



O&G

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BABIES

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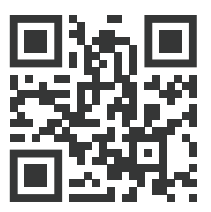
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RANZCOG acknowledges and pays respect to the Traditional Custodians of the lands, waters and communities across Australia, on which our members live and work, and to their Elders, past, present and future. RANZCOG recognises the special status of Māori as tangata whenua in Aotearoa New Zealand and is committed to meeting its obligations as Te Tiriti o Waitangi partners.

From the President



Dr Gillian Gibson
President

I am delighted to present this edition of O&G Magazine, and the first published in my Presidency. In November, I was honoured to begin my term as RANZCOG President, taking over from Dr Benjamin Bopp. I am extremely grateful to Ben and the RANZCOG Board for their hard work during the 12th Council term, and I look forward to working with the Board, Council, and broader membership for the 13th Council term. As this year draws to a close, I would like to reflect on the achievements of the College, and look ahead to what we can continue to build on over the next two years.

This year, the College underwent the reaccreditation process with the Australian Medical Council and Medical Council of New Zealand. This was a substantial and critical piece of work that the entire RANZCOG membership and staff contributed to. Although the final report is still pending, the preliminary findings appear overwhelmingly positive for the College. I commend all those who were involved in this process.

The Curriculum Team have been working closely with the Dean of Education to revamp the FRANZCOG curriculum, which was launched in October this year. The new curriculum incorporates a cultural safety domain, demonstrating our commitment to improving the O&G training in Australia and Aotearoa New Zealand. I am confident that the changes to the curriculum will be a positive step towards inclusive healthcare for women across our region.

We recently held the RANZCOG Annual Scientific Meeting in Perth, where I was pleased to see many of my colleagues from across Australia and Aotearoa New Zealand, as well as international delegates. At the ASM, I had the pleasure of launching the RANZCOG Abortion Guideline, the first of its kind in Australia and Aotearoa New Zealand. I had been highly involved in the development of this guideline, as Chair of the Working Group appointed to develop the guideline, and I am immensely proud of the result. Thank you to all who participated in the development of this essential tool for women's health care. Overall, the RANZCOG ASM was a resounding success, with attendees giving overwhelmingly positive feedback about the scientific program, organisation, and professionalism of the event. Congratulations to the Organising Committee and the RANZCOG Events team.

In November, the College was proud to officially open our newest resource, the Assessment, Learning and Examination Centre, otherwise known as ALEC. The centre features 24 examination rooms spread over two floors at Djeembana in Melbourne. We were delighted to be joined by College members as well as representatives from other

medical colleges and government agencies at the opening. It was a fantastic opportunity to showcase the facility, which will ultimately be used for RANZCOG examinations, as well as an additional income stream with the leasing of the facility to other organisations.

2023 has certainly been a big year for the College, and it would be remiss of me not to thank our dedicated membership for your engagement with the College. Together we are able to achieve better outcomes for women in Australia and Aotearoa New Zealand, with the work the College has achieved over the past 12 months testament to the skill and determination of our members. I would also like to thank the RANZCOG staff for their hard work and dedication to the College, and their support for our members and trainees.

I wish you all a safe and prosperous 2024, and look forward to engaging with you over the next two years of my Presidency.

From the CEO



Vase Jovanoska
Chief Executive Officer

2023 has been a significant year for the College. In November, we transitioned to the 13th Council term and welcomed Dr Gill Gibson as RANZCOG President. I would like to thank Dr Ben Bopp and the Board of the 12th Council term for their work over the past two years. I am incredibly proud of what we have achieved as a College under Ben's leadership, and I look forward to working with Gill and the 13th Board and Council. I would also like to express my gratitude to the RANZCOG staff for their contributions to the College. From education to women's health to governance, our staff enable us to operate to a high standard and ultimately achieve our vision of excellence and equity in women's health.

This year we announced that RANZCOG is one of the first organisations accredited under the Australian Medical Council as a CPD home for 2024. Since the announcement, the CPD team has been hard at work to ensure that we have an efficient system in place going into the new year. I am confident that the RANZCOG CPD home will be a success and would like to thank the team for their work on this project.

A major focus of the College for 2023 has been addressing the workforce shortages that have been having a profound impact on the fields of obstetrics and gynaecology across Australia and Aotearoa New Zealand. We are aware of the challenges that this presents to our members, and we have been actively engaging with state and federal governments for improved conditions for clinicians. In the near future we will be releasing our rural workforce strategy, which will inform the broader workforce strategy. I look forward to sharing more information on this in the coming months.

Over the course of 2023 the College has been heavily involved in advocacy for our members, as well as for women's health. We have completed a significant amount of submissions and I would like to thank the members that take the time to contribute to these important initiatives on behalf of the College. We are committed to advocating on behalf of our membership on matters affecting the specialty, and we will continue to build on this work in 2024.

At the Annual Scientific Meeting in Perth, it was great to see the launch of our Abortion Guideline. We have been reviewing our methodology for the development of statements and guidelines to ensure that we are delivering to the highest standard, and the Abortion Guideline is just one of many examples of how far we have come in this space. We have several guidelines and statements in development that we are excited to release in the new year.

In November, we officially opened the Assessment, Learning and Examination Centre (ALEC) at Djeembana. After months of planning and preparation, we are immensely proud of this space and the opportunities it will provide both our trainees and the College. We have begun to hold our exams at ALEC and have already received great feedback on the space.

I wish all of our members, trainees and staff a safe and restful holiday period, and look forward to continuing our important work in the new year.

Elected Representatives on the Subspecialty Committees for the Thirteenth RANZCOG Council

Following the conduct of the election of the representatives on the five Subspecialty Committees for the term of the Thirteenth RANZCOG Council, to take office from November 2023 to November 2025, the following nominees have been successful in their election to the following Subspecialty Committees:



Gynaecological Oncology (CGO) Subspecialty Committee

- Dr Cecile Bergzoll (Subspecialist Representative)
- Dr Nisha Jagasia (Subspecialist Representative)
- Dr Monica McGauran (CGO Trainee Representative)
- Dr Kristen Moloney (Early Career Subspecialist Representative)
- Dr Shih-Ern Yao (Early Career Subspecialist Representative)



Maternal Fetal Medicine (CMFM) Subspecialty Committee

- Dr Wendy Carseldine (Subspecialist Representative)
- Dr Laura Gerhardy (CMFM Trainee Representative)
- Dr Margaret Harpham (Subspecialist Representative)
- Dr Peter Muller (Subspecialist Representative)



