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Birth

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists

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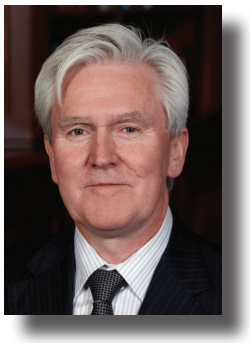
From the President



Dr Rupert Sherwood
President

Welcome to the Summer edition of *O&G Magazine*, themed 'Birth'. The theme of a new beginning is appropriate as the RANZCOG Council takes office and a new President takes over the reins from Dr Ted Weaver.

O&G Magazine provides an excellent portal for me as President and for the CEO, Dr Peter White, to communicate with the membership of our College about issues relevant to our speciality and the way the College engages in those matters.

Of particular importance is the use of the small 'm' in describing the membership of RANZCOG. In my past six years on the RANZCOG Council, one of the defining success stories for our organisation has been the re-engagement of the Diplomates and general practice membership, along with the creation of two new member categories: Associates and Educational Affiliates. While we are rightly regarded as a specialist O and G organisation, I am always proud of our broader membership, all of whom are actively engaged in the delivery of high-standard care to women and their families. As a former rural GP in Albany, Western Australia, I am very aware of the key role played by those general practitioners who make the extra sacrifice – in terms of lifestyle and commitment – to maintain their obstetric skills and deliver local care to people remote from the 'big smoke'.

'When I look at the contents page for this issue of O&G Magazine, *I am immediately impressed with the breadth and depth of the topics covered.'*

Taking over as President of our College is both daunting and exciting. Reading through the first 'From the President' contributions to *O&G Magazine* from the last two Presidents, I was gratified and, at the same time, challenged by the fact that both had achieved almost all of their major objectives outlined in their first editorial to the membership. Similarly, I will outline plans and objectives for my term and hope the next incumbent can pass a similar judgement.

When I look at the contents page for this issue of *O&G Magazine*, I am immediately impressed with the breadth and depth of the topics covered. The first article provocatively asks the question: 'Is LSCS a normal delivery in the 21st century?', addressing one of the more controversial topics in obstetrics today. Revisiting the Term Breech trial after a decade is very pertinent to all obstetricians, but I suspect many of us have either lost or never gained the confidence to deliver breech presentation other than by the 'normal' route as above. Twin delivery has so far maintained a place in our vaginal delivery skills set, but this also is under challenge, as outlined in another excellent review in this issue. Three articles have a timely focus on rural obstetrics, as delivery of high-quality obstetric care to rural areas in both our countries (Australia and New Zealand) is under threat from multiple fronts. Addressing this challenge will be a priority for the Seventh RANZCOG Council.

Severe preeclampsia and abnormal placentation continue to make even the most experienced obstetrician alert, if not alarmed. The former requires expert medical knowledge that must remain part of our core curriculum and learning. The latter requires surgical skills that must be available at short notice and should be an integral part of the training of every graduand of our College who intends to practice obstetrics. This is perhaps the most pressing issue facing my term of office, namely maintaining and improving the adequacy of surgical training in our profession. These two topics (preeclampsia and placenta percreta) remind me of my answer to undergraduates who ask 'what is an obstetrician?' to which my reply is 'an operating physician'.

The incoming Board and outgoing Executive met with senior College staff for the Strategic Planning day on 23 October 2010. This exercise aims to delineate the objectives for the term of the next Council. This year we set out to make plans that were achievable and within the capacity of the College's resources. Available resources range from the measurable: financial capacity, affordability and skills of the college house staff through to the much more intangible, and definitely harder to estimate, resource: the huge amount of time and energy given freely (in both senses of the word) by the Fellowship and broader membership. Without this *pro bono* contribution we will neither thrive, nor indeed survive, as the leading educational and standards organisation in women's health in both Australia and New Zealand. I wish to express my thanks and appreciation to all who contribute and endorse the plea made in the last issue of *O&G Magazine* by the outgoing President, Ted Weaver, for all members of RANZCOG to consider making even a small contribution of time and intellect to the many and varied processes and projects undertaken by your College.

From the Strategic Planning day, I have listed below some key areas of current, continuing and proposed activity for the College over the next two years.

- Review of the structure and content of the Training Program, including the timing and methods of assessing trainees. Significant changes to the post-Membership training (years 5-6) will include the development of specific modules to better equip new Fellows to their planned scope of practice.
- Develop online and e-learning resources for both trainees and members.
- Expand training into sites other than the traditional public-sector teaching hospitals (STP – Specialist Training Program).
- Implement the revised national selection process for ITP entry.
- Introduce a revised CPD program that 'mirrors' the current FRANZCOG curriculum, including the facility to record CPD activities online.
- Support and maintain the role of our sub-specialist colleagues within the College.
- Further strengthen the role of the Diplomates and Provincial Fellows with ongoing commitment to rural and regional O and G.
- Maintain an active role in the Asia Pacific region through the

Continued on page 7.

Asia Pacific committee, chaired by Dr Ken Clark (President of the Fourth RANZCOG Council 2005-6).
- Continue and strengthen our contribution to Indigenous women's health in both Australia and New Zealand.
- Monitor and have a very proactive input into the implementation of the Roxon Maternity Health Reforms effective from 1 November 2010.
- Continue to build our collegiate relationships with other major international O and G colleges, including ongoing links with the RCOG, SOGC and ACOG. Additional opportunities with mutual benefit will be pursued with colleges and organisations in other regions such as India, Hong Kong, South Africa and others.
- Oversee the function of the Board and Council under the revised governance and constitution, including new roles on the Council for the Chairs of the GP Obstetrics Advisory Committee (GPOAC) and Trainees Committee, a community representative and most importantly the immediate past President.

In future editions of *O&G Magazine* I will update and report on progress on these and other contemporary issues that I have no doubt will keep me busy over the next two years.

In closing, I would like to acknowledge the immense contribution and hard work of Dr Ted Weaver in his role as the President of the Sixth Council. I also welcome the incoming Board and Councillors and add my thanks to those who contributed so much to the previous Council. Additionally, the ongoing commitment and contribution of Dr Peter White and all the staff at both the Melbourne College House and the various regional offices throughout both countries cannot be overemphasised.

I look forward to serving the membership of RANZCOG to the very best of my ability during my term as President and welcome both your feedback and contributions.

From the CEO

Dr Peter White
Chief Executive Officer

In preparing to write this column, it is difficult to resist the allegorical references for 'Birth', the theme for this edition of *O&G Magazine*. There is the obvious reference to the birth associated with the approach of the festive season; there is the opportunity some feel to take stock and begin afresh as a new calendar year approaches; and, at the College level, there is the birth of a new Council period and the endeavours and achievements associated with the two-year period in question.

This Council, of course, represents the first that will work in conjunction with a RANZCOG Board of Directors, under the constitutional changes that have been passed to enable the new College governance arrangements. As has been the case for some time now, this Council convenes at a time when a range of factors are contributing to numerous activities within the College that are important not only to the core education and training activities of the College, but also to the wider day-to-day activities of members in their professional workplaces. This is similar to the situation that was in place when the Sixth RANZCOG Council convened in 2008, with the work of that forum having shepherded the College through the completion of some activities and various stages of others, with those completed having been replaced by the challenges of new activities and the changing work programs of initiatives with which we are already familiar.

'...the College has developed a wide-ranging strategic plan to guide the activities of the organisation over the period of this Council.'

As the President has indicated in this edition of *O&G Magazine*, the College has developed a wide-ranging strategic plan to guide the activities of the organisation over the period of this Council. All College staff recognise the role they have to support and underpin the work of the Board, Council and committees to deliver the contents of that document, as well as the other work that happens during the cycle of a Council term at RANZCOG. I do, however, take this opportunity to once again assure all those associated with the College of the ongoing commitment of the RANZCOG staff to work with all concerned in order to contribute to the development of the College and its ongoing maturity. A topic I spoke about on numerous occasions through the tenure of the previous Council.

As always, the College is currently progressing a range of initiatives through its committee structure that are designed to add value to members of the College, irrespective of their membership category. For example, the revised Diploma qualifications, as specified by new curricula, are close to implementation; the review of the FRANZCOG Training Program continues; and the trial of a new Continuing Professional Development (CPD) program, which reflects the conceptual framework that currently underpins training in the specialty, has been completed. While there are clearly opportunities for the College to grow through activities that 'value add' to the capacity of the College, it is also perhaps prudent we do not lose sight of the core activities that are both expected and required of us, as well as the level at which those activities are now expected to be delivered. Increasing trainee numbers, a reflection of the increase in the number of medical graduates, will challenge us during this Council to work with stakeholders such as Federal and regional governments and Health Workforce agencies in both Australia and New Zealand to find intelligent solutions that continue to assure adequate training for all concerned. Questions relating to the education resources that the College commits to supply for trainees, and the ways in which we can continue to attract commitment from Fellows and other members to ensure that both core and value-adding activities can continue to be undertaken with confidence, need to be considered.

'Our guiding imperatives remain the same: ensuring a good, coordinated approach to risk management in relation to both core and value-adding activities; an awareness of environmental factors; and a focus on future improvement.'

As all are aware, the National Registration and Accreditation Scheme (NRAS) for the registration of medical practitioners and the accreditation of medical programs (undergraduate and postgraduate) recently came into being in Australia. With some variation, all states and territories are now operating within the scheme, which sees some 80,000 medical practitioners registered. The scheme is administered through the Australian Health Practitioner Regulation Agency, which supports the ten National Registration Boards, the Medical Board of Australia (MBA) being responsible for registration of medical practitioners. The mandatory requirement in relation to Continuing Professional Development (CPD) associated with the Scheme is well understood and recent information clarifies that the specialist colleges do not have a mandated need to advise the MBA when a Fellowship is removed due to non-compliance with CPD (recertification) requirements; however, when advised of the loss of Fellowship for this or any other reason, the MBA will consider whether or not to remove a practitioner from the specialist register.

Under the National Law Act relating to NRAS, the MBA may appoint 'persons' (including individuals and corporations) to undertake accreditation and assessment functions for the Board. In the case of medicine, the Australian Medical Council (AMC) has been appointed to conduct accreditation functions and the College has recently been advised that it has been appointed 'to conduct the assessment of internationally qualified specialists' in obstetrics and gynaecology. The advice also clarifies that: 'the AMC will continue to administer the procedure but will not have a role in the assessment of internationally qualified specialists.' Of significance here is that under Section 236 of the National Law,

the appointment of the College for this function by the MBA also confers on the College protection from liability when the College conducts the activity in good faith for which it is appointed. This is a long-awaited development that will assist the College in undertaking a complex, high-stakes component of our activities, and mirrors the arrangements in place in New Zealand, where the College acts as a Branch Advisory Body (BAB) to the Medical Council of New Zealand.

I would like to now take this opportunity to congratulate Professor Michael Humphrey on the receipt of the award of the President's Medal, which was presented following the College Annual General Meeting in early November. I had the pleasure of working closely with Michael during my formative years at the College and was always impressed by his commitment to both the College and the profession more widely, particularly in relation to education of the next generation of O and G specialists. Michael is a most worthy recipient of the award, the highest that can bestowed on an individual for service to the College, and joins the ranks of previous awardees who have made significant contributions that have helped to shape the College. I would also like to acknowledge the contributions of Professor Geoffrey Bishop AM, who is retiring as Honorary Curator of the College Collection after some 15 years in that role. Geoff is a previous recipient of the President's Medal and has contributed much to the work of the College over a long period of time.

Whatever the context in which it is invoked, 'Birth' normally brings much to celebrate and the promise of opportunity. This time of the year brings also the opportunity to reflect; an activity often overlooked until the realisation that its frequency of occurrence has been reduced or even, on occasion, lost. The next two years, spanning the tenure of the Seventh RANZCOG Council in conjunction with the inaugural RANZCOG Board, represent an opportunity to build on the significant work that has gone before and to embrace the possibilities and challenges presented by the environment in which RANZCOG operates. Our guiding imperatives remain the same: ensuring a good, coordinated approach to risk management in relation to both core and value-adding activities; an awareness of environmental factors; and a focus on future improvement. As ever, I remain confident the elected members of the Board and Council, along with other College members, and in collaboration with a committed staff, will enable RANZCOG to continue on a path that sees it adapting to the challenges presented to achieve its stated aims and objectives.

I wish all readers of *O&G Magazine* and their loved ones a safe and happy holiday season and I look forward to keeping you informed of developments at the College through *O&G Magazine* in 2011.

Birth

Dr Sarah Tout
FRANZCOG

After a considerable gestation of 12 seasons of *O&G Magazine*, 'Tales from the first trimester'[1] has slowly developed and matured and now the long awaited 'Birth' is finally upon us. As expectant readers, I'm sure this is an edition you will not want to miss, as it explores and considers some of the important issues and unanswered questions around childbirth.

Childbirth, or parturition, is the culmination of a human pregnancy, or gestation period, with the delivery of one or more newborn infants from a woman's uterus. As is well established, the process of human childbirth is categorised into three stages: uterine activity associated with dilation of the cervix, descent and birth of the infant, and delivery of the placenta. Despite this being well understood for some time, how accurate is our assessment of labour and should we, in this 'age of technology', rely more on instruments to assist us? Is there still a place for the partogram today and what do we know about the placenta?

In my old copy of *Williams Obstetrics*, 15th edition[2], it describes 'physiological childbirth', stating: 'To eliminate the harmful influence of fear in labour, a school of thought has developed emphasising the advantages of natural childbirth or physiologic childbirth'. This focuses on antenatal education designed to eliminate fear; exercises to promote relaxation, muscle control and breathing; and management throughout labour with a nurse or physician skilled in reassurance of the patient constantly in attendance. Much of this we now take for granted, including variations in birthing positions, warm water immersion in labour and water birth. I'm pleased to say *Williams Obstetrics* goes on to comment that: '...with natural childbirth, most patients experience some pain, and analgesics and anaesthetics are not withheld when they are indicated.'

With increasing frequency, childbirth is achieved by caesarean section, the removal of the neonate through a surgical incision in the abdomen, rather than through a vaginal birth; so although not 'natural or physiological', is caesarean section a 'normal birth' in the 21st century? It's certainly not an uncommon one. Then with the increase in caesarean deliveries comes the rise of its sequelae and new interventions are becoming more common practice as we work alongside our radiology colleagues. As for our patients; this is far from what would be considered 'natural childbirth'.

Considering many of us are involved in the process of childbirth every day, it is quite a surprise that *O&G Magazine* hasn't heralded this topic as its theme until now, although we have certainly included related issues over the years and even used our crystal ball to look into 'The future of childbirth: 2026'.[3]

In this edition, we've attempted to cover a range of topics incorporating low- and high-risk issues, 'natural' and 'high-tech', and how these relate to rural Australia and places overseas, including Indonesia and Colombia.

The Term Breech Trial[4] has been one of the most influential trials for our delivery suites over the more recent years and the article here looks into the ten years following its publication. I certainly remember, as a first-year registrar, rushing to work to put my name against 'the breech in labour'; today most are on the elective caesarean section list. Now the attention has turned more closely to twins, exploring the gestation we should deliver at and whether we should offer routine delivery by elective caesarean section. Will we ever see the Singleton Term Cephalic Trial?

O&G Magazine is constantly evolving and our latest and important regular feature is the Review. This started in the Spring edition looking at syntocinon dosages at caesarean section and here we have a review on cerebral cooling in the term hypoxic newborn to open the Summer edition.

I've mentioned just a few of the excellent articles included in this issue and will leave it for you to enjoy the magazine. Thank you once again to all those who have contributed, for their time and expertise. Although there are some answers here, the magazine reflects we are far from knowing them all.

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Cooling the term hypoxic newborn

A/Prof Alison Kent
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Hypoxic ischaemic encephalopathy at term

Newborns affected by moderate or severe hypoxic ischaemic encephalopathy (HIE) constitute 0.5 to 1.0 per 1000 live births in technically developed countries.[1] Up to 25 per cent of survivors have long-term neurological sequelae, including cerebral palsy and intellectual impairment.[2] Following an hypoxic insult, neuronal cell death occurs in two phases[3,4,5], with the immediate phase as a consequence of energy failure within the neurone due to hypoxia. Six hours later, the secondary phase occurs as a consequence of hyperaemia; cytotoxic oedema; mitochondrial failure; excitotoxin accumulation; synthesis of nitric oxide; and free radical damage.[6] It is during this delayed phase that encephalopathy occurs associated with seizure activity, which may be ameliorated by hypothermia.

It is postulated that hypothermia may be neuroprotective by its modification of cells programmed for apoptosis.[7] Neuronal protection may also occur as a consequence of decreased cerebral energy requirements, altering the release of glutamate and dopamine, and decreasing nitric oxide and free radical production.[8]

What is the evidence for hypothermia?

Jacobs and colleagues describe the outcome of term and near-term infants in randomised trials of hypothermia after a hypoxic-ischaemic event in a *Cochrane* review.[9] This review includes both whole body cooling and selective head cooling trials. Meta-analysis of eligible trials shows a significant reduction in death or major neurodevelopmental disability in the group of infants treated with hypothermia, independent of the type of cooling method.[9] A recent multi-centre trial performed in China has also found a reduction in death and severe disability.[10] A recent meta-analysis of the neurological outcomes at 18 months has shown that hypothermia increased survival with normal neurological outcome, with a number needed to treat of eight.[11] Across Australia and New Zealand, hypothermia for moderate to severe HIE in the term newborn has become standard practice, with data being collected by the Australian and New Zealand Neonatal Network (ANZNN).

Criteria for treatment with hypothermia

The following are the current criteria for treatment with hypothermia as used by most Australian centres:

- neonates at 35 weeks gestation or older;
- less than six hours of age;
- evidence of moderate to severe encephalopathy;
- evidence of intrapartum hypoxia with at least two of the following:
  - Apgar score less than or equal to five at ten minutes;
  - mechanical ventilation at ten minutes;
  - cord pH less than 7.00 or an arterial pH less than 7.00 or base deficit greater than 12 within 60 minutes of birth.

Table 1. The features of moderate to severe encephalopathy.[12]

Category	Moderate encephalopathy	Severe encephalopathy
Level of consciousness	Lethargy	Stupor/coma
Spontaneous activity	Decreased activity	No activity
Posture	Arms flexed, legs extended (decorticate)	Arms and legs extended (decerebrate)
Tone	Hypotonia	Flaccid
Primitive reflexes	Weak suck, incomplete Moro	Absent suck, absent Moro
Autonomic system (any one of): **Pupils** **Heart rate** **Respirations**	 Constricted Bradycardia Periodic breathing	 Dilated /non-reactive Variable heart rate Apnoea

Minimal equipment is required to commence hypothermia in a non-tertiary facility. Monitoring of ECG, pulse oximetry and blood pressure, along with temperature management are the main requirements. The aim is to achieve an axillary or rectal temperature between 33 and 34 degrees Celsius. This may be achieved by either passive cooling (that is, not warming the neonate by overhead heater), or by active cooling, for example, by applying a cold pack under the head and across the chest. Adverse effects of hypothermia include bradycardia, hypotension, coagulopathy and an obvious requirement for monitoring. Clinicians looking after neonates with a moderate-severe hypoxic insult in non-tertiary facilities should discuss commencement of hypothermia with their local tertiary facility. All infants commencing hypothermia must be transferred to a neonatal intensive care unit for ongoing management.

Hypothermia has been shown in a number of large randomised controlled trials to reduce the incidence of death and severe disability following a moderate-severe hypoxic-ischaemic insult. The treatment is easy to commence, and is safe and well-tolerated. It should be considered in all term neonates fulfilling the current criteria. Continued monitoring of outcomes of neonates suffering a moderate-severe hypoxic-ischaemic insult treated with hypothermia is ongoing at both state and national levels.

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Is LSCS a normal delivery in the 21st century?

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The increasing rates of lower segment caesarean sections (LSCS) give rise to the question of whether a caesarean section should be considered a 'normal' delivery in the 21st century. If 'normal' in relation to childbirth is regarded as physiological spontaneous birth, then an LSCS will never be considered 'normal'. The two words 'normal' and 'delivery' make this a question worth pondering.

The term 'normal' in the 21st century is problematic. It is an increasingly elastic term in that it stretches to include more and more of what was once classified as abnormal. Whereas 'normal birth' once meant birth without medical intervention, birth at the beginning of the 21st century is spoken of as 'normal', even when it has been induced, augmented, or an epidural has been used. If we accept that 'normal' is a word that has its meaning defined and given to us by the culture and times in which we live, then it would appear that births involving intervention are increasingly being framed as 'normal'. Hence the question: 'Is LSCS a normal delivery in the 21st century?' If 'normal' indicates the most common form, or the most accepted way of doing something, then LSCS may be on its way to becoming a contender for the title.

In New Zealand, one in four, and in Queensland, Australia, one in three women, are reported as delivering by caesarean section.[7,10] Does this effectively make LSCS the 'normal' delivery of the 21st century? In researching this important question, it is of interest to note the following: one in four people in the UK do not believe that the moon landing happened[1]; one in four people do not cover their mouth or nose when sneezing[2]; and one in four people believe that a woman's place is in the home[11]. Should these beliefs or behaviours be considered 'normal' simply because a quarter of the population espouses such world views or actions? It is clearly absurd to claim that the rate at which something occurs determines its normality. Therefore, a correlation between the rate of caesareans and the claim that they are the 'normal' birth of the 21st century could be regarded as absurd.

There is another twist to the question of whether LSCS is a normal delivery in the 21st century and that is the word 'delivery'. 'Delivery', according to Wikionary, the oracle of all knowing in the 21st century, means 'the act of conveying something – the act of handing something over'. In this sense, 'delivery' truly does describe what happens at a caesarean section: the woman is 'delivered', the doctor 'delivers' the baby, and the woman is very much the passive recipient. In contrast, during physiological natural birth, the woman births her baby and provides true skin-to-skin contact with her baby. This natural contact is known to increase successful breastfeeding and attachment processes, which in turn are protective of the mother and baby's wellbeing. Language is extremely powerful, so while LSCS may be the 'normal' delivery of the 21st century – as they are happening more often than instrumental deliveries – LSCS is not, and never can be, the normal birth of 21st century.

The other important consideration in relation to the framing of LSCS as the 'normal' delivery of the 21st century is the underlying belief behind such a claim. The following data comes from research carried out in Auckland, New Zealand, which investigated what shapes the understanding of women and the practice of health professionals in relation to intervention in childbirth.[15] One of the findings of the research was that, in the everyday world of women in the 21st century, there is a normalisation of surgical, pharmacological and technological solutions that correlates with what is offered by intervention and procedures such as caesarean section.[16]

Many women's understanding is shaped by a world in which Trinny and Susannah's magic knickers and Gok's slicker knickers, along with such devices as the curvalicious corset, are seen as the solutions for controlling and transforming figures. Tummy tucks, extreme makeovers and other cosmetic surgery that carries the promise of looking ten years younger are hastening the growing acceptance and 'normalisation' of technological and surgical procedures.

'There is nothing "normal" about lying in hospital with a catheter and a pain pump, being confined to a bed and having limited mobility, and suffering the inconvenience of not being able to drive or lift for weeks.'

This was captured by one young woman in the research, who said:

> *'Over the next few generations, surgery will become more acceptable, more commonplace. Like extreme makeover is becoming really popular and so it is not the big deal that it once was to Jo Public, even though there are still massive risks associated with surgery. Jo Public still sees it as a quick fix and something they are relaxed about; something that is more acceptable. I am sure that surgery will become more acceptable in our generation.'*

This acceptance means that there is, increasingly, a reframing of caesarean section as a 'normal' and everyday event. Here is another woman in the same research describing her experience of elective caesarean section.

> *'With my second child, when I had the elective caesarean section it was like turning up to a dinner date. You go in there and go up to the room that you are going to come back to after the baby. They put the needle in and then you go on down and meet everyone and get into theatre and have the epidural. Then you have the baby and you get sewn up.'*

When LSCS is framed in such ways it is possible to understand the increasingly common claim that it is the 'normal' delivery of the 21st century. However, such a claim needs to be balanced by the fact that, in spite of all the progress in medicine and anaesthesiology, there remains significant risk associated with caesarean sections.

- Maternal death is higher (three-fold) after caesarean section (in labour) than vaginal delivery.[4,6,12]
- Risk of maternal mortality and morbidity is increased for all types of caesarean section, including elective and repeat caesarean sections.[9,14]
- Higher rates of placenta praevia, accreta, abruption and hysterectomy correlate with increasing numbers of repeat caesareans.[19,20]
- Risk of uterine rupture/dehiscence is naturally higher in women planning vaginal birth after a caesarean than women who plan an elective repeat caesarean section. However, this is offset by a reduction in maternal morbidity, uterine rupture/dehiscence and hysterectomy when vaginal birth after caesarean (VBAC) is successful. Outcomes are more favourable in successful VBAC than elective repeat caesarean section.[18]
- Increased risk of maternal rehospitalisation after a caesarean section.[5]

In light of these facts, it is unlikely that the question of LSCS being seen as a 'normal' delivery in the 21st century would even arise if there were not multiple influences and interests creating a milieu in which such a sentiment can exist.

This milieu is reflected in the following statements from women interviewed in McAra-Couper's research, 2007.[15]

> *'Choosing a caesarean – well it is convenience. That is the thing you do now and fit it in here like this.'*
>
> *'I think a lot of intervention happens because women are older and they don't want to be inconvenienced. They are only going to have one child and so why bother with natural birth.'*
>
> *'I just think of this woman who lives in the inner city, eats out, runs a business, has the Palm Pilot, the company car and so has a certain mindset, as do the people she is mixing with and who have influence in her life, telling her she does not have to go through all the stuff and mess of birth. Just have a clean cut.'*

It has been argued that the normalisation of caesarean section is less about the caesarean section itself, but rather about what it facilitates. There appears to be a correlation between the perception of what is offered by interventions such as caesarean section and the everyday world with its social and cultural values such as control and convenience.[16] This is what shapes understanding and practice in ways that lead to increased acceptance and utilisation of hitherto 'abnormal' interventions such as caesarean section.

It is important to note that while there is a framing of LSCS by some women as convenient, this convenience lasts only up until the procedure itself. There is nothing convenient or 'normal' about lying in hospital with a catheter and a pain pump, being confined to a bed and having limited mobility, and suffering the inconvenience of not being able to drive or lift for weeks.

The other issue that is often cited as a reason for LSCS to be considered the 'normal' delivery style of the 21st century is in relation to prolapse, incontinence and preservation of the pelvic floor. Larsson and colleagues[13] showed in a large study (1.4 million women) that caesarean section was significantly associated with a lower risk of pelvic organ prolapse. However, only one per cent of women in the study who delivered vaginally developed pelvic organ prolapse before they were 60 years of age. The authors point out that this issue is a multifactorial problem, and has to be offset by the risks of the uterine scar and complications of a caesarean section.[13] The effect of the mode of delivery on incontinence has been researched from a number of angles. Boyles and colleagues[3] used a survey to look at the incidence of urinary incontinence in primiparous women at three months and six months postpartum. They showed that in the short term, vaginal delivery can be seen to increase the risk of incontinence. However, another multicentred prospective observational study, showed that pregnancy increases the risk of urinary and faecal incontinence and that caesarean section was in fact no more successful in decreasing the risk than vaginal delivery.[17] This issue alone does not provide sufficient evidence to consider LSCS as the 'normal' delivery of the 21st century.

'It is time to challenge this milieu of intervention of the 21st century.'

It is the milieu of intervention supported by cultural and social values that has given rise to this question of LSCS being the 'normal' birth of the 21st century. This milieu is calling into question those things that have always been at the heart of childbirth: the ability of the woman to birth and the clinical skills of the health professional to assist this process.[16,8] It is time to challenge this milieu of intervention of the 21st century. It is time for women to reclaim their birthing power and for health professionals to reclaim their clinical skills in relation to birth.

The first step in this reclaiming is to disassociate the word 'normal' (no matter how elastic its use in everyday life) from a procedure such as LSCS, and for LSCS to be described exactly as it was in the 20th century and remains in the 21st century: an operative delivery.

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RANZCOG Volunteer Register

Stepping outside the square

The RANZCOG Volunteer Register is a register of Fellows who have indicated interest in being notified of volunteer and funded locum or short-term placements in developing countries. Usually placements are in the Pacific, but other opportunities are also advertised by email to the RANZCOG Volunteer Register group from time to time.

Following recent discussions with Australian Volunteers International, the following information about upcoming assignments for RANZCOG obstetricians and gynaecologists in the Pacific through Australian Volunteers International is advised below.

Opportunities for RANZCOG Obstetricians & Gynaecologists in the Pacific

Shortly there will be a range of long- and short-term roles available throughout the Pacific under the Pacific Technical Assistance Mechanism (PACTAM). PACTAM is an Australian Government, AusAID initiative that is managed by Australian Volunteers International. The mechanism is designed to place highly-skilled personnel within Pacific Island governments and agencies, to meet human resource needs and build capacity in the workplace.

PACTAM assignments:

- are specifically requested by participating Pacific governments;
- have defined assignment objectives;
- are advertised as we receive requests from host employers;
- are filled through competitive recruitment processes;
- are open to citizens of all countries; and
- are often family friendly, and provide additional allowances to support dependant children – either accompanying or remaining at home.

PACTAM deployees:

- are mid-to-late career professionals, with substantial technical and leadership experience;
- are remunerated at rates that reflect the Australian employment market – with moderate expatriate benefits supporting relocation, accommodation, airfares and insurance;
- are challenged – stretching their expertise broadly and deeply – dealing with both the strategic and practical operations;
- share their expertise and build capacity; and
- make a difference.

Dr Deryck Charters and daughter Philippa Charters.

In August/September 2010, Dr Deryck Charters spent five weeks undertaking a locum placement at the Colonial War Memorial Hospital (CWMH) and Fiji School of Medicine, Suva, while his daughter Philippa was undertaking a medical elective there.

> *I had a most interesting and enjoyable time in Suva and the medical and midwifery staff at CWMH were a pleasure to work with. The area I was able to contribute to was teaching for the postgraduate Diploma and Masters candidates in O&G, through input to their case presentations, clinic and grand round presentations, improving techniques for SAQs, OSCES and so on. Having my daughter doing her elective in O and G at the same time was useful as she made me aware of the teaching needs of her fellow medical students and helped me prepare for my undergraduate lectures. I'd be happy to talk to any Fellows contemplating working in Fiji and can be contacted on email Deryck_Charters@health.qld.gov.au .*

For more information about PACTAM
Please register your interest by contacting Ann Ray tel: +61 3 92791707 or email: aray@australianvolunteers.com.
You will receive details on specific roles as they arise.

To join the RANZCOG Volunteer Register
To notify the College of your interest in being kept informed of various opportunities notified to the College, please complete a RANZCOG Volunteer Register form at http://www.ranzcog.edu.au/asiapacific/volunteers.shtml or contact Carmel Walker, Senior Coordinator, Asia Pacific Services, for further information: cwalker@ranzcog.edu.au .

Breech: ten years on from the Term Breech Trial

Dr Andrew Zuschmann
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I'll have to admit this – the last vaginal breech birth I assisted was around three years ago. I was on-call for a tertiary hospital and received a telephone call at 2am on a Monday morning.

The fourth-year trainee on night duty explained that he had assessed a woman in her first pregnancy at 38 weeks who had presented in labour, at around 5 cm dilatation, with a breech presentation. He sought my permission to perform a caesarean section.

I remember grunting my assent before falling back to sleep, only to have the telephone ring again about 20 minutes later.

'I'm in theatre, just about to catheterise. I can see buttocks at the introitus. Should I go ahead with the caesar?'

'How many vaginal breeches have you delivered?' was my response.

After a moment's silence, he broke it to me. 'Well, um, I've seen one.'

'Do nothing, I'll see you soon.'

Most of us would expect this scenario to have a happy ending, as it did, with a straightforward assisted vaginal breech birth.

I trained in a unit where there was considerable enthusiasm for vaginal breech birth. It was in fact one of the recruitment centres for the study, *Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicentre trial*, now commonly referred to as the Term Breech Trial (TBT).[1] As a second-year trainee, when the TBT was ultimately published, the resulting drop in enthusiasm for vaginal breech delivery was obvious, although most of the senior consultants were still prepared to supervise vaginal breech births. From a trainee perspective, though, I was concerned that the only vaginal breeches I'd be managing would be with a doll and pelvis in the birth suite tearoom! Ultimately, I gained enough personal experience in vaginal breech birth to practise independently, although it has obviously been a while now. Pilots need to re-certify on a regular basis, in particular after a prolonged leave of absence, but what about obstetricians?

Although about 40 per cent of singleton fetuses present by the breech at 20 weeks, this figure falls to about 25 per cent by 32 weeks, and thence to a prevalence of around three to four per cent by term. Breech presentation is associated with nulliparity, multiple pregnancy, breech presentation in a previous pregnancy, uterine anatomical anomalies, placenta praevia, poly- or oligohydramnios and fetal anomaly.[2] Ford reports breech presentation at term in 4.2 per cent of first pregnancy deliveries, 2.2 per cent of second pregnancies, and 1.9 per cent of third pregnancies, with recurrence of breech presentation of 9.9 per cent after one consecutive and 27.5 per cent after two consecutive breech deliveries.

