

# Abstracts Workbook

## 21st Century Obstetrics – Clinical Management of Problems in Uterine Contractility

**17-18 September 2010**

**Hilton Metropole Hotel  
Birmingham**



Ferring Pharmaceuticals Ltd  
The Courtyard  
Waterside Drive  
Langley  
Berkshire SL3 6EZ

For more information please visit us at: [www.ferring.co.uk](http://www.ferring.co.uk)  
RG/016/2010/UKp Date of preparation: September 2010

Ferring Pharmaceuticals Ltd. is the sole sponsor of this meeting.  
The scientific and educational content is decided by the  
independent scientific committee and does not necessarily  
reflect the views of Ferring Pharmaceuticals Ltd.



## Welcome to Birmingham

Dear Colleagues

On behalf of the Scientific Organising Committee, I would like to warmly welcome you to the Ferring National Obstetric Forum: **21st Century Obstetric Problems – Clinical Management**.

We are delighted that the symposium is taking place in the dynamic city of Birmingham. This is the first such event in the UK. It is supported by an unrestricted educational grant from Ferring Pharmaceuticals.

We have developed this forum around the theme of uterine contractility – too much or too little. This theme worked well at a similar international forum in Amsterdam two years ago.

Our first session deals with the biggest perinatal problem of all, preterm labour – the uterus contracting when it would be better not to. Our speakers include some of the leading authorities on the topic in the world today - Jane Norman the chief investigator of the STOPPIT and OPPTIMUM trials, Andy Shennan the chief investigator of the PREMET and MAVRIC trials, Steve Thornton who has done more than anyone recently to develop oxytocin antagonists, and Karel Marsal from Lund in Sweden whose group has performed some of the largest and best follow-up studies of extreme prematurity. You must all stay till the end for Malcolm Levene's keynote.

Our second session is around induction of labour – persuading the uterus to contract. The evidence-base supporting induction has hugely increased in quality over the last few years with publication of the Post Term, TermPROM, and HYPITAT trials. In addition the results of the DAME trial evaluating induction for macrosomia, and the DIGITAT trial evaluating it for growth restriction, have also both been presented at scientific meetings this year although, at the time of writing, they have not been formally published. Both will soon provide yet more guidance. Tony Nicoll will update us on the latest techniques, and Zarko Alfirevic and Christine Ainsworth will guide us through the organisational aspects and tell us how to make it, if not enjoyable, at least a not unpleasant experience for the woman. I'm particularly pleased that Ben Willem Mol the chief investigator of both DIGITAT and HYPITAT has agreed to speak in this session.

The final session deals with post partum haemorrhage. This is an increasing problem in the UK, and remains an important cause of maternal death both in the UK and worldwide. Jim Drife will set the scene. The commonest cause is uterine atony – again a problem of contractility. Our speakers will update us on the latest treatments, medical from Tim Draycott, and surgical from Tracey Johnston. But they will do more. We all recognise that dealing with haemorrhage is not just a matter of giving the right treatment. It is also a matter of organisation – of making sure every member of the team plays their part correctly and promptly. Mike Robson from the National Maternity Hospital in Dublin will show us how they do it and we will end with a session on major haemorrhage drill led by the person who has done more than anyone to get this onto the modern obstetric agenda, Tim Draycott.

Many lectures include audience questions using individual touch pads to keep you awake and find out your views, and all the sessions include opportunities for questions and panel discussion.

Thank you for joining us for what I anticipate will be a fascinating and enjoyable event.

**Jim Thornton**

*on behalf of the Scientific Organising Committee*

## Contents

### Programme

2-3

#### Session I

##### Preterm Labour – Current Trends

4-17

Prevention

6-7

Diagnosis

8-9

Targeted tocolysis

10-11

Economics of preterm birth (PTB)

12-13

Management of extreme prematurity

14-15

Minimising adverse events

16-17

#### Keynote Lecture

##### The importance of preterm labour

18-19

#### Session II

##### Induction of Labour – Modern Management

20-27

Why induce at all? – The evidence

20-21

How to induce – pharmacological interventions

22-23

How to induce – organisational (service delivery) issues

24-25

Minimising induction complaints

26-27

#### Session III

##### Postpartum Haemorrhage (PPH) in C-Section – Medical Management

28-37

PPH – why it still matters

28-29

Prevention and medical management of PPH

30-31

Surgical treatment

32-33

Organisational issues

34-35

PPH Drill

36-37

## 21st Century Obstetrics – Clinical Management of Problems in Uterine Contractility

Friday 17th – Saturday 18th September 2010

Hilton Metropole Hotel, Birmingham

12.00 Registration and buffet lunch

Friday 17th September

### Session I – Preterm Labour – Current Trends

• Co-Chairmen: Professor Jim Thornton and Mr Gerald Mason

13.00	Chairman's welcome and introduction	Prof Jim Thornton, Nottingham, UK
13.15	Prevention	Prof Jane Norman, Edinburgh, UK
13.40	Diagnosis	Prof Andy Shennan, London, UK
14.05	Panel discussion	
14.20	Coffee	

### Session I *continued* – Preterm Labour – Current Trends

14.50	Targeted tocolysis	Prof Steve Thornton, Plymouth, UK
15.15	Economics of preterm birth (PTB)	Prof Jim Thornton, Nottingham, UK
15.40	Management of extreme prematurity	Prof Karel Marsal, Lund, Sweden
16.05	Minimising adverse events	Prof Ben Mol, Amsterdam, The Netherlands
16.30	Panel discussion	
16.45	Coffee	

### Keynote Lecture

17.00	The importance of preterm labour	Professor Malcolm Levene, Leeds, UK
18.00	Session ends	
19.30	Reception and dinner	

Saturday 18th September

### Session II – Induction of Labour – Modern Management

• Chairman: Professor Jim Thornton

9.00	Introduction to session	Prof Jim Thornton
9.10	Why induce at all? The evidence	Prof Ben Mol, Amsterdam, The Netherlands
9.35	How to induce – pharmacological interventions	Dr Tony Nicoll, Dundee, UK
10.00	How to induce – organisational (service delivery) issues	Prof Zarko Alfirevic, Liverpool, UK
10.25	Coffee	
10.55	Minimising induction complaints	Ms Christine Ainsworth, Northampton, UK
11.20	Panel discussion	
	<ul style="list-style-type: none"> <li>• How should inductions be audited?</li> <li>• What do you do after 24 hours with women who are not ARMable?</li> <li>• Previous C-sections?</li> <li>• Premature rupture of membranes (PROM)?</li> <li>• Inpatient versus outpatient inductions?</li> <li>• Physical methods of induction?</li> </ul>	
12.00	Lunch	

### Session III – Postpartum Haemorrhage (PPH) in C-Section – Medical Management

• Co-Chairmen: Professor Jim Thornton and Professor Zarko Alfirevic

13.00	PPH – why it still matters	Prof Jim Drife, Leeds, UK
13.25	Prevention and medical management of PPH	Mr Tim Draycott, Bristol, UK
13.45	Surgical treatment	Dr Tracey Johnston, Birmingham, UK
14.10	Organisational issues/PPH drill	Dr Mike Robson, Dublin, Ireland Mr Tim Draycott, Bristol, UK
14.35	Panel discussion	
15.05	Closing remarks	Prof Jim Thornton
15.20	Coffee	

## Preterm Labour – Current Trends

### Chairman

#### Professor Jim Thornton

Professor of Obstetrics and Gynaecology, City Hospital,  
Nottingham

Jim Thornton is Professor of Obstetrics and Gynaecology, at Nottingham University. He is also Director of the Nottingham Clinical Trials Unit, and Head of Service for obstetrics, gynaecology and neonatology at Nottingham University Hospitals NHS Trust.