Obstetric and Gynaecological Ultrasound (COGU) Subspecialty Committee

- Dr Ahmed Al-Amin (Early Career Subspecialist Representative)
- Dr Helen Kaganov (COGU Trainee Representative)
- Dr Karen Mizia (Subspecialist Representative)



Reproductive Endocrinology and Infertility (CREI) Subspecialty Committee

- Dr Kate Burston (CREI Trainee Representative)
- Dr Jinny Yuting Foo (Early Career Subspecialist Representative)
- Dr Elizabeth Glanville (Early Career Subspecialist Representative)
- Dr Michele Kwik (Subspecialist Representative)
- Dr Raelia Lew (Subspecialist Representative)



Urogynaecology (CU) Subspecialty Committee

- Dr Fay Lin Chao (Subspecialist Representative)
- Dr Zhuoran Chen (Early Career Subspecialist Representative)
- Dr Lauren Ferris (CU Trainee Representative)
- Dr Todd Ladanchuk (Subspecialist Representative)
- Dr Lin Li Ow (Subspecialist Representative)

Introduction and background of ALEC



Matt Stewart
Head of Examinations | Education

In the dynamic landscape of obstetrics and gynaecology, the emergence of the Assessment, Learning and Examination Centre (ALEC) marks a transformative stride towards redefining the examination experience for medical professionals. Recognising the challenges posed by the reliance on hospital facilities to deliver face-to-face examinations, ALEC was conceived as a dedicated venue to safeguard the robustness of medical assessments.

The need for ALEC crystallised as ad-hoc facilities revealed inconsistencies in examination experiences across multiple circuits. A critical juncture presented itself when face-to-face examinations returned after the pandemic and highlighted the significance of a purpose-built space. Traditional methods, relying on paper-based marking, stopwatches, and bells for timekeeping in Objective Structured Clinical Examinations (OSCEs), were ready for a comprehensive overhaul.

The foresight to amalgamate the advantages of online examinations, such as digital timekeeping and marking, with the inherent benefits of face-to-face interactions fuelled the inception of ALEC. Nestled within the office space in Djeembana, the vision became clear – to create a multifaceted facility that not only caters to the needs of RANZCOG but also fills the void of dedicated examination spaces in Australia.

Beyond its immediate impact, ALEC's purpose and vision extend to addressing the unmet need for specialised examination centres in the country. A thorough feasibility analysis underscored the potential for ALEC to be not only a home for RANZCOG examinations but also a sought-after venue for external hire, meeting the broader demand for dedicated examination spaces.

In essence, the launch of ALEC signifies more than a mere venue; it represents a commitment to excellence, innovation, and consistency in medical examinations. ALEC stands as a testament to adaptability in medical education, offering a controlled, purpose-built environment for RANZCOG trainees and examiners and paving the way for a new era in face-to-face assessments.

Facilities and Features

ALEC boasts a meticulously designed infrastructure across its two levels, featuring 12 rooms per floor. A distinctive aspect is the provision of an identical room and floor plan layout, facilitating the simultaneous operation of multiple

examination circuits. This innovative approach ensures a uniform and equitable experience for both candidates and examiners.

Each room is equipped with two 1080p pan tilt zoom cameras, enhancing the examination process by capturing comprehensive views and facilitating thorough assessments. Complementing this, dedicated control rooms on each level enable seamless monitoring and coordination of examinations, contributing to the efficiency of the assessment process. To ensure the accuracy of marking each examiner is equipped with their own iPad marking interface ensuring examination data is recorded with 100% accuracy during the candidate's examination.

ALEC prioritises a conducive examination environment, surpassing national standards in sound isolation for consultation rooms, examination rooms, and birthing suites. This commitment to acoustic excellence enhances the focus and privacy crucial to medical assessments.

The centre is strategically designed with two separate reception and briefing areas, emphasising efficiency, and minimising disruptions. Furthermore, ALEC ensures a clear physical demarcation between briefing/quarantine areas and examination circuits, including separate bathroom facilities. This thoughtful layout optimises the workflow and experience for candidates and examiners.

One of ALEC's remarkable features is its versatility in simulating various medical settings. The rooms range in size from 14m² to 20m². Additionally, there are two operable walls per level, combining two rooms into a flexible space of 32m². This adaptability allows ALEC to replicate hospital ward rooms, larger birthing suites, procedural rooms, and consulting suites, accommodating a spectrum of medical scenarios.

In essence, ALEC's facilities and features are a testament to its commitment to excellence in medical education and examination. The centre's thoughtful design ensures a standardised, technologically advanced, and adaptable environment, setting a new standard for professional assessments in obstetrics and gynaecology.

Launch Event

The launch event for ALEC, on 16 November 2023, marked a significant milestone. Following the Presidential

Inauguration of Dr Gillian Gibson, and introduction of the 13th Council, Professor Ian Symonds, the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG; the College) Dean of Education and Deputy Vice-Chancellor, Academic, at the International Medical University, opened the centre. This event symbolised a formal commencement of ALEC, setting the stage for its role in advancing medical education and examinations under the guidance of respected leaders in the field.

Significance in the Field

ALEC stands as a pioneering force in advancing education and examinations in obstetrics and gynaecology, emerging as one of the few dedicated examination spaces in Australia. In the realm of medical assessment, ALEC is not only distinctive, but it is also the only operational venue in Victoria that is dedicated to health professional face-to-face examinations.

The genesis of ALEC traces back to a strategic collaboration with the Adelaide Health Simulation facility at the University of Adelaide. Associate Professor Adam Montagu and Mr Michael Gilmour played pivotal roles in shaping ALEC's design and planning. Their expertise, coupled with insights into RANZCOG's designs, business, and operational plans, laid the foundation for a cutting-edge examination facility.

The significance of ALEC extends beyond obstetrics and gynaecology, garnering substantial interest from various medical colleges and government bodies. A landmark partnership with the Australian Health Practitioner Regulation Agency and the Nursing and Midwifery Board of Australia positions ALEC as only the second site in Australia conducting Objective Structured Clinical Examinations for internationally trained nurses and midwives. Commencing in December 2023, this collaboration exemplifies ALEC's role in fostering broader healthcare assessments.

As ALEC progresses, it anticipates evolving into a vital business unit of RANZCOG. This transformation envisions ALEC hosting a spectrum of government examinations, medical college assessments, and other clients. Such

collaborations not only fortify the College's capacity to deliver high-quality, consistent examinations, but also position ALEC as a hub for diverse healthcare professions in Australia. ALEC's journey signifies a paradigm shift in medical education and examinations, exemplifying a commitment to excellence and collaboration that transcends disciplines and boundaries.