The literature pertaining to breech birth is dominated by the TBT, published ten years ago. That large, multicentre randomised controlled trial was designed to compare a policy of planned caesarean section with a policy of planned vaginal birth for selected breech presentation pregnancies. The TBT involved 121 centres in 26 countries, randomising 2088 eligible women to planned caesarean section or vaginal breech birth. The primary outcome measures used to plan the TBT were perinatal or neonatal mortality at less than 28 days of age (although excluding lethal congenital anomalies), or one of a number of measures of serious neonatal morbidity. Maternal mortality or serious maternal morbidity were the secondary outcome measures. There have been a number of related papers published, dealing with longer term follow-up data and subanalysis of the original trial data.

For women randomised to the planned caesarean section arm, 90.4 per cent were delivered by caesarean section, while of those randomised to the planned vaginal birth arm, 56.7 per cent were delivered vaginally.

Perinatal mortality, neonatal mortality, or serious neonatal morbidity were all significantly lower in the planned caesarean section arm than the planned vaginal birth arm (1.6% vs 5.0%; relative risk 0.33 [95% CI 0.19-0.56]; $p<0.0001$). There were no differences in maternal mortality or serious maternal morbidity in the two arms (3.9% vs 3.2%; relative risk 1.24 [0.79-1.95]; $p=0.35$).

A reduction in the number of vaginal breech births undertaken in Australia and elsewhere in the world occurred almost immediately following publication of the TBT, although this seemed to accelerate a trend that had already been noted. For example, the change in the Netherlands was most impressive, with an increase in the caesarean section rate for breech presentation from 50 per cent to 80 per cent within two months of publication of the TBT.[3] The horse had already bolted in the United States, with reports indicating that in 1999, 84.5 per cent of fetuses diagnosed with 'breech/malpresentation' were delivered by caesarean section, with the American College of Obstetrics and Gynecology (ACOG) subsequently recommending planned caesarean delivery rather than planned vaginal delivery for term singleton breech presentations in 2001, in response to publication of the TBT.[4]

Sullivan and colleagues studied caesarean section rates where breech presentation was the sole or main indication in Australia between 1991 and 2005.[5] They reported a change in method of birth for term breech singletons over the study period. In 1991, vaginal delivery constituted 23.1 per cent of all deliveries with a breech presentation at term, with the remainder obviously by caesarean section, of which 55.6 per cent occurred pre-labour, the

remaining 21.2 per cent reported as intrapartum. By 2005, only 3.7 per cent of fetuses in breech presentation at term were delivered vaginally. Although the trend was for abandonment of vaginal breech delivery over the whole study period, the authors noted a 'small but immediate' rise in the rate of caesarean section for breech following publication of the TBT.

Few large studies have generated as much comment as the TBT. The literature is replete with questions pertaining to selection criteria used in the study, conduct of labour in the planned vaginal birth arm, and apparent inconsistencies in intrapartum care in the TBT. For example, Kotaska[6] has highlighted the potential limitations of applying a multicentre randomised controlled trial to complex phenomena such as a vaginal breech birth.

If the method of birth for a fetus in breech presentation at term remains contentious, then it seems logical to pursue strategies to reduce the prevalence of breech presentation. External cephalic version (ECV) at or very near term has been shown to be an effective way of reducing the prevalence of breech presentation, and this has been confirmed by meta-analysis.[7] Pooled data provide reassurance that ECV is safe and effective, whereas postural techniques[8] and moxibustion[9] have not been shown to be similarly useful.

Ten years on from the TBT, various international guidelines have included recognition that for certain populations, vaginal breech birth may be offered. The Royal College of Obstetricians and Gynaecologists (RCOG) guidelines[10] highlight the findings of the TBT and list a set of 'unfavourable' clinical features that confer increased risk to the woman and her baby should vaginal breech birth be undertaken. These include:

- Other, separate contraindications to vaginal birth (for example, placenta praevia or a pre-existing compromised fetal condition).
- Clinically inadequate pelvis.
- Footling or kneeling breech presentation.
- A large baby (defined as a birthweight predicted to be larger than 3800 g).
- A growth-restricted baby (defined as smaller than 2000 g).
- Hyperextended fetal neck in labour (diagnosed with ultrasound, or x-ray where ultrasound is not available).
- Lack of the presence of a clinician trained in vaginal breech delivery.
- Previous caesarean section.

The guideline further describes conditions for undertaking labour and intrapartum actions that constitute 'appropriate care'.

Acknowledging that caesarean section will be the preferred mode of delivery for most obstetricians, in 2006 ACOG[11] revised their 2001 guidelines, by stating that: '...planned vaginal delivery of a term singleton breech fetus may be reasonable under hospital-specific protocol guidelines for both eligibility and labour management'.

RANZCOG[12] also acknowledges that, although most women with breech presentation at term will birth by caesarean section, management should be 'individualised'. Factors that may reduce fetal risk from planned vaginal breech birth include:

- Continuous fetal heart monitoring in antenatal labour.
- Immediate availability of caesarean facilities.
- Availability of a suitably experienced obstetrician.
- Presumed 'favourable fetal circumstances'. That is, the fetus is small or of average size, and no placental insufficiency is suspected. Also, the fetus is in a frank breech position, of appropriate gestational age and with documented head flexion.
- 'Favourable maternal circumstances.' That is, an 'adequate pelvis', anticipated maternal cooperation with pushing, and preferably multiparity.

Rising caesarean section rates are of special interest to many public-health organisations. For example, New South Wales Health recently released a policy document, *Maternity – Towards Normal Birth in New South Wales* [13], that recommends aiming for 100 per cent access to ECV by 2015, and compelling level five and six maternity services to consider accessing vaginal breech birth services.

A feature common to many international guidelines is the availability of a suitably trained obstetrician to be involved with a vaginal breech birth. I was fortunate to have the training of my seniors, but as a Fellow of five years standing, I have not had the opportunity to teach my trainees. The tearoom doll and pelvis will need to be formalised into a clinical skills station, in much the same way that we simulate basic surgical skills.

A survey of Australian trainees performed in 2006 reported that only half of final-year trainees felt confident with vaginal breech delivery. Furthermore, only 11 per cent of senior trainees reported an intention to offer planned vaginal breech delivery at term as a specialist. It would be interesting to repeat this study after another full training cycle.

Ten years on from the TBT there seems to be renewed interest, both in Australia and New Zealand, and indeed internationally, in offering vaginal breech births to appropriately selected and counselled women. From my own perspective, I hope it's a colleague and not a lawyer who asks me, 'When was the last time you assisted a vaginal breech birth, doctor?'

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Mode of delivery of twins

A 21st century obstetrician's dilemma

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Twin pregnancy presents numerous challenges for the obstetrician from conception onwards, none more so than the timing and mode of delivery.

In the majority of cases, the timing of delivery is not subject to the considered appraisal of the obstetrician, since spontaneous preterm birth complicates between 30 per cent and 50 per cent of cases[1] and intrauterine growth restriction (IUGR) further complicates about one-third of twin pregnancies[2]. In addition, major congenital anomalies may affect up to 4.9 per cent of twin pregnancies. To top things off, there are several fetal problems specific to twin pregnancy, including conjoined twins, twin-reversed arterial perfusion (TRAP) sequence, monoamnionic twinning and twin-to-twin transfusion syndrome (TTTS). All of these require further careful consideration with regard to planning of the timing and mode of delivery in discussions between patient and obstetrician. This article, however, will concentrate on the timing and mode of delivery of 'uncomplicated' twins near term.

'...there is a general consensus that the timing of delivery of uncomplicated twins should be between 37 and 38 weeks gestation, [but] the optimal mode of delivery of uncomplicated twins is controversial.'

A retrospective study by Dodd and colleagues[3] suggested that the lowest rate of perinatal mortality and morbidity in twin pregnancies occurs with delivery between 36 and 38 weeks gestation. The risk of adverse outcomes increases with advancing gestation, but a *Cochrane* Systematic Review comparing elective birth at 37 weeks gestation with continued expectant management failed to identify any statistically significant difference in the outcomes between the two approaches. A multicentre randomised controlled trial, coordinated by the University of Adelaide, is in progress and aims to assess the optimal timing of birth in women with a twin pregnancy at term.[4] Until such information is available, there is a general consensus that the timing of delivery of uncomplicated twins should be between 37 and 38 weeks gestation.

The optimal mode of delivery of uncomplicated twins is controversial. There is non-randomised evidence suggesting that, for triplets and higher order multiple pregnancies, the risk of low Apgar scores and perinatal death is reduced with caesarean section.[5] The evidence is less clear for twins, hence the obstetrician's dilemma.

Smith and colleagues' retrospective cohort study suggested that planned caesarean section may reduce the risk of perinatal death of twins (particularly the second twin) at term compared with attempting vaginal birth, but after correction for confounding factors, the conclusions were less robust.[6]

Chasen's group reported that neonatal respiratory disease was more common in twins born by caesarean section at 36 to 38 weeks compared to those born vaginally at 38 to 40 weeks.[7] Also, Wildschut and colleagues reported increased perinatal mortality rates associated with caesarean delivery primarily as a result of neonatal respiratory distress.[8]

A *Cochrane* review by Crowther[9], reviewing the mode of birth of the second twin, identified a single randomised trial by Rabinovici and colleagues[10] comparing planned vaginal birth with planned caesarean birth for the second non-vertex twin, with the unsatisfactory conclusion that further evidence was required from randomised trials to determine the optimal mode of delivery.

At the present time, a randomised controlled trial – the Twin Birth Study, coordinated by the University of Toronto – is underway. This study aims to provide more reliable information as to the optimal mode of delivery of uncomplicated twins.[11] While this study is in progress and information is obtained, it seems to be reasonable clinical practice to offer the patient with uncomplicated twins the choice of elective caesarean section or selected elective vaginal delivery at 37 to 38 weeks gestation.

With regard to the choice of elective caesarean delivery versus vaginal delivery, based on the literature from the 20th century, certain recommendations can be made to obstetricians practising in the 21st century. Firstly, the mode of delivery may be affected by the respective presentation of the twins.The most common presentation of twins is vertex-vertex. In most cases, obstetricians recommend vaginal birth[12] and the available literature supports this option.[13]

With the first twin in vertex presentation and the second twin non-vertex, opinion is divided as to the optimal mode of delivery. Some obstetricians recommend elective caesarean section and report reduced neonatal mortality and morbidity rates.[13,14] Others suggest there is no increase in neonatal risk, even with external cephalic version and/or internal podalic version of the second twin at the time of delivery[15], placing an emphasis on the reduction of risks for the mother.[16]

When the first twin is non-vertex, caesarean section is usually advised[17], but in the case of breech presentation of the first twin, unfortunately, the Term Breech Trial[18], which reported data for singleton births, seems to influence the mode of delivery offered, with the avoidance of the rare occurrence of twin entrapment by interlocking chins or heads being an additional advantage cited for the option of caesarean section.[19]

During labour and delivery of twins, the outcome will be enhanced

by delivery in hospital and, if possible, in a tertiary or level II facility. Sensible precautions include intravenous access, cross-matching of blood, continous electronic fetal monitoring of both twins, epidural anaesthesia, additional midwifery and paediatric assistance, oxytocin infusion for uterine inertia (particularly after delivery of the first twin), and prophylactic oxytocin infusion after delivery to reduce the risk of primary postpartum haemorrhage. I would emphasise, though, that the quality of evidence for these intrapartum strategies is generally level III and the strength of the recommendations is either B or GPP.

It is recognised that perinatal mortality in twin pregnancies is five to ten times higher[20] and the perinatal morbidity, particularly from cerebral palsy, is eight times higher[21] in twin pregnancies compared to singleton pregnancies. This increased risk of perinatal mortality and morbidity mostly results from factors unrelated to the mode of delivery, such as antepartum stillbirth, the effects of prematurity, congenital anomalies and chorionicity-dependent complications.

The other important factor that must be considered when assessing perinatal outcomes in twin pregnancy is that women with a multiple pregnancy have a two-fold increase in the risk of death compared with women with a singleton pregnancy.[22]

'The lack of data presents obstetricians with a dilemma in making clinical decisions that are based on robust evidence, particularly with regard to the mode of delivery of uncomplicated twins at term'

It is widely recognised that in contemporary practice, approximately 60 per cent of twins (and in some selected centres almost 100 per cent of twins) are delivered by caesarean section, and this practice seems to be increasing.[23,24] This high rate of caesarean birth may reflect some obstetricians' anxiety about vaginal twin delivery, which in turn may be evidence of defensive practice.

It is worth noting that patients' demand for caesarean delivery may follow their appraisal of the literature, as discovered on the internet. The effect of patient-initiated internet searching, a phenomenon that is common, is increasingly impacting on all aspects of medical care, but particularly in obstetrics.

The practical difficulty in attempting to obtain high-quality evidence on which to base clinical management is that, in obstetrics, serious adverse outcomes are relatively infrequent. For example, delivery-related perinatal death of the second twin at term affects approximately one in 287 twin births. As a consequence, to appropriately power a relevant randomised trial would require study of approximately 6500 twin pregnancies to determine whether caesarean section would reduce the risk of perinatal death, an ambition that will never be met.[13,14]

The lack of data presents obstetricians with a dilemma in making clinical decisions that are based on robust evidence, particularly with regard to the mode of delivery of uncomplicated twins at term. For the moment, while new data are awaited, responsible obstetricians can legitimately present to their patients a choice between elective caesarean section and assisted vaginal birth at 37 to 38 weeks gestation.

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Rural obstetrics

Prof Caroline de Costa
FRANZCOG

Over the past decade more than 300 small maternity units have closed across rural Australia. However, *O&G Magazine* is happy to report that rumours of the death of rural obstetrics are greatly exaggerated. At Cairns Base Hospital in Far North Queensland, positions in the year-long Advanced Diploma training scheme for rural general practice training are highly sought after, and GP obstetricians who have been through this training have gone on to practise in all other States of Australia, as well as in rural Queensland.

In this issue of *O&G Magazine,* we have asked three rural obstetric practitioners to share their experiences and their amazing tales of birth in the bush. Dr Pieter Mourik from Wodonga gives a concise overview of the subject, based on 30 years of country practice in northern Victoria. Dr Richard Mackinnon tells of the innovative arrangements he has developed in Crystal Brook in South Australia, together with the help of midwives, including his wife. Finally, we hear from the wild west where Dr Barney McCallum practises in the Kalgoorlie region of Western Australia. Our thanks to them all.

Antenatal care and delivery in the country

A Victorian perspective

Dr Pieter Mourik
FRANZCOG

Almost 30 per cent of Australian women deliver their babies in the country and 57 per cent are cared for by general practitioners[1], but the future of rural maternity units is quite uncertain.

Over the past 30 years that I have been practising in Wodonga, initially as the only specialist obstetrician in Victoria northeast of Melbourne, (in solo practice for the first ten years), I have witnessed the continual decline in rural maternity units and the numbers of procedural GPs who remain committed to maternity care. The numbers of specialist obstetricians in the country has also dwindled to critical numbers.

When will Australian politicians understand that there is a real workforce crisis in the bush? Predicted by Professor Alastair MacLennan in 1993 in his article, *Who will deliver the next generation?* [2], nothing effective has been done by successive governments to address this issue.

In my 30 years in rural Victoria, there has been the closure of 88 rural maternity units, leaving only 39 still managing some maternity care.[3] This is in the face of the government-stimulated ('one for your country') increase in the numbers of deliveries in most areas. The loss of expertise of rural generalist doctors and midwives is a national disgrace!

Most of the GP obstetricians are now over 50 years old. As substantial retirement occurs after this age, the workforce will be terminally depleted within ten years, without a major training and retention program. A parallel program is needed for midwives, who share the same age profile.

Dr Mourik is the recipient of the Westpac RDAA Rural Doctor of the Year Award for 2010.

Is there time left to stop the continued annual decline, or is it too late? Should we all give up? Being an eternal optimist, I believe the crisis can be averted, but only if all governments have a genuine commitment to make it happen.

Unfortunately, most State governments have advisors who are city-based, academic midwives promoting midwife-led maternity care. Not only will midwife-led maternity care be a failure in the country, it has the potential to displace even more GPs, as demonstrated in New Zealand[3] where 1500 GPs were displaced by midwives.

The most effective, sustainable and safe model of care is collaborative maternity care, which is even more valid in the rural setting. An open, communicative team of midwives, GPs and specialist obstetricians is the model of care that is vital for the survival of quality rural maternity care.

Medical support not only means having a trained GP obstetrician, but also a doctor available for anaesthetic services and neonatal support, and a roster of capable midwives available in both the maternity unit and the nursery.

Without the certainty of medical supervision on-site, most rural women elect to travel to the nearest maternity unit that can offer this care. Only a minority of women risk being transferred in labour when complications become apparent, especially when in the country the nearest maternity unit is often over an hour away.

I believe all rural towns of 20,000 or more should be able to provide intrapartum maternity care. Maternity services can exist in smaller rural towns, but only with the dedication and commitment of a generalist. There are models which have worked and we should learn from their success. Crystal Brook in rural South Australia is such a model (see the following article on page 28). The cooperation and facilities established in Crystal Brook have ensured the future of this small maternity unit.

So, now we know the problem, how do we implement a solution? It is critical to act now and not procrastinate for another ten years. By then, the remaining small maternity units will be closed down and will not re-open because experienced staff are needed to mentor new recruits. In the rare instance like Seymour, Victoria, where a unit did re-open, the staff did not disperse and were ready to take up their roles.

We are already promoting medicine as a career to Australian country students through rural medical schools, but now we need to facilitate postgraduate training aimed at producing procedural generalists,

including intrapartum care, anaesthetics and neonatal care.

We can train a GP to be capable of managing about 90 per cent of all obstetrics patients in one year of advanced training. This awards the GP with a DRANZCOG Advanced and, once qualified, this doctor should be able to work independently, preferably with a senior colleague as a mentor for the first few years.

There is still opposition to the GP trainees in metropolitan teaching hospitals in favour of Integrated Training Program (ITP) trainees. This opposition should be addressed by RANZCOG, affirmatively promoting GP obstetrics and supporting GP training in operative procedures. It is only five years ago that RANZCOG invited the first GP obstetrician, Dr Jeff Taylor, to represent his rural colleagues as an observer on Council. More still needs to be done Australia-wide with the recruitment, training, re-training and support of rural GP obstetricians.

Although all metropolitan teaching hospitals should be training more GP obstetricians, there are very few GPs involved in intrapartum care in the city, so there is no role model for the trainees to identify with. Training in a rural position would equip them with the necessary skills, confidence and courage!

In Wodonga, we have trained several GPs capable of performing caesarean sections. Some have replaced retiring GPs here, while others have set up practice in small rural towns and continue to do operative obstetrics. Unfortunately, most rural maternity units that have specialist obstetricians have no GPs doing intrapartum care, so the opportunity to train young doctors is diminished. The solution is to fund a DRANZCOG position in large rural maternity units with specialist obstetricians or GP obstetricians available and willing to train and support the new recruit.

To quote Dr Mike Moynihan, President of the Rural Doctors Association of Victoria (RDAV):

> '*The Victorian State Government has provided a small number of training positions for GP proceduralists in larger hospitals, but these are proving totally inadequate to maintain the rural GP proceduralist workforce. Also, lack of recognition of the GP procedural workforce in Victoria, means there is very little interest in rural medicine as a career among doctors training in Victoria's four regional training programs.'*[4]

I have also witnessed a change in culture with younger doctors. No longer will they work unsafe hours and devote their lives to their work; their lifestyle and families have more importance to them. I admire their decision, but this does not help women who choose to or have to deliver their babies in the country. The solution to this paradigm shift is to work as a group, even if they are in independent medical practices. They need to establish an agreed roster, especially as most rural women do not have, or do not use, their private health insurance.

An essential part of rural maternity care is the patient-held maternity record. In Wodonga, we have been using this record for over 25 years, so we have a generation of women who have had documented shared care with the GP in their local town. The record is completed by all who attend a woman: the GPs, midwives and obstetricians. It records all the pathology and ultrasound results and documents an agreed birth plan. One of the many benefits, particularly for women who live a long distance from a regional maternity unit, is that it reduces the time spent travelling to a specialist O and G.

There is a need for a standardised, Australian maternity record (like Australia-wide medication records), but the insistence by State Departments of Health that their own non-medical and cumbersome documents are to be used continues to be a frustration. It is difficult to quickly extract essential information from the State Health Department records in an emergency situation.

There is criticism that there is lack of public antenatal clinics in the country, but this is, or can be, addressed by doctors seeing patients in their rooms, provided an agreed standard of care is achieved. Trainees can also gain experience by joining the doctor at their practice. Annual clinical meetings can be arranged to update all the people involved in antenatal care, (doctors and midwives), so that audit is robust and in-service education is provided. Attendance at these meetings could be a condition of approval to be able to do antenatal care.

In Wodonga, ten per cent of women choose midwife-led care, but all must have a medical consultation during their pregnancy and all are supervised by a GP at delivery. This model of care has the support of all the doctors and midwives. We do not support home birthing because of poor outcomes and, fortunately, no midwife currently undertakes home birth in this region.

There needs to be a quality locum service available to both specialist and general practitioner obstetricians to allow them to take leave without adding to the burden of extra work for their colleagues. Fortunately, this is now available for all rural obstetricians through the Specialist Obstetrician Locum Scheme (SOLS) and is arranged through RANZCOG.

The establishment of rural schools of medicine has been a highly successful innovation by the Australian Federal Government. Rural scholarships, such as the John Flynn Scholarship, have enabled many rural students to enter university and encouraged them to return to practise in the country when they have completed their training. Sending students to the country may assist the future numbers of doctors who will be working in rural centres, but they will not necessarily be attracted to consider obstetrics, unless there are motivated mentors to encourage and support them. There need to be more rural training posts in obstetrics for young doctors to be able to learn from existing, experienced GPs or obstetricians.

Although the promotion of telemedicine is good for ongoing education, it is not much help for an acute emergency such as fetal distress or a postpartum haemorrhage. If a maternity unit is going to be safe, experienced doctors who can be immediately available are required. However, televideo conferencing facilities established in rural maternity units would be a valuable resource, in the same way that they are appearing in rural emergency departments. Televideoconferencing facilities established in rural maternity units would be a valuable resource, in the same way that they are appearing in rural emergency departments.

In summary, the future survival of rural maternity units depends upon an infusion of new, young doctors to take over from the retiring, sometimes burnt-out, but highly experienced current doctors. The annual attrition of the ageing doctors is making many rural maternity units perilously close to sudden collapse. Without a comprehensive national program to attract young doctors into obstetrics and train them to be confident and competent, small to medium rural towns will not be able to sustain maternity care in rural Australia. The Government must act now to make these training positions attractive, or rural obstetrics will not survive.

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Collaborative obstetric care in Crystal Brook, SA

Dr Richard Mackinnon
DRANZCOG Advanced

My wife and I arrived in a small town (population 1250) in rural South Australia, 22 years ago, fresh from upskilling in the UK. I had done 18 months of obstetrics in a busy unit on the English/Welsh border, which had a catchment population of 4500 deliveries per year.

My wife had completed her 18-month midwifery training and then had worked in the system for another 18 months, while I did further anaesthetic training. In that system, I received training in complicated obstetrics and never considered attending normal deliveries. There was an associated midwife unit attached to the specialist unit with agreed protocols for who delivered where and who should be transferred.

The caesarean section rate was 11 per cent and on return to that unit three years ago it was still in the mid teens, while other areas in the UK had followed the trends experienced in Australia towards more intervention. The perinatal mortality rate was the same as the rest of the UK.

When we came to Crystal Brook, I was asked about what set-up I would like for my deliveries. I replied that I thought I would only need to be around for the complicated deliveries, but the midwives said that they had not done a normal delivery for years as the doctors did them. They were deskilled and frightened. I had to ask my wife about what would be needed for a normal delivery! Thus began a program that has matured over the last 22 years, which provides safe care with maximum choice for women in a small rural setting. It is this I will describe, as one of the models that can work.

Our model of care evolves

In starting to upskill the midwives 22 years ago, we invited them into our clinic to see the women with us. The women loved it and it was soon decided that we would run a clinic on a Tuesday morning where the women would see the midwife first and then us at the end. They loved being able to have time with the midwife, but at the same time seeing their usual GP for any medical needs, and in their eyes, the reassurance of 'seeing a doctor' (their words, not mine). We found over the next two years that more and more women were travelling from other towns for this care and numbers increased from the traditional 20 per year to between 80 and 100 per year.

Over the years, the model evolved to more midwife involvement with less doctor involvement. Why was the doctor still involved at each antenatal visit? Because that is how he or she was paid. It is a reality that in a fee-for-service (FFS) model, we needed to raise revenue this way, as the fee for the delivery was inadequate. However, it was not just this. From a personal point of view, I looked forward to seeing happy, healthy women as patients as opposed to the pathology we see in other aspects of busy rural practice.

During this period, I was heavily involved in the rewriting of the Diploma in Obstetrics syllabus and a member of the Joint Consultative Committee on Obstetrics (JCCO). This was a time of declining obstetric training for GPs as the need for this for metropolitan GPs was diminishing. However, in the days prior to the formation of an Australian College of Rural and Remote Medicine, the Royal Australian College of General Practitioners 'represented' all GP views. There was a lack of realisation that in rural areas, there would still be opportunities and the necessity to practise obstetrics. The Diploma in Obstetrics was really disintegrating into a Diploma in Shared Care. I was part of a working group that rewrote the syllabus and there was great effort invested in ensuring that training positions for rural GPs were available in hospitals to gain experience in basic and advanced obstetrics.

Three other influences threatened the provision of our service. Firstly, at various times, the South Australian Government would conduct a review of obstetric services in rural areas and would inevitably come up with the notion that numbers of deliveries weren't safe and thus units should be closed. This was done without actually demonstrating that perinatal mortality and maternal morbidity figures were actually poorer, but rather was a 'knee jerk reaction' to 'a case' that had a poor outcome and had received bad press. They were risk averse, not realising that increased travel would significantly increase risk if smaller units were closed (this is never factored into risk analysis in any document I have seen, therefore, what is the risk per kilometre travelled by the woman, her partner, her family and any other health workers such as ambulance officers and nurses accompanying her).

Secondly, the crisis in medical indemnity hit hard. This was going to wipe out all rural obstetricians who were FFS-funded and at the same time tied to fixed fees in the hospitals for public patients. I was involved in the Commonwealth Tito Review into medical indemnity that predicted this crisis some years before, but was subsequently shelved. I therefore had an intimate understanding regarding the concepts of unfunded liability and run-off cover, which are particularly damaging to the continuation of obstetrics. Thus, when South Australia faced an acute abandonment of rural obstetrics, we were able to communicate the real issues and concerns to State officials. At the time they were very supportive, solution-based officials and thus, with the contribution of the Commonwealth subsidies, we were able to ensure that all rural proceduralists did not pay more for medical indemnity than the equivalent non-proceduralist. They also guaranteed run-off cover if doctors chose to stop obstetrics in the future.

Thirdly, after getting the doctors' issues sorted out, we got to the stage three years ago of not being able to find midwives. In a small rural hospital, the model was one of having Registered Nurse/Registered Midwife (RN/RM) staff to cover all eventualities. However, as an RN/RM left, it was increasingly difficult to find a replacement and the Director of Nursing was reluctant to employ a RN, as this would mean that she did not have room to employ another RN/RM who might turn up. At the same time, some of the RN/RMs were doing the midwifery out of duty rather than want. The onus on them to keep up with all aspects of nursing and midwifery was becoming too much, and with the increased administrative burden being hoisted on nursing staff, they were finding their time was limited to provide optimal care.

Our model now

Thus, we moved to a model of team care. Now we have a group of midwives who just practise midwifery and have no other general nursing duties. They organise their own roster of both rostered hours and on-call hours.

One of the issues put to us by the midwives in setting this up was that for them to work in this model, they would like to have more autonomy and in the future this might aid in attracting direct entry midwives. Thus we have developed a three-streamed approach.

Stream A consists of what I have done for 22 years. The women are seen by me and the midwife at each visit. At delivery, I turn up and sit in the corner and help out as needed (I may give oxytocic, may resuscitate the baby, may suture or may do a medical procedure, as required).

Stream B is with my medical partner and midwife, where women alternate visits, but are not seen by both carers at the one visit.

Stream C is the midwife-led model, where the midwives see the woman for each visit, and they see a doctor for two of the visits. The women have an allocated midwife who, as much as possible, will attend to all their needs. Initially, we would only be notified when they were in labour and attend if needed, but now we have been asked to attend the hospital around delivery time.

The women are given a brochure at the initial visit and they can choose any of the Streams, provided they meet the agreed guidelines as far as risk factors go.We still run a Tuesday morning clinic where women in Stream A and B are seen and the rostered midwife may invite her women in Stream C to attend. However, most of the women in Stream C are seen outside this time, either at the hospital or at their home.

'...nothing will change without both doctors and midwives getting together and jointly developing strategies to chart our way forward for the continued provision of maternity services across both metropolitan and rural Australia.'

As with any change, we have all had to adapt to different roles and circumstances, but with open dialogue and tolerance of each other's roles, we have been able to make it work. From a doctor's point of view, I see the following issues (but I recognise that it is a one-sided view).

Women are still choosing to see the doctors. They are usually my longstanding patients from a GP point of view and want to have the continuity of care. On starting this model, the argument was put that patients wanted continuity of care. The data presented was all to do with specialist obstetricians versus midwives. Nobody acknowledged that the rural GP has the greatest continuity of care and, if they can practise obstetrics, this can continue through.

Occasionally, women who have chosen to see me have seen the midwives at the first visit and have been 'persuaded' to change to Stream C. This really annoys me and we have had robust discussions about it. We have now agreed that I will give out the agreed information (pamphlet) initially and then we will both respect the woman's decision without further 'lobbying'.

Initially, I was going to lose out on FFS for the normal deliveries of Stream C women. The hospital has agreed to pay FFS for any delivery where I am the nominated doctor. As mentioned earlier, the initial plan was to not have the doctors come for Stream C women. However, there was a delivery where there was a very flat baby. I happened to be in the hospital at the time and could help out. This prompted the midwife involved to persuade the others that it would be beneficial to have us around – just in case.

Our numbers would not have been enough to enable a full roster of midwives, so the team operates over two services, the other being a larger centre with about 200 deliveries per year. That town has a specialist obstetrician, no GP obstetricians and has a very high intervention rate in the form of caesarean sections. It would be fair to say that the doctor there is not as supportive of the midwife model. The midwives from there who feel more confident and maybe a bit fed up with the high intervention rate, have found this model is easier to work in, so we can have some of the 200 deliveries participate in our model. Thus we have enough work for the team to operate.

Initially, the midwives wanted to run caseload as well as an on-call roster, which extended the nominated care by the midwife into labour, but trying to operate this as well as the on-call roster was not feasible. Therefore, when a woman comes into labour it is the midwife on-call who comes in. This is essential to managing workload when labours may go beyond a 12-hour duration and require a change of midwives. The other necessity is that we have five midwives fulfilling a 2.4FTE roster. If we did not have the part-timers, we would not be able to sustain the model.

The model was opposed by the Australian Nursing Federation initially. I believe now the midwives have a 30 per cent pay loading to recognise the on-call component. For each pay period, they are paid a fixed salary, but keep a record of their hours. Every ten weeks the calculations are done about overtime or undertime and pay adjustments are made – I don't believe there has ever been undertime.

Summary

Over the 22 years, our maternity service has adapted and developed in response to a constantly changing environment. At each stage, the providers have sat down and worked out appropriate solutions to keep the service running. At times, various ideologies have threatened the service, but out of mutual respect for each other and the trust of a long-term relationship between the team members, we have been able to continue to provide high-quality services for the women in our area and beyond.

I am constantly surprised about the number of people who come to look at our 'model', or ask us to present our 'model' at a conference, as if it is something new and wonderful. I don't see that we have done anything beyond focusing on the needs of the women and developing a mutually respectful relationship between care providers. People have come and looked at our model over the years but I do not know that any have implemented it, because it is usually either the midwives or the doctors who have looked. Without the trusted relationship, nothing will change. I have observed from afar the constant slinging match on the big stage that seems to occur between the radicals on both sides, which alienates everybody.

I believe nothing will change without both doctors (specialists and GPs) and midwives getting together and jointly developing strategies to chart our way forward for the continued provision of maternity services across both metropolitan and rural Australia. Once this has been done, then the role of government must be to adequately resource this so that the potshot nature of closing down of services by State bureaucrats is halted. While the purse strings rule, there will be disjointed and diminished services to Australian women.

Accessing obstetric care in remote locations in WA

Dr Barney McCallum
FRANZCOG

Here, in Kalgoorlie, Western Australia, we have a population of 30,000 that is surrounded by a vast area with only a few small towns, generally 200 to 400 kilometres away, but there are sites that are much more remote and these present problems. Firstly, the problems of information and support; secondly, transport; and, thirdly, when to leave home for delivery.

Most requests for information are directed to the nursing staff in remote clinics and they are the mainstay of advice. If there is any doubt, the nursing staff will ring in for advice. From time to time, the region has also been blessed with doctors who have become disillusioned with city life and 'go bush'. These doctors, with nursing staff, travel from clinic to clinic and readily help, treat or ask for help. The Royal Flying Doctor Service (RFDS) also provides clinics to remote areas. RFDS staff also ask for advice.

The usual problems of pregnancy are ever-present. Blood pressure is always a concern, but as monitors have become readily available and cheap, anyone with suspected high blood pressure is advised to purchase a monitor and update results to the clinic or RFDS. In several cases, blood pressure has been managed from a distance of 600 kilometres away. Likewise, urinary test strips are available and can be obtained. These have been used and similarly reported. Diabetes is also managed in the same way.

