Unit of Psychiatry, University of Bristol
Hilary Graham	Director, Department of Health Public Health Research Consortium and Professor of Health Sciences, Department of Health Sciences, University of York
Jenny Hewison	Professor of the Psychology of Healthcare, Leeds Institute of Health Sciences, School of Medicine, University of Leeds
Stuart Logan	Cerebra Professor of Paediatric Epidemiology and Director, Institute of Health Service Research, Director, NIHR PenCLAHRC, Peninsula College of Medicine and Dentistry, Peninsula Medical School, Exeter
Mary Newburn	Head of Research and Information, NCT (National Childbirth Trust) and Honorary Professor, Thames Valley University
Lynne Paterson	Nurse Consultant, Neonatal Unit, James Cook University Hospital, Middlesbrough
David J Taylor	Director of The FIGO-Gates Initiative in Maternal & Newborn Health

# **Sources of funding**

### **Summary of Income in 2010**

Funder	Total (£)
Action Medical Research	25,799
AXA Research Fund	38,410
British Heart Foundation	16,517
BUPA Foundation	48,505
Commission for Rural Communities	7,978
Department of Health	1,917,519
European Commission	2,239
Guy's and St Thomas' Charity	21,588
Healthcare Quality Improvement Partnership (HQIP)	84,869
Heart UK	11,862
Human Fertilisation & Embryology Authority	233
Medical Research Council	1,398,590
Newlife Foundation for Disabled Children	331
NIHR	1,316,473
Obstetric Anaesthetists Association	1,573
TAMBA (Twins & Multiple Births Association)	4,170
Waltham Forest PCT	19,275
Wellbeing of Women	9,169
Wellcome Trust	48,912
Grand Total	4,974,012

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