User Experience

We would have to say that holding our very first Fellowship oral exam in the College's new exam centre was a breath of fresh air. We will always be grateful to the hospitals that have helped host our exams over the years, but running an exam in a hospital or on Zoom necessarily has its limitations. We now have the space, the facilities, and the technology to be able to run our exam the way we want to. The new centre (ALEC) is a bespoke design befitting the needs of the College's oral exam, but it also has the flexibility and scope to allow us to potentially develop new and expanded methods of assessment. We can't wait to see what the future holds for the centre.

Dr Jo Gullam and Dr Paul Conaghan
FRANZCOG Oral Examination Directors

Conclusion

Dr Jo Gullam and Dr Paul Conaghan's words encapsulate the transformative impact of ALEC on medical examinations. ALEC, more than a venue, signifies innovation and excellence in medical education. With cutting-edge design and collaborative partnerships, it sets a new standard. Beyond RANZCOG, ALEC emerges as a hub for healthcare assessments. As it looks ahead, ALEC symbolises the evolution of medical examinations, promising a future where innovation and excellence converge to shape the landscape of assessments in obstetrics and gynaecology.



Breastfeeding/Lactation in the Workplace

RANZCOG Position Statement

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) supports the rights and needs of all people who are breastfeeding/lactating.

RANZCOG fully supports the rights and needs of all people who are breastfeeding/lactating, recognising that milk from the mother/parent is the optimum source of nutrition for the first six months of life, and that continued feeding beyond two years of age has ongoing benefits for both mother/parent and infant.¹ Breastfeeding/lactating is a physiological process and regular pumping of milk may be required for the health of both the mother/parent and infant when they are separated. Milk supply is reliant on frequent and effective emptying.

Returning to work after parental leave can challenge a feeding relationship. RANZCOG recognises that maintaining effective emptying can be further challenged when doctors are rostered to an unpredictable or more demanding work setting such as the operating theatre and labour ward. Doctors are more likely to initiate breastfeeding/lactation but then have a shorter duration of feeding time available. Those who are in procedural specialities are less likely to continue feeding to one-year post-partum.^{2,3}

RANZCOG commits to:

- Creating a culture of support that does not discriminate against breastfeeding/lactating members and trainees, in keeping with RANZCOG's Gender Equity Policy;
- Ensuring training supervisors and the Training Support Unit are aware of the RANZCOG Breastfeeding/Lactation in the Workplace Position Statement and recognises the importance of supporting breastfeeding/lactation for trainees returning to work after parental leave;
- Providing parenting facilities including an appropriate feeding space at RANZCOG events, where applicable; and
- Providing adequate provisions and facilities during examinations for candidates to pump.

RANZCOG recommends that members' workplaces should also support breastfeeding/lactation and pumping and have their own Breastfeeding/Lactation in the Workplace policies to support employees that return to work and continue feeding.

A Breastfeeding/Lactation in the Workplace Policy should ideally include:

- Allowance for protected reasonable break times (these breaks may be a legislated requirement for the employer) to allow regular pumping, or for the individual to feed the infant directly.

- Provisions for a pumping location, that is separate from a bathroom, and adjacent to clinical areas such as clinics, labour wards, and/or theatres. Ideally, a pumping space should be private, not shared with patients, should contain a desk, chair, power point, and sink, and have close access to a refrigerator. Provision of a phone and computer will allow the clinician to continue some clinical duties if they elect to do so.
- Support for clinicians who choose to use a wearable pump in a clinical setting, where appropriate to do so. Noting that exposure to milk is not an infectious hazard.⁴ However, standard OT attire should still be worn, and the pump should be placed and removed in a non-clinical environment. This advice is consistent with policies for clinicians who utilise other medical devices, such as insulin pumps and stomas, in clinical areas.

Supporting breastfeeding/lactation in the workplace recognises the importance of milk from the mother/parent. Adequate provisions for maintaining breastfeeding/lactation on return to work assists with a healthy work/life balance and removes barriers to returning to work after parental leave.

RANZCOG aims to create a culture of support and respect for breastfeeding/lactation. RANZCOG members and trainees can act as advocates and role models for other clinicians who may feel less empowered to pump or breastfeed/lactate during the workday, helping to normalise this important physiological process.

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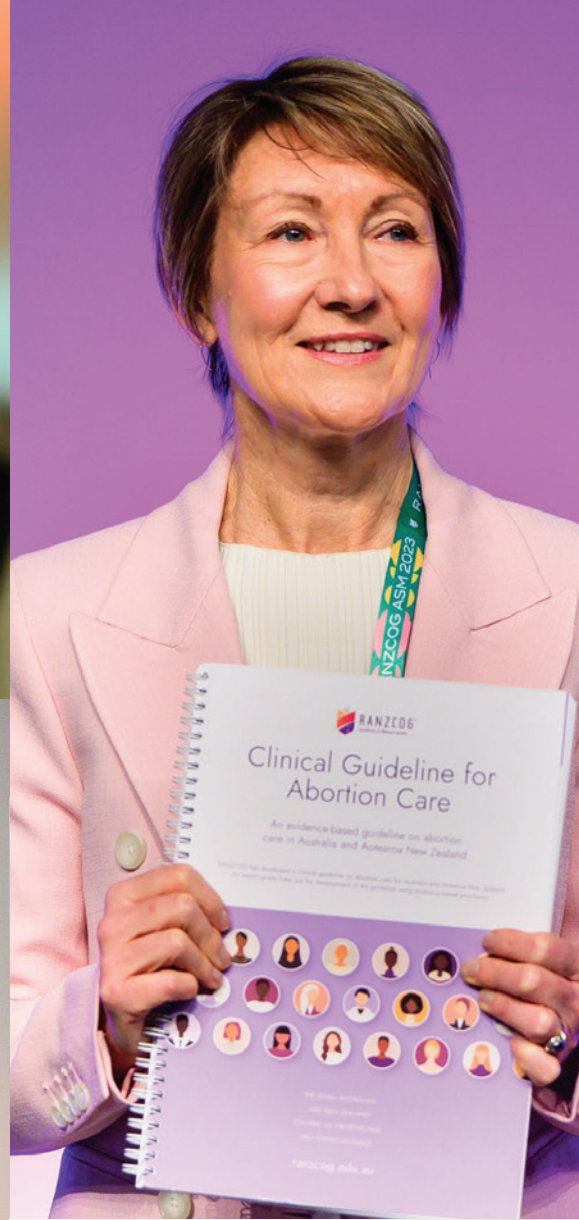
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RANZCOG Annual Scientific Meeting 2023

RANZCOG held its Annual Scientific Meeting (ASM) in Perth in late October. We trust the event provided attendees with valuable learning and networking opportunities, and that the experience was enjoyable.