The RFDS medical box deserves a mention on its own, as all outposts and stations have such a box. Instructions on how and when to use the medications are available on the regular RFDS radio schedules or on direct calls in emergencies.

Perhaps the most significant form of information spread is the 'mulga wire', also known as the bush telegraph. Among distant communities, word of pregnancy spreads quickly, whether hoped for, or not. With the mulga wire, local support from neighbours as far away as 200 kilometres always seems available. In the remote Aboriginal communities, the elder women have always been the mainstay of advice and actively promote medical care as they remember when it was not available.

Of course this has been supplemented recently by the internet, but as anyone who works with people can tell you, the old wives' tales have greater relevance than something written anonymously on the internet.

When I arrived in Kalgoorlie, the Country Women's Association of Australia (CWAA) was of considerable assistance, as this organisation had a presence in most towns and, more importantly, accommodation in most centres for the use of members and others at modest rates. However, the images of pumpkin scones and crocheted doilies have not attracted new members. In mining areas, the increase of 'fly-in, fly-out' personnel has also dramatically reduced the number of women in the bush and the CWAA has fallen on hard times because membership has decreased. Teachers and the police have also been essential to providing a comprehensive medical service to this sparsely populated area. They are familiar with the families – their potential problems and accidents – and have been relied on by many local people for their knowledge and, when uncertain, they too have rung us for advice.

The rural doctor is also an amazing source of information and help. The doctors who go to these remote areas are 'stand alone' units and use many skills. They are erudite and many have a small degree of madness. Why else would one go bush? However, they have been lifesavers by examining and describing unusual or difficult patients, and have shown patience if a specialist's answer is not immediately forthcoming. For example, a doctor rang to say that on completion of a caesarean section that 'it didn't seem right'. He wanted to know what had gone wrong. As mother and baby were fine, the only problem I could imagine was in the closure. Later, I suggested he put the largest Hegar dilator into the uterus via the vagina and take a lateral x-ray. This showed the dilator anterior to the body of the uterus. So a few days later this was corrected by approximating the correct edges of the lower segment.

'There is no doubt that anyone who lives in a remote area has an innate ability to cope and adapt.'

The overriding principle of dealing with various staff that go bush is of course to support them. If they don't know what's happening to the patient, then that patient needs to be seen and soon, so that the uncertainty is contained and stresses to these staff removed or at least relocated. It has been of great interest in situations like this to be trying to find a patient only to be told they have gone and it could be to Ceduna, Port Augusta, Alice Springs, Geraldton, Perth, or as the bush poet said, 'We don't know where he are'.

At the end of the day, everyone in rural and remote locations is a source of help. One such case was the manager of the Nullabor motel, who radioed the RFDS to say a Lebanese passenger on a bus trip had presented with an ectopic pregnancy. Keeping the line open, the RFDS manager in Perth rang me and, in a three-way relay of information, I asked if the woman in question had a shock of white hair and Louis Vuitton luggage. The surprised manager answered in the affirmative. I then requested that this person continue her journey across Australia, but by the time the connections had been made the bus had departed. Hours later she turned up in our emergency department, but departed with her luggage, as soon as she had recognised both the general surgeon and myself. We had both been conned by this pethidine addict previously.

On arriving in Kalgoorlie, I was surprised to find that all pregnant women were moved to a larger centre at 35 to 36 weeks. For many of the patients, this was difficult not only because of their young

family and finding inexpensive accommodation in a busy town (no children, no pets), but also many complained of the physical separation from their partner and loss of support. There were also anxieties about the husband and what he was 'up to'. Another anxiety was related to dangers to a husband in the mining industry.

Initially, I tried to convince clinics to hold on to patients until at least 38 weeks or, if the cervix was favourable, to come in for induction and then return home, taking about a week for the round trip. This of course depended on the confidence of the doctors, nurses and RFDS. Being usually on call helped in that there was a continuity of information and this helped to keep track of problems or the unusual patient. However, as often happens, not all plans succeed. For example, a midwife from a very remote location rang concerned about a breech in labour. The RFDS was to return this patient to Kalgoorlie for delivery. After waiting up all night, I was informed that the wind was in the wrong direction so she had been flown on to Alice Springs. Years later, I found out the pilot's girlfriend lived in Alice Springs and this was probably more influential than the direction of the wind.

The idea that 36 weeks was the critical time to leave was frustrating and the only basis I could find for this was simply the commercial airlines' ban on flights after 36 weeks pregnancy. As far as I can tell, this seems to have been the problem of birthing on the trans-Atlantic flight. Some interesting dilemmas must have arisen: place of birth, time of birth and birth attendants. Presumably, the ban was to reduce the number of such awkward deliveries and the associated paperwork problems.

However, medical myths take on a life of their own. On enquiry, I was told it was unsafe to fly after 36 weeks. As the RFDS is our guardian angel, and it was unsafe to fly, the locals deduced that travelling by any means was in itself unsafe. To correct this myth I tried to find where it was written. Neither the Health Department, nor the relevant Shires had such a policy, and eventually I was informed that the Mining Act was the authoritative source. However, research failed to find any such advice. Eventually, it was found on the doctor's desk in Leinster: a handwritten list of do's and don'ts that someone had written anonymously. This had been handed down from doctor to doctor, like some medical heirloom. As most doctors were short-term locums, few were prepared to question 'the myth'.

There are of course cases which are remembered for the spectacular failure of the system to provide care or for those who choose not to have care. One such case was a 40-year-old who wanted to have a homebirth on land she and her partner had declared as an independent province of Australia. They wanted the child to be the first-born resident, thus having a land rights claim. After being in labour for three days with no outcome, she went to the nursing post and was eventually transferred by the RFDS. After a further delay and augmented labour, she ultimately had a caesarean section and a healthy baby. Then there was chaos, as the patient demanded to be taken back, by air, to their 'true' home. Years later, I found out they did not want to be absent at any time in case the relevant government department reclaimed 'the province', which indeed happened some years later.

The RFDS provides an overall mantle of care to the region and abuse of this system is fortunately rare. However, a trip in the region is for some people sheer boredom. On the Nullabor train at Cook Station, a woman presented with severe pains in early pregnancy. An ectopic pregnancy was considered the likely diagnosis and the RFDS transported the patient to Kalgoorlie. On examination, the woman let it slip that she was so sick of the trip she had invented the symptoms so she could be flown on to Perth. She was certain that no local facilities existed to easily diagnose an ectopic pregnancy. While a vaginal scan was in progress, the Indian Pacific train was heard pulling into the main station. The scan confirmed an intrauterine pregnancy. A taxi voucher was quickly obtained to put the person back on the same train and seat she had left six hours before, 'to enjoy' the remaining ten hours to Perth.

Every so often there are moments of great delight in dealing with long-distance problems. One such moment of interest was to be taken 400 kilometres to see an anaesthetised patient who had continued to bleed after a caesarean section. I was transported by the RFDS with some blood and platelets. As I walked into the theatre there was applause from the theatre staff, as they had been waiting a couple of hours. A hysterectomy solved the problem much more quickly and safely than transporting a bleeding patient.

There is no doubt that anyone who lives in a remote area has an innate ability to cope and adapt. Perhaps the greatest challenge to providing services and information is to those who are just passing through, or more recently those in detention centres. There is also a group in 'bonded slavery' who have to go bush to satisfy visa or employment requirements. Among this group, of course, are the ever-present problems of cross-cultural and language difficulties. The range of cultures and languages we need to deal with seems to be increasing, but equally there are more resources, better communications, interpreter services and faster transport to deal with these complex situations.

Issues around delivery in severe preeclampsia

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Professor Jeffcoate's 1996 observation that 'The only certain means of cure… [for preeclampsia]…so far known is removal of the pregnancy' holds today.[1] However, achieving delivery in severe preeclampsia also puts a sick woman and her fetus through a stress test, irrespective of route, timing, analgesia or anaesthesia.

Blood pressure may rise with Valsalva manoeuvres during expulsive second stage of labour or during intubation for general anaesthesia. Myocardial work increases during labour and particularly in the hour after birth. Bleeding diatheses make neuraxial blockade hazardous and can increase postpartum blood loss. Pharyngeal oedema increases the difficulty of intubation.

Maternal death and 'near miss' in severe preeclampsia

Preeclampsia kills mothers, being within the top-three causes of maternal mortality in developed countries such as Australia and New Zealand. British and Dutch enquiries identified substandard care in 70 to 95 per cent of such cases.[2] There is therefore further scope to reduce maternal mortality where preeclampsia threatens life or organ function or contributes to the morbidity of associated placental abruption, disseminated intravascular coagulation or anaesthetic complications.

Life- or organ-threatening complications in preeclamptic toxaemia (PET) include eclampsia; cortical blindness; stroke; massive transfusion; inotrope requirement; myocardial infarction; temporary or permanent renal replacement; hepatic rupture; failure or haematoma; or intensive care respiratory support. Such severe morbidity occurs about ten to 100-fold more commonly than death: compare US late 20th century case fatality for preeclampsia/eclampsia of 6.4/10,000[3] with early 21st century Canadian data on severe complications in preeclampsia/eclampsia of up to 5.1 per cent.[4]

Principals of peripartum management of severe preeclampsia

The principals of avoiding maternal death and near-death events include the following:

Recognise severe preeclampsia

- Expect the unexpected in that even mild PET may fulminate.[5]
- Do not be lulled into a false sense of security if treatments such as $MgSO_4$, anti-hypertensives and/or steroids appear to have stabilised the condition. Remember that the placental abnormality has been present from first trimester and the maternal response abnormality may also have been present soon after abnormal placentation.[2,6]
- Recognise any organ dysfunction[2] but pay special attention to:
  - SBP of 160 mmHg or higher:
    - This is lower than previously popular reportable limit 170 mmHg but is based on robust associations with maternal risk.[2,5,7]
  - Early gestation:
    - especially less than 32 weeks which confers a 20-fold increase in maternal mortality, let alone perinatal mortality.[3]
  - Maternal symptoms
    - the patient may tell us more than her test results.[2,8]

Stabilise and deliver

- Stabilise blood pressure
  - Aim to reduce blood pressure to 140-150/90-100 mmHg at a rate of 10-20 mmHg every ten to 20 minutes[7]:
    - avoiding excessive systolic hypertension
    - avoiding excess diastolic hypertension
    - avoiding precipitate fall in blood pressure.
  - Usually parenteral agents are required peripartum due to unreliable enteral absorption of medication. Choices include:
    - IV hydralazine as bolus and/or infusion
    - IV labetalol as bolus and/or infusion
    - IV mini-dose diazoxide.[9]
- Manage fluids
  - Both acute pulmonary oedema (APO) and pre-renal renal failure may occur, but APO has greater lethality.
- Prevent and treat eclampsia
  - 85 to 90 per cent of eclampsia occurs within 48 hours of birth
    - ten to 15 per cent occurs later than this (but is not the subject of this review)
  - $MgSO_4$ has best evidence of efficacy and safety for both treatment and prevention of eclampsia[10-14]
  - $MgSO_4$ may act by some, all or other mechanisms than the following six postulated below:
    - vasodilatation of the cerebral vasculature
    - inhibition of platelet aggregation
    - protection of endothelial cells from damage by free radicals
    - prevention of Ca^{2+} entry into ischaemic cells
    - decreasing the release of acetylcholine at motor end plates within the neuromuscular junction
    - a competitive antagonist to the glutamate N-methyl-D-aspartate receptor (which is epileptogenic).

Optimise team work

To stabilise and deliver requires a team of people, not just the erudite individual reading this article. Optimal management of PET requires multidisciplinary care: obstetric, midwifery, anaesthetic, pathology and paediatrics. Team members will have varying levels

of experience, academic aptitude and personality-based responses when facing an emergency such as preeclampsia. Clinical practice guidelines and drills can improve team work in maternity care. 'Enquiries into suboptimal outcomes have identified common errors: confusion in roles and responsibilities, lack of cross-monitoring, failure to prioritise and perform clinical tasks in a structured coordinated manner, poor communication and lack of organisational support. As a consequence, there has been a shift away from individual responsibility towards improved team working'.[15]

Clinical practice guidelines

Precise yet comprehensive clinical practice guidelines accessible to all members of the team appear to improve patient safety in preeclampsia.[2,4] It is reasonable to adapt published guidelines for local circumstances (for example, www.rcog.org.uk/files/rcog-corp/uploaded-files/GT10aManagementPreeclampsia2006.pdf or www.anzca.edu.au/fellows/sig/obstetric-anaesthesia-sig/obstetric-anaesthesia-scientific-evidence).

An intellectually vibrant, articulate, dextrous, charismatic consultant obstetrician will reliably extract optimal performance from his or her team of junior obstetric staff, midwifery, anaesthetic or pathology staff, the patient and her family, thereby saving mother and baby from death and disaster and earning at least one box of chocolates, if not a standing ovation and request for an encore. He or she does not need a clinical practice guideline to cramp their (operatic) style. The rest of us, though, are helped by a clinical practice guideline so everyone is singing from the same songsheet. With a good clinical practice guideline, even a day-one graduate midwife or day-one resident doctor can reliably identify a new case of preeclampsia, obtain intravenous access, order reasonably appropriate blood and urine tests, commence a cardiotocogram and notify senior obstetric and anaesthetic staff. This will happen most of the time irrespective of whether or not the less-than-charismatic obstetrician is giving the case the full attention of a teaching ward round, is asleep in bed or occupied elsewhere.

Drills

Drills appear to improve patient outcomes in many obstetric emergencies.[16] Eclampsia is particularly suitable for hospital-based, multidisciplinary drills:

- Eclamspia is rare and frightening, so the safety of drills is usually welcomed by doctors and midwives.
- A readily measurable outcome such as time to administer a loading dose of $MgSO_4$ tests team efficiency. Teams that are efficient in delivering $MgSO_4$ in simulated eclampsia often perform other tasks effectively, for example, safe patient positioning and administering supplemental oxygen.[17]
- A simulated eclamptic case does not need expensive or high-fidelity models. Any amateur actor, including many doctors and midwives, can simulate seizure, unconsciousness and postictal uncooperativeness. The latter part may provide humour and/or psychotherapy.
- Research confirms that hospital staff actually get more out of content-appropriate team exercises, such as an eclampsia drill than 'team-building' exercises that may seem out of context, unduly theoretical or resembling pop-psychology.[15,17,18]

How to deliver

Elective delivery is either induction of labour or elective caesarean. The choice is determined by many considerations including fetal presentation; predicted fetal tolerance for labour; likely time to delivery versus anticipated rate of clinical deterioration; anticipated family size; possible future childbearing issues; and patient preference. Advancing gestational age and confidence in fetal health usually allows a trial of labour, but vaginal delivery can sometimes be achieved safely at premature gestation too.

Elective epidural helps stabilise blood pressure and allows anaesthesia if assisted delivery is required. Instrumental delivery is appropriate to shorten the second stage if maternal blood pressure rises dangerously with expulsive efforts.

When to deliver

The management choices for severe preeclampsia at extreme preterm gestations (for example, under 25 weeks) are:

- Expectant management anticipating greater fetal maturation while vigilantly watching for maternal deterioration. Realistically one to three weeks extra gestation might be obtained (sometimes less, rarely more), but severe maternal morbidity or even mortality may occur in one quarter to three quarters.[19,20]
- Interrupting the pregnancy with the least traumatic birth for the fetus, usually by caesarean section (likely to be upper segment) following betamethasone for fetal lung maturation.

- Interrupting the pregnancy with the least traumatic birth for the mother, usually by misoprostol induction of labour.[20]

Decisions around delivery at borderline viability are best discussed in a multidisciplinary meeting, considering both fetal and maternal issues. Fetal prognosis is affected by gestational age, fetal weight and any other complicating factors such as fetal compromise, multiple pregnancy or known fetal anomalies. Maternal issues include current health and likelihood of deterioration in the absence of delivery, as well as possible future childbearing. The views of the pregnant woman and her family, obstetrician and neonatologist need to be taken into account, along with resource availability and any local legal and ethical constraints.

From 26 weeks, or sometimes earlier, fetal interests become weighted similar to maternal interests: misoprostol is not usually used unless there are lethal anomalies such as trisomy 13. Betamethasone reduces hyaline membrane disease, intraventricular haemorrhage and necrotising enterocolitis at less than 34 weeks.[24] $MgSO_4$ benefits the fetus as well as the mother by lowering the incidence of neurodevelopmental delay, especially of infants born at less than 32 weeks.[25] Lower, rather than upper segment caesarean section becomes more achievable with advancing gestation. Expectant management may improve perinatal outlook considerably and slightly increase the chance of vaginal birth, but extreme care must be taken not to risk maternal health with this approach.[19,20] Beyond 34 or more completed weeks, severe PET usually justifies delivery.[20]

After 37 weeks pregnancy, pregnancy induced hypertension or mild PET warrants prompt induction of labour to avoid the development of severe PET.[21] A randomised controlled trial of induction versus expectant management showed greatest benefit of induction for women with an unfavourable cervix.[21] This surprising result likely reflects the relatively slow rate of spontaneous cervical ripening and labour compared with the faster rate of disease progression to severe hypertension. Reassuringly, liberal induction for mild PET did not contribute to the simplistically termed 'cascade of intervention': the caesarean section rate was the same or lower and the unassisted vaginal birth rate the same or higher for women who were randomised to early induction compared women randomised to expectant management.[21]

Psycho-social issues after delivery

The impact of severe PET on psychosocial well-being should not be underestimated.

The volunteer-run Australian Action on Pre-Eclampsia (AAPEC) group was founded in 1993 by two mothers grieving the death of their babies due to preeclampsia. Their website (www.aapec.org.au/stories/index.php) contains numerous patient stories confirming that the emotional impact of preeclampsia can be huge. Postnatal depression (PND), judged by informal self-report, was at least as common as the background population (15 per cent) for women who participated in the Magpie Trial in low perinatal mortality countries similar to Australia and New Zealand.[22] In contrast, a Dutch study found that preeclampsia conferred a two to three-fold increase risk for PND.[23] The possibility of post-traumatic stress disorder is real.

The obstetrician can help with debriefing and by helping a woman understand the nature or preeclampsia and give reasonable advice about future pregnancies.

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How accurate is our assessment of labour?

Is there a place for the partogram or other instruments in the 21st century?

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It seems the assessment of the onset of labour has always been difficult for the observer. Mothers will often report to their clinicians after the event that 'labour lasted several days'.

We often take this description with a grain of salt and reflect that, although the endpoint is a moment in time, the clinical starting point for labour can be a hard call. Hence a mother's assessment as the commencement of pain remains a challenge to our clinical judgment and perhaps our compassion too.

Scientific and clinical judgment combine to call a start to labour with a notion of progressive cervical dilatation and the onset of regular, painful uterine contractions; some would add descent of the presenting part. It still leaves us with a diagnosis made over time – a dynamic not a spot diagnosis – at least in many cases. Through history, there have been many innovations and methods to help decide when labour starts, however, the field is still wide open for continued searching for certainty. The pressure for certainty of labour onset comes from a need to measure the effectiveness of various innovations to improve pregnancy outcome and perhaps less from pure scientific inquiry.

Donaldson, working at the City of London Maternity Hospital in 1972, wrote:

> *'The lack of progress of measurement in normal labour contrasts with development in other specialties. There is a case for more exact measurement of frequency and strength of uterine contractions and of dilatation of the cervix and, for this purpose, there is a need for new techniques and approaches, including development of electrical tracings and a plastic cup for obtaining information from the cervix'.*[1]

This was the time of the accoucheur-mechanic and the march was on to develop such instruments as intrauterine transducers, intrapartum cervical dilators and mechanical, electronic and ultrasound cervimetric devices. The epidural block moved into obstetric parlance and use (obstetric registrars were taught the technique at Crown Street Women's Hospital, Sydney), thus more readily allowing application of these devices, which were often as ungainly as they were painful. Almost 20 years before, Drew Smythe and Harvey Carey may have managed extraordinarily uncomfortable procedures, but epidurals made intrapartum manipulations more routine in the 1970s. In the US in 1963, researchers wrote of transabdominal insertion of intrauterine transducers[2] and by the early 70s Townsend and Francis in the UK had advanced development to a solid-state transducer that was introduced via a plastic, Drew Smythe-like catheter through the cervix after rupturing membranes for induction. An intravenous infusion of oxytocin was commenced and the rate of infusion directed by the intrauterine pressure and contraction frequency as recorded by the transducer. Thus there developed a potential and actual closed system, with the unfortunate midwife as an onlooker and machine operator in the quest for uterine efficiency and reduction of perinatal morbidity and mortality. This was the way in 1975, in many UK hospitals, when primipara were induced on the dot of 38 weeks if they had shown any BP readings over 120/80. 24-hour induced labour abounded but the caesarean section rate was kept to seven per cent by 'efficient' acceleration of the oxytocin infusion – safety being guarded by the addition of a scalp electrode – now John Cleese and Monty Python were truly ascendant.

As recently as January 2010, an article from Amsterdam in the *New England Journal of Medicine* suggests that expectations for the superiority of internal over external tocometry may be overstated when it concludes that:

> *'Internal tocodynamometry during induced or augmented labour, as compared with external monitoring, did not significantly reduce the rate of operative deliveries or of adverse neonatal outcomes.'*[3]

Yet still, there was an instrument-in-waiting. In 1976, Richardson *et al* wrote of the development of an instrument for monitoring dilatation of the cervix during labour. It literally had bulldog clips, being described as 'non-traumatic, accurate and easy to apply'. With this instrument, it was found that 'the cervix opens in an oscillatory manner dictated by the strength and period of uterine contractions'.[4]

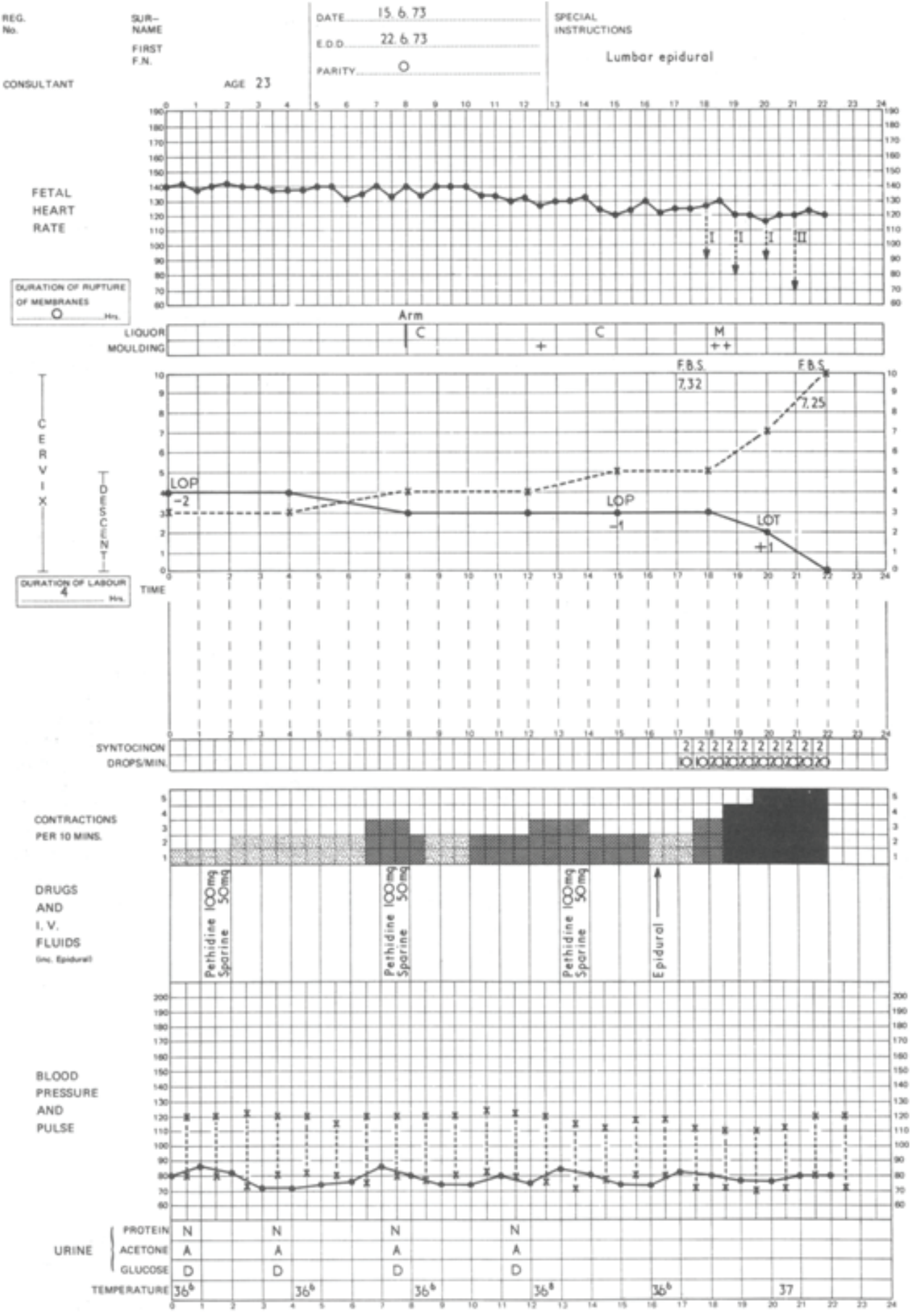
Similar instruments formed the basis of the early ultrasound methods also; they relied on:

> *'...two piezoelectric crystals attached on the uterine cervix. A small spring-loaded clip allowed each crystal to be fixed on the rim of the cervical os. Clinical accuracy was +/- 0.6 cm. When the ultrasound recording of cervical dilatation is compared to the intrauterine pressure curve, it is characterised by a baseline and wave-shape curve of dilatation (DWP).'* [5]

By 1995, transperineal[6] ultrasound was said to be an appropriate tool for demonstrating progressive effacement and dilatation at the beginning of labour in term pregnancies. Sonography of the cervix

Text continued on page 37

Figure 1. Partogram showing annotation of events in patient with prolonged labour. (From Studd, op. cit.)



in early labour, before during and after a uterine contraction was described[7], by Saito *et al* at the University of Tokyo, as an effective tool for assessment in early labour. They concluded that they could differentiate between inefficient and normal uterine contractions and thus predict the subsequent course of labour. Using transvaginal sonography, Swedish researchers Strobel *et al* showed that, in prolonged pregnancy, the Bishop score and sonographic assessment of cervical length had similar ability in predicting time to the onset of labour and delivery. Use of both together is likely to have a synergistic effect.[8]

In 1954, Friedman developed a graphical representation of cervical dilatation and fetal station against hours from the onset of labour. A typical sigmoid-shaped curve defined the limits of what was considered normal time-related cervical dilatation and an hyperbolic curve described fetal station over time. Eighteen years later, Philpott, in then Rhodesia, brought the alert and action lines – the latter four hours to the right of the former and both sloped at 1 cm of dilatation per hour. Studd added stencils and commenced further clinical research into the partogram in the mothers of Birmingham, so that in 1975 he wrote:

> *'The partogram is a major advance in modern obstetrics, being appropriate for all labours. In our prospective study of spontaneous labour, the recognition of high-risk labour was aided by the routine use of the labour stencil for both primigravid and multigravid labours. Stimulation of labour solves far more problems than it creates, but it is essential that careful selection of patients should take place to prevent this major obstetric advance being abused and discredited.'* [9]

The Proceedings of the Royal Society of Medicine in 1972 were full of articles by such contemporary luminaries as Kieran O'Driscoll of the Rotunda, R H Philpott of the University of Rhodesia, J W W Studd of Birmingham Maternity Hospital, J M Beazley of Queen Charlotte's Maternity Hospital, R W Beard of King's College Hospital and C P Douglas of the Royal Free Hospital. These articles dealt with the use of the partogram in labour and the place of augmentation with oxytocin. Beazley argued that:

> *'Partograms of the Queen Charlotte's type facilitate:*
>
> 1. *Adequate anticipation of prolonged labour;*
> 2. *Standardisation of abnormalities in a reproducible manner; and*
> 3. *Distinctions between minimal risk and hazardous labours.*
>
> *They cost very little and improve obstetric management without disturbing normal labour ward routines.'*

Beard, accepting O'Driscoll's finding that oxytocin rendered even regular strong contractions more efficient, cautioned that it had been: '...clearly demonstrated that the mean pH of fetuses delivered after oxytocin-stimulated labour was significantly lower than that of fetuses delivered after spontaneous labour'.[10] He advised increased surveillance of these augmented labours.

Current research on instrumentation includes evaluation of cervical compliance. In 1989, Brundin and colleagues from the Karolinska Institute, Sweden, measured cervical tissue resistance with a strain guage and cervical dilators, recording resistance on a polygraph. They suggested peak resistance provided the most accurate measurement of human cervical resistance.[11] Alongside this physical appraisal, further research highlighted the biochemical changes in cervical tissue in pregnancy and towards term. Aubard, of the Service de Gynécologie-Obstétrique, CHU Limoges, wrote that the gravid cervix is strikingly less muscular than the rest of the uterus and that cervical connective tissue is largely collagen fibres and a matrix 'rich in proteoglycans'. He goes on to observe how the collagen fibres 'dissolve' shortly before labour and this 'maturation' is perhaps mediated through steroid hormones, prostaglandins and collagenases.[12]

In 2003, Frey wrote of 'real-time elastography'[13] and the sonographic techniques that might be enjoined to assess the alteration in 'tissue hardness' of the cervix. Initially seen as a method of cancer investigation in more superficial tissues, this modality is now being investigated for its potential to portray the changes in tissue resistance in the cervix towards term and in early labour. The basic physics of elastography is that tissue compression produces strain (displacement) in the tissue under evaluation and that the firmer the tissue, the less the strain. It is anticipated this may give early warning of the chance of less-than-adequate progress in labour and thus earlier intervention. Thomas[14] from the University of Berlin, has taken this idea forward, particularly in the search to define the at-risk group for premature delivery and in so doing, may well be outlining a simple ultrasound method (based on colours too!) to assess a starting point for labour and an early labour analysis of chances of vaginal delivery.

As well as its potential for assistance for early labour cervical assessment, ultrasound may have a place in assessing the progress of the descent of the fetus and in confirmation of the position of the head at end of first stage and during delivery – we have all delivered mothers of a baby in an unexpected occiput posterior position. Molina and Nicolaides write that digital examination of fetal head position prior to instrumental delivery has a high proportion of incorrect calls on the position.[15] Certainly, too, if you are still performing twin deliveries vaginally, ultrasound helps with position assessment of the second twin. (Halloway, personal communication!)

So shall we look to our patients' welfare and fulfillment for the final decision on the use of tools and instruments to help with labour assessment? Midwives are sometimes the recipients of our dissatisfaction when second stage ends up going for three or more hours, but what dysfunction might we be causing to their ability to care for their patients if we cause them to be the mechanics at delivery by introduction of unproven 'instruments of labour'. We should be ever alert to the evidence base – at least in this area!

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RANZCOG Honours and Awards

Call for Nominations for RANZCOG Honours and Awards

Closing Date 30 June 2011

College Fellows are invited to submit nominations for the awards of Honorary Fellowship, Distinguished Service Medal and Certificate of Meritorious Service for consideration of the RANZCOG Honours Committee and Council in July 2011.
Information on the categories of College awards is as follows.

1. Honorary Fellowship
   - 1.1 Medical practitioners, not already FRANZCOG, who have made an outstanding contribution to the study or practice of medicine in the field of women's health. In general this honour should be reserved for those who have not had their contribution otherwise recognised.
   - 1.2 Persons who are not medical practitioners who have made an outstanding contribution to the study or practice of medicine in the field of women's health. In general this honour should be reserved for those who have not had their contribution otherwise recognised.
   - 1.3 Fellows of overseas or other Medical Colleges.
   - 1.4 Persons who are not medical practitioners who have made an outstanding contribution to the work of the College.

   Honorary Fellowship is to be bestowed by Council on recommendation by the Honours Committee.
   Honorary Fellows are not required to pay a registration fee or annual subscription and are not required to undertake continuing professional development. They are entitled to receive College publications.
   Members or Associate Members of the College may be awarded Honorary Fellowship.
2. President's Medal
   This should generally be awarded once per Council term (unless the end of that term, but there may be more than one recipient under exceptional circumstances. It is awarded to Fellows of the College who have made an outstanding contribution to the work of the College. Nominations for this medal are made by the President. It is awarded by Council on recommendation by the President and Honours Committee.
3. Distinguished Service Medal
   This is awarded to Fellows of the College who have made a significant contribution to College work. This may be a more frequent award than the President's medal. It is awarded by Council on recommendation by the President and Honours Committee. Awarding of a Distinguished Service Medal does not preclude awarding of a President's medal at a later date.
4. Certificate of Meritorious Service
   This is awarded to persons other than Fellows of the College who have made a significant contribution to College work. It is awarded by Council on recommendation by the Honours Committee.

Process for Nomination

- Nominations for Honorary Fellowship, RANZCOG Distinguished Service Medal or RANZCOG Certificate of Meritorious Service must be made by a Fellow of the College, and submitted in writing to the President by 30 June 2011.
- Nominations must include full details of the reasons for the nomination and a curriculum vitae.
- Nominations must be seconded by a detailed letter of support from another Fellow of the College.
- Either the nominator or the seconder must be a Councillor or a Regional Committee Chairman.

For further information on the nomination and evaluation process, please contact Penelope Griffiths, Director, Corporate Services, ph: +61 3 9251 9830 or 9417 1699; fax: +61 3 9419 0672; email: pgriffiths@ranzcog.edu.au .