He was chief investigator of the Growth Restriction Intervention Trial, (Lancet 2004), and is currently lead investigator for the PITCH trial on the management of obstetric cholestasis, and the SNAP trial on the use of nicotine patches to help women stop smoking in pregnancy. In the early 1980s he worked in a mission hospital in Kenya for four years. He has previously been Editor-in-Chief of *BJOG* and the *European Journal of Obstetrics & Gynaecology and Reproductive Medicine*.

### Chairman

#### Mr Gerald Mason

Consultant in Feto-Maternal Medicine, Leeds General Infirmary

Gerald Mason is Consultant in Feto Maternal Medicine, Clarendon Wing at the Leeds General Infirmary. He is Director of the Leeds Subspecialty Feto-Maternal Medicine training program, Network lead for Feto-Maternal Medicine Services North and West Yorkshire and also, CME representative for the British Maternal Fetal Society.

He graduated from medical school in Manchester in 1981. He defended his thesis on the use of transabdominal ultrasound assessment of the cervix in the prediction of preterm delivery in 1992. He has supervised four PhD students in the area of the psychological pitfalls of ultrasound screening both in the short and longer term and an MD and PhD studying cardiac monitoring in pregnancy.

Gerald's current research interests include cardiac disease in pregnancy and the use of fetal MRI in prenatal diagnosis.

## Notes

# Preterm Labour – Current Trends

## Speaker

### Professor Jane Norman

Professor of Maternal and Fetal Health, University of Edinburgh


Jane Norman graduated from the University of Edinburgh in 1986. She trained in obstetrics and gynaecology in Edinburgh and Glasgow, and is now Professor of Maternal and Fetal Health and Director of the Tommy's Centre for Maternal and Fetal Health at the University of Edinburgh.

Her translational research programme focuses on understanding the biology of normal pregnancy and improving outcomes in pregnancy disorders. Her parturition research aims to understand the mechanisms by which labour starts – with a current focus on the interaction between endocrine and inflammatory events.

Jane is the Chief Investigator for OPPTIMUM, an MRC funded UK multicentre study, which will determine whether progesterone therapy reduces the adverse neonatal and childhood outcomes associated with preterm birth.

## Prevention

Rates of preterm birth are rising in developed countries. Both elective and spontaneous preterm birth are increasing. There are few effective therapies to prevent preterm birth. Prophylactic antibiotics are ineffective. Both progesterone and cervical cerclage may reduce preterm birth rates in selected women, however, there is no evidence that this is associated with benefit to the baby. Spontaneous preterm birth is often associated with intrauterine infection, which is known to have adverse effects on the baby's brain, thus interventions to reduce preterm birth could theoretically do more harm than good. This talk will discuss the likely effects of therapies to prevent preterm birth.



**Prevention of preterm birth**

UK Obstetric Forum Sept 2010

Prof. Jane E Norman  
 Director of Tommy's Centre for Maternal and Fetal Health,  
 University of Edinburgh  
 jane.norman@ed.ac.uk

**Odds of preterm birth after treatment with antibiotics (AB)**

	OR	95% CI
Any AB	1.03	0.86 – 1.24
Clindamycin	1.02	0.69 – 1.48
Metronidazole	1.06	0.81 – 1.39
AB in women with a history of PTB	0.99	0.72 – 1.37
AB in women with abnormal vaginal flora	0.97	0.78 – 1.21

Simecox et al 2007 Aust N Z J Obstet Gynecol 47: 368

**Cerclage for short cervix on ultrasound –individual patient meta-analysis**

Outcome of PTB < 35 weeks for subgroup:	Cerclage	Control	RR (95%CI)
All pregnancies	29.2%	38.4%	0.84 (0.67 – 1.06)
Singletons	24.8 %	33.9%	0.74 (0.57 – 0.96)**
Singletons with previous PTB	38.3%	60.4%	0.63 (0.48 – 0.85)**
Twin pregnancy	75 %	36 %	2.15 (1.15 – 4.01)

Berghella et al 2005 Obstet Gynecol 106: 181

**Meta-analysis of progestational agents to prevent PTB (singletons with previous PTB) - Primary outcomes**


Outcome	Odds ratio	95% CI
Perinatal death	0.65	0.38–1.11
PTB < 34 weeks	0.15	0.04–0.64**
Developmental delay	0.97	0.55–1.73

Dodd et al 2008 Obstet Gynecol 112: 127


**Meta-analysis of progestational agents to prevent PTB (Singletons with previous preterm birth) Selected secondary outcomes**

Outcome	Odds ratio	95% CI
IVH	0.54	0.12–2.47
RDS	0.79	0.57–1.10
Fetal death	1.13	0.35–3.59

Dodd et al 2008 Obstet Gynecol 112: 127

**OPPTIMUM** 

- Randomised trial of progesterone or placebo in women with singleton pregnancy at high risk of preterm birth
- Outcomes:
  - Delivery before 34+0 completed weeks of gestation
  - Composite outcome of death, brain injury or severe chronic lung disease
  - Early childhood: Bayley III cognitive scale standardised score at two years chronological age

MRC  www.opptimum.org.uk

# Preterm Labour – Current Trends

## Speaker

### Professor Andy Shennan

Professor of Obstetrics, St Thomas' Hospital, London

Andrew Shennan is Professor of Obstetrics at King's College London, based at St. Thomas' Hospital. He is clinical lead of the Maternal and Fetal Research Unit, and Chair of the Womens CAG Research Performance group for Kings Health Partners. He specialises in clinical trials in antenatal and intrapartum care. Andy's research interests include interventions to predict and prevent preterm birth, pre-eclampsia, encourage normal birth and the use of blood pressure monitoring. He has an active clinical role in managing high risk obstetric patients, including a regular hands-on labour ward commitment, and a specialist preterm birth surveillance clinic that accepts national referrals.

Andy was made an honorary member of the Obstetric Anaesthetic Association (OAA) in 2010. He chaired the Department of Health Committee on Blood Pressure Monitoring in clinical practice, and sits on the relevant committees for the International Standardisation Organization (ISO), British Standards Institute (BSI) and the British Hypertension Society (BHS). He also advises the World Health Organisation (WHO) on perinatal research, and is a member of the Low Resource Use Blood Pressure device committee for the WHO. Andy is an advisor to the National Institute of Clinical Excellence (NICE), the Confidential Enquiry into Maternal and Child Health (CEMACH), Medicines and Healthcare products Regulatory Agency (MHRA) and the Royal College of Obstetricians and Gynaecologist (RCOG). Andy also advises the EU Commission.

He is clinical director of the Maternity Workstream for NHS London, establishing a number of committees to determine long term strategy for Healthcare for London; he sits on their Clinical Advisory group. Andy's charity work also includes being a medical advisor to Action on pre-eclampsia, Tommys the Baby Charity and Action Medical Research. He is a director of the International charity, Maternity Worldwide.