How babies shape our lives



Tessa Kowaliw
RANZCOG Council Community Representative
Consumer Network Working Group (CNWG) Member

The Consumer Network Working Group 'crowdsourced' contributions for this article from our social networks. Using prompts to inspire reflection, we gained responses from 11 consumers and community members.

Do you remember when you first held a baby? Many of our survey participants do. Jen did not hold a baby until she held her own son. She remembers thinking, 'It is harder than this to get a driver's licence'. However, many shared experiences of holding siblings. Julian frequently cared for baby cousins and family friends during childhood. Naomi held her baby sister at age 9.5 years in a moment of 'pure magic and love at first sight'. Bee expressed the fear many of us feel when holding a baby for the first time, noting her baby brother 'felt very fragile and curiously boneless'. In contrast, Halina, the eldest of eight children, became well experienced at holding babies from age two years. We might each have different levels of pre-existing 'baby capital' by the time we might have our own babies.

Our survey also explored societal responses, asking participants to consider the peer who was the first to fall pregnant. Michelle recalls an unmarried couple who had not been together long, and the mother-to-be taught in a Catholic school; her pregnancy was 'a big scandal' and people 'said they were stupid'. Similarly, Brenda has a cousin who, at age 16 years, fell pregnant and faced condemnation. However, when a 17-year-old friend fell pregnant, her family was quite supportive; Brenda concluded that the difference in responses might have been cultural. Keshala's experience was that, while pregnant at age 20, she was surrounded by both excitement and concern, the latter was due mostly to her relocation to a new country. Halina's friends were all in their 20s and married when they fell pregnant, and those pregnancies were seen as both 'exciting and wanted'.

These responses raise a pertinent question: is there a 'perfect' time and circumstance in which to have a baby? Keshala shared that, in her culture, 'starting a family young was considered the best approach'. For others, marriage is a confounding factor. Bee mentioned that, in her social circle, the perceived 'perfect time' for having a baby includes being married, having a stable job and a purchased home. Naomi also says it is assumed that, for anyone who has gotten married, 'babies follow shortly after... like the next step', but that 'really [it] is none of anyone's business'. Julian highlighted the specific challenges faced by transmasculine individuals: 'People are often shocked when they learn that transmasculine people might want to have a pregnancy,

even though they don't identify as women'.

For many, age is the difference between celebration and criticism. Brenda feels pregnancies are 'celebrated as long as you're between 26–34', otherwise 'you're too young and irresponsible or too old and risky'. Conversely, Naomi's older sister was aged 32 when she had her first baby and their family 'could not be happier', indicating that context matters. Indeed, Halina mentions that 'first babies are exciting for everyone', and Naomi gives an example of a celebrated successful pregnancy shortly after a miscarriage. Sarah feels her context as a mother of five is relevant, sharing 'I have never had a pregnancy that was celebrated by everyone – I was either viewed as too young, or having too many'. Michelle offers sage advice, which echoes Sarah's experience, 'people judge everything you do and don't do when it comes to pregnancy [and babies]. You will never do it all right by everyone's standards'.

Parenthood certainly offers endless opportunity to reflect. When it comes to personal wellbeing as a parent, Brenda and Bee advise to trust your instincts; Bee says, 'I wish I'd known I can trust my baby and my instincts, and my mistakes are inevitable and forgivable'. Michelle acknowledges the exhaustion that comes with motherhood, sharing, 'I wish I knew how tired I would be, how being tired would affect every part of my life, and how being the mum I wanted to be would affect my marriage. I wish my husband understood how temporary those years would be, and how me and the babies just needed a bit of time'. With a similar understanding of the 'shifting sands' of parenting babies, Naomi encourages adapting to your baby's cues rather than sticking to rigid routines. Indeed, as Jen points out, often the parenting advice offered comes from 'too many cooks in the kitchen – [there is] too much outside advice that is contradictory'. This can overload mums and prevent them from walking their own journey with their baby (Naomi).

Education and advocacy also appeared in respondents' advice to readers. Laura discusses the lacking education around fertility and feels that healthcare professionals should offer comprehensive support to 'better prepare [young people] for the complexities of conceiving a baby and help them navigate the journey with greater confidence and resilience'. Sarah wished she had known in advance

'how much the medical system will control your experience of birth and parenting if you do not educate yourself with the research'. Both as one of eight children and a midwife, Halina sees the long-term importance of 'pregnancy care and birth experiences [in] shaping your future and views... people should be educated better about pregnancy early on so as not to go in so blind, as many do'.

In addition to maternal education, Naomi believes babies 'are the best teachers of what they need'; as Michelle points out, 'babies don't read' parenting books. Brenda also centres knowledge around the baby, 'Becoming a parent doesn't make you an expert, but it does make you an expert on your child'. Sarah and Halina likewise remind us to accept our babies in all their individual glory; according to Halina, 'All babies are different... there really is no right way to do things'.

In thinking about how maternal education and parent information would be best supplied to consumers, Keshala reflects, 'I wished there was some sort of "wonder" years app for me as I navigated life post-partum and the overwhelming feeling of sadness which I later found out was postnatal depression and anxiety... I felt like my mental wellbeing was brushed off as a normal part of motherhood'.

In the absence of such a solution, old school 'listening' remains an effective alternative. Leigh recalls supporting a friend through a challenging pregnancy, at the end of which she gave birth to a girl with some special needs, which included using a feeding tube. At a time when her friend struggled with feeling unprepared, inadequate, and was worrying about her baby's health, Leigh talked a lot with her friend – 'sometimes just sitting together was important'. Her friend's confidence grew as she came to understand that she and her partner were 'the best parents for their little girl'. Brenda proactively gave similar advice to a pregnant colleague, reassuring her that 'she is perfectly capable to handle what's to come'. This kind of active listening was also evident in Jen's response; she works to 'normalise, validate and listen to all of the mixed feelings that new parents have with their babies'. Michelle explains that the 'listening and sharing others' stories' allows women with babies to know that they 'aren't the only one feeling that way'.