A practical approach to placental examination

Dr Jane Zuccollo
Dept Obstetrics and Gynaecology
Wellington School of Medicine

This practical guide to examination of the placenta is principally aimed at those practitioners who do not have immediate access to a laboratory that is able to deal with placentas on the day of delivery.

This guide includes an approach to examination of placentas from both liveborn and stillborn infants and is relevant to both the second and third trimesters. The Perinatal Society of Australia and New Zealand (PSANZ) guidelines for the investigation of perinatal death cover placental examination in detail.[1]

In a study of stillbirths at 23 to 40 weeks gestation, 12 per cent of causes of intrauterine fetal death (IUFD) were found in the fetus, and 88 per cent of causes were found in the placenta, cord and membranes.[2] There is a large body of literature that addresses both the importance of the placental contribution to poor pregnancy outcomes and also the poor rate and quality of placental examination. In one survey, the authors found that the hospital staff examined only one-third of the placentas that were recommended, using the College of American Pathologists practice guidelines.[3]

The optimum handling of the placenta following delivery is to send the fresh placenta and cord, with a detailed request form, to the laboratory. The pathologist performs macroscopic and microscopic examination, takes swabs for microbiology, sampling for genetics (if appropriate) and determines chorionicity in multiple pregnancies.[4] The pathology report that the lead maternity carer (LMC) receives, commonly reflects the quality of the clinical information provided on the request form. Most pathologists appreciate that many of the placentas that are sent for examination are delivered in the setting of clinical urgency regarding either the mother or baby, or both. This may, in part, explain the paucity of information on many request forms – the barest information being 'placenta'. In response, some laboratories have tailored a specific placental request form that has largely overcome this deficiency.

Many of the antenatally recognised complicated pregnancies are electively delivered in tertiary centres. Some of these centres have a perinatal pathology service and the clinicians may expect a gold-standard placental examination. Not all babies have read the 'birth plan' and many women with complicated pregnancies may labour precipitately or unexpectedly in centres remote from the anticipated site of delivery. Some babies are born unexpectedly 'flat' at term. When these and other adverse events happen, the immediate postpartum attention is with the mother and baby. However, it is important to recall that the placenta may hold the answer to the frequently asked questions: why did it happen and will it happen again?

Despatch to a pathologist

Placental examination guidelines recommend that the placenta and cord are sent fresh to the laboratory. If the site of delivery is remote from your nearest laboratory there are several options:

a. Speak to the laboratory/pathologist and ask for advice re: samples and method of packaging and despatch.

Table 1. Recommended indications for placental pathologial examination.

Maternal indications	
• Preeclampsia < 34 weeks	
• Chronic hypertension with intrauterine growth restriction	
• Placental abruption	
• Peripartum maternal sepsis	
• Severe maternal trauma (if baby in poor condition)	
• Malignancy during pregnancy	
Fetal indications	
• Stillbirth/neonatal death	
• Preterm < 34 weeks	
• Poor condition at birth	– cord blood pH < 7 – Apgar < 6 at 5' – ventilation > 10' – severe anaemia
• IUGR < 5th customised centile	
• NN infection/sepsis	
• NN seizures	
• Hydrops fetalis	
• Amniotic band disruption	
• Discordant growth of twins	
• Severe oligo/polyhydramnios	
Placental indications	
• Physical abnormality (infarct, mass, vascular thrombosis haemorrhage, malodorous, scar)	
• Small/large for weight of baby	
• Cord abnormalities – hypercoiling, thrombosis, torn fetal vessels	

b. The placenta can be placed in refrigerator and despatched the following day(s), if necessary. Do not place the placenta in saline. (This may confuse the laboratory staff into thinking the fluid is formalin and thus the specimen does not have to be examined immediately. Saline is not a fixative). The placenta will stay moist if placed in a sealed plastic bag. **Do not freeze – this produces extensive artefacts.**
c. If the above are not possible/practical, take microbiology swabs as per guidelines and sample for genetics and put placenta in formalin solution and despatch.
d. If the placenta is to be returned to the parents after examination, this should be included in the despatched paperwork.
e. In the case of a stillbirth that is for autopsy, the fresh placenta should accompany the baby to the mortuary.

There are a number of observations that the doctor or midwife can make at the time of delivery that may improve information gained. There may be findings that prompt a maternal or fetal investigation. After delivery, document the following:

1. Placental weight
2. Liquor details
3. Cord details
4. Maternal and fetal surfaces

Table 2. Liquor indicators.

Volume	Normal, excess, reduced/ absent
Colour	Normal, brown, green, or heavily blood stained

Note: Prolonged contact with meconium usually leads to opaque olive green discolouration of the membranes and cord (see Figure 1). Fresh meconium shortly before delivery usually does not stain the membranes significantly.

Heavily blood-stained liquor and a pale floppy baby may be the result of torn fetal vessels – this may occur in utero or intrapartum. Marginal and velamentous cord insertions are particularly vulnerable to trauma. If you are too remote to expect to send the placenta to a pathologist fresh, after you have done swabs and genetic samples (if indicated), gently wash the insertion site and examine the vessels. A significant traumatic defect in a vessel is usually not subtle.

Table 3. Umbilical cord indicators.

Insertion	Central, eccentric, marginal, velamentous
Length	
Coiling	Normal coiling is one twist/3 cm
Nuchal cord (see below)	
Colour	
Knot/s	Tight/loose

Note: Hypercoiling (also known as torsion) and undercoiling of the cord are associated with adverse pregnancy outcomes.[5] As a general rule, if the cord looks like a coiled telephone cord, it is hypercoiled (see Figure 2).
The **nuchal cord** is usually only seen by the people performing the delivery. Nuchal cords are common and most are of no significance.
Record the number of loops about the neck or other parts of the body. Also record if there was evidence of skin compression – either blanching or an obvious indentation on any part of the body. Was the cord looped over the shoulder and was it necessary to cut the cord to facilitate delivery? In these cicumstances, the length of the cord and coiling index should be recorded with this information.
In the event of a fetal death or poor condition at birth, this description may be the record that the pathologist, neonatologist or LMC returns to, to explain the poor outcome.

Table 4. Placental disc indicators.

Fetal Surface

Colour	Red, green, creamy white or cream nodules Integrity/disrupton

Note: Red discolouration is usually related to fresh blood staining. Green indicates meconium staining – if there is a bowel atresia it may be caused by fetal vomiting. Cream/yellow is usually due to choriomanionitis and the amnion may be friable.
Small white nodules of amnion nodosum may be seen on the amnion surface and are usually seen in association with severe prolonged oligohydramnios.
If there has been disruption of the amnion, there may appear to be short or long strands attached to the fetal surface – these are tough and different to normal amnion. he baby may show features of amniotic bands. If the fetus is stillborn, examine the umbilical cord for a constricting amniotic band.
A circumferential, slightly raised white/cream rim just inside the disc perimeter (placental extrachorialis) represents an historic organised marginal haemorrhage (see Figure 3). This is commonly complicated by premature rupture of the membranes.

Chorionic vessels	engorged 'empty' inconspicuous white and hard? thrombosed

Note: Very engorged vessels may reflect obstruction to flow in the umbilical cord. Look to see if there is an amnion web inserted along the cord at a variable distance from the fetal surface. This anchors the cord and may cause (intermittent) occlusion associated with fetal movement. You can demonstrate a potential for obstruction by twisting the cord 90 degrees or less (see Figure 4).

Figure 1.
Green membranes – prolonged contact with meconium. Vernix adherent to membranes IUD at term. IUGR and anhydramios.

Figure 2.
Hypercoiled cord.

Figure 3.
Placenta extrachorialis with severe choriamnionitis.

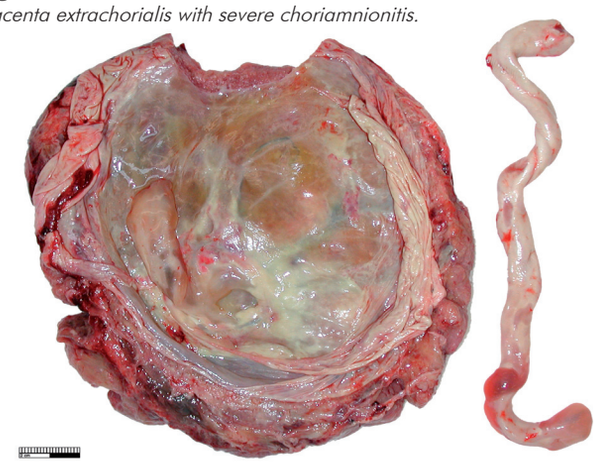


Figure 4.
Left: amnion web associated with chorionic vascular thrombosis. Right: small twist of cord appears to constrict cord.

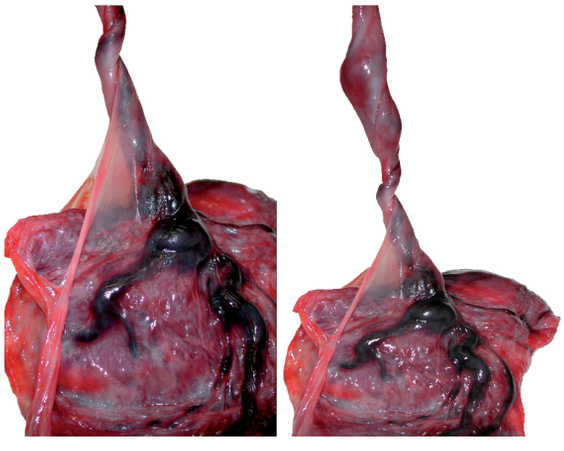
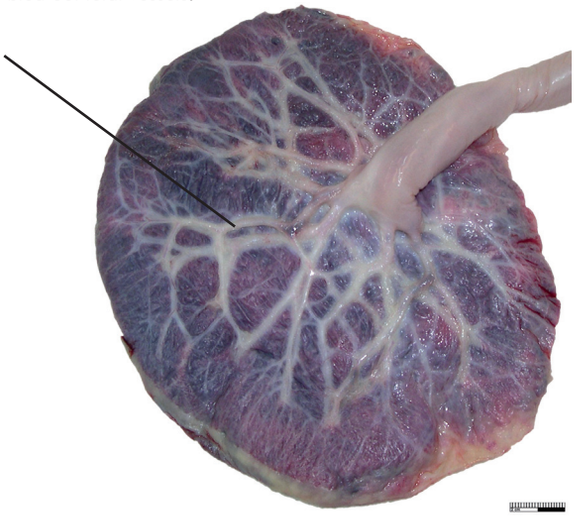


Figure 5.
Pale, bled out fetal vessels.



'Empty' fetal vessels (see Figure 5) (without significant hydrops) are seen most commonly in associated with acute exsanguination, as in a large fetomaternal haemorrhage; haemorrhage from a fetal vessel as already described; or haemorrhage in the fetus, most usually an intracranial haemorrhage. Do a Kleihauer-Betke test. Tell the laboratory that you are waiting for the result. If the result indicates that the fetus has bled at least 30 per cent of the blood volume into the maternal circulation, that is the most likely cause of the poor condition or stillbirth.

Table 4. Maternal surface indicators.

Retroplacental haemorrhage
Depression
Marginal haemorrhage
Diffuse or localised 'scarring'

Table 5. Indicators associated with the baby.

Weight
Clinical condition

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Intrapartum death
Do NOT omit to do a venous and arterial cord pH. Umbilical cord compression is often invoked in these deaths, but without the cord gases – in the absence of a discrete length of flattened cord – such an assumption will remain a guess.

An Indonesian experience

Dr Peter Scott
FRANZCOG

In October 2008, I received an invitation from Peter Riddell, an Adelaide surgeon, to join him on one of his regular clinical trips, as part of the Flinders Overseas Health Group (FOHG), to Kefamenanu, West Timor, in Eastern Indonesia.

Kefamenanu

Despite my ignorance about Indonesia, and especially about this eastern part, my 'yes' to Peter was instant and heartfelt, as this felt like something I'd always wanted to do.

Actually getting to 'Kefa' was an adventure in itself, with a flight from Darwin to Dili, then six hours being lifted off the seat by deafening 'duff-duff' music in the bus to the Indonesian border. We were met at the border by a deputation from Kefa, including Sister Yacinta, a Catholic nun, a marvellous larger-than-life character, 'minder', interpreter, pastoral carer, sometimes giver of medical advice and the impetus behind our efforts.

Kefa is a medium-sized town in the centre of the island of Timor, closer to Darwin than to Djakarta, 97 per cent Catholic, and certainly a world away from Bali, tourists, terrorists and the rest of my preconceptions about Indonesia.

What I found when I arrived was an ordered and engaging culture, smiling children immaculately dressed for school despite there being no running water. This was no war zone nor refugee camp, and yet, particularly in the hospital, the poverty and lack of facilities were obvious and disturbing. The hospital was in some ways how hospitals in Australia might have been decades ago. The 'laboratorium' could do blood counts and malaria smears only, and medical imaging consisted of simple 'ronsens', that is, plain x-rays, and a small portable ultrasound machine.

The ward round on day one in Kefa was like stepping into a 'live-in-colour' version of my old Hamilton Bailey's *Textbook of Surgery*, with incredible, exotic and advanced pathology, but with it all a stoical, even humorous, acceptance. I was most moved by the children's ward, where these gorgeous children giggled and smiled despite awful afflictions that are basically unheard of in white Australia.

Eventually, the ward round took us to the maternity unit, with cement floors and discoloured, white tiled walls. The labour ward consisted of two narrow beds with no linen, separated by a flimsy curtain. A defunct cardiotocography (CTG) machine sat gathering dust in one corner.

Birth in Kefa is a pretty low-key event. The same simple acceptance of pain and suffering seems to apply to childbirth…a quiet groaning process with minimal analgesia and the ever-present risk of life-threatening complications.

My first patient in the maternity unit was introduced as being 35 weeks in her fourth pregnancy, contracting and bleeding. Using the little old portable ultrasound machine, I was able to diagnose a grade four placenta praevia. The big decision here was whether to do the caesarean that afternoon with the one bag of blood available, or to wait for the possibility that tomorrow a willing relative might be found to supply us with one more! Fortunately, the operation was uneventful and a tubal ligation was done at the same time.

Because of the input from FOHG over the last 15 years, the caesareans I did in Kefa were with Vicryl sutures, under an epidural administered by skilled local nurse anaesthetists, guided by an Australian anaesthetist. When I worked later in Ende on the nearby island of Flores, the sutures were catgut dispensed from a container on the Mayo tray and threaded through a (large) bare needle, with ketamine as anaesthesia; a more typical Indonesian scenario.

The next patient was a primipara at 38 weeks who presented with no fetal movements and an intrauterine fetal death. The baby was delivered later that day after an induction of labour. I saw her the next day quietly grieving for the baby with other members of her family. The input from family is essential, as they bring in food and linen, and attend to basic care of the woman.

A couple of days later I was called down to a primipara who was pushing out a breech. It was a great opportunity for some 'hands-off' teaching re breech delivery.

During the visit, I also did some consultations, sometimes in three languages, seeing a wide variety of O and G cases. Among these were some sad cases of long-standing infertility, for which I was able to offer very little. Others just wanted the novelty of a pregnancy ultrasound. One woman had a complete proccidentia and was booked for surgery a couple of days later.

People were effusively grateful for whatever we were able to offer, despite sometimes waiting more than a day for the consult…yet another stark contrast to some of my Canberra clientele!

On the ward were several cachectic young women with abdominal masses. In this setting – no CT scanner, no friendly gynae-oncologist – the main decision is whether there may be some benefit in a laparotomy, or to let them die without the added trauma of an operation. One of these women, aged 26, died on the four-bed ward surrounded by her family, and by the families of the other three patients. Death, sadly, is a more common and obvious event than in our environment in Australia. Again, while no less tragic, there seems to be an acceptance of suffering and death as a part of life.

One 14-year-old girl had pain and a complex mass on the ultrasound, found at laparotomy to be endometriosis of the fallopian tube.

My week in Kefa was one of the most memorable of my life and fortunately, the opportunity to go back to Indonesia came up very soon afterwards.

Ende

The FOGH had obtained a grant from AusAID to deliver teaching to midwives in the town of Ende, on the nearby island of Flores. This was part of an overall effort to reduce maternal mortality in eastern Indonesia, one of the United Nation's Millenium Development Goals. As a result, I was able to slot in with this program and had five more week-long trips during 2009.

It's an incredible fact that, worldwide, 500,000 women die each

Cannulation practice, we emphasised the value of large bore cannulae.

Bimanual compression: a life-saving manoeuvre.

year in childbirth – one a minute – many because of a lack of basic facilities. Imagine if every year a tsunami or other natural disaster killed this many otherwise healthy people! This has recently been recognised by the United Nations as a human rights issue.

Maternal mortality in Eastern Indonesia is officially about 450/100,000 (Australia 9/100,000), but is probably much higher due to under-reporting. One of the identified problems is lack of skilled support at many births. The midwives have three years of training and many are then sent to outlying health centres, often many hours from Ende, and even in the base hospital, facilities are rudimentary.

Our program comprised of two days of 'teach-the-teacher' training to four selected local clinical leaders, delivered by academics from the clinical training school at Flinders University, followed by three days of 'hands-on' training to 20 practising midwives. One of the gratifying aspects of the program was the alacrity with which these four local leaders (three midwives and one doctor) took up the training and were able to pass it on to the other midwives with skill and sympathy.

The topics covered included management of postpartum haemorrhage (the cause of 40 per cent of maternal mortality), neonatal resuscitation, adult resuscitation and management of eclampsia, shoulder dystocia, breech and twin delivery. We tried to keep the theory as brief as possible so as to concentrate on practical skills and were able to take over simple PowerPoint presentations, translated by two Indonesian doctors living in Canberra.

A great deal of money and effort is being invested in improving maternal health in this region. My feeling was that in applying this very 'hands-on' approach, we were making use, in this resource-poor environment, of the one resource that is available: intelligent, enthusiastic people, and empowering them to make a difference, despite the lack of facilities.

One senior midwife said that, in over 20 years, it was the best training she had received.

The project had a bit of a 'life of its own' and many people were keen to help. Our neonatologist, for example, was able to give me 20 used neonatal resuscitation bags. Some of the midwives had been delivering babies in health centres with no resuscitation equipment at all.

The boss: Sister Yacinta.

We are planning to distill this Ende experience into a module of practical emergency training for midwives, which would be applicable throughout Indonesia. Again, we would hope to include a 'train-the-trainer' element to make this a sustainable and self-replicating project.

Despite, or perhaps because of, the obstacles of language and culture, the poverty and the awful lack of infrastructure, my time so far in Indonesia has been a marvellous and life-changing experience for me. It has deepened my sense of myself as a doctor, and the privilege that this brings, giving me unique access to another culture and the ability to reach across barriers and experience a common humanity. I feel deeply grateful to have had this opportunity and am returning to Kefa in November 2010 to do further clinical work and teaching.

RANZCOG RESEARCH FOUNDATION

Membership of the Foundation

Membership of the RANZCOG Research Foundation is open to all members of the Royal Australian and New Zealand College of Obstetricians and Gynaecologists and to all others with an interest in the aims and objectives of the Foundation.

By joining the RANZCOG Research Foundation you are directly contributing to the internationally recognised research conducted in Australia and New Zealand.

Membership of the RANZCOG Research Foundation is free to all RANZCOG Fellows residing in Australia or New Zealand. Fellows wishing to accept membership of the Foundation should advise the RANZCOG Research Foundation Coordinator in writing.

RANZCOG trainees, clinical researchers and other interested individuals are warmly welcomed. Membership fees are tax deductible.

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The RANZCOG Research Foundation supports research in the fields of obstetrics, gynaecology, women's health and the reproductive sciences through the awarding of various scholarships, fellowships and grants.

The RANZCOG Research Foundation works closely with the RANZCOG Board, Council and College Committees to further the needs for research and research training in the broad fields of obstetrics, gynaecology, women's health and the reproductive sciences.

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The Foundation proudly supports promising young Fellows, clinical researchers and scientists undertaking high quality, innovative research and research training at an early stage in their career.

Scholars supported by the RANZCOG Research Foundation have a strong record of subsequent achievement in research and in academic careers in Australia and overseas.

Grants and Scholarships

Each year, approximately $120,000 is disbursed helping to support early career researchers in their work.

The Foundation continues to expand its program of grants, scholarships and other awards. Recent initiatives include Collaborative Bachelor of Medical Science Research Scholarships, Project Grants to assist RANZCOG trainees in undertaking their research project and the *Mary Elizabeth Courier Research Scholarship*, introduced following a bequest to the Foundation by her late husband, Australian lithographic artist, Jack Courier.

Further Information

Further information about the work of the Foundation is available on the website at: www.ranzcog.edu.au/research

Any questions should be directed to the RANZCOG Research Foundation Coordinator:

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Maternal health in Colombia

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I came to Australia from Colombia several years ago to continue my training in obstetrics and gynaecology. Like Australia, Colombia's shores are lapped by the Pacific ocean. The country is one of contrasts, dominated by the northern extent of the Andes mountain range.

Our population is about twice that of Australia and the total economy is now the fourth largest in South America. Like Australians, Colombians are very friendly and enjoy a beer in the hot weather.

Though there are many similarities, Australia and Colombia are also very different in important respects. Colombia is a country where regular antenatal visits are often a luxury of only a few, and where medical attention by a specialist is restricted almost to those within a few kilometres of a large city. This will obviously have profound implications in the everyday decision-making processes for health professionals.

Non-urban Colombia is an environment where the lack of a well-organised health system, combined with difficulties in accessing education for many women and a strong preference for traditional medicine, severely limits the choices many women can make about antenatal care, their mode of delivery and postnatal care. In contrast, wealthy and well-educated individuals enjoy access to private healthcare, with the option of being cared for by a qualified obstetrician and the opportunity to decide their own route of delivery. In many cases, women in these circumstances will opt for a caesarean section, as this is commonly seen as a sign of 'high social status'.

A highly-respected Colombian institution, Profamilia, has published recent data on maternal and neonatal health outcomes based on a sample of over 11,000 births across the country.[1] These figures give a snapshot of the status of maternal medicine in my country. It is evident that while the country has state-of-the-art facilities and ready access to the latest medical technology in large urban centres, disadvantaged women with low incomes, typically those living in rural areas, remain excluded from mainstream medical care. Based on the Profamilia data set, the probability of having a delivery attended or supervised by a medical professional are very low in distant rural areas.

The percentage of women with no antenatal care remains alarmingly high at 17 per cent. These women are typically older than 34 years of age, living in a rural area, with more than three children, no education and low income. There is also an inverse correlation between parity and seeing a medical practitioner. This situation highlights the continuing struggle in developing countries for appropriate medical attention in remote areas. This is a troublesome combination of poor health coverage and a strong social aversion to western medicine, mostly seen in low-income, poorly educated communities.

When reviewing the rates of caesarean section over vaginal delivery, it becomes evident that surgical deliveries are almost twice as high among women living in cities (31.5 per cent) than in rural areas (16.3 per cent). Moreover, the number of caesarean sections positively correlates with the level of wealth and education. Almost half of all babies born to women with a university degree were delivered by caesarean section, compared to only 17 per cent of those who did not complete their schooling. Similarly, 48 per cent of women at the high-income end of the scale were delivered by the abdominal route, while the proportion in the low-income bracket was a mere 14 per cent.

'It is evident that while Colombia has state-of-the-art facilities and ready access to the latest medical technology in large urban centres, disadvantaged women with low incomes, typically those living in rural areas, remain excluded from mainstream medical care.'

Interestingly, the percentage of postpartum complications remains very similar across the board, with a reported incidence of less than one in five women during the period reported. The most common conditions were postnatal depression (16 per cent), excessive vaginal bleeding (13 per cent) and fever (12 per cent). It is intriguing to see that depression was very low (7.7 per cent) in low-income individuals compared to the wealthy (28 per cent). Depression was also rare in women with more than six children. It would be easy to draw the conclusion that the struggle of making a living and having a large family results in having almost no time to become depressed!

As mentioned before, women in rural areas with low income and poor access to education are less likely to have their baby delivered by a properly trained health professional. This is reflected by the large percentage of babies for which the birth weight was not registered (23 per cent for low-income women and 28 per cent for non-educated women). It is surprising to note that among those babies for whom the birth weight was registered, it was the group of highly educated, high-income women who presented with a larger percentage of low weight at birth.

The maternal mortality rate in Colombia has improved dramatically since 2002, when it was reported at 84.6 per 100,000, falling to 52.9 per 100,000 by 2007.[2] However, the difference between rural and urban communities is worthy of comment, ranging from a high of 315.7 per 100,000, down to 35 respectively. The Colombian Government already has multiple

strategies in place to reduce these figures to 40 per 100,000 or below, by implementing better maternal service availability, improving the infrastructure, and investing in community education and training of health professionals.[3]

A program that deserves special mention is the education and training of the traditional midwifery program, locally called *parteras*. Unlike Australian midwifes, the *parteras* are a group of women that have learnt the 'arts of midwifery' through the oral tradition and through practice. As such, the Government does not consider them health professionals, but in reality, small rural communities benefit most from their services, with a lack of formally trained professionals. A recent article[4] describes the *parteras'* commitment quoting: 'They have learned to overcome the jungle distances (...) where transportation is nearly all by river, which means dangers of floods and snakes. They travel at any hour, with total commitment and the certainty that nobody survives economically from this job...'. There are an estimated 15,000 *parteras* in Colombia and since they have managed to support the under-privileged communities where the reach of western medicine is essentially a dream, government organisations are trying to include them in the health system.

I was very fortunate to have the opportunity to train and practise obstetrics and gynaecology in one of the best-served hospital networks in Colombia, where excellently trained professors and the latest medical advances were available to the community. Unfortunately, this is not the case for every Colombian. As in most of the Latin American countries, in Colombia the gulf between poor and rich widens every year. The Colombian Government, the Pan American Health Organisation (PAHO) and the World Health Organisation (WHO) are working together to improve these outcomes.

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Warm water immersion in labour and water birth

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FRANZCOG

Warm water immersion and, by extension, birth in water, or water birth as it is more commonly called, are contentious areas of clinical practice in maternity, with obstetricians and midwives holding often divergent views on both topics in Australia.

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) produced a statement in July 2008 entitled, 'Warm Water Immersion During Labour and Birth'[1], which suggested a very cautious approach for warm water immersion and even more so for water birth. The Royal College of Obstetricians and Gynaecologists (RCOG) and the Royal College of Midwives (RCM) have published a joint statement entitled, 'Immersion in Water During Labour and Birth'.[2] Both RCOG and RCM support labouring in water for healthy women with uncomplicated pregnancies, but do point out that the evidence to support water birth is less clear, even though serious complications for mothers and their babies are seemingly rare. They further point out that if good practice guidelines are followed in relation to infection control, management of cord rupture and strict adherence to eligibility criteria, complications should be further reduced.

In 1992, a report was produced by a House of Commons Health Committee. This was the Winterton Report, entitled *Second Report on the Maternity Services*. The report recommended that all maternity services provide women with the option to labour and/or give birth in water.[3]

New South Wales Health has recently issued a document, *Towards Normal Birth in New South Wales*, and one of the recommendations of that document is that there be 'the development of written policies on normal birth and pain relief, including the use of water immersion such as birthing pools'.[4]

With the Federal Government's Maternity Reforms, which took effect in November 2010, there is an increased focus on midwife care, with eligible midwives being able to care for pregnant women through the continuum of antenatal, intrapartum and postnatal care. Midwives would seem to have a different position from many obstetricians on the use of water during labour and birth. This article will focus on the rationale for the use of warm water immersion during labour and outline the experience one maternity unit had in introducing warm water immersion and water birth. There may be other ways for these differences between maternity care providers to be overcome, but, in any event, it seems important these days to provide informed choice for women to meet their perceived needs, while still trying, within the ambit of that choice, to ensure safe practice and excellent outcomes for maternity care.

The use of warm water immersion during labour

It seems clear that the use of warm water immersion during labour promotes a sense of relaxation and buoyancy for some women, who then find that the pain of labour is more tolerable, thus making them able to use less pharmacological analgesia. The most recent evidence in the *Cochrane Library* database was published by Cluett and colleagues in 2009.[5] They concluded that immersion in water during the first stage of labour significantly reduced women's perception of pain and the use of epidural and spinal analgesia. They found no evidence of increased adverse effects to the fetus or the woman from labouring in water, but did point out that there was limited information for other outcomes other than the reduced use of epidural/spinal analgesia, because of intervention and outcome variability. Despite that, they found no evidence of increased adverse effects to the neonate from water birth. They further pointed out that the use of water immersion in labour and birth is now widely available and this fact threatens the feasibility of a large multicentre randomised control trial on the subject.

The *Cochrane Review* suggests, as does the RANZCOG statement, that warm water immersion and water birth should be subjected to critical audit. There should also be an obligation on units utilising these practices to publish their data.

'It is incumbent on units practising warm water immersion and water birth to ensure that they have fail-safe mechanisms for ensuring that women can be retrieved from the bath during an emergency.'

Eligibility criteria for use of water in labour and birth

Most of the available evidence from both randomised trials and observational data suggests that healthy women with an uncomplicated pregnancy at term should be allowed warm water immersion, with prior informed consent. This would mean that women would have to have a singleton pregnancy; no other risk factors or problems during labour; preferably have clear liquor; and have no other requirement for continuous electronic fetal monitoring (EFM) during labour. Continuous EFM can be done done by telemetry, allowing women warm water immersion, but this is not always available in all centres.

Other contraindications include women with a term weight of 100 kg or greater, as there are workplace health and safety issues in removing a woman greater than 100 kg from the bath in the event of unexpected maternal collapse or other obstetric calamity; inability to provide hot, clean tap water; the need for other pharmacological analgesic agents; maternal exhaustion; and poor progress in labour.

It is incumbent on units practising warm water immersion and water birth to ensure that they have fail-safe mechanisms for ensuring that women can be retrieved from the bath during an emergency. This should be something that is regularly audited and practised to ensure faultless performance when required.

Birth in water

Properly informed choice on the benefits or risks of birth in water is not possible because there is a lack of good-quality safety data. At present, there is no evidence of higher perinatal mortality or extra morbidity from water inhalation or near drowning. Most units practising water birth do not report extra admissions to special care baby units. However, there are potential problems with this. Because of small numbers, under reporting and missed diagnosis are possible. A number of reviews[6,7] have identified some rare complications associated with water birth.

How to fit warm water immersion and water birth into a collaborative model of maternity care

This clinical problem confronted the obstetricians who work at the Nambour Selangor Private Hospital on the Sunshine Coast in Queensland. The maternity unit medical and midwifery staff had instituted a collaborative model of maternity care at the unit's inception in 1997. This model was chosen as it offered, in the collective view, the best chance for workplace harmony, respectful practice and the chance of the best outcomes for mothers and babies cared for in the unit.

At the time of consideration of introduction of a warm water immersion and water birth policy, the maternity unit manager (MUM) and the midwives were very keen on its introduction. None of the obstetricians had any experience with these practices. After initial discussion, and no agreement about the introduction of any policy, both obstetricians and midwives did a literature search, spoke to practitioners engaged in warm water immersion and water birth, and eventually agreed on a written policy. The unit's paediatricians were involved and also gave guarded agreement to the policy. The MUM developed a learning package for the clinical staff and preceptored a number of midwives about warm water immersion. Specific training was focused on rare emergencies.[8] A commitment was made that every water birth be reviewed at the weekly unit audit meeting, which was multidisciplinary, to review maternal and neonatal outcomes. A commitment was made to keep data retrospectively, to enable an adequate review of outcomes for mothers and babies. Following the first 700 water births, the data were compared to 700 matched conventional births. Owing to some difficulties with data being incomplete, this ended up being a study comparing 690 water births against 690 conventional births over a six-year time span.

The study ended up as a retrospective comparative analysis, with each water birth being matched with the next birth in the birth register, matching for primigravida status, previous caesarean section, and previous spontaneous or assisted vaginal birth. There was little difference in patient demographics, but in the water birth group, there was more spontaneous labour, less augmentation of labour, the mothers were less likely to have oxytocics in the third stage, and less likely to allow the babies to be given Konakion. The water birth group also seemed to have shorter labours and less blood loss, but this did not reach clinical significance.

There was no difference in nursery admissions. There were no babies admitted to the nursery with water inhalation and there was no increase in neonatal sepsis.

Virtually all the babies in both groups were being breastfed on discharge, and maternal satisfaction was very high, with almost all women who had a water birth saying they would definitely do it again.

The conclusions drawn from the study were that:

- Women who had a water birth seemed to have straightforward, low-intervention labours.
- Water birth outcomes were comparable or better than conventional births.
- No extra risk or poorer outcome was identified for the mothers or babies.
- Clinicians were happy that warm water immersion and water birth be considered as an option for low-risk women in labour.
- Regular multidisciplinary clinical audit was essential.

A key to this has been the training and mentoring of staff in use of water in labour. The study though suffers from all the problems of a retrospective analysis, but does provide a useful snapshot of a change in clinical practice that was introduced collaboratively, with good audit and outcomes. Consideration was given to doing a prospective, randomised trial, but this was felt to be difficult[9] and outside the scope of the unit to perform it adequately, with the large numbers required to show a difference.

Should warm water immersion and water birth be more generally available?

This is a difficult question to answer. The way that it evolved, as described above, worked for the maternity unit at Nambour Selangor Private Hospital, but depending on opinions, biases and experience of the clinicians involved, both medical and midwifery, it may not be as successful in other units. There are costs in having a warm water immersion program, with a lot of extra plumbing and hoisting apparatus being required, and this may preclude its uptake in some places.