## Diagnosis

Preterm birth (PTB) is becoming more common. This increase is in both iatrogenic and spontaneous causes of PTB, and in women at low risk of PTB, i.e. those aged between 20 and 40. The economic and psychological burden to society is considerable. The estimated cost to the USA is \$26.2 billion per year. The cause of PTB birth is multifactorial, and it is now viewed as a syndrome. Spontaneous PTB is often associated with infection and inflammation, particularly at early gestations. Once intrauterine infection occurs, it may not be desirable to prolong, as infection can cause neurological damage to the fetus. Previous spontaneous PTB is a major risk factor for PTB. Other causative risk factors include cervical surgery, recreational drug use, urinary tract infections (including asymptomatic bacteruria), and multiple pregnancies. Sociodemographic risk factors include smoking, low body mass index (<19), marital status (single), caffeine and alcohol intake, and psychological stress.

Early spontaneous birth can be predicted in both symptomatic and asymptomatic women using transvaginal ultrasound of the cervix. Risks of delivery increase at cervical lengths below 2.5 cm and escalate at lengths below 1.5 cm. Fetal fibronectin detected in cervico-vaginal secretions can also be used to predict spontaneous birth after 22 weeks' gestation in both women with and without symptoms. Positive prediction is not high (<50%), and as the prevalence of delivery is low, negative prediction of the test is good, and can influence clinical management, including the need for tocolysis, transfer to appropriate neonatal facilities, and antenatal steroids for fetal lung maturity. Combining cervical ultrasound and fetal fibronectin gives the best prediction of PTB.

# Preterm Labour – Current Trends

## Speaker

**Professor Steve Thornton**

Dean, Peninsular College of Medicine and Dentistry, Plymouth

Steve Thornton graduated from Southampton University in 1983 and began working in obstetrics and gynaecology following his pre-registration year. Steve undertook research (partly supported by MRC) as an SHO and was awarded a DM in 1989 for his work on 'Physiology and pharmacology of oxytocin during human pregnancy'. His membership of the Royal College of Obstetricians and Gynaecologists was obtained in the same year.

Following completion of his clinical training, Steve was awarded the first Birthright Research Training Fellowship in 1990, which was followed by an MRC Clinician Scientist award in 1992. He gave the William Blair Bell memorial lecture in 1994. Steve's clinician scientist position was undertaken at the University of Cambridge and led to his post of Lecturer (Honorary Consultant) in Materno-fetal Medicine in 1997. This was followed by his appointment as Professor of Obstetrics and Gynaecology (Head of department) in 1998 at the University of Warwick.

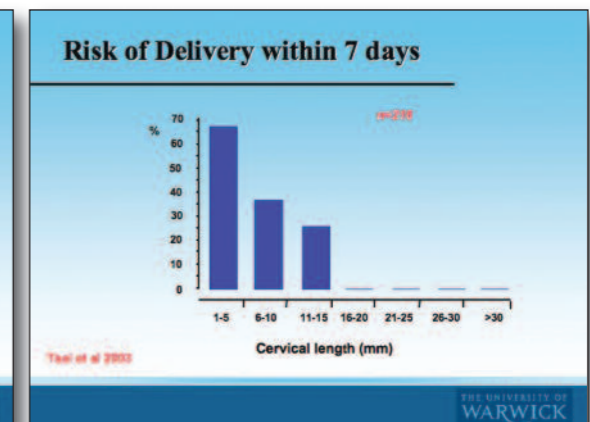
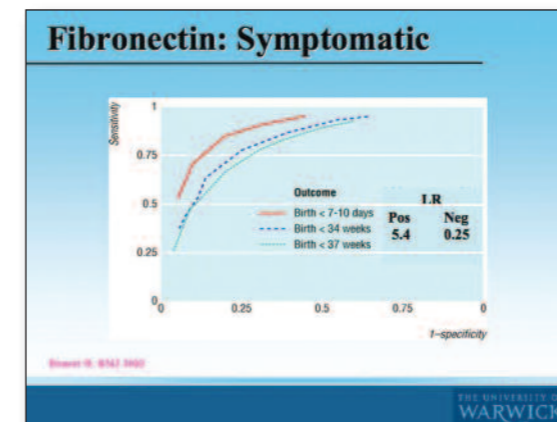
Steve became Associate Dean (Research) for Warwick Medical School (University of Warwick) in 2004, Associate Medical Director (R & D) at University Hospital Coventry and Warwickshire in 2005, Clinical Director of the Comprehensive Local Research Network for West Midlands (South) in 2007, Chair of the Clinical Study Group for Preterm Birth, Chair of the Specialty Group for Reproductive Health and Childbirth and R&D Lead for West Midlands SHA. Steve is currently Chair of the Scientific Advisory Committee for the Royal College of Obstetricians and Gynaecologists.

## Targeted tocolysis

There is considerable debate regarding whether tocolysis should be used in the treatment of threatened preterm labour. The RCOG guidelines state that treatment is not mandatory, but (particularly outside the UK) many obstetricians consider that failure to administer tocolysis is unreasonable. Clinical trials have been hampered by ethical committees who have felt that withholding tocolysis is unethical. A delay in delivery may cause the fetus to remain in an adverse environment thereby increasing risks. There is genuine equipoise with many key opinion leaders as to whether tocolysis should be administered or not. If tocolysis is given it seems sensible to restrict it to women with uncomplicated preterm labour below 34 completed weeks' gestation and who have not already received steroids. If tocolysis is used, there is some debate as to whether atosiban or nifedipine should be used.

There is evidence from randomised placebo-controlled trials that atosiban delays delivery, though the effects on neonatal outcome are less clear cut. Nifedipine has not been investigated in the double-blind randomised trials but it is reported to improve some neonatal outcomes.

The disadvantage with atosiban administration is related to cost and the disadvantages of nifedipine are potentially serious side effects. It has therefore been suggested that tocolysis be confined to those women who have a particularly high risk for delivering preterm. It is recognised that many women in threatened preterm labour do not subsequently deliver preterm. The two methods of identifying those women are fetal fibronectin and transvaginal ultrasound. Both have a high negative predictive value. This means that a woman with a negative test is unlikely to deliver preterm. It is therefore logical to restrict tocolysis (where administered) to those women who have a negative fibronectin or a long cervix on ultrasound.



**Atosiban: Placebo controlled trials**

**Design**  
Diagnosed PTL, 23-33 weeks, Atosiban 246, Placebo 255  
Rescue @ 1 hour

Percent undelivered and no tocolytic			
Time (days)	Placebo	Atosiban	p value
1	58	73	<0.001
2	56	67	0.008
7	49	62	0.003

Mortality & morbidity similar but 5/295 deaths placebo and 13/288 atosiban

**Conclusion**

- fFN helps distinguish preterm labour
- No real evidence that tocolytics are helpful.
- Evidence of cost effectiveness
- Definitive trial awaited

•Logical management: test those with [significant] preterm symptoms with fFN and give tocolysis if positive.

# Preterm Labour – Current Trends

## Speaker

### Professor Jim Thornton

Professor of Obstetrics and Gynaecology, City Hospital, Nottingham

Jim Thornton is Professor of Obstetrics and Gynaecology, at Nottingham University. He is also Director of the Nottingham Clinical Trials Unit, and Head of Service for obstetrics, gynaecology and neonatology at Nottingham University Hospitals NHS Trust.