In watching their friends having babies, Julian, Michelle and Bee note the value of offering practical support because 'sometimes the smallest service has the biggest impact' (Michelle). Food plays a big part in this. In the queer and trans community to which Julian belongs, everyone 'pitches in', organising meal trains, and Halina has provided new mums with food to 'ease the burden of meal planning'. However, there is also endless washing to be done. Michelle has done 'all sorts of things I would never have dreamed of doing for non-mum friends, like washing out their underwear or folding their husband's clothes', and Julian's community coordinates cloth nappy washing. Other practical offers include Bee holding a crying baby 'when mum needed a break to eat and pee' and distracting a toddler 'so mum could drink a coffee in peace'. Halina helps parents so they can 'rest, reset and [gain] confidence in the job they are learning to do'.

Much as our babies are a manifestation of so many aspects of ourselves as parents, our journeys of pregnancy and parenthood are a similarly beautiful mix of influences; those who have walked before us, those who can guide us, and those our babies become.

Thank you to all who contributed their words and experiences to this article.

Contributors

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 Keshala – CNWG member
 Laura – CNWG member
 Leigh – CNWG member
 Jen – mother of two, registered midwife
 Michelle – mum of three
 Brenda Klose
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 Naomi – mother of five and early childhood teacher
 Halina D – midwife and mother of three
 Bee – mother of one



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LEADERS FOCUS

Guess who?

You might know what they look like now, but can you pick what our Leaders in Focus looked like as a baby? Have a go at putting a name to these adorable faces. Answers provided on page 39.



Learn more about each Leader by searching the *O&G Magazine* archive:

- Archana Rao (Vol. 25, No. 3, Spring 2023)
- Cindy Farquhar (Vol. 23, No. 1, Autumn 2021)
- Gillian Gibson (Vol. 21, No. 2, Winter 2019)
- Kirsten Connan (Vol. 25, No. 1, Autumn 2023)
- Lindsay Edwards (Vol. 22, No. 1, Autumn 2020)
- Marilyn Clarke (Vol. 20, No. 3, Spring 2018)
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- Nisha Khot (Meet Your Council)
- Paul Howat (Vol. 22, No. 2, Winter 2020)
- Vijay Roach (Meet Your Council)
- Yee Leung (Vol. 24, No. 2, Winter 2022)

Congratulations!

The following applicants have been awarded research and travel awards commencing in 2024 by the Women's Health Foundation Grant and Scholarship Program.

Arthur Wilson Memorial Scholarship

Recipient: Dr Teresa MacDonald
Institution: University of Melbourne
Project: Checkpoints of placental health during pregnancy to minimise stillbirth risk

Ella Macknight Memorial Scholarship

Recipient: Dr Katayoun Taghavi
Institution: International Agency for Research on Cancer
Project: DNA methylation testing and vaginal microbiome analysis for detection of cervical pre-cancer treatment failure among women living with HIV in Zimbabwe

Ferring Research Grant

Recipient: Dr Alina Roman
Institution: The Mercy Hospital for Women
Project: TNF-alpha inhibitors to rescue pathophysiological features of preeclampsia: Ex vivo biologic proof of principle in human gestational tissue

Fotheringham Research Fellowship

Recipient: Dr Sean Carter
Institution: National University of Singapore - Yong Loo Lin School of Medicine
Project: Targeted Analysis of Maternal Plasma Cell-free RNA as a Minimally-Invasive Test for Fetal Lung Maturation

Glyn White Research Fellowship

Recipient: Dr Roshan Selvaratnam
Institution: Monash University
Project: Perinatal events and childhood school outcomes

Robert Wrigley Pain Research Scholarship

Recipient: Dr Tarana Lucky
Institution: The Royal Women's Hospital
Project: Profiling microbiota in women with endometriosis - a case control study

Jean Murray Jones Scholarship

Recipient: Dr Sebastian Leathersich
Institution: DEXEUS MUJER – Hospital Universitari Dexeus Barcelona, Spain
Project: Biomarkers of poor ovarian response

RANZCOG NSW State Committee Fellow and Trainee Research Grant

Recipient: Dr James Brown
Institution: Westmead Hospital
Project: Developing a modular antenatal risk stratification algorithm to improve safety, cost effectiveness, and patient choice

Recipient: Dr d'Arcy Baxter
Institution: Royal North Shore Hospital
Project: Every woman, right care, right place, every time

Recipient: Dr Hillary Hu
Institution: Westmead Hospital
Project: eHealth interventions for Preeclampsia

Recipient: Dr Helena Obermair
Institution: Westmead Hospital
Project: The impact of epidemiological factors and patterns of care on outcomes in vulva cancer patients

NSW State Committee Travelling Scholarship

Recipient: Dr Kumar Praneel
Institution: Port Moresby General Hospital PNG

Brown Craig Travelling Fellowship

Recipient: Dr Reema Kohli
Institution: Purohit General Hospital and Research Centre Odisha, India

Recipient: Dr Jenny Yang
Institution: Teaching Referral Hospital Eldoret, Kenya

Editorial



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'When you decide to test for "future risk", you are also, inevitably, asking yourself; what kind of future am I willing to risk'...

(Sidhartha Mukherjee)

The privilege of caring for a woman throughout her pregnancy and labour is undoubtedly one of the greatest joys of our profession. And yet, the responsibility we bear for the little patients on the inside, about to embark on a lifetime of their own that extends aeons beyond the birth suite is, at times, daunting. Decisions we make around birth can mean big impacts on individuals, families, communities, and generations. In this issue, we encourage you to hope for the future, see a bigger picture, and play a long game.

The impact of a healthy start to life from a Public Health perspective is indisputable, and I hope you enjoy the latest updates from both the Preterm Birth Prevention Alliance and Stillbirth CRE. The launch of the Safer Baby Bundle as a National Clinical Care Standard in November 2022 represents a massive leap forward for strengthening stillbirth education and consistent risk reduction strategies nationwide.

Prematurity remains the biggest killer and source of disability in children under five. In particular, as clinicians caring for both women and their babies, we need to be ever-mindful of the growing body of evidence of morbidity in the early term/late preterm cohort, and the role we often unwittingly play in the iatrogenic delivery of these babies. As maternity care providers, our lived experience of safeguarding against risk often (and understandably) curtails to the immediate with an urgency that is hard to ignore. And yet risk is slippery and protean. Risk is lifelong, as any parent will tell you!!

How we educate, counsel and ultimately consent women and their families when making decisions around timing of delivery matters. Devastatingly too, sometimes the luxury of decision around timing is snatched from our patients altogether, and we are left to chaperone them through the limits of viability, the frail edges of hope, the statistics and what they might mean singularly to a family who are forced to make decisions no one ever should. Collaborative care, delivered across a multidisciplinary team, can help women and their families navigate this risk when having discussions around neonatal outcomes. I hope you find the articles on viability both interesting and useful when counselling patients.