All that aside, the satisfaction data obtained from the mothers was overwhelmingly positive. Many women now travel significant distances to avail themselves of this service, which is often unobtainable elsewhere in south Queensland. The neonatal outcomes seem as good, or better, than conventional birth in Nambour Selangor Private Hospital.

Clearly, these issues will only be resolved with respectful discussion and collaboration between different maternity care providers, taking into account the potential choices the women who utilise their birthing services may have.

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Raspberry leaf: panacea for pregnancy and labour or problem?

Michele Simpson
Midwife

Red raspberry leaf, otherwise known as *rubus idaeus,* has been used medicinally since the sixth century. Its use and reputation as an aid in pregnancy and childbirth has grown throughout the years, despite the paucity of research into its safety and efficacy for mothers and babies during pregnancy and birth.

A herb, red raspberry leaf is consumed in tea, tablet or tincture form by pregnant women in the hope that it will make labour easier or shorter. Herbalists throughout the years have claimed that raspberry leaf's benefits include relieving nausea, period pains and afterbirth pains and preventing bleeding gums and haemorrhoids. Some researchers suggest that it may both stimulate and facilitate labour. Other benefits are reported to be that it is a rich source of calcium, magnesium, vitamins B1, B3 and E, and it may increase breastmilk flow.[2] Much of this information has been anecdotal and the paucity of research prevents any substantial evidence to support these statements. Women, however, continue to take raspberry leaf; various studies show between seven and 58 per cent of pregnant women consume the herb.[3] It is recommended to pregnant women by midwives, obstetricians, friends and the media[4], including the internet. It is freely available in Australian health food shops, supermarkets, pharmacies, via herbalists and recently now via online herbalist suppliers.

A review of the literature suggests that seven animal[1,5-10] and three human[4,11,12] trials have been performed using raspberry leaf for pregnancy. Despite these studies, very little is known about the active constituents of the herb, let alone how and when in pregnancy it should be taken and at what dose. While some studies indicate it may be safe to use, the limited nature of these studies does not provide a clear answer to the questions of its safety and efficacy.

Animal studies

Animal studies in 1941 by Burn and Withell[5] found that an intravenous injection of raspberry leaf extract had a relaxant effect on the uterine muscle of anaesthetised, non-pregnant cats and rabbits. As well as a slight rise in blood pressure, they also discovered a by-product in raspberry leaf tea that not only reduced the strength and frequency of contractions, but also caused tonically contracted muscles to relax.

This relaxant effect of raspberry leaf was suggested by Bamford and colleagues in 1970[6] to 'modify the course of labour favourably to produce more coordinated uterine contractions'. Further studies similar to these earlier experiments were performed on animal and human extracted pregnant and non-pregnant uteri strips, with most supporting the relaxant effect.

The active ingredients of raspberry leaf could not really be identified until 1995, when Patel and colleagues[7] suggested they may be terpenes and or alkaloids.

A recent animal study published in 2009 by Johnson *et al* [9] randomised 40 nulliparous rats to raspberry leaf 10 mg/kg/day oral treatments from day one of gestation until birth and compared them to three other groups of rats who ingested other substances. The raspberry leaf group showed a statistically significant increase in the length of gestation. Alarmingly, but not significantly, the pregnancy success rate in the raspberry leaf group was less than the control groups. A significant finding in the raspberry leaf group's offspring (F1) was that they experienced an early puberty. The (F1) group then produced a significant proportion of growth restricted offspring (F2).

The most recent study by Zheng *et al* in 2010[10] tested the effects of three commercially available forms of raspberry leaf – tea, capsules and ethanol-based tincture – on *in vitro* contractility of uteri collected from an unspecified number of diethylstilbestrol (DES) treated non-pregnant and also on late-pregnant rats. In pregnant animals, raspberry leaf tea had variable effects on pre-existing oxytocin-induced contractions, sometimes augmenting oxytocin's effect and sometimes causing augmentation followed by inhibition. Pretreatment with tea did not alter the ability of oxytocin to initiate contractions. The tea appeared to be more effective than the tablets or tincture.

Clinical trials

In 1941, Whitehouse[11] inserted an intrauterine bag to obtain and record the effect of 20 to 40 g of raspberry leaf extract (fragarine) on afterpains on only three postpartum women. There were no controls. The main effect observed was that uterine contractions diminished in frequency and strength and secondary contractions were diminished. Contrary to an earlier study by Burn and Withell[5] on pregnant cats, a slight fall in systolic blood pressure was observed. Apart from the 1941 study, there have been no other clinical trials published.

The absence of good clinical evidence surprised and inspired a small group of midwives, including the author (Parsons, Simpson *et al* 1998[4]), who had cared for many women who were recommended raspberry leaf in pregnancy by obstetricians and midwives attending the study hospital, to conduct a retrospective observational study. The study involved 109 postnatal women. Fifty-eight women consumed raspberry leaf in a variety of forms: tea, tablets and tincture at various dosages, commencing as early as eight weeks and as late as 39 weeks gestation. They were compared to a group of 51 postnatal women who didn't take raspberry leaf. They were of comparable parity, ethnicity, type of antenatal care, weight and age. There were no preterm births in the raspberry leaf group, in fact, they were more likely to birth on time. The test group were also more likely to have an unassisted vaginal birth and less likely to have artificial rupture of membranes and caesarean delivery. Both groups had similar outcomes for admissions to the nursery, meconium liquor and Apgar scores. Qualitative data received from the treatment group indicated that they were advised to take the herb by various contacts including obstetricians and midwives. They generally perceived that raspberry

leaf shortened their labour and they would not only take it in future pregnancies but they would also recommend it to friends.

While the retrospective design of the observational study had limitations, it satisfied the ethics committee sufficiently to allow the Simpson and Parsons team, including a supervising obstetrician, to conduct a double blind placebo-based trial.[12] It involved 192 low-risk, nulliparous women, 96 taking raspberry leaf tablets 2.4 g/day from 32 weeks gestation until birth and 96 taking placebo. Both groups were comparable in all variables regarding safety and efficacy, except there was a slightly less instrumental rate within the treatment group, 19.3 per cent versus 30.4 per cent control group. There were no statistically significant results, but we concluded that further studies with a higher dose are needed before we can draw any conclusions regarding its safety and efficacy.

So, what does all this mean?

You would not be alone if, after ploughing through the literature presented, you were feeling somewhat confused. Most of the animal studies involve cadaver uteri infused with raspberry leaf, which is hardly comparable to how women actually consume it in pregnancy. Some studies suggest that the herb initiated contractions[5,1,10] while others said it inhibited them.[6,7,8] One study said raspberry leaf raised blood pressure[5], another said it lowered it.[11] The discrepancies between the studies may simply be a result of varying experimental design and different preparations of raspberry leaf used.

More recent animal studies, such as Johnson and colleagues 2009[9], raised some concerns regarding raspberry leaf. The increased stillbirth rate (while not statistically significant) accompanied by an early puberty in the raspberry leaf group's offspring and then growth restriction in their subsequent offspring is of some concern. However, it is reassuring that the overall dose they used in rats (10 mg/kg) was significantly less than the dose we used in our randomised trial (400 mg/kg for a 60 kg woman) and we know that the dose 2.4 g/day didn't produce any statistically significant results.[11] Maybe raspberry leaf is more suitable and perhaps safer for humans than rats!

Conclusion

The conclusion from all of this is that it is beyond doubt that more clinical trials using varying doses and forms of raspberry leaf taken at various gestations are needed to provide more information regarding its safety and efficacy. Studies looking at the active constituents are also necessary. Women, however, will continue to take it. Meanwhile, should we as health professionals discourage the consumption of raspberry leaf in pregnancy? I'll leave that decision to you. I have been conducting a midwifery-led antenatal clinic for the last 13 years and the majority of the women I care for consume raspberry leaf during their third trimester in various forms and in doses generally higher than the dose used in the randomised trial. Most of the women say they get their information about raspberry leaf from the internet or antenatal classes or they took it in a previous pregnancy. To date, I have not seen any adverse effects in either mothers or babies that I can attribute to raspberry leaf. Personally, I took raspberry leaf tincture during my pregnancies and births. I was in my late 30s. After very well, term pregnancies, easy labours and births and two very healthy children, I am grateful that I knew about raspberry leaf. I would, however, discourage its use, until further studies can demonstrate its safety and efficacy. I remain cautious when discussing its use with women and encourage other pregnancy care providers to do the same. Would I do another study? Like many researchers, my dedicated colleague and I are still recovering from the multiple ethics submissions and countless hours and worry we endured during the last two studies, so maybe not so soon. I would, however, be happy to advise and encourage anyone who is interested!

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Interventional radiology in abnormal placentation

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Although fortunately uncommon, abnormal placentation can result in massive haemorrhage at the time of delivery, with blood loss often reported of two to five litres and in some cases up to 20 litres.[1] Even in cases of planned caesarean hysterectomy, haemostasis can be difficult to obtain.

This occurs most notably with placenta percreta, when placental tissue has invaded beyond the uterus into surrounding structures, most commonly the bladder. Such complications of pregnancy are a well-recognised cause of maternal death.

An increasing number of centres now include interventional radiology (IR) as part of the delivery protocol when abnormal placentation is known or suspected, with the aim of reducing peripartum blood loss. The data supporting the use of IR mostly comes from case reports and small retrospective cohort studies.[2-6] While no single IR protocol has been demonstrated as the method of choice, there are a number of key principles that are important to ensure that the best use is made of IR in the peripartum period.

Vascular anatomy in abnormal placentation

Interventional radiology can help gain an understanding of the vascular anatomy in such cases, and why haemostasis can be so challenging in these patients. Figure 1 shows the vascular territories recruited in a patient with abnormal placentation. While internal iliac artery branch vessels (the uterine, internal pudendal and vesical) are often the dominant supply vessels, the uterus and placenta obtain extensive collateral supply from aortic (ovarian and ilio-lumbar) and external iliac (lateral circumflex iliac, inferior epigastric, ilio-lumbar, obturator and external pudendal) vascular territories. Figure 2 shows that even after emergency bilateral ligation of the internal iliac arteries for catastrophic haemorrhage, the placenta still derives significant arterial supply from aortic and external iliac artery collaterals.

Postpartum embolisation

Embolisation of the uterine arterial supply is the main IR treatment option for post-partum haemorrhage (PPH). First reported in 1979[7], subsequent studies[4,8-14] have supported its use in patients haemodynamically stable enough to be transferred to IR. This technique has been shown to have good efficacy when compared to uterine compression sutures, iliac artery ligation or uterine

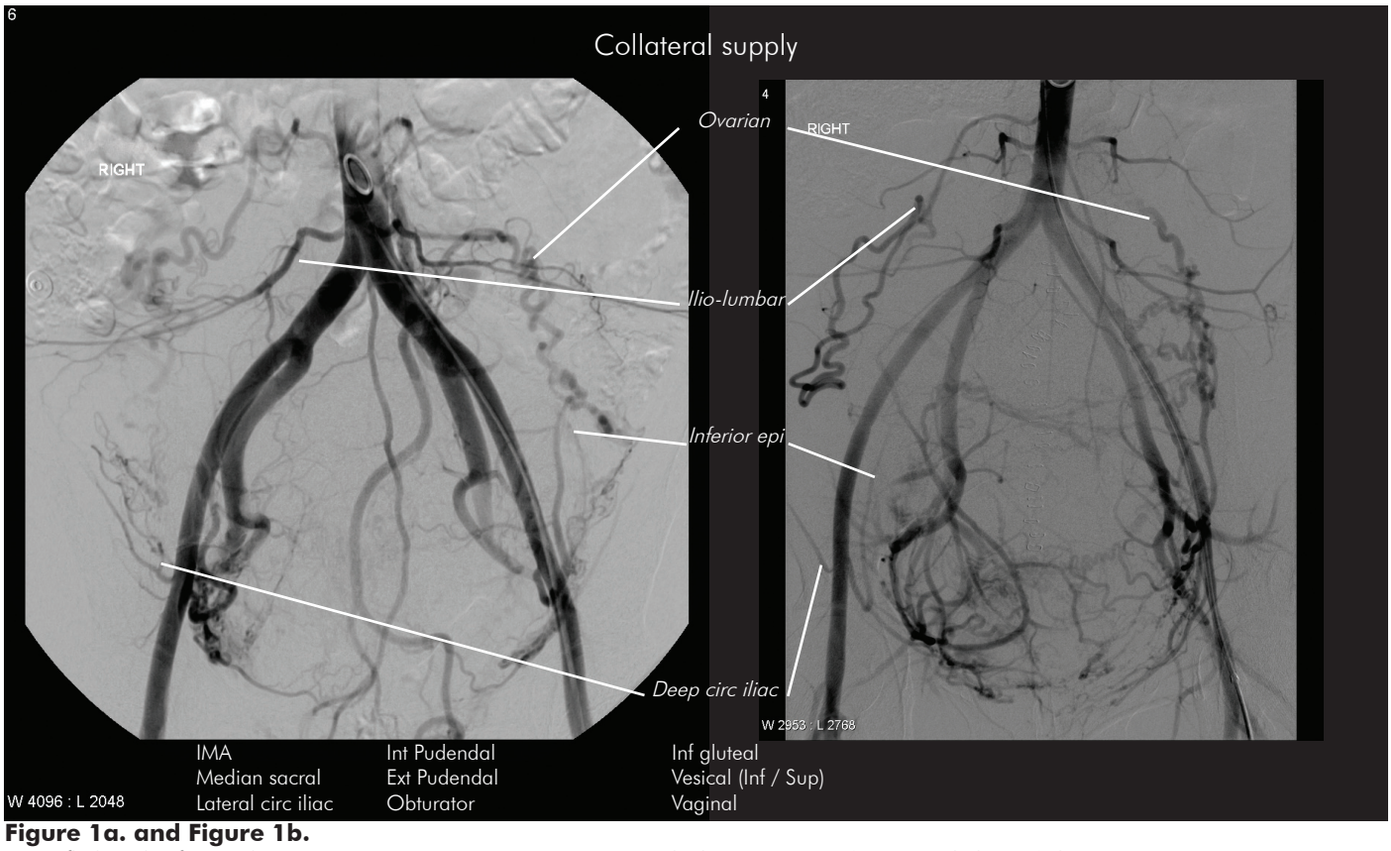

Figure 1a. and Figure 1b.
Aortic flush studies from catheter angiogram in two post-partum patients with placenta percreta (prior to embolisation) showing extensive recruitment of collateral vessels from the aorta, internal and external iliac territories.

devascularisation. In patients with placenta percreta, embolisation of collateral supply vessels may be necessary to ensure effective treatment. It is important to be aware that placental tissue that invades beyond the uterus, as shown in Figure 3, can be difficult to differentiate from the vascular supply to adjacent pelvic organs, including bladder and bowel, and requires an experienced interventional radiologist to avoid non-target embolisation.[15]

The guiding principle for patients with abnormal placentation should be to provide permanent distal occlusion of placental arterial supply beyond the main collateral supply arteries. This is best performed using particle embolisation similar to uterine artery embolisation for fibroids. In principle, distal embolisation will reduce the risk of ongoing bleeding from collateral supply that can occur with more proximal embolisation with coils. In patients with haemodynamic instability from ongoing bleeding, many centres will perform embolisation of the internal iliac artery with Gelfoam. This can be effective, but there remains a risk of ongoing bleeding from any collateral supply. Gelfoam embolisation is performed with the expectation of temporary vessel occlusion for three to six weeks, but it can result in permanent vessel occlusion, which is important to remember in this patient population. A decision to either ligate the internal iliac artery intra-operatively, or to embolise the internal iliac artery proximal to bleeding placental tissue, can make subsequent intervention for ongoing bleeding more complex. While we have found it feasible to embolise placental tissue for ongoing bleeding following intra-operative internal iliac artery ligation (Figure 2b), it requires the use of micro-catheters and a thorough understanding of aorto-iliac vascular anatomy.

Balloon occlusion for abnormal placentation

Pre-operative placement of occlusion balloons, first described for the aorta in 1995[16] and subsequently for the internal iliac arteries[14] was introduced with the goal of temporarily reducing uterine and placental blood flow, without the need for permanent iliac artery ligation. Since then, a small number of studies and case reports have been published.[1-5,16,17,18] However, probably because of the large number of factors contributing to individual patient blood loss, an unequivocal benefit with use of occlusions balloons has not been demonstrated.

Arterial sheath and balloon placement and management

In the absence of clear evidence supporting the use of occlusion balloons, there is a greater imperative to avoid complications. This requires well documented protocols that should cover the following.

Arterial sheath placement

Many centres will arrange for balloons to be placed by the interventional radiologist in the medical imaging department, with bilateral common femoral artery vascular sheaths. Following sheath placement, patient movement should be kept to a minimum, specifically hip flexion and patient rotation, to avoid displacement of the sheaths or balloons. If an epidural is planned this should be placed prior to transfer for placement of the balloons. If ureteric stent placement is required this can be more challenging to do prior to occlusion balloon placement, but it is preferable to balloon displacement. If ureteric stents are placed in the operating room with arterial sheaths in situ, then full lithotomy positioning should be avoided and the minimum amount of hip flexion possible used.

Balloon placement and inflation

The majority of interventional radiologists will use compliant balloons, which should reduce the risk of vessel injury (dissection or rupture). Non-compliant or standard angioplasty balloons are occasionally used, but can be difficult to match to the vessel lumen

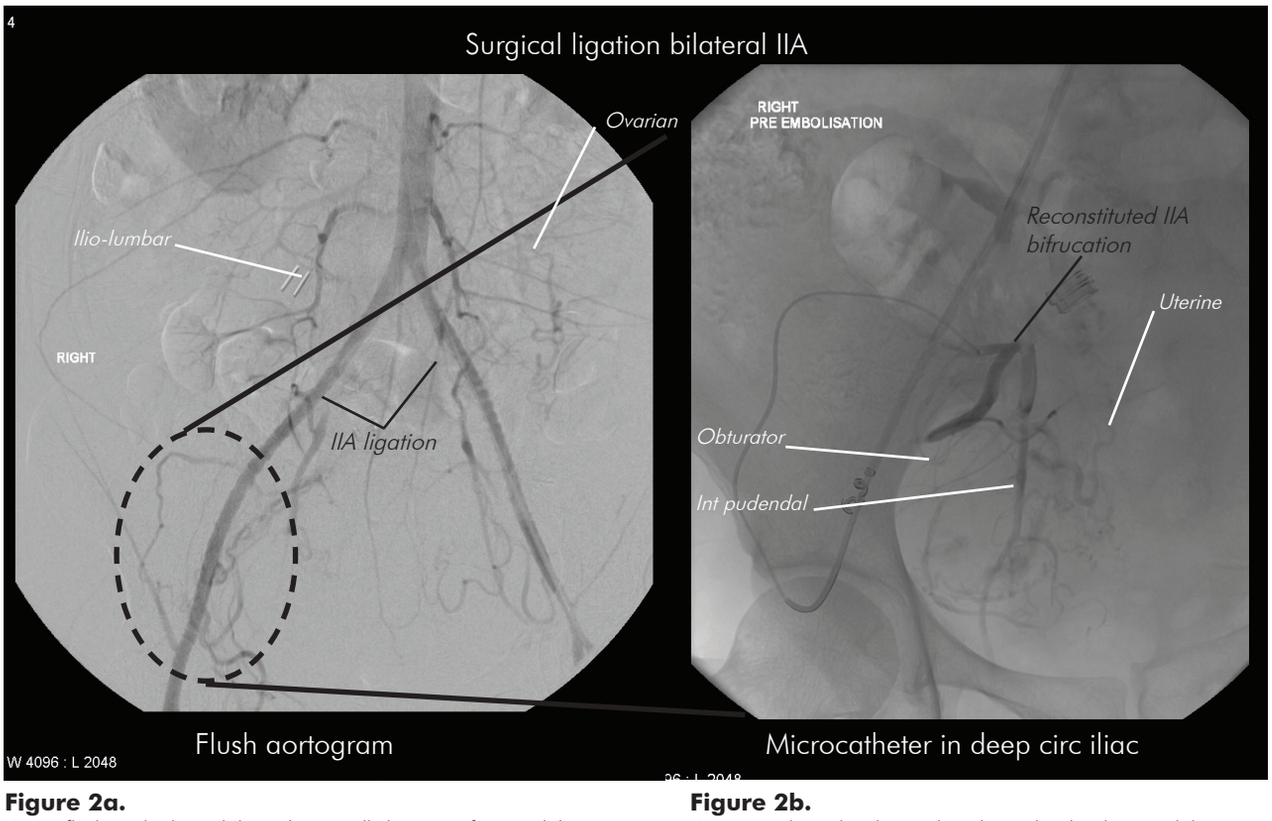

Figure 2a.
Aortic flush study shows bilateral surgically ligation of internal iliac arteries.

Figure 2b.
A microcatheter has been placed into the distal internal iliac artery via the deep circumflex iliac showing continued perfusion of the uterine artery and placental tissue. This was embolised to treat ongoing haemorrhage.

Figure 3.
T1W axial fat-sat contrast enhanced MRI of post-caesarean placenta percreta with invasion outside the uterus.

and, when mis-matched, can result in either poor vessel occlusion or even dissection.

With careful technique, placement of occlusion balloons in the angiography suite should result in minimal screening and radiation dose. Balloon inflation is most frequently performed following cutting of the umbilical cord, although some obstetricians will only request balloon inflation if haemostasis appears inadequate. Balloons should be removed on completion of the operation to reduce the risk of arterial thromboembolism. If embolisation is necessary because of ongoing bleeding, this can be done leaving the balloon catheters *in situ*, with the balloons deflated.

Post-operative management

The setting for postoperative care can vary greatly, from a general obstetric ward to an intensive care environment, depending on the patient's post-operative status. It is important to have an agreed protocol regarding when, and by whom, arterial sheaths are to be removed. This protocol should be easily available in the patient's notes. Sheaths left in situ for any length of time without proper care can result in significant complications and morbidity[7,15] resulting from arterial embolism. The practice in my unit is to remove all sheaths within two hours post-procedure unless postoperative embolisation is planned.

Multi-disciplinary management

Despite the trend of an increasing number of patients presenting with abnormal placentation[19], most centres deal with a limited number of intermittent cases and it can be difficult to have a designated group of specialists available for each case. This is especially true because of the significant number of specialist teams that can be involved in addition to obstetrics, including gynae-oncology, anaesthesia, vascular surgery, urology, intensive care and interventional radiology. Nevertheless, it is important to identify a group of clinicians who have an interest in the management of abnormal placentation to allow development of a consistent approach to treatment and familiarity of team members. This facilitates the complex logistical planning when interventional radiology is required. Our hospital requires at least one multi-disciplinary team meeting, with all clinicians likely to be involved in the delivery present, to outline the management plan prior to the procedure.

Interventional radiology can provide important adjunctive support to this complex patient group, and specifically those patients at risk of significant or ongoing haemorrhage. Arterial embolisation has been used for over 30 years and appears to have good efficacy. Use of occlusion balloons is reasonable to consider, but requires coordinated multi-disciplinary management and well-documented, easily accessible protocols to ensure risks are minimised. Familiarity of all team members is critically important when dealing with a rapidly changing clinical situation, and this is greatly facilitated by a pre-operative multi-disciplinary meeting.

Placenta percreta: a patient's journey

Talat Uppal
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'Sisters by chance….friends by choice' was engraved on the photo frame I bought for my sister during her time in hospital. A young woman, her first child had been delivered by emergency caesarean section, after making it to 8 cm dilatation. Her new pregnancy was precious indeed, the result of IVF treatment, following years of secondary infertility.

My sister was known to have placenta praevia, but from 34 weeks features of percreta had been noted on ultrasound, following a small antepartum haemorrhage. An MRI performed at 36 weeks then raised the possibility of invasion into the bladder.

When I heard the words, 'Your sister has had a four-litre blood loss…and has had a hysterectomy…there is currently an element of DIC….but she will go home with her son,' I remember thinking how challenging it was being on the other side of the fence; no longer the obstetrician, but the relative of a patient. I was hearing about my sister battling for life in the intensive care unit: my only sibling, herself an intensive care registrar. Waves of relief flooded through me that my mother had not understood the meaning of 'DIC'….and hence could be spared knowledge of the gravity of the situation.

I remember sobbing as I held my sister's swollen hand amid the clutter of monitors and leads. I could not believe the reality of what was happening, my sister so passionate about her own ICU work. I was shocked to see her nasogastric tube suctioned of fresh blood. Thank goodness so much preparation was done: anaesthetic and haematology support well organised. What if it had been an emergency case at 2 o'clock in the morning? Fortunately, the entire healthcare team caring for us was fabulous and we were really well supported during this period.

There is an almost unfathomable finality about losing one's uterus. It can leave a patient feeling incomplete. However, I have had so many experiences with my sister and her children since that terrible time. She is fit and healthy and able to look after her two children. It has felt like the beginning of a new journey for us.

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The mildly abnormal glucose tolerance test

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For decades, due to the paucity of evidence, hot debate has raged as to whether gestational diabetes mellitus (GDM) should be diagnosed and treated. However, in recent years a number of large, multicentre studies have provided good-quality evidence to say that GDM is no longer 'a diagnosis looking for a disease'.[1]

Diagnosis

The current diagnostic criteria for GDM are based on the likelihood of later development of type 2 diabetes, rather than on pregnancy outcome. The diagnosis of GDM varies between countries. For example, when diagnostic criteria were reset in New Zealand, in 1992, they were adjusted to reduce the prevalence of GDM so that obstetric services could cope with the numbers and offer treatment to those who would benefit the most.

We waited with bated breath for the results of the Hyperglycaemia and Adverse Pregnancy Outcome (HAPO) study, involving 25,000 pregnancies, to demonstrate the level of hyperglycaemia that results in excessive adverse pregnancy outcomes. A linear association between maternal hyperglycaemia and increased rates of adverse outcomes was found, starting from a relatively low level of hyperglycaemia, with no clear inflection point at which to trigger screening.[2] Even mild GDM can influence pregnancy outcomes.

Following the HAPO study, the International Association of Diabetes and Pregnancy Study Groups (IADPSG) Consensus Panel convened and recently published recommendations for diagnosis (one or more post-75g oral glucose tolerance tests [OGTT] plasma glucose values > 5.1, 10.0, 8.5 mmol/L for fasting, one, and two-hour glucose respectively).[3] The ripples are spreading and healthcare providers are assessing how this may impact their provision of diabetes in pregnancy care.

To treat or not to treat

During the 1990s, a large case control study assessing pregnancy outcomes in treated versus untreated GDM showed a composite adverse outcome, including large for gestational age (LGA), neonatal respiratory disease, hypoglycaemia, hyperbilirubinaemia, shoulder dystocia and stillbirth, was present in 59 per cent untreated compared with 18 per cent treated and 11 per cent for the non-diabetic population.[4] Those women with mild GDM (fasting glucose less than or equal to 5.2 mmol/L) were analysed separately and treatment reduced the rate of LGA from 20 per cent to ten per cent in this subgroup.

Other adverse outcomes known to be associated with hyperglycaemia include caesarean delivery, spontaneous preterm delivery, preeclampsia and offspring's long-term relative weight and degree of glucose tolerance, or GDM during female offspring's pregnancies.[5]

Fetuses of women with mild GDM lack the ventricular hypertrophy and diastolic dysfunction that is common in fetuses of diabetic mothers, but they have decreased ventricular myocardial performance late in gestation when compared with fetuses of non-diabetic women.[6]

The Australian Carbohydrate Intolerance Study in Pregnant Women (ACHOIS), a randomised treatment trial for GDM, concluded that treatment of milder carbohydrate intolerance significantly reduced serious perinatal morbidity, especially LGA and birth weight over 4000 g.[7] There were also lower rates of depression and higher quality of life scores, consistent with improved health status in the intervention group.

A multicentre randomised trial of treatment for GDM showed that neonatal fat mass, shoulder dystocia, caesarean delivery and hypertensive disorders of pregnancy are reduced by treatment.[8] Therefore, strong evidence now exists that the benefit outweighs the risks associated with the diagnosis and treatment of mild GDM.

Antenatal care

Diabetes education and oversight by a multidisciplinary diabetes in pregnancy team is important. Mild GDM diagnosed at 26 weeks may advance to significant insulin resistance by late gestation.

Close glucose self-monitoring has been shown to reduce rates of fetal overgrowth and gestational weight gain in women with mild GDM[9], being helpful to both the clinician and the woman. If not anaemic, a monthly glycated haemoglobin (HbA1c) gives a good overview of glucose control (target under six per cent).

Since birth weight is influenced by maternal weight gain, women with a high booking BMI should be encouraged to minimise weight gain in pregnancy. Dietary compliance is reflected by weight gain and should be monitored.

Ultrasound for fetal growth is recommended at least at diagnosis of GDM and again near delivery, using both serial biometric and customised growth charts to guide management. If the estimated fetal weight on scan is greater than 4000 to 4500 g, a caesarean section should be considered to prevent birth trauma.

Induction of labour may be indicated if the intrauterine environment is suboptimal or when the risk of continuing the pregnancy outweighs the benefit. When planning an early delivery, remember that reduced fetal lung maturity is associated with hyperglycaemia.

The need for augmentation and instrumental delivery in diabetic pregnancies is associated with shoulder dystocia and birth trauma.

Treatment options

With the incidence of GDM on the increase and the obesity

epidemic in full swing there is often a feeling of overwhelming helplessness. However, basic measures such as dietary modification, exercise and lifestyle change are very effective in normalising blood glucose and thereby reducing the risk of maternal and perinatal morbidity. There is growing consensus on the safety of moderate exercise in pregnancy and its benefit in the management of GDM.

Oral hypoglycaemic agents, such as glyburide[10] and metformin[11], have been found to be safe and efficacious in the treatment of GDM. Meta-analysis of two studies involving 90 women showed a significant reduction in caesarean section rates, but no change in other pregnancy outcomes, in women receiving oral hypoglycaemic agents compared to insulin.[12]

Insulin is indicated when glycaemic goals or ideal fetal growth cannot be achieved with lifestyle change, with or without oral hypoglycaemic agents.

Postpartum

Hypoglycaemic agents can be discontinued immediately after delivery, but glucose self-monitoring should be continued for a few days to ensure a prompt return to normoglycaemia.

Since GDM is a marker of insulin resistance, an oral glucose tolerance test should be done at six to 12 weeks postpartum to exclude diabetes or impaired glucose tolerance (IGT). If negative, regular diabetes screening should continue thereafter.

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Contraception for women with health problems

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Many women with health problems also experience particular issues during pregnancy, including deterioration of their underlying problem, fetal risks either from the condition itself or the medication used to treat it, or specific pregnancy, delivery or postnatal problems.

These women, who would particularly benefit from pregnancy planning, often also have limited choices with their contraception, making this a challenge. This article outlines issues associated with many of the commoner conditions.

Increasingly, long-acting reversible contraception (LARC) is favoured by providers and couples as it does not require action every day or with every act of sexual intercourse, this is easier and leads to higher contraceptive efficacy. LARCs include implants, injectables and intrauterine contraception and all have failure rates of considerably less than one per cent each year.

Combined oral contraception (COC) containing estrogen is the most likely method to be contraindicated for women who already have an underlying medical condition. When considering COC, does this condition:

- Increase the risk of arterial or venous thrombosis;
- Predispose to arterial wall disease or severe hypertension;
- Adversely affect liver function;
- Show a significant degree of sex hormone dependency; or
- Require treatment with an enzyme inducer?[1]

If so, a COC is contraindicated. In many cases, a progestogen-only method (implant, injectable or pill) will be suitable.

The World Health Organisation (WHO) developed tables to indicate the risk of various contraceptive methods for men and women with different conditions. These have been modified by the UK Faculty of Family Planning and Reproductive Health Care for use in developed countries (see Table 1).

Table 1. What each category means.[2]

WHO/UK category	Hormonal and intrauterine contraceptive methods
1 **A for Always OK**	A condition for which there is no restriction for the use of the contraceptive method
2 **B for Benefits**	A condition where the advantages of using the method generally outweigh the theoretical or proven risks
3 **C for Caution (look for another method)**	A condition where the theoretical or proven risks generally outweigh the advantages of using the method. The provision of a method requires expert clinical judgement and/or referral to a specialist contraceptive provider, since use of the method is not usually recommended unless other more appropriate methods are not available or not acceptable
4 **D for Don't**	A condition that represents an unacceptable risk if the contraceptive method is used

Table 2 (WHO), using categories, provides an excellent summary of risk assessment for various forms of contraception in relation to specific medical problems (see page 64). Conditions, in the shaded part of the table, predispose to arterial disease. These arterial risk factors are related to diabetes; ischaemic heart disease/stroke; obesity; smoking; migraines; hyperlipidaemia; and increasing age. Testing for hyperlipidaemia is triggered by a history of a first-degree relative who has premature ischaemic heart disease or stroke (under the age of 45). When considering a COC, more than one of these arterial risk factors increases the WHO category, for example, BMI over 35 (WHO3) plus smoking under age 35 (WHO2) = WHO4. Age over 35 is considered as a risk factor if not already allowed for, for example, simple migraine (WHO2 for initiation, 3 for continuation) = WHO 3 for initiation and 4 for continuation of COC for an older woman.