He was chief investigator of the Growth Restriction Intervention Trial, (Lancet 2004), and is currently lead investigator for the PITCH trial on the management of obstetric cholestasis, and the SNAP trial on the use of nicotine patches to help women stop smoking in pregnancy. In the early 1980s he worked in a mission hospital in Kenya for four years. He has previously been Editor-in-Chief of *BJOG* and the *European Journal of Obstetrics & Gynaecology and Reproductive Medicine*.

## Economics of preterm birth (PTB)

Preterm birth is expensive, both in the short term because of the need for neonatal care and in the longer term because many survivors suffer various degrees of handicap as a consequence. A recent UK study<sup>1</sup> estimated the total excess cost of care up to age 18 to be £23K per preterm survivor. For births before 33 weeks the figure was £60K, and before 28 weeks £95K. The total excess costs for England and Wales each year amounted to £3 billion. In the United States the excess societal lifetime costs, compared with a term birth, in 2005 prices, have been estimated at \$26 billion per year (\$51K per preterm survivor). In both countries most of these excess costs (92% in the UK) come from neonatal care in hospital.

Although the costs per child are greater for more extreme prematurity, the aggregate cost for caring for children born between 33 and 36 weeks (£1.9 billion) are greater than for those under 33 weeks (£1 billion), or under 28 weeks (£242 million), because lesser degrees of prematurity are relatively much more common.

A hypothetical magic pill which delayed preterm births by one week across all gestational categories, and had no harmful effects, would reduce the total costs of prematurity by £1 billion.


#### Reference

1. Mangham LJ, Stavros P, Doyle LW, Draper ES, Marlow N. The cost of preterm birth throughout childhood in England and Wales. *Pediatrics* 2009; 123: 312–27.

### Survival to age 18

	Births	Survival
■ Term	600,00	99.4%
■ 36 weeks	17,000	98.7%
■ 33 weeks	3,700	95%
■ 28 weeks	1,100	88%
■ 24 weeks	598	29%

- ### Costs included
- Hospital inpatient
  - Hospital outpatient
  - Community and social care
  - Education

- ### Results (2006 prices)
- Excess NHS costs, compared with a term birth, up to age 18
    - £3 billion per year
    - £23K per preterm survivor
      - < 33weeks £60K
      - < 28 weeks £95K
- 

# Preterm Labour – Current Trends

## Speaker

### Professor Karel Maršál

Professor, Department of Obstetrics and Gynaecology, University Hospital, Lund, Sweden

Karel Maršál was born in Prague, Czechoslovakia, where he also received his undergraduate education at the Medical Faculty of Charles University. He has lived in Sweden since 1968, where he undertook his training in obstetrics and gynecology. After pursuing postgraduate studies, Karel defended a PhD thesis at Lund University in 1977.

Since 1997, Karel has been Professor of Obstetrics and Gynecology and Head of the academic department of Obstetrics and Gynecology at the University Hospital, Lund, in addition he is Director of the WHO Collaborating Centre for Development of Quality Indicators in Perinatology.

He is the past president and board member of several national and international societies within obstetrics, perinatology and diagnostic ultrasound. Karel has authored 270 original papers in international journals and 109 chapters and textbooks. His research interests include perinatology, clinical obstetrics, perinatal epidemiology, obstetric ultrasound, Doppler ultrasound and fetal physiology.

## Management of extreme prematurity

In a recent population-based study on extremely preterm births (< 27 gestational weeks, 1011 births in Sweden over three years), the one-year survival of 707 infants born alive was 70%.<sup>1</sup> The risk of infant death adjusted for gestational age was lowered by 57% when tocolytic treatment was used, by 56% in cases with antenatal corticosteroid treatment, and by 51% when the baby was born at a level III hospital.<sup>2</sup> A total of 50% of infants were delivered by caesarean section, which decreased the risk of death within the first day of life. However, the abdominal delivery was not significantly associated with survival at one year. At one year of age, 47% of survivors did not have any severe morbidity. Of the obstetric factors, use of tocolysis and prolongation of pregnancy significantly increased the chances of intact survival. Preterm premature rupture of membranes and chorioamnionitis were associated with increased risk of stillbirths; among live-born infants, no significant associations were found between complications of pregnancy and outcome. Maternal age and parity, as well as fetal gender did not have any significant impact on the survival.

The study confirmed that in the perinatal management of extremely preterm births, centralisation (transfer in utero to level III centres) and antenatal treatment with tocolytics and corticosteroids are of paramount importance for improvement of survival and decrease of neonatal morbidity of infants.

### References

1. The EXPRESS Group. One-year survival of extremely preterm infants after active perinatal care in Sweden. *JAMA* 2009; 301: 2225–33.
2. The EXPRESS Group. Incidence of and risk factors for neonatal morbidity after active perinatal care: extremely preterm infants study in Sweden (EXPRESS). *Acta Paediatr* 2010; 99: 978–92.

## Notes

# Preterm Labour – Current Trends

## Speaker

### Professor Ben Mol

Professor of Clinical Evaluative Research in Obstetrics, Gynaecology and Fertility, University of Amsterdam, The Netherlands

Dr Ben Willem Mol is Professor of Clinical Evaluative Research in Obstetrics, Gynaecology and Fertility in the Faculty of Medicine of the University of Amsterdam (AMC-UvA).

Ben is focused on the organisation of multi-centric evaluative research in obstetrics, gynaecology and fertility. In the context of a national research consortium, over 50 hospitals, including all eight academic centres, are working together to carry out multi-centric randomised trials. The research is focused mainly upon everyday practices. As a result, it was recently discovered that 15 minutes of bed rest after an insemination procedure in sub-fertile couples, a procedure that is not part of the regular treatment, increases the chances of conception by 10%. In studies in pregnant women, it became clear that induction of labour in women with pregnancy induced hypertension does decrease the chance of a caesarean section, a finding that was contradictory to what clinicians thought prior to the study. He is also working toward the implementation of principles of evidence-based medicine in his area of expertise. As a Professor, Ben considers his most important task to be the stimulation and innovation of evaluative research in obstetrics, gynaecology and fertility. His professional adage is 'A day without randomisation is a day without progress.'

Ben studied Medicine at the University of Amsterdam. From 1993 to 1997, he worked in the department of Clinical Epidemiology and Bio-statistics at the AMC. In 1999 he obtained his doctorate with honours at the Faculty of Medicine of the UvA with his dissertation entitled *Evaluating the effectiveness of diagnostic tests: tubal subfertility and ectopic pregnancy*. Between 1997 and 2003, he was trained as a Gynaecologist at the Máxima Medical Centre (Máxima Medisch Centrum, MMC) in Veldhoven, the University Medical Centre (Universitair Medisch Centrum) in Utrecht and the Tweesteden Hospital (Tweestedenziekenhuis) in Tilburg. Since 2002, Ben has been a Senior Researcher in the department of Obstetrics and Gynaecology at the AMC. From 2003 to 2007, he worked as a Gynaecologist-Perinatologist at the MMC in Veldhoven.

Ben is chairman of the Guideline Commission (commissie Richtlijnen) and member of the Scholarship Commission (commissie Wetenschap) of the Dutch Association for Obstetrics and Gynaecology (Nederlandse Vereniging voor Obstetrie en Gynaecologie, NVOG).