At many rural maternity sites, care of both baby and mum often rest squarely on the one set of shoulders, and so

we have recapped common early neonatal presentations including early sepsis, jaundice, screening and routine post-birth care.

Last, the RANZCOG ASM was a vibrant and well attended college event and we have included some pictures to celebrate the milestone here, as well as some hopeful updates from our friends in the Pacific. I hope you enjoy this Edition, as always please send us your feedback and good luck putting the baby face to the name!

The Australian National Preterm Birth Prevention Collaborative



Professor John Newnham
AM, MD, FRANZCOG, CMFM
Chair, Australian Preterm Birth Prevention Alliance and the National Collaborative

Discovering how to safely reduce the rate of preterm and early term birth should be one of the highest priorities in contemporary healthcare. Being born too early can lead to serious consequences, including death and lifelong disability, for the child.

Preterm birth is defined as birth before 37 completed weeks of gestation. This definition was never based on any measure of fetal maturation, but rather was chosen as the age at which the newborn is likely to weigh more than 2500 g. Birthweight had traditionally been the measure of interest before the introduction of ultrasound imaging enabled accurate estimation of gestational age.



Professor Jonathan Morris
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Deputy Chair, Australian Preterm Birth Prevention Alliance and the National Collaborative
President, Women's Healthcare Australasia

We now know the fetus is not fully mature until 39 weeks gestation. The 14-day period between 37 weeks and 38 weeks and 6 days is known as 'early term'. The rate of birth in the early term period has risen dramatically in recent years with one in every three Australian children now born in this 14-day window. Early term birth substantially increases the risk of behavioural and learning problems at school age. It is likely the increase in early term births in our maternity services is one of the causes contributing to difficulties being experienced by Australian children in our education system.

In 2014, a statewide program was introduced to safely lower the rate of preterm birth across the whole population in Western Australia (WA). In the first full calendar year, the rate of preterm birth across the state fell by 7.6% and the reductions extended to the earlier gestational ages. With funding provided by a NHMRC Partnership grant, the program was then rolled-out nationally in June 2018 through the establishment of the Australian Preterm Birth Prevention Alliance (the Alliance). The Alliance and its activities are the world's first national preterm birth prevention program.



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The seven strategies included in the program were chosen for the high evidential basis of their effectiveness and suitability for the Australian healthcare environment. In summary, they include: avoidance of birth before 39 weeks completed weeks of gestation unless there is medical or obstetric justification; measurement of the length of the cervix at all mid-pregnancy morphology ultrasound scans; prescription of vaginal progesterone pessaries for any case of shortened cervix or for past history of spontaneous preterm birth; ongoing monitoring of the length of the cervix if shown to be shortened; smoking cessation programs; and promotion of continuity of care by a known healthcare provider (Figure 1).



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The success seen in WA was soon replicated in the ACT and Tasmania, but not in the larger population states of NSW, Victoria and Queensland.

It was clear the strategies together can be successful, but a more effective method of implementation was required to achieve and sustain reductions in preterm birth. The method chosen was the Institute for Healthcare Improvement (IHI) Breakthrough Series Collaborative model. Appropriate financial support was provided by the Commonwealth Government in the May 2021 Budget.

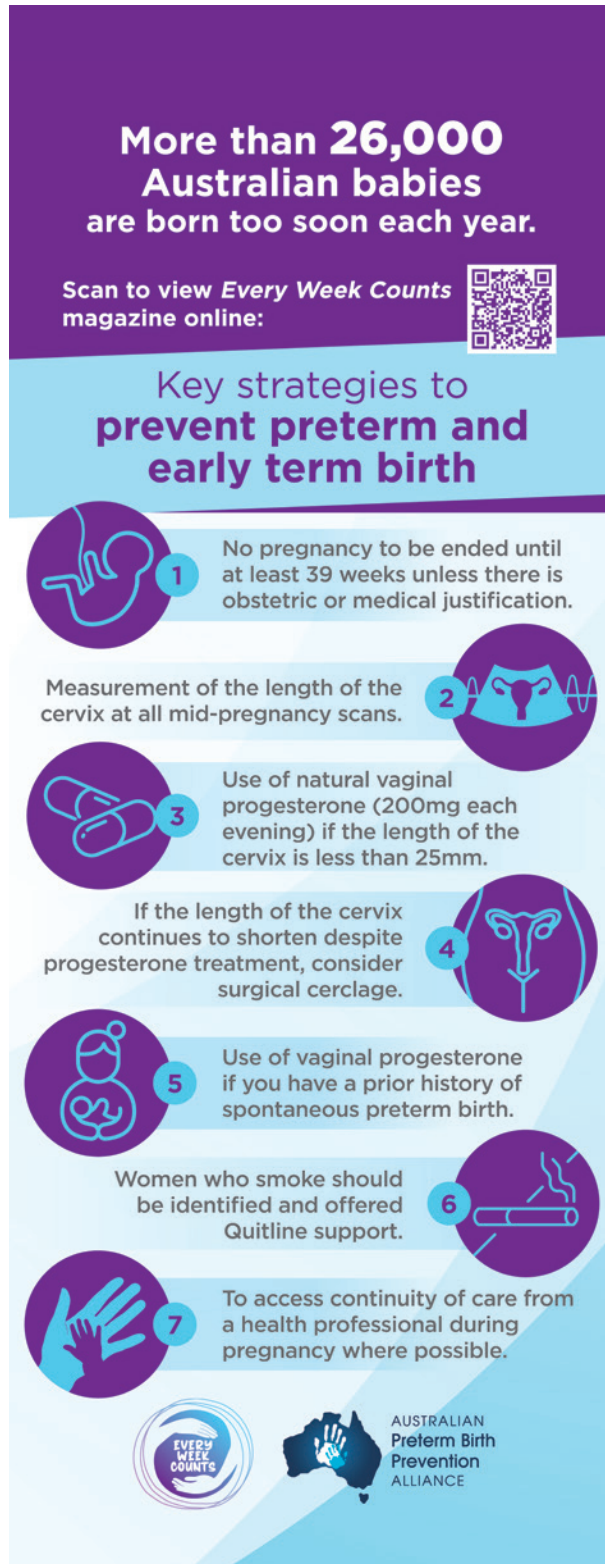


Figure 1. The seven clinical strategies included in the Every Week Counts National Collaborative.