There are fewer venous risk factors for COC – obesity, history of a first-degree relative who had a deep vein thrombosis or pulmonary embolus before the age of 45, immobility and extensive varicose veins. Once again, each additional risk factor increases the rating by one, for example, obesity (WHO3) and immobility (WHO3) = WHO4 for COC.

Migraines

A simple migraine may be described as a unilateral or bilateral throbbing headache that is accompanied by nausea and vomiting, photophobia and blurry vision. It is severe and not usually relieved by aspirin or paracetamol.

An aura usually precedes a headache and almost always has a visual component affecting the same hemifield for each eye. It starts with a bright blind spot, which may increase to a C-shaped area with zigzag edges or the sufferer may experience flashing lights. Some women go on to have tingling in a hand or one side of the tongue, then difficulty finding their words (nominal dysphasia). Migraines with aura are associated with an increased risk of an ischaemic stroke when using a COC.

It should be noted that if a contraceptive method, such as a combined oral contraceptive pill, is being used as a therapy as well, the WHO categories do not apply so strictly. An example is that a COC may be considered for an obese woman with polycystic ovarian syndrome, as it is being used therapeutically as well as for contraception. An alternative for this woman may be metformin with another method of contraception, such as a progestogen-only or intrauterine method.

Main text continued on oage 65

Table 2. WHO 3 and 4 conditions for contraceptive methods.[2]

	COC	POP	DP	Imp	Cu IUD	LNG IUD
Breast feeding <6 weeks postpartum	4	1	2	1		
Breastfeeding (fully or almost fully) 6 weeks to 6 months	3	1	1	1		
Postpartum not breastfeeding <21 days	3	1	1	1		
Postpartum 48 hours to 4 weeks					3	3
Postpartum or postabortal with sepsis					4	4
Diabetes without vascular disease	2	2	2	2	1	2
Diabetes with nephropathy, retinopathy, neuropathy, other vascular disease	3/4	2	3	2	1	2
Adequately controlled hypertension	3	1	2	1	1	1
Consistent BP >140 to 159/>90 to 94	3	1	1	1	1	1
Consistent BP 160/95 or higher	4	1	2	1	1	1
Hypertension with vascular disease	4	2	3	2	1	2
Ischaemic heart disease – current/history	4	2I,3C	3	2I,3C	1	2I,3C
Stroke including TIA	4	2I,3C	3	2I,3C	1	2I,3C
Known hyperlipidaemia	2/3	2	2	2	1	2
Obesity BMI >30 to 34	2	1	1	1	1	1
BMI 35 or more	3	1	1	1	1	1
Smoking under age 35	2	1	1	1	1	1
Over age 35, still smoking	3/4	1	1	1	1	1
Over 35, ex smoker	2/3	1	1	1	1	1
Simple migraines	2I,3C	1I,2C	2	2	1	2
Migraine with aura	4	2	2	2	1	2
History of migraine with aura >5 years ago	3	2	2	2	1	2
Multiple risk factors for CVD including age 35 or more	3/4	2	3	2	1	2
Complicated valvular heart disease e.g. with pulmonary hypertension, atrial fibrillation, history of SBE	4	1	1	1	2	2
Venous thromboembolism – history or currently on anticoagulants	4w	2	2	2	1	2
VTE history first degree relative under 45	3	1	1	1	1	1
Major surgery with prolonged mobilisation	4	2	2	2	1	2
Immobility – wheelchair, debilitating illness	3	1	1	1	1	1
Known thrombogenic mutation	4	2	2	2	1	2
Systemic lupus erythematosus with antiphospholipid antibodies	4	3	3	3	1	3
SLE with severe thrombocytopenia	2	2	3I, 2C	2	3I,2C	2
Secondary Raynaud's disease with lupus anticoagulant	4	2	2	2	1	2
Undiagnosed breast mass	3I,2C	2	2	2	1	2
Current breast cancer	4	4	4	4	1	4
Breast cancer but no evidence of disease for 5 years	3	3	3	3	1	3
Carrier of known gene mutation re breast cancer	3	2	2	2	1	2
Viral hepatitis – acute or flare	3/4I, 2C	1	1	1	1	1
Severe decompensated cirrhosis	4	3	3	3	1	3
Liver tumours – benign hepatocellular adenoma or malignant hepatoma	4	3	3	3	1	3
Gall bladder disease – symptomatic, current, medically treated or history of cholestasis with COC	3	2	2	2	1	2
Unexplained suspicious vaginal bleeding before evaluation	2	2	3	3	4I,2C	4I,2C
Endometrial or ovarian cancer	1	1	1	1	4I,2C	4I,2C
Cervical cancer awaiting treatment	2	1	2	2	4I,2C	4I,2C
Distortion of uterine cavity e.g. fibroids, congenital	1	1	1	1	3	3

Current PID, current purulent cervicitis, gonorrhoea, asymptomatic or symptomatic chlamydia	1	1	1	1	4I, 2C	4I, 2C
Pelvic Tb	1	1	1	1	4I,3C	4I,3C
Gestational trophoblastic disease – malignant or persistently elevated b-hCG	1	1	1	1	4	4
HIV – taking nucleoside reverse transcriptase inhibitors	1	1	1	1	2/3I,2C	2/3I,2C
HIV – taking non-nucleoside reverse transcriptase inhibitors	2	2	1	2	2/3I,2C	2/3I,2C
HIV – taking ritonavir-boosted protease inhibitors	3	3	1	2	2/3I,2C	2/3I,2C
Rifampicin or rifabutin therapy	3	3	1	2	1	1
Liver enzyme inducing anticonvulsants – phenytoin, carbamazepine, barbiturates, primidone, topirimate, oxcarbazepine	3	3	1	2	1	2
Lamotrigine	3	1	1	1	1	1

COC = Combined oral contraception (estrogen and progestogen)
POP – progestogen only pill
DP = Depo Provera (progestogen only)
Imp = implant (progestogen only)
Cu IUD = copper intrauterine contraception
LNG IUD = progestogen releasing IUD, often known as IUS
I = initiation of the method
C = continuation of a method when a new condition is discovered

Comments on other conditions

- Previous pelvic inflammatory disease (PID) is not a contraindication to IUD/IUS use (if she has had a pregnancy since the PID episode, she has already proven that the PID did not cause infertility).
- It is common to treat asymptomatic chlamydia at the time of insertion of an IUD/IUS, as long as there is little risk of a repeat infection. It has been shown that the risk of PID when an IUD is inserted in untreated chlamydia is low, unlike gonorrhoea where it is significant. (A check for sexually transmitted infections before or at the time of insertion is generally recommended to enable treatment first.)
- The New Zealand Heart Foundation does not recommend prophylactic antibiotic cover for women with valvular heart disease or artificial heart valves for IUD insertion or removal unless there is local genital infection – amoxicillin or, if allergic to it, vancomycin can then be used. Antibiotic treatment would therefore not be needed for insertion as this would not proceed in the presence of active infection.[3]
- A history of ectopic pregnancy is not a contraindication to any method as all reduce the risk of pregnancy, however, methods that prevent ovulation are best.
- Mildly abnormal liver function tests would not prevent hormonal contraceptive use – only acute hepatitis or severe liver disease.

Some common scenarios

- A young diabetic woman. First, one needs to check whether she has already got signs of arterial disease such as retinopathy or renal disease. If she has, a COC would be contraindicated but she could use any progestogen-only or intrauterine method. If she has no current signs of arterial disease, but has any of the arterial risk factors listed – overweight, smoking, migraines (even a simple migraine), hypertension, hyperlipidaemia or she is 35 years old or more – she cannot use a COC.
- A woman with epilepsy. Estrogen has a tendency to increase the frequency of convulsions and progesterone to decrease them. This is not usually a problem for COC users, but progestogen-only contraception may help when epileptic control is difficult. If an epileptic woman is taking a liver enzyme-inducing anticonvulsant (see list in table) she will have to use a higher dose COC, such as Microgynon 50. Breakthrough bleeding suggests the dose is not high enough and two 30mcg estrogen COCs daily can be used. Progestogen-only pills and implants will not be effective enough while on enzyme-inducing medication, so she will have to use an injectable, intrauterine or barrier method. Lamotrigine blood levels may be decreased in COC users. Women using Depo Provera can have their injection at the usual 12 weekly interval.
- A nulliparous young woman wants to use a COC – her mother had a deep vein thrombosis (DVT) during pregnancy while in her 20s. As DVTs are commoner soon after commencing a COC and this young woman has not experienced the higher estrogen levels of pregnancy, it is important to check whether she has a thrombophilia before prescribing her a COC. If one knows that the mother had a thrombophilia, the specific abnormality can be checked. Otherwise, the commoner types are tested for by requesting activated protein C resistance and prothrombin mutation. She could start a progestogen-only method once she has had the blood test taken and remain on that if an abnormality is found.

When it comes to permanent contraception, there can be a dilemma about which partner should have the procedure. If the woman has a life-threatening condition, her partner may want to remain fertile for the future, but she may not be in a good physical state to withstand surgery. The recent introduction of the Essure system, with hysteroscopic placement in the fallopian tubes, may be particularly appropriate in this situation.

Ideally, a couple should use a contraceptive method that they themselves like, as this should lead to good continuation rates. However, when a woman has a health problem, the couple may have to look at another method that they may not be so happy to continue with. Good counselling is, of course, essential when choosing a contraceptive method or if problems arise during its use.

References

1. Guillebaud J. *Contraception: your questions answered*. Churchill Livingstone Elsevier. 5th edition; 2009.
2. Faculty of Sexual and Reproductive Healthcare. The UK medical eligibility criteria for contraceptive use, summary sheets. Available from http://www.ffprhc.org.uk/admin/uploads/UKMECSummarySheets2009.pdf .
3. The National Heart Foundation of New Zealand Advisory Group. Guidelines for the prevention of infective endocarditis associated with dental and other medical interventions. Available from http://www.heartfoundation.org.nz/files/Infective%20Endocarditis%20Guide.pdf . 2008.

Clinical handover
Dunedin, New Zealand

Dr Celia Devenish
FRANZCOG

The handover meeting at Dunedin Hospital starts promptly at 8am in a large teaching room adjacent to the delivery suite. This location allows privacy and the opportunity to communicate freely. The more relaxed environment enables open discussion of women's needs and relevant teaching points that may be raised.

Variously reported as the 'highlight of the day' and 'too useful to be missed', the multidisciplinary handover is attended not just by the on-call consultants, but by all senior and junior staff on site including students. Most importantly, the core lead midwife and midwifery leader actively participate in the process and the gynaecology nurse manager shares the relevant part of the meeting. Other interested parties including, lead maternity carers (LMCs) and social workers, are made welcome.

'...the handover promotes teamwork and cooperation. It also provides a supportive environment for teaching, learning and discussion, where individual experiences and viewpoints are shared.'

The cases are presented by the night registrar, who is only interrupted for clarification or discussion of interesting or salient points. The discussion is generally led by the incoming consultant of the day. All attending the meeting are welcome to offer relevant information, which may be known to only them, or to add a dissenting point of view. The only rule encouraged is that comments be to the point and evidence-based rather than based on subjective experience.

During the 24-hour day, the electronic whiteboard is updated constantly. For the morning handover, printed versions are available to all the incoming team to allow annotations.

There is evidence that oral and written handover with annotation allows a 90 per cent retention of information compared with oral alone, which reportedly results in less than 50 per cent retention.[1] For privacy, care is taken to destroy any excess written material in a nearby shredder.

The night registrar presents all cases commencing with immediate patient concerns and progresses in a timely fashion through the inpatients on delivery suite and antenatal wards. Any postnatal issues are covered, followed by the acute gynaecology admissions over the 24-hours and acute cases booked in theatre.

Finally, a summary of all the procedures and referrals seen on delivery suite in the last 24 hours is given. This includes the number of inductions of labour, emergency caesarean sections, elective procedures, assisted vaginal deliveries and acute case referrals seen in the day assessment unit. This running record complements the database. If the registrar is involved in acute work, the meeting is conducted by the senior medical officer from the previous or current day.

The printed basis for the handover details is taken from the electronic whiteboard as illustrated below:

NHI NAME AGE	BMI	Gravidity Parity	Gestation weeks	LMC	Admission reason	Results Details of plan
ABC 123	25	G 4 P2+2	32	A Green	APH 12 hours ago	Hb 101 CTG reassuring asymptomatic uterus SFD soft. Awaiting growth USS. Breech... Placenta posterior clear os. swabs pending. Speculum old blood at os multip cervix. ? marginal bleed. Smokes 10/day

Antenatal and delivery ward admissions and relevant delivery details are updated constantly.

The electronic inpatient board format utilises the Maternity Plus Database to reflect relevant clinical details as illustrated above. Whiteboards are placed in private areas of the labour ward and the postnatal reception area. A trial use of the electronic board at the handover meeting was less successful, as the ability to read and annotate details on a personal copy was found advantageous and preferable, as reflected in evidence backed up by literature.[2]

The majority of LMCs in New Zealand are Midwifery and Maternity Providers Organisation (MMPO) members who also use the Maternity Plus electronic or paper maternity notes. It is envisaged that both the woman's personal record and hospital database, Maternity Plus, systems will interface in the near future. This will create an electronic record for each pregnancy that will be accessible to all health providers as well as the women themselves. Subsequent handovers during the day in delivery suite are at 4pm, when residents change shifts, and at 10:30pm, when night registrar shift starts. There is allocated cross-over time to facilitate an effective handover. This allocation of sufficient time was recognised by the Royal College of Surgeons of England in *Safe handover: Guidance from the Working Time Directive working party.*[3]

While the handovers late in the day are primarily for junior staff, the consultants are usually on the floor, and they themselves handover at 5pm.

Summary
The aims and benefits of a well-attended multidisciplinary meeting include the following:

- Risk management, as all staff are aware of potentially high-risk cases;
- Consistency of care, as management plans made by consensus are unlikely to be changed;
- Prioritisation of cases, as the incoming team's workflow management is facillitated;
- Proactive plans are clearly formulated by the lead consultants for complex cases after open discussion and consensus;
- Learning opportunities are maximised from case presentation and CTG availability cases from other teams;
- Overview of outcomes, as interesting cases from previous days' discussions are shared;
- Presentation skills, as junior staff have the opportunity to present;
- Role modelling via discussions when consensus on case management exists;
- Evidence-based practice, as relevant information can be discussed or researched;
- Identification of cases meriting further discussion at perinatal maternal and morbidity and other meetings; and
- Study topics, as opportunities suitable for trainee or registrar projects become evident, for example, summer student research subjects.

Other benefits include the opportunity to rearrange rostering if there is illness, confirmation of duties and that if there is an error in the roster it is noted and sorted early in the day. The opportunity to catch up with colleagues is invaluable, making the handover a pivotal part of the day.

Midwifery colleagues feel that the handover meeting provides an opportunity for the multidisciplinary team to get an idea of 'the state of the unit'. Early indication of staffing needs, clinical workload and other challenges such as retrievals can be anticipated before the immediate need arises.

Midwives also comment that the handover promotes teamwork and cooperation. It also provides a supportive environment for teaching, learning and discussion, where individual experiences and viewpoints are shared.

In summary, I believe the time investment of a clinical handover meeting creates efficiencies. At the same time, it fosters an atmosphere for reflective learning and team building. The relative disadvantage of taking 20 to 30 minutes from the start of the day is, I believe, far outweighed by the above-mentioned benefits for women and carers alike, and increased team rapport. The staff preparing, presenting and participating in the handover benefit from formative and reflective learning.

This system has been evolving and working well in Dunedin for more than 12 years. Those interested in the benefits of increased maternal safety, staff confidence and job satisfaction at all levels should review the literature as outlined in the *Australian Medical Association Clinical Handover Guide – Safe Handover: Safe Patients* document.[4]

References

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3. Royal College Surgeons of England, 2007. *Safe Handover: Guidance from the Working Time Directive working party*.
4. AMA. *Clinical Handover Guide - Safe Handover: Safe Patients*. 2007. Access at: http://ama.com.au/node/4064 .

New Zealand registrars' clinical anatomy workshop

Dr Celia Devenish
FRANZCOG

Dr Kate van Harselaar
RANZCOG Trainee

This clinical anatomy weekend workshop for registrars was held in the Anatomy Department of Otago Medical School in Dunedin, New Zealand, for the first time in September 2010. Judging by its success, it is likely to become an annual event.

Course evaluation comments included:
– 'Great to have consultant participation and only three trainees to one cadaver.'
– 'Good practice to have a platform for critiquing yourself in front of a peer.'
– 'I liked listening to the complications and how they were dealt with.'
– 'Question sheets were great – I learnt a lot from these.'

The Otago Medical School was founded in 1875 and the first Dean was Anatomy Professor John Holland Scott. Since then, the Anatomy Department has flourished. It hosts a vibrant research program, student teaching for all health science programs and support for obstetric perineal workshops.

Pelvic clinical anatomy was an area identified as a learning need when the RANZCOG New Zealand Training and Accreditation Committee surveyed newly appointed registrars. With the support of the university staff cadavers, were sourced.

The registrars were able to benefit from the department's extensive museum adjacent to the dissecting room. Lakita Somalia from the Anatomy Department supervised the anatomical dissection, with a surgeon leading each table of three trainees. Throughout the day, registrars alternated between cadaver dissection and small group teaching based on clinical questions. Plastinated prosections, models and 3D anatomy computer programs were used to assist learning. Samples of the self-directed learning questions follow.

Learning in action at the anatomy workshop.

The trainees were able to explore pelvic anatomy, from the first skin incision through to pelvic lymph node dissection. Although, lymph node dissection wasn't as easy as first thought! The lateral side wall was explored, and Wertheim's hysterectomy and Burch colposuspension were performed. All the major vessels and nerves in the pelvis were demonstrated by the trainees. The route of various pelvic floor repair tapes were demonstrated at dissection. A session on anatomical considerations with a tension-free vaginal tape (TVT) exact insertion was given by our local urogynaecology subspecialist.

Trainees prepared a four-minute operative case complication prior to the workshop. Then each trainee presented this at the weekend.

The weekend proved to be a great success, further assisted by sunshine and a fine Indian dinner. Dunedin plans to offer the course on a regular basis in the future. Anyone interested can contact kate.bell@ranzcog.org.nz .

Examples of self-directed learning questions:

Omentectomy
An omentectomy is required as part of a gynaecological procedure.

1. What is the greater omentum?
2. What blood vessels supply the omentum?
3. What happens to the different peritoneal compartments when you remove the omentum?

Motor vehicle accident (MVA)
A woman is in the emergency department after injury in a MVA. Her last menstrual period was 11 weeks ago. Examination findings are stable but the pubic rami are fractured after hitting the lower portion of the steering wheel. You are asked to consider the damage such a pelvic fracture could cause in a pregnant woman.

1. What organs could be damaged?
2. What is your management plan?
3. Should a haemoperitoneum develop, from where might this arise?

Straddle injury
A six-year-old girl playing on a playground climbing frame sustained a straddle injury to the groin. There is bleeding and dip stick shows haematuria.

1. What is your plan?
2. What blood vessels might cause the bleeding?
3. How will you manage the case?

Mandatory reporting

Michael Gorton AM
LLB, FRACS (Hon), FANZCA (Hon)

A new national regime for mandatory reporting of health professionals will apply from 1 July 2010 in Australia. The *Health Practitioner Regulation National Law* makes all health professionals liable to make mandatory reports in relation to the conduct of other health professionals.

For the first time, mandatory reporting requirements apply nationally throughout Australia. Additionally, it applies across the ten health professions regulated under the new legislation (doctors, nurses, dentists, optometrists, osteopaths, pharmacists, physiotherapists, chiropractors, podiatrists and psychologists).

Mandatory reporting is not new. Existing legislation in Queensland and New South Wales requires mandatory reporting by doctors in relation to the conduct of doctors. However, the significant difference under the new law is that any health professional in the ten professions may be required to report in relation to any other health professional.

Notifiable conduct

The trigger for reporting is if 'notifiable conduct' occurs. This is where a registered health practitioner:

- practices while intoxicated by alcohol or drugs;
- engages in sexual misconduct in connection with practice;
- places the public at risk of substantial harm in his or her practice because of impairment; or
- places the public at risk of harm in his or her practice in a way that constitutes a significant departure from accepted professional standard.

When to report

A registered health practitioner is required to report another registered health practitioner if the first person forms a reasonable belief, in the course of his or her practice, that notifiable conduct has occurred. That is, if you are a registered health practitioner, you must report if you believe that another registered health practitioner has behaved in a way that constitutes notifiable conduct.

Under these circumstances, you are required to notify the Australian Health Practitioner Regulation Agency (AHPRA) as soon as practicable. There is no set time limit, but clearly, reports of notifiable conduct should be made at the earliest practicable opportunity, once a reasonable belief has been formed that notifiable conduct has occurred.

Notification is also required in relation to students. Students, who are required to register under the new law, must also be notified if they are placing the public at substantial risk of harm because of impairment.

What if I don't notify

It is not an offence or criminal act if a health practitioner fails to make a mandatory report. However, the failure to make a mandatory report can be referred to the relevant Board for consideration as to whether the failure constitutes misconduct, and the relevant Board would decide what, if any, sanctions apply.

Exceptions

General exceptions apply to information that is obtained in the course of actions relating to insurance claims for professional indemnity insurers, if the information is obtained in relation to legal proceedings or providing assistance or advice in legal proceedings. An exemption applies for a health practitioner who is a lawyer, for providing legal assistance.

An exemption applies to registered quality assurance committees or bodies, registered under State or Territory legislation or under Commonwealth legislation. These statutory schemes provide statutory confidentiality for information obtained pursuant to the registered activities. If statutory confidentiality applies, then a mandatory report is not necessary.

A report is not required if a health practitioner knows or reasonably believes that AHPRA has already been notified in relation to the conduct. Thus, if another health practitioner or the employer of the person involved has already notified AHPRA, then no further report is required.

What is not excepted

There is no exception for information that comes to a health practitioner as a treating doctor or treating health professional or for information obtained in the course of a health program for health practitioners (unless the program is registered under the statutory schemes referred to above).

Employers

If an employer reasonably believes that an employee health practitioner has behaved in a way that constitutes notifiable conduct, a mandatory report to AHPRA must be made. Many health professionals are not employees of hospitals or aged-care facilities, and, accordingly, the report is only required in respect of health professionals who are employees.

If AHPRA becomes aware that an employer has failed to make a mandatory report, AHPRA is required to report that failure to the responsible State or Commonwealth Minister for consideration and action.

Education providers

An education provider is required to notify in relation to its students, if the education provider reasonably believes that the public is at substantial risk of harm arising from impairment of the student.

Voluntary notification

As with existing legislation, members of the public and health professionals can make voluntary notifications if they believe that there has been any misconduct or any cause of concern in relation to a health practitioner.

Voluntary notification can certainly be made for a range of expanded grounds, for example:

- any impairment of a health practitioner;
- conduct of a health practitioner that is of a lesser standard than expected;
- if the health professional is not a fit and proper person; or
- if there is any legal contravention.

Protection
Section 237 of the new law gives protection from civil, criminal or administrative process where a notification is made to AHPRA 'in good faith'. If a notification is made for malicious or vindictive purposes, this protection may be lost.

The protection would prevent any action for defamation, and the protection applies whether the notification to AHPRA is made on a mandatory or voluntary basis, so long as it is made 'in good faith'.

Can I be sued if I fail to report?
There is some case law that suggests that if a person fails to make a mandatory report, which they are required to make, and other people are injured after that time, the injured parties could sue the person who failed to make a mandatory report. This issue is not clearly determined, but leaves open the question as to whether a civil claim of this nature could arise.

General
There is much more information regarding the new Australian national registration and accreditation scheme on the AHPRA website at: www.ahpra.gov.au .

AHPRA is also maintaining telephone advice lines during this period to assist all health professionals, employers and health bodies to understand their rights and responsibilities under the new scheme.

Michael Gorton is a Principal of Russell Kennedy Solicitors and is a member of the Agency Management Committee of AHPRA.

Asia Pacific Committee

Involved in a developing country?
We'd love to hear from you!

The APC is keen to be kept informed about activities and involvement of our Fellows in all developing countries, but particularly the Asia Pacific region. From this information we will be able to increase valuable networks and build a more comprehensive picture of the involvement of College Fellows in the region, either under the auspices of the College or via other avenues or personal connections you may have.

Please send one paragraph outlining details of any activities/projects/consultations you have been involved in over the past year or details of activities you will be involved in for the coming year to:

Carmel Walker
Coordinator Asia Pacific Services
(e) cwalker@ranzcog.edu.au

Are you interested in donating items to the Historical Collections?

We welcome enquires regarding donations.

If you have any items that you believe might be of value to the Historical Collections and you would be interested in donating them, please see the instructions below:

- Compile a list of items with a brief description. For books, include author, title, publisher, place and date. For archival and personal papers, include details. For museum items, include a brief description and the history of how you acquired it and attach a photograph.
- Email or post the list to one of the Historical Collections staff at the College.
- Contact the staff by telephone if you wish to discuss any items.

We look forward to hearing from you and would be delighted to consider any items you may wish to donate.

Librarian: Di Horrigan Tuesday 9am-5pm
ph: +61 3 9412 2927 email: dhorrigan@ranzcog.edu.au

Museum Curator: Gráinne Murphy Monday 9am-5pm
ph: +61 3 9412 2927 email: gmurphy@ranzcog.edu.au

Archivist: Ros Winspear Mon, Wed, Thu 9am-5pm
ph: +61 3 9412 2934 email: rwinspear@ranzcog.edu.au

Did you know

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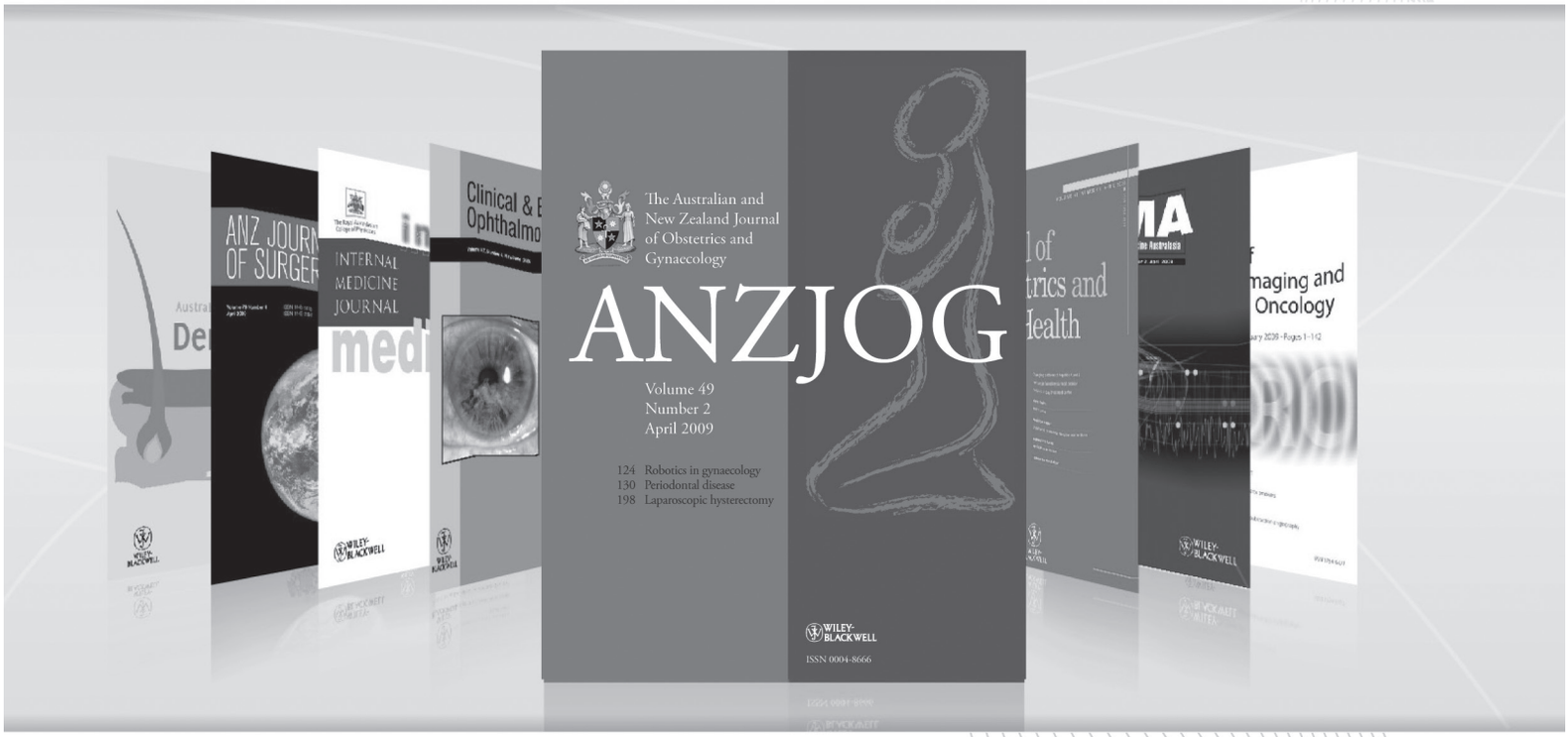

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RANZCOG Fellow named rural doctor of the year

Dr Mourik received his award in Hobart at the Rural Medicine Australia 2010 Conference.
© 2010 ACRRM. Photo: Layne Hardcastle

Rural obstetrician and former Provincial Fellows Councillor, Dr Pieter Mourik was awarded the Westpac Rural Doctors Association of Australia (RDAA) Rural Doctor of the Year Award for 2010 at a gala dinner at the recent Rural Medicine Australia 2010 Conference, held in Hobart on 23 October 2010.

Dr Mourik received the highly esteemed award in recognition of his exceptional dedication and significant service to rural medicine and the rural community across Australia, in particular, his role in championing the establishment of a successful national locum scheme to support overworked rural obstetricians in Australia, called the Specialist Obstetricians Locum Scheme (SOLS).

'I am absolutely delighted and honoured to be awarded the 2010 Westpac RDAA Rural Doctor of the Year Award. This award could have been given to other deserving rural doctors whose tireless efforts to maintain high-standard medical services to rural communities needs to be recognised,' said Dr Mourik.

'I acknowledge the great work RDAA has done for rural obstetricians around Australia; in particular, the highly successful SOLS program developed through the RDAA Rural Specialist Group in conjunction with RANZCOG and the NSW Rural Doctors Network.'

'It is well known that there are critical shortages of all doctors in the country and the retention and recruitment of more, younger obstetricians to the country is still a major concern.'

'I encourage all rural doctors to assist the future recruitment of the next generation of rural obstetricians by acting as a "mentor" to a medical student or young trainees and assist them to attain the skills and courage they need, to succeed in a rural practice.'

Further information and application forms can be obtained from the SOLS website: www.ranzcog.edu.au/sols/index.shtml . Please direct all enquiries to the SOLS Secretariat: +61 3 9412 2912 or sols@ranzcog.edu.au .

Have you changed your address or email account recently?

Have you notified the College of these changes?

If not, please update your contact details via the RANZCOG website (www.ranzcog.edu.au) and follow the link to 'Update contact details' or call 03 9417 1699 to notify the College of your changed contact details.

CALL FOR ABSTRACTS

3-5 JUNE 2011
CAIRNS CONVENTION CENTRE
QUEENSLAND

www.ranzcog.edu.au/iwhm2011

CALL FOR ABSTRACTS

Abstracts are invited for Free Communication and Poster Presentation for the RANZCOG 2011 Indigenous Women's Health Meeting. Abstracts are welcome on any topic relevant to Indigenous women's health. The deadline for abstract submission is **Friday 11 February 2011**.

About the Meeting.

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) is convening a second Indigenous Women's Health Meeting with the aim of bringing together health professionals with the common interest and desire to improve the health and well-being of Aboriginal and Torres Strait Islander women. The RANZCOG 2011 Indigenous Women's Health Meeting will be held at the Cairns Convention Centre on Friday 3 to Sunday 5 June 2011.

The meeting will have a diverse program of presentations covering cultural issues, current public health information, clinical topics, a focus on youth and young women's health and medico-political opinions. The meeting will develop on themes of the inaugural meeting held in Darwin in 2008, which was attended by 351 delegates.

Abstracts are invited for Free Communication and Poster Presentations. Abstracts will be reviewed and selected by the Academic Committee. Acceptance or otherwise is at the discretion of the Academic Committee and notification will be sent to the presenting author by email.

Please note that all presenters (Free Communications and Posters) must register for the meeting and pay the appropriate registration fee.

Presentation Format.

When submitting your abstract, please indicate your preferred presentation format; whether you wish your abstract to be considered for Free Communication Oral Presentation only, Poster Presentation only or both (i.e. if you wish your abstract to be considered firstly for Free Communication and secondly for Poster Presentation in the event that the abstract is not accepted for Free Communication).

Free Communications

Free Communications will be allocated a ten minute presentation followed by five minutes discussion time. Strict time schedules will apply. Particular attention should be paid to keeping PowerPoint presentations short, concise and relevant. Abstracts not selected for Free Communications may be invited for Poster Presentations.

Poster Presentations

Poster presentations will be on display for the entire meeting and delegates will be invited to view the Posters during the lunch breaks.

Abstract Preparation Guidelines.

1. Length and Structure

- Please limit abstracts to a maximum of 250 words excluding title.
- Where possible, abstracts should be structured to contain subheadings such as objective, statement of findings or supporting information and key conclusions or recommendations.

2. Spelling and Grammar

- All abstracts should be written in English and thoroughly checked for spelling and grammar before submission.