## Minimising adverse events in tocolysis for preterm labour

Preterm labour is the most reported cause of perinatal morbidity and mortality in the Western world. Tocolytic drugs have not been shown to improve fetal outcome, but are used to postpone delivery for 48 hours to allow for maximal effect of parenteral steroids administered to the mother and to enable the mother to be transferred to a centre with a neonatal intensive care unit. Drugs registered for tocolysis include the beta adrenoceptor agonist ritodrine hydrochloride (US and Europe) and the oxytocin receptor antagonist atosiban (Europe). Cyclo-oxygenase inhibitors and calcium channel blockers are also used for inhibiting preterm labour, though they are not currently licensed for this indication.

Beta adrenoceptor agonists cause adverse effects more often than any other tocolytic drug. In a clinical trial setting the oxytocin receptor antagonist atosiban was associated with fewer adverse effects than beta adrenoceptor agonists with comparable effectiveness. When compared with placebo, however, atosiban was not associated with a reduction in the incidence of neonatal respiratory distress syndrome, a serious complication of prematurity. Cyclo-oxygenase inhibitors possibly have adverse effects on the fetal kidneys and ductus arteriosus, as well as the increased risk of intraventricular haemorrhage and necrotising enterocolitis. Recent reports on calcium channel blockers have also raised safety concerns.

We carried out a prospective study in a consecutive cohort of 1920 women in 28 hospitals in the Netherlands and Belgium to evaluate the incidence of serious maternal complications with the use of the various tocolytic drugs to treat preterm labour in routine clinical situations. The primary outcome was maternal adverse events leading to cessation of treatment. Adverse drug reactions (those suspected of being causally related to treatment) were categorised as serious or mild (14 cases each). The overall incidence of serious adverse drug reaction was 0.7%. Compared with atosiban, the relative risk of an adverse drug reaction for single treatment with a beta adrenoceptor agonist was 22.0 (95% confidence interval 3.6 to 138.0) and for single treatment with a calcium antagonist was 12 (CI 1.9 to 69). Multiple drug tocolysis led to five serious adverse drug reactions (1.6%). Multiple gestation, preterm rupture of membranes, and comorbidity were not independent risk factors for adverse drug reactions. Indomethacin and atosiban were the only drugs not associated with serious adverse drug reactions. A direct comparison of the effectiveness of atosiban and the calcium channel blocker nifedipine in postponing preterm delivery is needed.

Strategies to minimise an adverse event of a particular treatment.

Give a drug without side effects

Limit the number of patients that get the drug  
Do only start the treatment in patients that are possibly harmed by the disease

Do only start the treatment when it is effective

### Summary of results

- Nifedipine (Hypotension!) 2%
- Beta-mimetics 4%
- Atosiban 0.2%
  
- Sequential treatment 1.4%
- Combined treatment 1.9%
  
- Twin versus singleton RR 1.9  
95%CI [0.9 , 3.26]

### Conclusion side effects

- The incidence of side-effects in the use of tocolytics in preterm labour is low
- Combination of different tocolytics increases the chance of side-effects

## Keynote Lecture

### Speaker

#### **Professor Malcolm Levene**

Director of Student Progression, Leeds Institute of Medical Education, University of Leeds

Malcolm Levene has been Professor of Paediatrics and Child Health and Honorary Consultant Paediatrician at Leeds University Medical School since 1989. Since graduating from Guy's Hospital Medical School, London in 1974, Malcolm's career has included being a Locum General Practitioner in New South Wales, Australia, Registrar at Derby Children's Hospital, Honorary Senior Registrar at Hammersmith and Queen Charlotte's hospitals, London, Research Lecturer in Neonatal Medicine at the Royal Postgraduate Medical School, London and Reader in Child Health at Leicester University Medical School.

Since 1995, Malcolm has been Editor-in-Chief of Seminars in Neonatology. He currently sits on the Editorial Board for the European Journal of Paediatric Neurology and the Journal of Perinatology. Since 1999, he has been part of the Executive Committee for the World Association of Perinatal Medicine. Malcolm has been Member of the Academic Panel, Royal College of Paediatrics and Child Health since 2001.

Malcolm's publications include 18 textbooks including three editions of the definitive book 'Fetal and Neonatal Neurology and Neurosurgery', over 220 peer review papers in medical journals and over 100 chapters, annotations and letters in books and journals. Malcolm has secured 40 research grants over the last 20 years, amounting to grant income in excess of £5 million.

Amongst Malcolm's honours and awards, recent accolades include the William Liley medal of the International Fetus as a Patient Society in 2009 and the James Spence medal of the Royal College of Paediatrics and Child Health in 2010.

### The importance of preterm labour

Severe prematurity ( $\leq 30$  weeks of gestation) accounts for approximately 1% of all births in developed countries and 0.5% end at  $\leq 28$  weeks. In Britain there are over 6000 very immature births a year. Survival rates of these babies have significantly improved over the last 30 years due to a combination of advances in both prenatal care and postnatal management. The introduction of accurate dating of all pregnancies, antenatal steroids and postnatal surfactant have been major advances during this time.

Now the vast majority of very immature babies survive at 26 weeks and more, approximately 50% at 25 weeks and 25% at 24 weeks. Only about 10% of babies born at 23 weeks survive in Britain. It is unlikely that with the current methods of intensive care much further progress will be made in reducing the 'threshold of viability'. Among surviving infants of 25 weeks and below approximately 20-25% have major disability. Of this group another 25% will have less severe disability, but only 25% will be 'normal' compared with their term-aged peers. The challenge of perinatal medicine in the future is to improve outcome rather than increasing numbers of surviving babies.

The major causes of major neurodevelopmental disabilities in this group are intraparenchymal haemorrhage and white matter disease often referred to as periventricular leukomalacia (PVL). In addition, nutritional deficiency probably contributes towards further intellectual attrition.

Proven methods to reduce brain damage are at present very limited, but a number of perinatal managements have been evaluated and shown to be effective. These include:

- Antenatal steroids. This significantly reduces the incidence of intraventricular haemorrhage (IVH) by approximately 50% and also reduces neurodevelopmental disability but to a lesser extent.
- Placental-fetal transfusion. Methods to increase placental-fetal blood transfusion by delayed cord clamping or cord milking has been shown in a meta-analysis to significantly reduce the risk of IVH (Rabe et al 2007).

Chorioamnionitis (CA) probably doubles the risk of PVL, but treating CA with antibiotics does not appear to improve the outcome of the fetus. PVL and CA remain major perinatal problems which need further research in order to reduce the disability in surviving very immature infants.

# Induction of Labour – Modern Management

## Speaker

### Professor Ben Mol

Professor of Clinical Evaluative Research in Obstetrics,  
Gynaecology and Fertility,  
University of Amsterdam, The Netherlands

Dr Ben Willem Mol is Professor of Clinical Evaluative Research in Obstetrics, Gynaecology and Fertility in the Faculty of Medicine of the University of Amsterdam (AMC-UvA).