The IHI Breakthrough Series Collaborative model was originally developed in Boston, USA, and aims to produce rapid and enduring improvements in clinical practice across healthcare facilities. In essence, there is a structured program in which the overall aim is defined and the package of evidence-based strategies is provided to each participating maternity service. Each team utilises improvement science to test and implement these strategies to maximise the chance of achieving impactful results in their own environment. Consumer representatives are embedded in the design, delivery and decision-making processes across all stages of the Collaborative.

Sixty-three hospitals from 49 health care services are included in the Collaborative (Figure 2). These sites were chosen with a view to providing diversity in geographical location and level of service. The invitation to participate was issued in consultation with the eight jurisdictional health departments and was based on the principle of 'going with the willing'.

The Collaborative commenced in October 2021 and is known as the Every Week Counts National Preterm Birth Prevention Collaborative. Our aim is to safely lower the rate of preterm and early term birth across the 63 participating maternity services by 20% by March 2024.

Teams in each hospital undertake local tests of their implementation ideas for each of the seven strategies. The process of iteratively conducting these tests, known as Plan-Do-Study-Act (PDSA) cycles, allow teams to rapidly learn how to reliably implement strategies and achieve improvements in their local context. The learning and data from each PDSA cycle are shared on a software platform called LifeQI, together with outcome data from their own hospital, the other 62 hospitals and the aggregate data from all 63 hospitals. At the time of publication, there have been more than 680 PDSA cycles registered in LifeQI across the 63 sites participating in the National Collaborative.

Each of the participating hospitals also receive ongoing support provided by professional Improvement Advisors in regular virtual coaching calls. Clinical teams and their Executive Leaders also attend three face-to-face Learning Sessions across 18 months at which the learnings from all participating hospital teams are shared.

The Collaborative model is proving to be highly effective. At its heart is the principle of empowerment of healthcare workers to make improvements in their own hospital environment. Every member of the working team becomes vitally important to the overall task – including not only executive leaders, obstetricians, and midwives, but also delivery ward and operating theatre booking clerks, pharmacists, sonographers and any other person involved in the provision of such care.

To enable this large national project, the Alliance partnered with Women's Healthcare Australasia (WHA). WHA is a not-for-profit organisation based in Canberra that includes 160 maternity services from across Australia. Each service provides clinical data that are then returned to the participating centres in a format that allows teams

Hospital sites participating in the Every Week Counts National Preterm Birth Prevention Collaborative

Northern Territory

Royal Darwin and Palmerston Hospital

Western Australia

Albany Health Campus
Armadale Health Service
Broome Health Campus
Bunbury Hospital
Fiona Stanley Hospital
King Edward Memorial Hospital
Osborne Park Hospital

South Australia

Flinders Medical Centre
Lyell McEwin Hospital
Riverland Mallee Coorong Local Health Network
• Murray Bridge Soldier's Memorial Hospital
• Loxton Hospital
• Waikerie Health Service
• Riverland General Hospital
Women's and Children's Hospital

Victoria

Angliss Hospital
Barwon Health
Box Hill Hospital
Ballarat Base Hospital
Frances Perry House
Joan Kirner Women's & Children's Hospital
Latrobe Regional Hospital
Mercy Hospital for Women

Monash Medical Centre
Peninsula Health
Portland District Health
The Northern Hospital
The Royal Women's Hospital
Wangaratta District Base Hospital
Wodonga Hospital

Tasmania

Launceston General Hospital
Northwest Regional Hospital
Royal Hobart Hospital

Queensland

Darling Downs Health
• Kingaroy Hospital • Chinchilla Hospital
• Stanthorpe Hospital • Dalby Hospital
• Warwick Hospital • Goondiwindi Hospital
• Toowoomba Hospital
Gold Coast University Hospital
Ipswich Hospital
Mater Mothers Hospital
Sunshine Coast University Hospital
The Royal Brisbane and Women's Hospital
Townsville University Hospital

New South Wales

Campbelltown Hospital
Fairfield Hospital
Griffith Base Hospital
Illawarra Shoalhaven Local Health District
• Wollongong Hospital • Shoalhaven Hospital
Royal Hospital for Women
Royal Prince Alfred Hospital
Southern NSW Local Health District
• Queanbeyan District Hospital
• Moruya District Hospital
• South East Regional Hospital - Bega
• Goulburn District Hospital
• Cooma District Hospital
St George Hospital
Sutherland Hospital
Wagga Wagga Base Hospital
Westmead Hospital
Australian Capital Territory
Centenary Hospital for Women and Children

50+ maternity hospitals working together to prevent preterm birth



Figure 2. The names and locations of the 63 maternity hospitals participating in the Every Week Counts National Collaborative.

to see the effect of their improvement efforts over time on outcomes for women and their babies, as well as benchmarking of their service when compared with others. The availability of such effective and timely data systems made WHA the perfect partner, providing a rich source of information to monitor the program and continuously feed each hospital with their own outcomes along with those of their peers.

Together, the Alliance, WHA and IHI have partnered with each of the nation's eight jurisdictional Health Departments, many of which have provided additional resources enabling the number of participating hospitals to be increased to 63. Important partners also include Safer Care Victoria and the Stillbirth CRE for shared policies and educational materials, and consumer and First Nations groups. The Women and Infants Research Foundation in WA is the Administering Institution.

The Collaborative is scheduled to conclude in March 2024. However, this program is expected to be ongoing and aims to provide appropriate support to as many of our nation's maternity services as is possible.

This national story is one of Australian research being shown to be effective when applied to one state and then rolled out with support from the Commonwealth to include all of our six states and two territories. The early signs of success are very reassuring and give hope that Australia is on track to become the world's first country to strategically and safely lower its rate of untimely early birth.



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What's new in newborn screening?



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Genomic sequencing has the potential to expand newborn screening programs, identifying many more treatable conditions before symptom onset.

What is newborn screening?

Newborn screening is a highly effective and successful public health initiative to identify babies with medical conditions that can be effectively treated before symptoms start.¹ Newborn screening is governed independently by each state and territory of Australia and screens 99% of babies. Screening currently has three components: biochemical (also known as 'bloodspot' screening) for serious and treatable metabolic and endocrine conditions; congenital heart disease by measuring newborn oxygen saturation; and hearing screening to detect congenital hearing impairment.

What is the history of newborn screening?