3. Layout and Format

- Each abstract must be prepared in Microsoft Word; no other formats will be accepted.
- The title of the abstract should be written in sentence case i.e. initial capital letter, followed by lower case.
- List details of the author/s name/s (surname followed by initial of first name with a comma separating each author).
- Abstracts should be submitted by the presenting author. Please noiminate only one author per abstract as the 'presenting author'.
- Name of the nominated presenting author must be asterisked (*).
- List author/s affiliation/s (organisation, city, state), separated by commas. Author/s and affiliation/s to be linked by a superscript number.
- Please note that double spacing should separate the title, author/s name/s, affiliation/s and body of the text.
- Please refrain from using printed enhancements such as italics, underlining, bold text etc. Italics may be used for non-English words or scientific names where necessary.
- Please note abstracts may be re-formatted for publication in the program handbook.

Abstract Sample

Obstetric solutions

Phillips J[1]*, Thomas D[2]

[1] Women's and Children's' Hospital, North Adelaide, South Australia
[2] Royal Brisbane & Women's Hospital, Brisbane, Queensland

Insert abstract text in typed English not exceeding 250 words.

Further Information

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(e) 2011iwhm@ranzcog.edu.au
(w) www.ranzcog.edu.au/iwhm2011

CALL FOR ABSTRACTS

Abstract Submission Guidelines.

- Closing date for abstract submission is **Friday 11 February 2011**.
- All abstracts must be submitted in electronic format via email to 2011iwhm@ranzcog.edu.au . Should you experience any problems, please contact the Meeting Secretariat for assistance: phone +61 3 9412 2922 or email kgrose@ranzcog.edu.au .
- Please note that faxed submissions will not be accepted.
- If you wish to submit more than one abstract, please send each abstract in individual email submissions.
- Abstracts should be submitted by the presenting author.
- Accepted abstracts may be published in the meeting program handbook; submission of abstracts implies the author's agreement to publish the abstract in the meeting program handbook.
- Please note that all accepted presenters (Free Communications and Posters) must register for the meeting and pay the appropriate registration fee.

Please ensure you have included the following required information within your abstract prior to submitting an abstract electronically:

- Presenting author contact details (name, organisation, contact email and telephone number).
- Title of abstract.
- Preferred presentation type (Free Communication Oral Presentation, Poster Presentation or both).
- Name and organisation of any co-author/s.
- Abstract prepared in the format specified under 'Abstract Preparation Guidelines'.

A confirmation email will be sent to the nominated email address of the presenting author following receipt of submitted abstract. If you do not receive a confirmation email acknowledging receipt of submitted abstract please contact the Meeting Secretariat.

Grant Opportunity.

The RANZCOG is offering a number of grants to Aboriginal health workers, Indigenous nurses, Indigenous doctors and Indigenous trainees and medical students who would like the opportunity to attend the RANZCOG 2011 Indigenous Women's Health Meeting as a sponsored presenter. Grants will cover meeting registration costs, airfares and accommodation, if required.

If you are an Aboriginal or Torres Strait Islander person working or studying in Indigenous health and wish to attend and present a Free Communication Oral Presentation or Poster at the meeting, visit the meeting website **www.ranzcog.edu.au/iwhm2011** for further details with regard to the selection criteria and application process.

Acceptance Notification

Acceptance or otherwise is at the discretion of the Academic Committee. Notification will be sent to the presenting author by **Friday 25 February 2011**. Full instructions for accepted presenters will be forwarded on acceptance of the abstract.

Key Dates.

Deadline for receipt of abstracts	Friday 11 February 2011
Authors notified whether abstracts have been accepted	Friday 25 February 2011
Authors to confirm participation	Monday 11 March 2011
RANZCOG 2011 Indigenous Women's Health Meeting	Friday 3 to Sunday 5 June 2011

Cord blood banking's coming of age

Mark Kirkland
Medical Director, Cell Care Australia

The storage and use of umbilical cord blood (UCB) has been with us over 20 years – the first transfusion was a sibling transplant in France for the treatment of Fanconi's anaemia. Since then, thousands have taken place around the world.

The vast majority of cases of the use of UCB have been allogeneic transplants from the public banks through the Bone Marrow Donors Worldwide (BMDW) network. Increasingly, however, cases of autologous or family use are occurring. These are typically done through private banks.

Australia lags considerably behind most of the developed world in the rates of autologous cord blood collection. Currently, cord blood storage in private banks only takes place in an estimated one per cent of births in Australia, while in the US and the UK uptake runs at four per cent, Greece is estimated to be at 12 per cent and countries such as Korea and Singapore are as high as 20 per cent. A major reason for this is that the value of cord blood storage and the likelihood of the cord blood being used has long been a contentious issue in the obstetric community in Australia. Much of this controversy surrounds the probability of these samples being used, with early estimates for autologous use being as low as one in 200,000. However, experience in Australia and overseas has demonstrated that these estimates are, in all likelihood, incorrect by several orders of magnitude and usage rates are projected to increase in the future as additional clinical applications for UCB are developed.

In the US, the current expected rate of utilisation of UCB stored in 'family banks' is around one in 2700. Australia's largest private bank, Cell Care Australia Pty Ltd, is currently running at a rate of one sample release per 10,000 'storage years' – if this rate of utilisation continues, then the probability of use by the age of ten will be around one in 1000. However, in the future it is likely to be much higher as the value of cord blood becomes better understood and the range of clinical indications for UCB is more fully recognised. Globally, a significant body of research is being undertaken in the use of stem cells (and other cell types) in UCB for regenerative medicine. Australia is now pushing to be in the vanguard of this, with development work underway or planned in a number of areas, including the following:

- Clinicians at Monash Institute of Medical Research are currently proposing a trial studying the use of autologous UCB in the treatment of cerebral palsy (which affects 1 in 400 children). More than 250 children have been treated in this way at Duke University in the US, with anecdotal reports of some startling outcomes. Formal clinical trials are currently underway in the US (at Duke and the University of Georgia) and in Germany.
- Funding is being sought for an Australia-wide trial of autologous UCB in children at high risk of developing type 1 diabetes. This trial is designed to test the hypothesis that the regulatory T-cells in UCB can restore self tolerance in children during the early stages of autoimmunity. Type 1 diabetes affects one in 250 children in Australia and the incidence is increasing at a rate of one per cent per year.
- Two UCB 'stem cell expansion' technologies are in, or are about to commence, Phase 3 trials. If these prove successful then UCB will be a potential source of stem cells for life, not just during childhood. A recent study estimated the lifelong probability of requiring an autologous stem cell transplant, for current indications, as one in 400, increasing to one in 200 if allogeneic transplant is also considered.

Loading cord blood sample cassettes into a cryovessel. Image © Cell Care

One important step, as the cord blood banking world matures, is to build awareness of the process and its potential value and to share this with all stakeholders involved in the field. Providing objective and balanced information to enable prospective parents to make an informed decision, is critical. In the US, this need has been recognised in more than 20 States that have passed legislation requiring obstetricians to inform all parents-to-be of the options for cord blood collection.

A proportion of the medical community has long harboured concerns about cord blood storage and the position of autologous

Part of Cell Care's storage facility.
Image © Cell Care

cord blood banks. The crux of the issue is whether it is reasonable or ethical to promote the concept of storing autologous UCB on the basis of therapies or technologies that are still under development and might ultimately never be realised. This is the core dilemma of the whole field – an inescapable 'Catch-22'. It is not possible to do the clinical trials that will demonstrate the utility (or otherwise) of UCB in diseases such as type 1 diabetes or cerebral palsy (and even more so for conditions such as spinal cord injury and stroke) unless parents have made the decision to bank the cord blood at birth many years beforehand. However, if parents do not make (or are not allowed to make) this choice in advance of the evidence, that evidence will never be generated.

Perhaps it is time for the other side of this argument to be aired: is it reasonable or ethical to deny appropriately informed parents the right to store their child's cord blood? In the US this argument has largely been answered. In Australia, in contrast, it remains a moot point, with a number of obstetricians and institutions discouraging, or sometimes not permitting, autologous collection. Much of the argument seems to have focused on the medico-legal liabilities the doctor or hospital may be taking on when agreeing to store cord blood, even though this liability is fully covered by all of the private banks. Ironically, the reverse liability, where an obstetrician or institution refuses a request to store the cord blood which is subsequently needed for therapy, has gained very little attention.

Conclusions

We are currently in something of a transition with regard to autologous UCB banking. On the one hand, the future therapeutic potential of UCB in an array of diseases, as presented in the stem cell scientific literature, seems to be enormous. Howeever, on the other hand, there is only one therapeutic use that is currently accepted in Australia. Advocates and sceptics of autologous UCB banking might therefore almost be characterised along the lines of 'glass half full' versus 'glass half empty' world views. Only time will tell which has greater validity.

The questions and uncertainties surrounding autologous UCB banking will take many years to resolve and the answers are unlikely to be black and white. Perhaps the most important issue is not whether UCB will prove to be a 'silver bullet' or an over-hyped dream (or, more likely, something in between), but rather whether it is the right of appropriately informed parents to make a choice about their child's future.

About Cell Care

Cell Care is Australia's largest autologous cord blood bank. Previously called Australian Stem Cell Healthcare, it was formed by the merger of Biocell and Cellsense. In 2009, Alastair Lucas, Chairman of the Burnet Institute and a member of the Dean's Advisory Board for Monash University, Faculty of Medicine, Nursing and Health Sciences, and Jim Craig, a Director of the Murdoch Children's Research Institute, became the major shareholders of the company. In moving into the field, both have committed Cell Care to a path where it works with all major stakeholders to:

- provide balanced and objective information to parents to enable them to make an informed decision on whether to store their children's cord blood;
- promote a position where the value of both allogeneic and autologous storage is recognised;
- develop a better understanding of the medical benefits of cord blood therapy by supporting clinical trials;
- make the option of cord blood storage available as widely as possible; and
- ensure there is strong, open dialogue with the medical community and that all appropriate support is provided to enable them to give the highest levels of care to their patients.

For further information please visit the Cell Care website (www.cellcareaustralia.com) or call +61 3 8551 0200.

Q&a

Q&a attempts to provide balanced answers to those curly-yet-common questions in obstetrics and gynaecology for the broader O&G *Magazine* readership including Diplomates, Trainees, medical students and other health professionals.

Q

A 21-year-old woman is concerned that in the days leading up to her period she becomes depressed, irritable, cries easily and has difficulty sleeping. Her breasts become very tender and she feels bloated and tired. Introduction of the oral contraceptive pill six months ago has not provided any relief. What are the current treatment options for premenstrual dysphoric disorder?

Dr Tania Hingston
FRANZCOG

a

The diagnosis in this woman is almost definitely premenstrual syndrome (PMS). This is a condition evidenced by the presence of physical and behavioural symptoms occurring repetitively in the second half of the menstrual cycle that have a negative impact on some aspects of the woman's life. Approximately 30 per cent of women with regular menstrual cycles are affected by PMS, although some form of premenstrual symptomatology is observed in 75 per cent of women.[1] Premenstrual dysphoric disorder (PMDD) is a severe form of PMS, defined in the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*[2] as having prominence of psychological symptoms including anger, irritability and internal tension. An estimated three to eight per cent of those women with PMS are actually affected by PMDD.[3] Most practitioners would recognise this patient as suffering from PMDD, the more extreme form of PMS.

It is important to accurately determine the timing of these symptoms to ensure that there is not another psychiatric diagnosis underlying them. To fit the criteria for PMDD, symptoms should be completely resolved by day four of the cycle and not recommence until after day 12. It should also be remembered that certain other conditions will exhibit premenstrual exacerbations, such as migraine and irritable bowel syndrome, and every attempt should be made to exclude these alternative causes of cyclical symptoms.

Cyclic changes in serum estrogen and progesterone levels result in changes in certain neurotransmitter systems, with the serotonin, GABA (gamma-aminobutyric acid) and opioid systems most affected.[4] The aetiology of PMDD is likely based in these neurotransmitter changes. The main treatments that have been studied for PMDD, therefore, have aimed at manipulation of the neuroregulatory systems, particularly serotonin, as this is most strongly implicated in the aetiology of PMDD, or amelioration of the estrogen and progesterone fluctuations.

Selective serotonin reuptake inhibitors (SSRIs) have been shown in systematic reviews to be effective in management of PMDD[5,6], with overall response rates of 60 to 75 per cent. Fluoxetine is the most extensively studied, in a dose of 20 mg/day; higher doses do not appear to enhance therapeutic effect, but are associated with more side effects. Sertraline (50 to 150 mg/day), paroxetine (20 to 30 mg/day) and citalopram (20 to 30 mg/day) also appear to be effective, as does venlafaxine, a serotonin norepinephrine reuptake inhibitor (SNRI).[7] Luteal phase dosing is often used initially, targeting therapy to the symptomatic window and reducing the potential for side effects, however, this is less effective at controlling symptoms (OR 0.55 for intermittent dosing versus 0.28 for continuous dosing, both with statistical significance).[8] Other classes of antidepressants, such as tricyclic antidepressants and monoamine oxidase inhibitors, are not effective therapies for PMDD.

There are a few studies suggesting alprazolam, a benzodiazepine, is effective therapy for PMDD. Given the addictive potential of this agent, it is best reserved as a second-line therapy.

There is some early evidence that a new antiepileptic medication, levetiracetam, is effective in reducing the symptoms of PMDD.[9] Further investigation is required before this agent can be recommended as a treatment modality.

Manipulation of ovarian hormones can also improve PMDD symptoms. GnRH agonists have been shown to be effective, particularly for depressive symptoms, presumably by creating a medical oophorectomy and therefore preventing the cascade of events triggered by fluctuating ovarian steroids.[10] The possible side effect of loss of bone mineral density with these agents can be ameliorated by the use of continuous add-back estrogen and progesterone – continuous rather than cyclical use ensures no recurrence of symptoms. Danazol can be effective if given in doses sufficient to result in anovulation, but its androgenic side effects limit it to a second- or third-line agent.[11]

Oral contraceptives have also been used for PMDD management, with initially discouraging results. More recent evidence has supported the use of an oral contraceptive containing progestin and drosperinone, used with a four-day rather than a seven-day pill-free interval.[12]

Various alternative therapies have also been suggested for the management of PMDD. Calcium supplementation at a dose of 600 mg twice daily appears to be effective.[13] There is limited evidence for beneficial roles of vitamin B6 (up to 100 mg/day), magnesium and vitamin E supplementation. Some low-quality evidence suggests possible usefulness of exercise, relaxation, reflexology, light therapy, non-steroidal anti-inflammatory drugs and diuretics, specifically spironolactone.[14] Further evidence is required before any of these can definitively be said to be of use. Progesterone, beta blockers, evening primrose oil and numerous dietary supplements and herbal remedies have not been shown to be effective. While surgical oophorectomy with or without hysterectomy appears to be effective therapy, this is an extreme solution that should be considered only for those women with symptoms refractory to all other treatment modalities.[10]

In this patient, my first approach would be to discuss the importance of lifestyle factors including stress reduction, diet and exercise, and I would commence calcium and vitamin B6 supplementation. Continuation of the oral contraceptive pill would depend on the patient's requirement for contraception. The implications of any therapy in the setting of unplanned conception should be addressed. A low dose of an SSRI would be the best option, after discussion with the patient. This could initially be used intermittently if preferred by the patient to daily use, but if symptoms persist with luteal phase dosing, then an increase to daily use would be recommended. If the first agent used proved ineffective, a trial with an alternative SSRI would be appropriate prior to resorting to second-line therapies. The patient should be warned of the 15 per cent incidence of side effects, most prominently nausea, headache and jitteriness. The patient should also be counselled not to be disheartened if there is no response with her first cycle, as it may take three or four cycles for the therapeutic effect to be established.

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RANZCOG members are invited to submit questions, tips or interesting cases to *Q&a*.
Please send entries to *Q&a* @ *O&G Magazine* via:
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(fax) +61 3 9419 0672
(mail) 254-260 Albert Street, East Melbourne, VIC, Australia 3002

Journal Club

Had time to read the latest journals? Catch up on some recent O and G research by reading these mini-reviews by Dr Brett Daniels.

GP obstetrics

This article, written by a Diplomate from Western Australia, reports an audit of 195 singleton pregnancies managed by the author's practice from 2007 to 2009. He reports that approximately one-fifth of Western Australian women deliver their babies in rural and remote areas of the State, with most of their care provided by GP obstetricians. In the current study, higher risk women, including those with a BMI of greater than 40, women with type 1 diabetes or in preterm labour before 35 weeks gestation, were transferred to a tertiary centre. Of the remaining population, there remained women with antenatal risk factors including previous caesarean section (14 per cent), preeclampsia (five per cent) and gestational diabetes (eight per cent). The author reports an induction rate of 33 per cent and an epidural rate of 35 per cent, perhaps higher than in many centres. Overall rates of complications in the study practice are reported to be comparable to those in other centres in the State. The article provides an insight into obstetric practice outside major metropolitan centres and concludes that care for low-risk women in these centres by GP obstetricians appears a safe practice.

Kirke AB. How safe is GP obstetrics? An assessment of antenatal risk factors and perinatal outcomes in one rural practice. *Rural and Remote Health 2010;* 10:1545.

Metformin and AMH

In women of reproductive age, anti-Mullerian hormone (AMH) is secreted by the granulosa cells of developing follicles. As it is excreted exclusively in the ovaries' serum, AMH concentrations in women may reflect the size of the ovarian follicle pool. In polycystic ovarian syndrome (PCOS), there is an increase in the number of pre-antral follicles and, consequently, a high AMH has been reported in these women. The insulin-sensitising drug metformin has been shown to induce ovulation in some women with PCOS, however, the effect can be variable. This small study of 40 patients measured serum and antral follicle levels of AMH and androgens in four groups: ovulatory women with PCOS receiving metformin; anovulatory women with PCOS receiving metformin; women with PCOS not treated with metformin; and a non-PCOS control group. The results showed higher pre-treatment levels of AMH in both the serum and follicular fluid in all three PCOS groups compared to the control group. Following treatment with metformin, there was a significant decrease in both serum and follicular AMH levels in both ovulatory and anovulatory women. This was accompanied by an improvement in serum measures of androgens and insulin resistance. While this study is small, it provides further insight into the mechanism of action of metformin in some women with PCOS.

Daniels J, Falbo A, Rocca M, Russo T, *et al*. Serum and follicular anti-Mullerian hormone levels in women with polycystic ovary syndrome (PCOS) under metformin. *Journal of Ovarian Research* 2010; 3:16.

Laparoscopy in pregnancy

About one in 600 women require non-obstetric abdominal surgery in pregnancy, most commonly for appendicitis, biliary disease, ovarian masses or torsion. In recent years, laparoscopic approaches to these conditions have become more common in both pregnant and non-pregnant women. There are, however, often conflicting opinions on the fetal and maternal safety of laparoscopic surgery during pregnancy, making the decision between operative or conservative management stressful for both the patient and the doctor. This retrospective case review reports on 94 pregnant women who had non-obstetric abdominal surgery during pregnancy in a university hospital between 1993 and 2007. Cases included appendectomy (40 open, nine laparoscopic), cholecystectomy (one open, 39 laparoscopic) and salpingectomy/cystectomy (five laparoscopic). Open procedures tended to be performed more often in the third trimester. Unfortunately, birth data were available for only 54 of the patients identified in the study. There were four fetal losses, three within seven days of surgery and one loss seven weeks later. Two of these were first trimester losses following open appendectomy, while there was a loss at 15 weeks gestation following laparoscopic salpingectomy at eight weeks gestation. There was one stillbirth on post-operative day two following open surgery for a perforated gangrenous appendix at 23 weeks gestation. There was a preterm delivery rate of 14 per cent in the laparoscopic group and 19 per cent in the open group. In total, the authors report perinatal complications in 37 per cent of the laparoscopic group and 42 per cent of the open surgery group. They concluded that, while there is certainly perinatal morbidity related to non-obstetric surgery in pregnancy, this is often related to maternal factors, for example, infection, rather than surgical technique. The authors also contend that laparoscopic surgery appears to be as safe as an open approach in pregnant patients.

Corneille MG, Gallup TM, Bening T, *et al*. The use of laparoscopic surgery in pregnancy: evaluation of safety and efficacy. *The American Journal of Surgery* 2010; 200:363-367.

College Statements Update

November 2010

The Women's Health Committee (WHC) re-issued the following statements in November 2010, which were subsequently endorsed by Council. College statements can be viewed on the College website at: www.ranzcog.edu.au/womenshealth/statementsupdate.shtml .

Louise Farrell
FRANZCOG
Chair, Women's Health Committee

Revised College Statements – endorsed without significant changes

- Standing orders for prescribing narcotic drugs to obstetric patients during labour (C-Obs 8)
- The use of misoprostol in obstetrics and gynaecology (C-Obs 12)
- Cytological follow up after hysterectomy (C-Gyn 8) – Please note that this statement was previously named 'Pap Smears after Hysterectomy'
- Performance of Sexual Assault Forensic Examinations by RANZCOG Trainees (C-Gen 12)
- Guidelines for performing advanced operative laparoscopy (C-Trg 2)
- Antenatal Care in Australian Public Hospitals (WPI 10)
- Statement on Stand-alone Primary Childbirth Units (WPI 15)

New Statements under development

- Clinical Handover
- Pregnancy-Related Vaccinations
- Standards in Maternity Care
- Management of Postpartum Haemorrhage

New web page under development

Pertussis Awareness web page.

Prescriber Status for Mifepristone

RANZCOG has developed an aide package to assist Fellows with their application to the TGA to become an authorised prescriber for Mifepristone. If you would like a copy of the aide to be emailed to you, please contact the College on +61 3 8415 0408.

College website

College statements
Can be viewed at: www.ranzcog.edu.au/womenshealth/statementsupdate.shtml . Should you have any difficulties with any documents from the webpage, please contact Nola Jackson at the College (t) +61 3 8415 0408 (e) njackson@ranzcog.edu.au .

Resources for Fellows
This section includes local and international guidelines and articles of interest such as links to new titles on ACOG Committee Opinions and Practice Bulletins, SOGC Clinical Guidelines, National Institute of Clinical Excellence (NICE) guidelines and Department of Health and Ageing reports. Access at: www.ranzcog.edu.au/locked/members/fellowsresources.shtml then type username and password and scroll down to 'Information from Women's Health Services'.

ATTENTION DRANZCOG AND DRANZCOG ADVANCED HOLDERS
Do you have your Women's Health Points for the current triennium?

For those holders of the DRANZCOG and DRANZCOG Advanced due to recertify this triennium, time is running out. If your Diploma certificate has an end date of 31 December 2010, you have a recertification requirement in the current triennium and must obtain a total of 40 Category 1 points in Women's Reproductive Health activities before 31 December 2010.

Where to find activities
The list of Women's Reproductive Health activities can be found on the Meetings Calendar in the latest issue of *O&G Magazine* or on the RANZCOG website: www.ranzcog.edu.au/meetingsconferences/index.shtml

A brighter future for young people in nursing homes

The Summer Foundation

Each year, RANZCOG College House staff select a charity to which all monies from their fundraising activities are donated. By the end of the year, we have raised a sizeable amount of money to present to our charity. This year, RANZCOG selected the Summer Foundation, which supports young people in nursing homes. RANZCOG staff are delighted to support a charity each year and we hope that the sum we raise helps to make a difference.

Tracey Wheeler
Fundraising Coordinator
RANZCOG

Young people with disability living in nursing homes are one of the most marginalised groups of people in our society. It is a sad fact that 82 per cent of young people living in nursing homes never go out to visit their friends. Nearly half never go on trips to the shops, the movies or sports events.

Approximately 3500 young Australians live in a facility surrounded by people aged in their 80s. The majority of young people in nursing homes have an acquired brain injury or late-onset neurological conditions. Almost overnight, the social networks, work or study routines, living circumstances and leisure activities of these young people are gone.

In 2006, the State and Federal governments agreed to work together to reduce the number of young people in nursing homes in Australia. The resultant Council of Australian Governments (COAG) initiative to address this issue saw the launch of a five-year A$244 million national Younger People with Disabilities in Residential Aged Care Program.

While the program has transformed the lives of those who have been fortunate enough to receive support packages, the Summer Foundation is concerned about the lack of focus on the systemic change needed to proactively prevent new admissions of young people to nursing homes. The COAG initiative will not result in a long-term reduction in the number of young Australians living in nursing homes.

Young people with disability want somewhere to live, someone to love and something to do. Developing accommodation alternatives to nursing homes is crucial to enable them to enjoy the kind of life the rest of us take for granted. The integrated housing model championed by the Summer Foundation is the next generation of accommodation for people with disability. It aims to be the first of its kind in Australia to provide truly integrated housing, where people with disability will live in their own apartments within a larger residential development with other members of the community. This is an important step towards the social inclusion of people with disability. It is a model that can be easily replicated to provide the scale of housing required to permanently resolve the issue of young people in nursing homes in Australia.

The Building Better Lives® campaign was launched by the Summer Foundation in March 2009 to engage the general public and the corporate sector in this issue, aiming to:

- increase awareness of young people in nursing homes and how to contribute to the solution;
- intensify political focus on the issue of young people in nursing homes;
- promote meaningful social inclusion for young people with disability; and
- demonstrate and promote an integrated housing solution – the next generation of accommodation for young people with disability.

Assisting young people with disability to share their stories through media interviews and other speaking engagements has been key to raising awareness of the issue. Other strategies include the production of a bi-monthly newsletter, the use of online social networking tools and advertising (cinema and television commercials, billboards, café postcards, etc).

Ways for the general public and the business community to contribute to the solution include workplace giving arrangements, online donations, individual fundraising opportunities such as fun-run events and gift purchases through the online store (recipients are young people who have recently moved out of nursing homes).

The Summer Foundation initiates and facilitates strategic, collaborative partnerships with families of young people in nursing homes and with other organisations in the disability and corporate sectors, as well as with government.

Through extensive research, the Summer Foundation has completed and published a range of studies that further strengthen the evidence base for policy change. These studies illustrate that chronic social exclusion is a reality for young people in nursing homes. Currently, the Summer Foundation is undertaking a quality of life evaluation for those who have received services through the National Younger People in Residential Aged Care Program.

For more information, visit:
www.summerfoundation.org.au
www.buildingbetterlives.org.au

Applications invited for new Examiners

Fellows and Diplomates of the College are invited to apply for membership of the College's Board of Examiners.

RANZCOG has only one Board of Examiners from which the Diploma, Membership and Subspecialty Examiners are drawn for each relevant written and oral examination.

There is a Provisional Examiner process that must be followed prior to elevation to the Board of Examiners.
Both Diplomates and Fellows may examine at DRANZCOG level.
Fellows may examine at MRANZCOG level and, if they are currently working in a subspecialty discipline, they may also examine at subspecialty level.

Duties

Members of the Board of Examiners may participate in the following activities related to the components of their respective examination level:

1. Developing new stations for the oral examinations. This consists of generating initial case summaries and working on the development of cases submitted by other examiners.
2. Participating in oral examinations. This involves participation in a pre-examination workshop immediately before each examination as well as participation in the examination itself, either as an examiner or an observer.
3. Developing new multiple choice questions for the written examinations. This involves writing new questions and/or editing questions submitted by others.
4. Participating in the standard setting panel for the written and oral examinations. This involves working through all of the questions and cases used in an examination and estimating the difficulty of each question.

In addition, Fellows examining at MRANZCOG and Subspecialty level may participate in the following:

5. Developing new short answer questions for the written examination and marking short answer question papers. This involves writing new questions and/or editing questions submitted by others and the assessment of candidate responses against a pre-determined marking scheme.

Additional information

Availability
Examiners are expected to be available at least once a year for their designated level examinations.

Qualifications and Experience
Applications for Membership/Subspecialty must be actively engaged in clinical practice in the speciality. Applicants must be familiar with the current training programs but need not hold an appointment in a teaching hospital. Previous experience in examining at undergraduate and/or postgraduate level is preferred.

Method of Application
To be considered for an appointment, an application must be submitted to the Education and Assessment Committee. The application form may be obtained from the Assessment Services department at College House by calling +61 3 9417 1699 or by downloading from the College website at www.ranzcog.edu.au/fellows/examiners.shtml . A current curriculum vitae must accompany a completed application form. Contact details for two referees must also be provided.

Review of Applications
Applications will be reviewed by the RANZCOG Education and Assessment Committee three times a year (March, July and November). Applicants will be notified in writing of the result of their application.

Enquiries
Questions regarding application for membership or the duties of examiners should be directed to Frances Gilleard, Assessment Coordinator, Assessment Services, on +61 3 9412 2945 or at fgilleard@ranzcog.edu.au .

Everything you have ever wanted to know about becoming an examiner, but were afraid to ask

Dr Michael Rasmussen
Chair,
RANZCOG Education and Assessment Committee

So you have been thinking about becoming more involved in the work of the College, but not sure in what area? Read on and see why you should seriously consider becoming an examiner.

Examiners play a key role in the assessment of trainees at Diploma, Membership and Subspecialty levels. RANZCOG has only one Board of Examiners from which the Diploma, Membership and Subspecialty examiners are drawn. The aim of having a combined group is to allow cross-fertilisation of ideas, experience and communication between Diploma, Membership and Subspecialist examiners, to ensure that:

- uniformly high standards are maintained;
- crucial concepts and methodology pertaining to standard-setting are understood and applied; and
- the College's examination methodology, both in terms of constructing examinations and running them, is applied consistently.

Fellows and Diplomates who are appointed onto the RANZCOG Board of Examiners provide a pivotal service in the ongoing development and assessment of trainee obstetricians and gynaecologists and GPs undertaking the Diploma/Advanced Diploma qualifications. Examiners can utilise their knowledge and skills by:

- developing questions for the Multiple Choice Question (MCQ) examinations and the Short Answer Question (SAQ) written examinations;
- developing cases for oral examinations;
- participating in standard-setting activities;
- marking examination papers against established criteria; and
- examining candidates in the Diploma, Membership or Subspecialty oral examinations.

Selection process

There is a common selection and assessment process for all examiners appointed to the Board of Examiners. This is an open application process, with applications vetted against a Criteria Checklist and presented for consideration at one of the three annual meetings of the RANZCOG Education and Assessment Committee. Following the successful participation of an applicant as a provisional examiner, appointment to the Board of Examiners is approved by the Education and Assessment Committee and then ratified by Council.

In seeking membership of the Board of Examiners, all applicants must complete an Application Form for Examiners (available to download from the College website: http://www.ranzcog.edu.au/fellows/examiners.shtml) and have their application proceed through the approved RANZCOG application process.

The relevant requirements for consideration for membership to the Board of Examiners include the following:

- All prospective examiners must apply in writing, using the relevant form, to the Education and Assessment Committee for consideration.
- Applicants must supply the information specified on the Application Form for Examiners.
- Applications can only be approved by the Education and Assessment Committee.

Criteria required for approval by the Committee as a provisional examiner include the following:

- Applicants must be actively involved in teaching trainees where appropriate.
- Applicants must be involved in ongoing contemporary clinical practice in Australia and/or New Zealand.
- Applicants seeking to examine in the Membership examinations must have been actively engaged in the examination process as a Diploma examiner in Australia or New Zealand.

All applicants must read the Roles and Responsibilities of Examiners document (available to download from the College website: http://www.ranzcog.edu.au/fellows/examiners.shtml) before applying and indicate on the application form that it has been read.

The role of an examiner is vital to the continuing success of the RANZCOG assessment program. It is, however, a role that requires a serious commitment once one's application has been approved. Examiners are appointed for three-year terms to a maximum of nine years. During their term:

- Membership and Diploma examiners are expected to be available

The examiner's role is challenging, but rewarding.

at least once per year for, respectively, the biannual MRANZCOG and DRANZCOG examinations.
- Subspecialty examiners are expected to be available for the annual Subspecialty examinations.
- All examiners are expected to make themselves available for at least one Examination Development Workshop per year.

In the event that an Examiner is unavailable to examine within a two-year period, membership of the Board of Examiners may be reviewed.

In addition to acting as an examiner at the oral examinations or marking SAQ examination papers, an examiner may be asked to:
- contribute to the development of examination questions and/or oral examination scenarios;
- participate in examination standard-setting processes (always included as part of the oral examination workshop, but on a voluntary basis for MCQ papers) and asked to vet written examination papers; and
- undertake or assist with the provision of written and/or oral feedback to candidates who have failed examinations.

Examiners wishing to examine at Membership level must first display satisfactory performance as a Diploma Examiner. Those wishing to examine at the subspecialty level must first perform satisfactorily as an observer at a Membership oral examination.

What's in it for me?

Professor Robert Bryce says, '[That being an examiner allows him] the opportunity to make the acquaintance of like-minded members of our profession (it's a small group who are prepared to give up their income and family time to do this) [and] influence learning ([as] assessment drives learning).' A/Prof Ian Pettigrew says, 'It is great to meet with other Fellows from around the country and talk about common problems that we have.'

Becoming an examiner also provides a wonderful opportunity to challenge your own clinical practice and knowledge. Oral examinations, in particular, provide a two- or three-day work weekend forum where examiners not only examine trainees on the Sunday, but also participate in a range of activities in the preceding day(s). These include, working with the simulated patients (actors) to rehearse the examination scenarios, discussing the clinical content of the examination stations with fellow examiners and participating in standard-setting the examination. It's an opportunity to undergo real professional development in a non-threatening environment. For Professor Robert Bryce: 'It's a chance to be reassured that my practice is reasonably mainstream and that I still have something to offer the trainees.' While the focus of the weekend is a serious one, examiners all comment on the level of enjoyment they have, with Dr Sarah Tout commenting that the examination weekend: 'Is good fun and we learn a lot!' Dr Deryck Charters says that it is: 'Intellectually challenging, humbling, genial, friendly and lots of fun!'