Ben is focused on the organisation of multi-centric evaluative research in obstetrics, gynaecology and fertility. In the context of a national research consortium, over 50 hospitals, including all eight academic centres, are working together to carry out multi-centric randomised trials. The research is focused mainly upon everyday practices. As a result, it was recently discovered that 15 minutes of bed rest after an insemination procedure in sub-fertile couples, a procedure that is not part of the regular treatment, increases the chances of conception by 10%. In studies in pregnant women, it became clear that induction of labour in women with pregnancy induced hypertension does decrease the chance of a caesarean section, a finding that was contradictory to what clinicians thought prior to the study. He is also working toward the implementation of principles of evidence-based medicine in his area of expertise. As a Professor, Ben considers his most important task to be the stimulation and innovation of evaluative research in obstetrics, gynaecology and fertility. His professional adage is 'A day without randomisation is a day without progress.'

Ben studied Medicine at the University of Amsterdam. From 1993 to 1997, he worked in the department of Clinical Epidemiology and Bio-statistics at the AMC. In 1999 he obtained his doctorate with honours at the Faculty of Medicine of the UvA with his dissertation entitled *Evaluating the effectiveness of diagnostic tests: tubal subfertility and ectopic pregnancy*. Between 1997 and 2003, he was trained as a Gynaecologist at the Máxima Medical Centre (Máxima Medisch Centrum, MMC) in Veldhoven, the University Medical Centre (Universitair Medisch Centrum) in Utrecht and the Tweesteden Hospital (Tweestedenziekenhuis) in Tilburg. Since 2002, Ben has been a Senior Researcher in the department of Obstetrics and Gynaecology at the AMC. From 2003 to 2007, he worked as a Gynaecologist-Perinatologist at the MMC in Veldhoven.

Ben is chairman of the Guideline Commission (commissie Richtlijnen) and member of the Scholarship Commission (commissie Wetenschap) of the Dutch Association for Obstetrics and Gynaecology (Nederlandse Vereniging voor Obstetrie en Gynaecologie, NVOG).

## Why induce at all? The evidence

Induction of labour is one of the most common interventions applied in obstetrics. Induction of labour is an intervention (artificial rupture of membranes – ARM – or intravenous oxytocin administration) designed to artificially initiate uterine contractions resulting in progressive effacement and dilatation of the cervix and birth of the baby. Indications for induction of labour are either maternal (pre-eclampsia, pregnancy-induced hypertension) or fetal (post-term dates, growth retardation, ruptured membranes, diabetes).

There is extensive literature assessing the effectiveness of induction of labour. Since induction of labour does not influence the caesarean section rate, the dilemma in induction of labour is the degree of neonatal development versus the maternal and neonatal consequences of awaiting spontaneous labour. Induction of labour should be considered when the neonatal or maternal risks of continuing the pregnancy are greater than the risk of prematurity for the neonate.

### Induction of labour

Induction of labour is an intervention (ARM or intravenous oxytocin administration) designed to artificially initiate uterine contractions resulting in progressive effacement and dilatation of the cervix and birth of the baby.

Induction of labour should be considered when the risks of ending the pregnancy

### Indications for induction of labour

Maternal  
Preeclampsia  
Pregnancy induced hypertension

Fetal  
Postterm dates  
Growth retardation  
Ruptured membranes  
Diabetes

### Conclusions

- Induction of labour does not increase the risk of a Caesarean section
- Induction of labour should be considered when the neonatal or maternal risks of continuing the pregnancy are larger than the risk of prematurity from the neonate
- The Bishop score should not be a factor in the decision to induce

# Induction of Labour – Modern Management

## Speaker

**Dr Tony Nicoll**

Consultant Obstetrician, University of Dundee

Antony Nicoll is a Consultant Obstetrician and Honorary Senior Lecturer and is currently working at Ninewells Hospital, Dundee, Scotland.

Tony graduated from the University of Dundee in 1995. In 1996 he moved to Glasgow to begin his career in obstetrics at the Queen Mothers Hospital. As a clinical research fellow he subsequently developed an interest in the physiology of parturition, in particular the potential role of nitric oxide donors for the induction of labour. In 2001, Tony obtained a Masters degree from the University of Glasgow.

He completed his clinical training in obstetrics and gynaecology in the west of Scotland in 2006. Since then Tony has been working as a Consultant Obstetrician at Ninewells Hospital, Dundee. His main interest is intra-partum care for high-risk pregnant women. During 2010, he has spoken at national and international meetings about intra-partum fetal monitoring using fetal ECG ST Analysis (STAN).

Tony also has interests in obstetric medicine and obstetric ultrasound. In his role as an Honorary Senior Lecturer, he is responsible for undergraduate medical education in obstetrics and gynaecology at the University of Dundee.

## How to induce – pharmacological interventions

Although induction of labour is commonly performed it is not without risk, and should only be considered when the presumed risks to the mother and/or the fetus of continuing with the pregnancy are greater than the risks of induction of labour. The aim of induction of labour is to successfully mimic the physiological process of parturition. In recent years our greater understanding of the physiology of parturition has allowed us to develop strategies for induction of labour. The ideal agent for induction of labour should be clinically effective, safe for the mother and fetus, easy to administer, cost effective and acceptable to the patient.

In the UK intra-vaginal prostaglandin E<sub>2</sub> (PGE<sub>2</sub>) is the preferred method of induction and should be considered for all women that require induction of labour, regardless of cervical status. PGE<sub>2</sub> may be administered as an intra-vaginal tablet, gel or controlled-release pessary. It is recommended that only two doses of intra-vaginal PGE<sub>2</sub> tablets or gel, or one dose of intra-vaginal controlled-release pessary is administered over 24 hours. Amniotomy and intravenous oxytocin are used for induction of labour in women that have not laboured spontaneously following the administration of intra-vaginal PGE<sub>2</sub>. The use of intra-venous oxytocin is associated with less maternal sepsis when compared to intra-vaginal PGE<sub>2</sub> and this should be taken into consideration when determining the method of induction for women that present with pre-labour rupture of membranes.

The progesterone antagonist mifepristone and the prostaglandin E<sub>1</sub> analogue misoprostol are effective agents for the induction of labour, but are currently only used for the management of intrauterine fetal death. Oral misoprostol is associated with fewer adverse effects than intra-vaginal misoprostol. Oestrogen, relaxin and nitric oxide donors such as isosorbide mononitrate, should only be used for induction of labour as part of randomised controlled trials.

**Key reference**  
NICE Clinical Guideline 70. Induction of labour. NICE, London, 2008.

### The ideal agent for induction of labour should be ...

- Clinically effective
- Good safety profile
- Easy to administer
- Acceptable to the patient
- Cost effective

### Pharmacological agents for induction of labour

- Prostaglandin E<sub>2</sub>
- Oxytocin (+/- amniotomy)
- Mifepristone
- Misoprostol
- Oestrogens
- Relaxin
- Isosorbide Mononitrate

- **Intra-vaginal PGE<sub>2</sub>** is the preferred method of induction of labour.
- It should be administered as a gel, tablet or controlled-release pessary.



NICE Clinical Guideline 70. Induction of labour. London: NICE; 2008.

## Induction of Labour – Modern Management

### Speaker

#### **Professor Zarko Alfirevic**

Professor of Fetal and Maternal Medicine,  
Liverpool Women's Hospital

Zarko Alfirevic is Professor of Fetal and Maternal Medicine and Head of Department for Reproductive and Developmental Medicine at the Liverpool Women's Hospital and University of Liverpool.

Zarko is joint co-ordinating Editor of Cochrane Pregnancy and Childbirth Group. His main research interest is in research synthesis and clinical trials related to preterm labour and intrapartum care.

### How to induce – organisational (service delivery) issues

The lecture will discuss the pros and cons of outpatient induction and the best available evidence to support decision making in this controversial area.

Notes

# Induction of Labour – Modern Management

## Speaker

### **Ms Christine Ainsworth**

Matron – Quality & Safety Assurance Manager,  
Northampton General Hospital

Christine is currently the Matron, Quality & Safety Assurance Manager at Northampton General Hospital.

As a midwife, she has extensive experience of labour ward management and a particular interest in the care of high risk pregnancy and birth. She has worked in various roles within the maternity services including practice development and risk management.

Christine has a long standing interest in the impact induction of labour can have on the woman's birth experience and for the past three years she has been working collaboratively with Ferring Pharmaceuticals by supporting maternity units with the training and implementation of Propess.

Christine is now leading on the governance agenda for obstetrics and gynaecology and remains committed to improving and developing a service that provides safe, effective care to women and their families.

## Minimising induction complaints

This presentation will look at why women complain following induction of labour and considers how aligning the service to the Quality, Innovation Productivity and Prevention (QIPP) agenda can help drive a more preventative, woman centred service that is also more productive and promotes high quality care.

## Notes

# Postpartum Haemorrhage (PPH) in C-Section – Medical Management

## Speaker

### Professor Jim Drife

Professor of Obstetrics and Gynaecology, Leeds General Infirmary

James Drife is Emeritus Professor of Obstetrics and Gynaecology of the University of Leeds. He graduated in Edinburgh and worked in Bristol and Leicester before moving to Leeds in 1990. He is a national assessor for the UK Confidential Enquiries into Maternal Deaths (whose next report, Saving Mothers' Lives 2006-8, is soon to be published) He is also a consultant to the World Health Organisation's Making Pregnancy Safer initiative, working mainly in Central Asia.

James has been a Vice-President of the RCOG and Chairman of the Academic Association of Obstetrics and Gynaecology. He also served on the UKCC Midwifery Committee. He is editor-in-chief of the *European Journal of Obstetrics & Gynecology* and he writes regularly for the *British Medical Journal*.

His hobby is song writing and in August he appeared on the Edinburgh Fringe with Abracadabarets. His wife, Diana, was a GP until she retired. Their son, Tom, is a lawyer and their daughter, Jenny, is a psychiatrist.

## Postpartum haemorrhage – why it still matters

Worldwide, haemorrhage is the leading cause of maternal mortality and is estimated to cause about 150,000 deaths per year, mainly in developing countries. In the UK, maternal deaths from haemorrhage have fallen from over 50 per year in the 1950s to 4–5 per year in 2003–05. This dramatic fall is mainly due to improved management, as 'near miss' enquiries show that life-threatening haemorrhage (> 2.5 litres) still occurs in around one in 300 pregnancies. The RCOG has published guidelines on placenta praevia and postpartum haemorrhage (PPH), although 'Grade A' recommendations (based on randomised controlled trials) are not available. Deaths from PPH have not fallen since 1985. At the same time the caesarean section (CS) rate has increased from 10% to 25%. In 2003–05 there were three deaths from haemorrhage after CS, all associated with placenta percreta after a previous CS. The rate of peripartum hysterectomy has increased, partly due to the rising CS rate. Recognising the risks of previous CS, Saving Mothers' Lives 2003–2005 included placental localisation among its 'top ten' recommendations. Other recommendations included regular training in the management of haemorrhage and a low threshold for calling for assistance.

### Maternal deaths worldwide



<b>Haemorrhage</b>	<b>25%</b>	<b>150,000/year</b>
Indirect causes	20%	120,000/year
Sepsis	15%	90,000/year
Unsafe abortion	13%	78,000/year
Eclampsia	12%	72,000/year
Obstructed labour	8%	48,000/year
Other direct causes	8%	48,000/year
<b>Total (approximately)</b>		<b>600,000/year</b>



### Scottish Confidential Audit of Severe Maternal Morbidity 2003-2005



Number of maternities	159,223
• Severe morbidity	
– Cases	845
– Rate	1 in 188
• Major obstetric haemorrhage (>2.5 litres)	
– Cases	582
– Rate	1 in 273
England and Wales 2003-2005	
• Live births	2,114,004
– Cases of major haemorrhage	7,744

### Caesarean section 6. Risks of "previous CS"



**6b:** Women who have had a previous caesarean section must have **placental localisation** in their current pregnancy to exclude placenta praevia, ... and if present, to enable further investigation to try to identify **praevia accreta** and the development of safe management strategies.

# Postpartum Haemorrhage (PPH) in C-Section – Medical Management

## Speaker

### Mr Tim Draycott

Consultant in Gynaecology and Obstetrics,  
Southmead Hospital, Bristol

Tim is a Consultant Obstetrician in the UK with a research interest in patient safety, particularly multi-professional training, simulation, team working and quality improvement in obstetrics.

His work aims to improve systems for coalface clinicians; his team's mantra is: 'make the right way the easiest way, and everyone will do it'.

Tim has led the development of the PROMPT course, which has been associated with improved knowledge, communication, team working and direct improvements in perinatal outcome. It has been successfully rolled out in the UK and introduced into Hong Kong, Australia, New Zealand and the Pacific, as well as the US.

Tim leads the Research into Safety & Quality (RiSQ) Group who developed an automated maternity dashboard and a simple tool to measure maternal satisfaction after delivery. His team has also introduced a series of simple and cheap decision support tools to improve care in labour.

## Prevention and Medical Management of PPH

PPH is a significant problem in both the developed and developing worlds, but up until recently there have been few medical advances in its prevention or management.

Carbetocin, a long acting oxytocin analogue appears to offer a number of benefits for woman at caesarean section and may streamline care for busy labour wards. The evidence for carbetocin will be reviewed. Misoprostol has been the 'most exciting advance' in PPH prevention and management for at least a decade, but seems to have finally found its place in the panoply of options. The latest WHO/FIGO guidance for the use of misoprostol will be presented.

Other recommendations include the use of early warning scoring systems to help more timely recognition of cases of hidden bleeding and regular multi-professional training, including teamwork training. However, not all training is equal or effective: two groups have recently published demonstrating no clinical benefit after training whereas in there is some evidence, at least in simulated work that clinical performance and communication improves after local, multi-professional training.

I will present the evidence for an integrated, cheap and effective method of training with examples for participants to take home and use: training so simple that it has been adopted by the general surgical wards for post op hemorrhage and some preliminary outcome data will be presented.

## Notes

# Postpartum Haemorrhage (PPH) in C-Section – Medical Management

## Speaker

**Dr Tracey Johnston**

Clinical Director of Maternity Services Directorate,  
Birmingham Women’s NHS Foundation Trust

Tracey Johnston is a Consultant Obstetrician and Subspecialist in Fetal Maternal Medicine at the Birmingham Women’s Hospital, where she is also Clinical Director. She has been the Lead Clinician for the labour ward in two large tertiary level obstetric units – St Mary’s Hospital, Manchester (5000 deliveries per annum) and Birmingham Women’s hospital (7200 deliveries per annum).

Tracey trained in Scotland, and has an MD on the physiology and pharmacology of human labour.