A/Prof Ian Pettigrew says: 'One of the really good things is to meet the College staff and get to know them on a personal level in their environment. It is also great to meet other Fellows from around the country and talk about common problems that we have. The Structured Oral Examination practices give you a chance to assess how you compare with the Trainees and to learn a lot, as we are all sitting in our comfort zones and may let the world pass by.'

Is it all just work?

The examinations offer an opportunity to mix with a wide variety of characters from around Australia and New Zealand, and there can be many entertaining and amusing moments. The Membership-level examination includes an Examiners' dinner where Fellows can enjoy fine dining and great company or, as Professor Robert Bryce says: 'A nice dinner with some old and new friends.'

If this has encouraged you to participate in the crucial activity of examining RANZCOG Trainees, then go to the College website at: www.ranzcog.edu.au/fellows/examiners.shtml . Read the information in full, complete the application form and return it to Frances Gilleard: fgilleard@ranzcog.edu.au . For you, the Trainees and the Fellowship, it's a win-win situation!

MRANZCOG Research Assessors and Mentors Required

Do you have a strong research background?

Would you like to support the development of research skills amongst our ITP trainees?

College House is looking for research assessors and mentors to provide appropriate feedback and guidance to trainees undertaking their research proposals and projects. The research project is a compulsory requirement within the ITP/Elective training program.

What is required?

You would be required to read the trainee's research proposals and provide feedback relating to the stated aims, hypothesis, project background, literature review, method, study design, statistics collection and analysis. This feedback is completed on a prepared template. As the College will also be conducting random audits on completed projects, you may be asked to assess a completed project as well.

RANZCOG is also preparing a mentor list so that trainees can be referred to a suitable research mentor if required. This position does NOT mean you would be mentoring a trainee for the duration of their research. Rather, you would be asked to provide timely advice and/or support on a needs only basis. Effective mentoring is not location specific and can utilise a range of technologies such as online, email and telephone communication.

If you are interested in being an assessor or mentor please send an email detailing your research interests and expertise to:
Frances Gilleard
(e) fgilleard@ranzcog.edu.au

If you have any questions please contact:
Bronwyn Robinson
(t) +61 3 9412 2979
(e) brobinson@ranzcog.edu.au

From netball court to Supreme Court

Setting up an expert witness mock court

Dr Michael McEvoy
FRANZCOG

The Honourable Justice Richard White
Supreme Court of South Australia

A mock court workshop for obstetricians and gynaecologists was conducted immediately before the RANZCOG 2010 Annual Scientific Meeting held in Adelaide. Thirteen obstetrician/gynaecologist participants from around Australasia and Canada attended.

Participants were arbitrarily assigned to either an obstetric (shoulder dystocia) or gynaecological (ureteric injury after laparoscopic hysterectomy) hypothetical case study. They were arbitrarily, but evenly, assigned to support either the plaintiff or defendant stance in the case. This was to encourage robust debate and diversity of opinion. Two attendees requested a change in these arrangements according to their preferences and this was permitted.

The participants were given 14 days to write and submit a report on their case and then took part in a workshop at the Supreme Court of South Australia on the appointed day. A separate courtroom was used for each case. Attendees were then called to the witness box, sworn in and videoed while being examined-in-chief by the appropriate plaintiff or defendant barrister. After each witness had been examined, they were taken to an adjacent room where a DVD recording of their performance was reviewed with the examining barrister. They then returned to the courtroom's jury box to observe their colleagues being examined.

In the afternoon, attendees were cross-examined in the witness box by the opposing barrister and again had an opportunity to review their performance with the barrister. They then returned to see their colleagues being cross-examined. Meanwhile, the judge provided a commentary and directed the proceedings. Each of the participants also had some time in the judge's chair to gain a different perspective of proceedings.

Following this, the two groups amalgamated in the larger courtroom. Justice White and myself then conducted an open forum on the workshop, discussing its deficiencies and strengths for about 40 minutes.

Further feedback was encouraged by emailing all participants, asking them to submit their answers privately to the RANZCOG survey questions via a weblink. These responses were analysed by the coordinators.

The workshop was an overwhelming success for those who attended. I would like to outline the organisational process for the benefit of others who may wish to replicate the activity. Previous attempts to organise similar courses have not always come to fruition. While RANZCOG has set up the Expert Witness Panel, it has struggled to run expert witness workshops. Inhibitory factors have included court availability, costs of legal personnel, difficulty writing up the cases and the costs of such courses that often only appeal to a small number of Fellows.

I will outline the process we took from conception to delivery to develop the workshop.

Conception on the netball court

Justice Richard White and I spent many hours watching our daughters playing scintillating schoolgirl netball for Mercedes College over many seasons. This allowed us to discuss ad nauseam medico-legal matters from the point of view of a practising barrister, and later a judge, and of a practising obstetrician/gynaecologist. There were areas of mutual concern.

The legal profession commonly experiences dogmatic, partisan professional witnesses who 'barrack' for the party calling them. Despite clear instructions from *Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia*, many witnesses are not aware that their responsibility is to the Court alone and not to either side.

On the medical side, I was concerned about scathing, damning and inflammatory reports and reports from persons writing outside their area of expertise, as well as the retired, semi-retired or non-actively practising medical practitioner, commenting on procedures or situations in which they have not been personally involved for some years. It was clear that many expert witnesses were writing reports using the benefit of retrospection, rather than any prospective insight into clinical decision-making in what are often difficult cases. It is very easy to criticise medical management retrospectively when one knows what the outcome already is, for example, shoulder dystocia.

It occurred to me that at no time in my Fellowship education had I ever been advised on how to write a medico-legal report. At the receipt of a request in my first consultant year for a report on reproductive capacity after a pelvic fracture following a motor vehicle accident, I asked my professor and inaugural RACOG President, Lloyd Cox, for advice. His advice was: lawyers speak a different language so find out on the phone what they really mean and want; always do your research; don't overstate or understate or go beyond your boundaries; and be guided by what a reasonable practitioner and not what Superman would do. Good advice indeed! But why did we not receive such advice in our training? With this in mind, the netball court became the seed of a concept and a commitment to nurturing this subject. I had hounded Justice Richard White for so long. It occurred to me that the RANZCOG 2010 Annual Scientific Meeting would be the perfect opportunity for us to run a workshop. All that hot air on court had to be worth following up.

First trimester development

Firstly, I liaised with Justice Richard White. We needed to develop some case studies using non-identifying information and data. This was not difficult as I had done a number of expert witness reports on common adverse outcomes. Shoulder dystocia in obstetrics and ureteric injury in gynaecology stood out as being common

and suitable topics. I then developed suitable history, examination investigation and progress files. The medical and legal implications in each case were then jointly explored. We tried to make the cases as borderline as possible, so both a defendant and a plaintiff lawyer would have enough material to exploit. Birth weights were changed, duration of second stage was changed, baby's cord pH and surgical technique were changed to suit a robust argument in the courtroom.

I hoped I had enough former patients, old university cricket mates and old school mates admitted to the bar to be able to ask for their attendance on the day. The Law Society of South Australia also assisted in identifying barristers who were willing to participate on a volunteer basis.

Second trimester maturation

We then liased with the Law Society of South Australia, who were most helpful in securing access to courtrooms, security guards, legal personnel who might be able to help and in arranging lunch, morning and afternoon teas.

The case notes were refined further according to the opinion of the workshop coordinators.

RANZCOG then advertised the workshop to all members of our College and all attendees at the RANZCOG 2010 Annual Scientific Meeting. There were 18 positive replies but five of these dropped out in the last three to four weeks, mainly due to overwhelming commitments elsewhere or insufficient time to complete the reports. We were left with 13 participants, who were mostly older Fellows with experience in medico-legal matters rather than younger Fellows with little experience.

Third trimester finishing touches

Participants were randomly assigned to either obstetric or gynaecological case studies. They were asked to balance their written reports to support either the defendant's or the plaintiff's case. All participants were sent the case notes summary and were instructed to do a formal written report on the case complying with the Australian Guidelines for Expert Witnesses. This included a declaration that they had read and received all the appropriate documents, a copy of the claims notice by the plaintiff lawyer and the *Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia*. They were given a deadline of two weeks to return their report with a curriculum vitae. Four of the 13 participants failed to lodge their report by the closing date and were given an extra week to complete it. All correspondence was sent by email.

The cases, a review medical article on the topic and my own ideas of strengths and weaknesses of each case, as well as the written reports, were then issued to the four barristers and two judges. A one-hour meeting took place three days before the workshop between the barristers, judges and myself to answer any medical or legal queries and to go through procedures on the day.

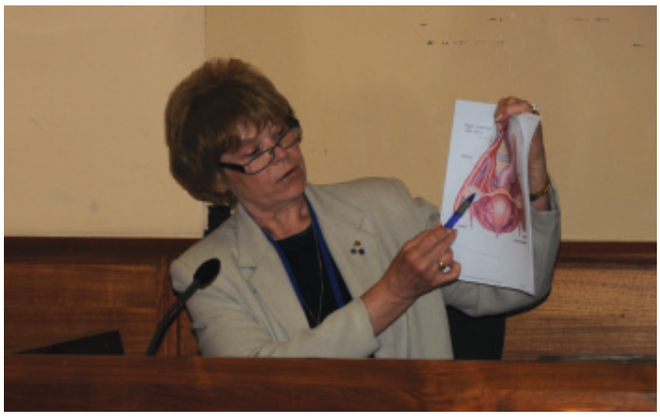
Labour and delivery

Stage one

All 13 participants, the four barristers and the two judges attended the Supreme Court of South Australia on the appointed date. We met for morning tea and had a general introduction to the day's activities. The first session was to be evidence-in-chief examination. In other words, the attendee was to be examined in the witness box by the barrister taking the same side as themselves, therefore, plaintiff of defendant. Two courtrooms were used: one for those participating in the obstetrics case and one for those participating in the gynaecological case.

Each participant gave evidence-in-chief for about ten minutes, usually on a different aspect of the case. The judge sat on the judge's bench and a video camera filmed the witnesses' performances in the box. This was recorded on a mini DVD that was then handed to the witness. Immediately after the examination, the judge and counsel provided some commentary and feedback of the witness's performance. This usually led to some discussion involving all participants in the courtroom. The examining barrister then took the witness into an adjacent room and replayed the recording, giving further feedback to the attendee on matter, manner, method and style.

Meanwhile, the next witness was called and examined by the appropriate barrister on their side of the argument, again watched by the judge. Other participants sat in the jury box observing their colleagues and feeling very nervous about their own upcoming performance. The process was repeated until all participants had given evidence-in-chief. Lunch was served and attendees were quite pleasantly relaxed until the afternoon session began.



An expert witness describes the course of the ureter in the witness box.

Stage two

Cross-examination was performed by the barrister employed on the opposite side to the witness. Each participant was cross-examined for about ten minutes on an aspect of his/her evidence. At the end of the cross-examination, the judge and counsel gave some commentary on what had occurred. Again, this often led to discussion involving all participants. The cross-examination was filmed and further feedback was given in the adjacent room by the barrister. This session proved much more traumatic, as participants were challenged on their opinions and exposed to the techniques used to reduce the credibility of witnesses or to undermine opinions. Most of the medical personnel were astounded by how well prepared and knowledgeable the barristers were about intricate aspects of our profession.

A feature of the workshop was the opportunity for participants to learn from their observations of the performance of their fellow participants and from the commentary on that performance.

Stage three

After a long and gruelling day, both groups gathered in one courtroom and had a fruitful discussion about the conduct of the workshop. The following comments and observations were noted:

- Participants were extremely satisfied with the educational value of the experience.
- Some participants said it was the best postgraduate educational exercise that they had ever done.
- Some participants wished that there had been a detailed critique of the written reports by a legal representative.
- The style of written reports was addressed and it was noted that almost no one complied with all of the regulations for expert witnesses.
- Many attendees found it difficult not to barrack and were somewhat divided as to how much scientific input and how much personal opinion they would put in their report.
- Pagination, paragraph numbering and format of the reports was considered to be very important to facilitate the use of the report in Court. Failure to format makes a witness look uncomfortable and disorganised.
- While some attendees complained about the law of negligence, this workshop was not about the merits or otherwise of that law, but about how we might manage better in a court with more independence, less barracking and less bias.
- Many preferred a chronology of events in their written reports, with clear setting out and numbering of clauses and subcategories.
- Use of inflammatory language is to be discouraged, as is language whereby one might assume intent of the medical practitioner, as this is not possible.
- Curriculum vitae do not necessarily need to be complete and can be shortened to that which is necessary to establish the witness' credentials to give an opinion.
- Major review articles from a reputable journal were useful when included in a report.
- Techniques in the witness box that may be beneficial include asking for clarification of a question if one is uncertain of its meaning.
- Thinking before speaking helps a great deal, as does being aware of when a question is outside one's level of expertise.
- All participants felt quite threatened in the witness box.
- Familiarity with the courtroom environment and procedure and the experience of a real courtroom were considered to be helpful.
- Most participants felt they would like to consider further education in this area and that their standard of medico-legal reporting would be improved by their experience.
- Most participants felt they had gained a great deal from observing the court performance of their colleagues in a spirit of openness, honesty and education.
- Most of the attendees were members of the RANZCOG Expert Witness Panel and one attendee came from Canada specifically for this workshop.

Criticisms of the course included the short time of two weeks allocated for attendees to prepare their written reports. It was also felt desirable for witnesses to meet with the Barrister-in-Chief (as would happen in the real world) before the court commenced. Unfortunately, time and financial constraints would not allow for this. A written critique of the written reports was considered desirable, but too expensive to do. It was considered that development of an Australian medical expert witness handbook would be useful.

Post factum

Two weeks after the course we sent a questionnaire and reflection form via RANZCOG to all attendees through Survey Monkey on a weblink. A 100 per cent response rate was obtained.

In summary:

- 70 per cent of participants agreed the activity enabled them to review and update skills in the topics.
- 88 per cent felt that the activity was both informative and engaging, with clearly stated objectives.
- 100 per cent felt the activity outcomes were adequately met.
- 80 per cent felt they had the opportunity to seek clarification and feedback.
- 100 per cent said the activity provided adequate opportunity for interaction.
- 90 per cent felt the facilitator provided a satisfactory environment for learning.
- 41 per cent felt the activity provided useful learning material, such as handouts and worksheets.

For a number of reasons, including the relationship between Justice White and myself, the barristers did not charge for their time or appearance. We were particularly grateful for their commitment to professional development, both in their own profession and in another profession. Costs were mainly for hiring the courtrooms, security guards, paperwork and gifts for the legal participants.

I would like to personally thank Justice Richard White, Judge David Lovell, Mr David Riggall, Mr John White, Mr Patrick O'Sullivan QC and Mr Anthony Crocker for their attendance, input and enormous skill. I also thank the Courts Administration Authority of South Australia for making two courtrooms available on a Sunday.

At the conclusion of the workshop, everyone – including the legal advisors – said they would like to do a workshop again. Perhaps this mode of workshop would be excellent for advocacy training as well as registrar training at some point in the future.

Chris Hughes
Chair, Organising Committee
RANZCOG 2010 ASM

The RANZCOG 2010 Annual Scientific Meeting (ASM) scientific program showcased national and international speakers of renown, while the variety of pre-meeting workshops provided an excellent hands-on opportunity for delegates to develop and refine skills.

The RANZCOG 2010 ASM was held at the Adelaide Convention Centre, South Australia, from 21 to 24 March 2010.

The meeting theme, 'It's not all Black and White', acknowledged that evidence does not, and may never, give all the answers needed in providing high-quality care. The Organising Committee aimed to provide an opportunity for delegates to be involved in the debates about where the limits of evidence are, and how to maximise quality care within and beyond these limits.

The Opening Ceremony featured the Arthur Wilson Memorial Oration, which was delivered by Professor Alastair MacLennan, Head of the Discipline of Obstetrics and Gynaecology at the University of Adelaide. Professor MacLennan's lecture titled, 'The Ascent of Woman – from Queen Adelaide to Queen Camilla', provided a jaunty and entertaining historical perspective of our profession and its interaction with society.

'Our international, national and local speakers...provided thoughtful and considered updates for registrants, as well as contributing more generally to the collegiate aspects of the meeting.'

The scientific program heralded national and international speakers of renown, satisfying all levels of scientific and clinical interest across the specialty. The Organising Committee invited six keynote speakers to participate in the meeting. They were:

- Professor Zarko Alfirevic, the UK
- Mr Tim Draycott, the UK
- Dr Metin Gülmezoglu, Switzerland
- Professor Justus Hofmeyr, South Africa
- Professor Jim Neilson, the UK
- Mr Horace Roman, France

Our international, national and local speakers clearly took on the brief provided by the Organising Committee and provided thoughtful and considered updates for registrants, as well as contributing more generally to the collegiate aspects of the meeting.

A variety of pre-meeting workshops were held in conjunction with the main scientific meeting and provided an excellent hands-on opportunity for delegates to develop and refine skills. These interactive workshops were extremely well attended and included:

- Anatomy Workshop
- Giving O and G Evidence: A Mock Court and Report Writing Workshop (see previous article on page 87)
- Minimally Invasive Surgery – AGES
- PROMPT RANZCOG Workshop
- PSANZ Perinatal Mortality Workshop
- RANZCOG Fetal Surveillance Education Program
- Robotic Surgery in Gynaecology Workshop
- Training Supervisors Workshop
- Diplomates Day One – Office Obstetrics
- Diplomates Day Two – Office Gynaecology

Exceptional interest was shown by general practitioners in attending the Diplomates sessions of the pre-meeting workshops, emphasising a strong relationship between RANZCOG and general practitioners who provide obstetric and women's health care.

The number of free communication abstracts received for oral and poster presentations was most pleasing, as was the quality of free communications presented throughout the meeting. The following awards were presented by Dr Ted Weaver, who was RANZCOG President at the time, during the Closing Ceremony.

Best Free Communication
The award for Best Free Communication Oral Presentation was awarded to Professor Julie Quinlivan for her presentation titled, 'A randomised trial of a 4-step multidisciplinary approach to the antenatal care of obese pregnant women'.

Best Poster
The award for Best Poster was presented to Dr James Nicholson for the poster titled 'Meta-Analysis of AMOR-IPAT Studies: Evidence of Very Strong Associations between the Regular Use of Preventive Labor Induction and Improved Birth Outcomes'.

RANZCOG Early Career Researcher Award
The RANZCOG Early Career Researcher Award is awarded to the best free communication presented by an author who is a RANZCOG Trainee or has been a Fellow five years or less at the time of the meeting. The prize of A$1000, generously sponsored by Wiley-Blackwell, was presented by the RANZCOG President during the Closing Ceremony. The RANZCOG Early Career Researcher Award was presented to Dr Jane Hirst for her presentation titled 'Epidemiology of Stillbirth in Vietnam'.

'The meeting was well attended by 616 delegates and exhibitors, with the overwhelming feedback...being extremely complimentary'

The social program was a highlight of the meeting, with events held at the Art Gallery of South Australia and the National Wine Centre. Both venues are renowned for quality and hospitality and delegates were given the opportunity to experience a taste of Adelaide. The meeting dinner, in particular, showcased a perfect blend of fine wine, delicious cuisine and great entertainment, with dinner guests thoroughly enjoying a performance by world-class comedian Fiona O'Loughlin.

Some local Adelaide flavour was added to the meeting with the brief, but entertaining, attendance at the trade exhibition of a pair of giant gandas. While these pandas possibly may not have been the genuine article, they reminded delegates of the recent arrival at Adelaide Zoo of the first resident giant pandas in the Southern hemisphere, and they certainly complemented the meeting theme, "Its not all Black and White"! A further local taste, in the form of conference wine, was made available for purchase by delegates, with stocks of specially labelled Adelaide Hills Shiraz and Sauvignon Blanc being completely depleted by the end of the meeting.

The meeting was well attended by 616 delegates and exhibitors, with the overwhelming feedback from registrants being extremely complimentary, both with regard to the scientific program and the social program. The Organising Committee acknowledges and thanks the meeting sponsors and exhibitors, who committed generously to the meeting and contributed substantially to its success. Thanks are also extended to members of the Organising and Scientific Committees for their enthusiasm and dedication and also to College House staff who so generously gave their time and energy to help make the meeting a great success.

Meeting delegates were visited by a pair of giant pandas in recognition of the arrival of the first resident giant pandas in the Southern Hemisphere.

The RANZCOG President of the day, Dr Ted Weaver, presenting an Award for Outstanding Achievement in the DRANZCOG Oral Examination to Dr Danielle Gitsham during the Opening Ceremony.

Professor Alastair MacLennan delivering the Arthur Wilson Memorial Oration during the Opening Ceremony.

Comedian Fiona O'Loughlin entertaining dinner guests.

RANZCOG Research Foundation

Scholarships and Fellowships in 2011

Professor John Newnham
Chair, Grants and Scholarships Committee

As in past years, the RANZCOG Research Foundation offered a number of research scholarships for application in 2010. Twenty-seven highly competitive applications were received for the five available scholarships. The scholarship selection process is closely modelled on that of the National Health and Medical Research Council, and the Grants & Scholarships Committee met on 3 September 2010 to award the available scholarships.

The recipients and their research are set out below and we look forward to seeing the final results.

Arthur Wilson Memorial Scholarship, 2011-2012

Recipient: Dr Kirsten Palmer
Project: Therapeutic Antibody Development: A Potential Treatment for Preeclampsia
Institution: The Ritchie Centre, Monash Institute of Medical Research
Supervisors: Dr Stephen Tong and A/Prof Terrance Johns

Ella Macknight Memorial Scholarship, 2011-2012

Recipient: Ms Sonya Hubbard
Project: Identification of Endometrial Cancer Stem Cell Surface Markers
Institution: The Ritchie Centre, Monash Institute of Medical Research
Supervisor: Dr Caroline Gargett

Glyn White Research Fellowship, 2011-2012

Recipient: Dr Tamara Yawno
Project: Novel Cell-Based Therapy for the Treatment of Perinatal Brain Injury
Institution: The Ritchie Centre, Monash Institute of Medical Research
Supervisor: Dr Suzie Miller

Luke Proposch Perinatal Research Scholarship, 2011

Recipient: Dr Rebecca Lim
Project: Preclinical Trial for Preeclampsia – Pregnancy-Induced Hypertension and Endothelial Dysfunction
Institution: The Ritchie Centre, Monash Institute of Medical Research
Supervisor: Prof Euan Wallace

Taylor-Hammond Research Scholarship, 2011

Recipient: Dr Gabrielle Dezarnaulds

Project: A Blinded Study Comparing Urine Testing and Endometrial Sampling with Laparoscopy for Diagnosis of Endometriosis

Institution: University of Sydney; Department of Women and Babies

Supervisor: Prof Ian Fraser

The following scholarships, which commenced in 2010, continue to be funded.

Fotheringham Research Scholarship, 2010-2011

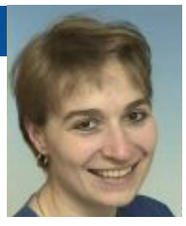
Awardee: Dr Lisa Hui

Project: Functional Genomic Analysis of Amniotic Fluid mRNA in Monochorionic Twins with Twin-to-Twin Transfusion Syndrome

Institution: Tufts Medical Center, Tufts University, Boston Massachusetts, USA; Department of Obstetrics and Gynaecology; Department of Paediatrics

Supervisor: Dr Diana Bianchi

Mary Elizabeth Courier Research Scholarship, 2010-2012



Recipient: Dr Viola Heinzelmann-Schwarz

Project: Evaluation of an Anti-Glycan Antibody Panel as New Diagnostic Signature in Serous Ovarian Cancer Patients

Institution: Royal Hospital for Women; Gynaecological Cancer Centre
Lowy Cancer Research Institute; Translational Ovarian Cancer Group

Supervisor: Prof Neville Hacker

Obituaries

Dr Denzil Mervyn Reader
1925 – 2010

Denzil Reader was born on 11 August 1925 in the UK. He attended London University, gaining his MBBS in 1947. His medical training began at St Mary's Hospital, Paddington, London, where he became part of a cadre of dedicated consultants, including Dougie McLeod and George Pinker. He was also a member of the Royal College of Surgeons and became a Licentiate of the Royal College of Physicians in 1947. Denzil obtained his MRCOG in 1958, and his FRCOG in 1972.

In 1959, with his family, he emigrated to Australia. In the early 1960s, he took up the appointment as Medical Superintendent, Women's Division, at the Mersey Hospital, in Devonport, Tasmania. He was well known along the north-west coast of Tasmania for his innovative obstetric care. In the late 1970s, he established the first birthing suite in Tasmania. He was honoured for this, in addition to his 22 years of obstetric service, at a Mersey Hospital reunion in 2007.

Denzil became a Foundation Fellow of the RACOG in 1980. In 1983, Denzil and his wife moved to Toowoomba, Queensland, where he was appointed Director of Obstetrics and Gynaecology Services at the Toowoomba General Hospital. He later moved into private practice in Toowoomba. Denzil championed the cause of natural childbirth and was alarmed at the increasing rates of elective caesarean section in private obstetric practice in Australia.

Denzil was always destined to be an obstetrician and gynaecologist. He was primarily interested in people. He held a wonderful knowledge of the English language and in latter years became adept at creating medical cryptic crosswords that were published in medical journals. Denzil was a past master of storytelling and indeed wrote many short stories, but the subtle and racy stories that enlivened so many dinner parties were his trademark.

Denzil passed away on 30 May 2010. He is survived by his wife Robyn. Denzil will be remembered by his family, friends and colleagues as an inspiration to all.

Dr Andrew Cumming
Toowoomba
Queensland

Dr Michael Kloss
1932 – 2009

Dr Michael Kloss was born in Gleiwitz on 12 January 1932. He arrived in Perth aged 17, speaking no English, after the disruptions of life in wartime Silesia and post-war Germany. He worked, among other jobs, melting lead for printing presses, to support his education. He embarked on medical studies in Western Australia and transferred to Melbourne, where he graduated from the University of Melbourne with MBBS in 1957. He began specialist training in obstetrics and gynaecology at the Royal Women's Hospital in 1961.

Michael travelled to the UK to complete his advanced training and worked at the Royal Maternity Hospital, Belfast, Northern Ireland from 1963 to 1964. He gained his MRCOG in 1963. He returned to the Women's in 1968, where he headed an obstetric unit from 1979 to 1998, and was instrumental in establishing and leading an extraordinary range of innovative clinical services. These were the Sexually Transmitted Infection Service; the Pregnancy Advisory Service (for women with unintended pregnancy); the Recurrent Miscarriage Service; the Family Birth Centre; the Women's Alcohol and Drug Service and the Young Mothers' Clinic.

Each of these services was pioneering, particularly in recognising social and support needs in addition to medical ones, where they often served the most disadvantaged women. Michael had remarkable vision and foresight. He needed all his considerable powers of persuasion and perseverance to ensure that these services were not merely talked about, but also implemented. These models continue to improve the healthcare of countless women through the work of colleagues and successors at the Royal Women's Hospital and elsewhere.

Michael was a Foundation Fellow of the RACOG in 1979. He became a Fellow of the RCOG in 1977.

Michael passed away on 15 November 2009. He is survived by his wife, Marianne, three sons, his close extended family and a substantial legacy of improvements to women's health.

Dr Chris Bayly
FRANZCOG
Victoria

Dr Earle William Wilson
1935 – 2007

Earle William Wilson was born in Otaki, New Zealand, on 17 February 1935. He was educated at Nelson College and, in 1960, he qualified MBChB. He began his registrar training in obstetrics and gynaecology in 1963. In 1965, he joined the research department at the University of Sheffield, the UK. With Tiger Bevis, he published the first paper on *in vitro* fertilisation, showing a photograph of an eight-cell embryo. Arguably, this later became the greatest advance in reproductive medicine and one for which neither were ever fully recognised. Earle achieved his MD (Sheffield) in 1968 and MRCOG in 1970. He was elevated to the FRACOG and the FRCOG in 1983.

Earle was appointed Senior Lecturer at the University of Otago in 1971, and quickly promoted to A/Prof. He brought to Otago a powerful enquiring mind that stood him in great stead for a flourishing academic career. It was a pity the demands of clinical service meant that he did not achieve his original aims and, in 1979, left for a career with the World Health Organisation. He was Medical Officer with the Human Reproduction Program which involved travelling and strengthening research capabilities, especially in the South East Asia and West Pacific regions.

In 1993, Earle retired and returned to New Zealand with his wife Jenni. He worked for the health and well-being of the elderly with the Northland District Health Board, Whangaroa Health Trust in Kaeo, and Age Concern, Northland, and wrote *To the Third Age and Beyond* in 2005. Earle retained a link with reproductive medicine as an external examiner for the University of Otago.

Earle's standards and clinical skills were at the highest level and his intellect was never wavering. His greatest strength was his ability to treat his junior staff as peers and this enabled him to inspire and enthuse young clinicians and researchers.

Earle passed away on 10 June 2007, after a brief illness. He is survived by his wife, Jenni, and children, Antonia and Julian.

Associate Professor Wayne Gillett
FRANZCOG
Dunedin, New Zealand

Dr James William Baker
1936 – 2010

James (Jim) Baker was born in Townsville, Queensland, on 15 April 1936. He attended Townsville Grammar School and then won a government scholarship to study medicine at the University of Queensland.

Jim graduated in 1960, and served at Blackall District Hospital from 1961 to 1966. It was here that his love of outback Queensland originated. Returning to Brisbane, Jim undertook training in O and G from 1967 to 1968, and obtained his MRCOG in London in 1969. After further advanced training in Belfast and Glasgow, Jim returned to Brisbane and became Visiting Consultant to the Royal Women's Hospital in 1970, a position he held until 1988. His area of particular interest was Rhesus isoimmunisation. He also ran a busy private practice.

In 1974, Jim purchased a property, Lighthouse, 80 kilometres from Roma, Queensland, and established a prize herd of Hereford cattle. He provided an O and G service between Dalby, Chinchilla, Miles and Roma, as he commuted to and from Brisbane as often as he could. Jim became a Foundation Fellow of the RACOG in 1979, and was elevated to Fellowship of the RCOG in 1984.

In the mid 1980s Jim approached the Director-General of Queensland Health regarding the huge unmet need for specialist O and G services in remote western Queensland, with a plan to take specialist care to the women there, to save them having to travel hundreds of kilometres to a tertiary centre. The Queensland Health Department agreed and, not surprisingly, Jim was appointed the first flying O and G, affectionately known as the FOG. The first QFOG's flight left Roma on 4 July 1988. Although based in Roma, Jim supplied O and G services to women in rural and remote Queensland, from St George in the south to Mt Isa in the north, Kingaroy in the east and Quilpie in the west.

On Australia Day 1996, Jim was awarded the Member of the Order of Australia (AM) for his services to the women of western Queensland. In 2005, Jim reported to amazed colleagues at a conference in New Zealand, that he had seen 16,500 patients, performed 6500 surgical operations, 5500 colposcopies, and flown the equivalent of 25 times around the world. A 24-hour telephone advisory service was also provided to other rural doctors, as well as a hands-on training and emergency surgical back-up.

Jim retired in 2001, and spent the next nine years at Lighthouse with his other loves – his family and his cattle.

Jim died on 13 June 2010, after a short illness. He is survived by his wife, Jill, two sons, a daughter and four grandchildren.

Dr Eva Popper
FRANZCOG
Grange, Queensland

Dr John Stewart Fleming
1947 – 2010

Stewart Fleming was born 3 July 1947, at Camberwell, Victoria. Both his grandfathers were doctors. His mother Lorna, also a doctor, worked as a medical missionary in China before returning to general practice in Melbourne. His father, Helmut, fled from Nazi Germany prior to the onset of the war.

Stewart was educated at Carey Baptist Grammar School, Kew. He graduated in medicine from Monash University in 1971.

Stewart married his wife Eileen in 1972 and moved to Sydney, where he worked at Royal North Shore Hospital. He then undertook specialty training in O and G at The Woman's Hospital, Crown Street. He was appointed to the Australian Medical Association's New South Wales Branch Council as a junior medical staff representative and became very involved in the battle with the Health Commission to improve pay and conditions. His significant role in the Arbitration proceedings, which were eventually successful, benefited all doctors employed in hospitals in New South Wales. He was involved in founding the AMA Doctors' Health Fund.

Stewart travelled to the UK to gain further experience and spent time at Royal Berkshire Hospital, Reading, gaining his MRCOG in 1978. On returning to New South Wales in 1980, he settled in Camden and commenced specialist practice with Dr Grahame Vaughan and myself. He was appointed a VMO at Camden Hospital and also later at Campbelltown Hospital. Stewart was an enthusiastic supporter of the Western Metropolitan O&G Society (WOGS). He was a Foundation Fellow of the RACOG in 1980 and was elevated to FRCOG in 1991.

Stewart was diagnosed with Parkinson's disease in late 1988 and over the ensuing years the illness and progressive motor difficulties forced him to curtail his practice. He finally ceased consulting in 1998 but continued at Campbelltown Hospital in a role organising and teaching medical students. He retired in 2001.

Stewart died suddenly at home on the 20 March 2010. He is survived by his wife Eileen and their children Karen, Narelle and Andrew. He will be missed by us all.

Dr Bruce Harding
FRANZCOG
Camden, New South Wales