On a National level, she chaired the group that developed the RCOG Special Skills Module for Leadership on the Labour Ward. She helped develop the new curricula for specialist training on the labour ward, and wrote both the Advanced Labour Ward Practice and Labour Ward Lead ATSMs. In addition she helped develop and run the bi-annual theoretical courses for these ATSMs at the RCOG. Tracey was previously the representative for labour and delivery for the British Maternal and Fetal Medicine Society, and is now the Honorary Secretary.

She has been involved in obstetric emergency training since its introduction into the UK in 1996, and is a Faculty member of ALSO (UK).

## Surgical management of postpartum haemorrhage

Surgical techniques to control postpartum haemorrhage are a necessary part of the obstetrician’s armamentarium. These range from manual removal of placenta and repair of genital tract trauma through to peripartum hysterectomy, with other techniques in between. In the UKOSS study,<sup>1</sup> 315 women underwent peripartum hysterectomy to control haemorrhage in the course of a year in the UK, giving an incidence of 4.1 hysterectomies per 10,000 births. This procedure is not without risk as two women died, 84% required critical care, 20% required a second procedure after hysterectomy and 21% sustained damage to other organs such as bladder, ureter and ovaries. As most units will see fewer than two cases per year, individuals are unlikely to become skilled through direct exposure to peripartum hysterectomy alone.

Other less invasive surgical techniques, such as brace sutures and step-wise ligation of the uterine blood supply, have a place, but again experiential learning is limited and they all have a failure rate and complication rate. Observational data from Scotland<sup>2</sup> demonstrates a success rate of 42% for bilateral uterine artery ligation, 50% for bilateral internal iliac artery ligation and 81% for brace sutures, though numbers are small. In both the above studies, placenta praevia and morbidly adherent placenta are clearly identified as risk factors for both major haemorrhage and the need for surgical intervention to control haemorrhage.

This lecture will cover the different surgical techniques used in the management of postpartum haemorrhage, along with the indications, efficacy and complications for each. A multidisciplinary pro-active approach designed to reduce maternal morbidity and mortality in cases of placenta praevia and morbidly adherent placenta will be discussed,<sup>3</sup> along with the challenges of teaching and training, and the role of clinical governance.

### References

1. Knight M (on behalf of UKOSS). Peripartum hysterectomy in the UK: management and outcomes of the associated haemorrhage. BJOG 2007; 114:1380–87.
2. Brace V, Kernaghan D, Penney G. Learning from adverse clinical outcomes: major obstetric haemorrhage in Scotland, 2003–05. BJOG 2007; 1388–96.
3. Paterson-Brown S, Singh C. Developing a care bundle for the management of suspected placenta accreta. TOG 2010; 12:21–27.

### Surgical Techniques for PPH

- Manual removal of placenta
- Repair of genital tract trauma
- Oversewing of bleeding sinuses
- Bilateral uterine artery ligation
- Bilateral internal artery ligation
- Brace / compression sutures
- Peripartum hysterectomy

### Complications of Peripartum Hysterectomy

	No.	%
Death	2	0.6
Critical Care	265	84
Bladder Damage	38	12
Ureteric Damage	14	4.5
Ovarian Damage	28	9
Return to Theatre	62	20
Median Units Transfused	10	
Other severe Morbidity	53	17

### Summary

- **Be prepared!**
  - Training
  - Drills
  - Forward planning
- **Step-wise, systematic approach**
- **Appropriate help and support**
  - Phone a friend!
- **De-brief**
  - Patient & family
  - Staff
- **Learn from these cases – they are rare!**

# Postpartum Haemorrhage (PPH) in C-Section – Medical Management

## Speaker

### Dr Mike Robson

Master and Consultant Obstetrician and Gynaecologist,  
National Maternity Hospital, Dublin, Ireland

Mike Robson has been Master at The National Maternity Hospital, Dublin, Ireland since 2005. He was Consultant Obstetrician and Gynaecologist at Wycombe General Hospital England from 1995 to 2004 and Clinical Director there from 1995 to 2001. He graduated from London's St. Thomas's Hospital medical school in 1982.

Mike's main interest is the management of labour and the safe delivery of mother and baby. This includes the organisational aspects of the labour ward as well as teaching, audit and research. His publications mostly relate to audit of labour and delivery, and classification of clinical outcome information related to labour and delivery. One of his specific research interests regarding labour is the aetiology of dystocic labour.

Mike has been involved in developing information collection including the designing of software programmes since 1990.

His relevant publications include 'Labour ward audit', 'Classification of caesarean sections', 'Can the high caesarean section rates be reduced? Recent advances in Obstetrics and Gynaecology', and 'Comparative analysis of international cesarean delivery rates using the 10-group classification identifies significant variation in spontaneous labour'.

## Organisational issues surrounding postpartum haemorrhage

Postpartum haemorrhage (PPH) is a common complication of childbirth worldwide and makes a significant contribution to maternal morbidity and mortality.

Significant progress has been made in identifying and describing the best ways of managing PPH. This includes the prevention of PPH as well as advances in the medical and surgical management of the acute condition.

However, much can be done to assess and improve the organisational approach to the management of PPH. Like all obstetric emergencies this depends on education and knowledge, well trained staff, appropriate equipment and resources, a multidisciplinary approach with clear leadership and, finally, continuous audit of the results.

No condition in medicine can be treated successfully unless it is clearly defined so that the incidence and the aetiology can be studied. Only then can we identify the causes of the condition in different settings and institute the appropriate solutions. Although the principles of the organisational approach will be the same worldwide there will be different solutions for different organisations.



### Organisational Issues - Postpartum haemorrhage

Michael Robson  
The National Maternity Hospital  
Dublin, Ireland

### Aims

Minimise the morbidity and mortality as  
a result of haemorrhage

Ensure that staff are adequately prepared

### Organisational issues: Post-partum haemorrhage

- Knowledge, education and training
- Equipment and resources
- Staff, multidisciplinary approach and leadership
- Documentation, audit and ensuring quality

# Postpartum Haemorrhage (PPH) in C-Section – Medical Management

## Notes

### Speaker

#### Mr Tim Draycott

Consultant in Gynaecology and Obstetrics,  
Southmead Hospital, Bristol

Tim is a Consultant Obstetrician in the UK with a research interest in patient safety, particularly multi-professional training, simulation, team working and quality improvement in obstetrics.

His work aims to improve systems for coalface clinicians; his team's mantra is: 'make the right way the easiest way, and everyone will do it'.

Tim has led the development of the PROMPT course, which has been associated with improved knowledge, communication, team working and direct improvements in perinatal outcome. It has been successfully rolled out in the UK and introduced into Hong Kong, Australia, New Zealand and the Pacific, as well as the US.

Tim leads the Research into Safety & Quality (RISQ) Group who developed an automated maternity dashboard and a simple tool to measure maternal satisfaction after delivery. His team has also introduced a series of simple and cheap decision support tools to improve care in labour.

### Teamwork in the management of PPH

Teamwork training is regularly proposed as a solution to all medical ills and Obstetricians are regularly told to be more like pilots, at least as far as team training is concerned.

The Patient Safety Research Programme in the UK recently demonstrated that, in obstetric simulation, as long as people are trained in teams, adding training on how to work in teams is superfluous.

Teamworking and communication in an emergency will be demonstrated in two videos of simulated PPH with interaction from the audience.