In the 1960s, Robert Guthrie pioneered a technique to test newborn babies for phenylketonuria (PKU). This metabolic condition is a cause of intellectual disability. Treatment with dietary modification is simple and effective and, if started in the newborn period, results in normal development.²

Newborn screening for PKU started in Australia in the late 1960s; congenital hypothyroidism was added in 1977, and cystic fibrosis was added to the panel in the 1980s. Limited changes were made until the early 2000s when a new technology, tandem mass spectrometry, was introduced. This measures levels of proteins in the blood and enables screening for over 20 severe and treatable metabolic conditions.³ Currently, in Australia, approximately 27 conditions are included in newborn bloodspot screening, with some variations by state.⁴

The principles that underpin newborn screening, and health screening generally, were outlined by Wilson and Jungner in 1968.⁵ The key elements for a condition to be included are: having a significant impact on health; available treatment or intervention; and accurate and reliable test to detect the condition. While these principles continue to be recognised, advancing technology requires other elements to be considered.

Genomics in newborn screening

For many years, there has been debate about the use of genomics in a public health setting for newborn screening. On one hand, understanding a baby's DNA from the time of birth will allow access to accurate and preventative healthcare. On the other hand, expense, data management and consent have consistently been raised as concerns. We are now at the tipping point of this becoming a reality as the cost of genomic sequencing has decreased and our understanding of how to interpret the data generated has improved.⁶

Genomics is the study of our DNA, the code that provides the instructions for our body to develop, grow and function. Spelling mistakes (variants) in DNA can cause rare disease.⁷ Using genomic sequencing would allow hundreds of additional conditions to be screened in newborns. It is not anticipated that genomic sequencing would replace current newborn screening, rather it would be used to enhance and expand the program. This is because both tests have strengths and weaknesses at detecting different conditions.⁸

Impact of genomics on care

In clinical practice, genomics is increasingly used to diagnose and direct management. There is good evidence for benefit in the setting of critically ill newborns suspected of having a genetic condition,⁹ infantile epilepsy,¹⁰ children with intellectual disabilities¹¹ and for congenital deafness.¹²

The use of genomics in the neonatal intensive care setting provides powerful examples of how individuals, families and health care systems might benefit from genomic newborn screening.

Oliver was born after a routine pregnancy in good condition. He established breastfeeding and was discharged home. At 6 weeks of age he attended the emergency department with abnormal movements and colour change. Oliver was admitted to the neonatal intensive care unit with seizures. He was commenced on an anti-epileptic medication. There was no improvement in his condition and he was treated with an additional medication. His parents were overwhelmed and very worried about him. Rapid genomic testing was organised 6 days into Oliver's admission and revealed two pathogenic variants in the gene PNPO. This confirmed that Oliver's seizures were due to a deficiency in the B vitamin pathway and he was commenced on the

safe and inexpensive medications thiamine and biotin. Oliver became seizure free and his other medications were stopped. He was discharged home 3 weeks after his admission and continues to grow and develop normally. His parents have used IVF with pre-implantation genetic diagnosis to have two more children without this condition.

In this example, Oliver had a significant change in clinical care as the result of his genomic test. If he had genomic sequencing prior to becoming unwell with seizures, he could have commenced treatment prior to, or at the time of, seizure onset and potentially avoided a hospital admission. Preventing a hospital admission has many benefits at an individual, family and societal level. Delivering on the promise of precision therapy, treating an individual with accurate knowledge on the cause of their condition is the biggest opportunity provided by integrating genomic sequencing into screening.

Should genomics be used in screening?

Obstetricians might have encountered genomic sequencing in the setting of reproductive genetic carrier screening.¹³ This identifies couples that carry variants, which are usually harmless to them, but can cause significant health problems in children if inherited from both parents (autosomal recessive), or from mothers for select (X-linked) conditions. Genomic newborn screening would additionally screen for conditions that are not inherited, but are due to new (*de novo*) variants in a child, with a particular focus on treatable disorders.

While introducing genomics into screening provides the prospect of significantly increasing the conditions screened, access to genetic counsellors and other health professionals with experience in genomics is essential. Screening programs are not effective when just the test



is available, they need to have public health program infrastructure so that people are appropriately informed, followed up and supported through the process. This will allow clinicians and families to have accurate and digestible information and access to support when needed.

What's happening in Australia and internationally?

In the United States, public funding supports ongoing research into how to use genomic sequencing in newborn screening in the safest and most effective way.¹⁴ In 2022, Federal funding from the Medical Research Futures Fund (MRFF) was announced to support research into genomics in newborn screening in Australia. Five projects received funding and the researchers have formed a consortium (GenSCAN) to collaborate and maximise the impact of their respective research findings.

BabyScreen+ is the project currently recruiting in Victoria. BabyScreen+ will provide whole genome sequencing to 1000 newborns for just over 600 childhood-onset, treatable diseases. This pilot study will investigate the feasibility of this test from end to end and measure how acceptable it is to expecting and new parents, as well as the general public. (Lunke, in press) Internationally, the International Consortium on Newborn Sequencing (ICoNS) has been established to similarly strengthen and share results from international research pilots, some of which aim to include 100,000 newborns.

Other considerations for genomic newborn screening

The interpretation of genomic data is highly complex and interpretation of variants changes as our knowledge increases over time. In order to minimise uncertainty and false positive results, genomic newborn screening tests generally only report variants that are highly likely to cause a condition in the screened baby. Combined with evolving therapies and technologies, this requires the genomic newborn screening test to be dynamic in responding to changes in knowledge.

The complexity means that there is still substantial human input into interpreting genomic data and therefore high cost. For a public health program to be successful, it needs to be at low cost to demonstrate benefit to the whole community. Other important considerations are: equitable access to testing and appropriate follow up, funding, and how to ensure the health care system is able to cope with this new test and the flow-on impacts.¹⁵

While direct-to-consumer genomic tests for the healthy population are becoming available to those who can afford them, this model has the danger of being poorly regulated and not evidence based, creating a risk for unnecessary investigations and parental anxiety.¹⁶

One of the aims of the research pilots, including BabyScreen+, is to help clarify if genomic sequencing is suitable for use as part of public health programs, or whether it is more appropriate as an independent test that parents can access if they want to have additional health information.

What do I need to know for my patients?

Currently, routine newborn screening remains unchanged and provides an exemplar for good public health programs. Research consistently demonstrates that expectant parents and the general public want to do the best for children and provide this as a reason they would support expanding newborn screening.¹⁷ Pilot studies will help pinpoint how

this new technology can be used to provide benefit for families and minimise harm or unnecessary worry. This research will also answer important questions about how to implement genomic screening by understanding the perspectives of healthcare providers involved in the proposed programs. Collectively, information gained from this research will establish a solid foundation for future development of newborn screening, which will ultimately lead to early diagnosis for babies with serious but treatable genetic conditions.

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Neonatal scalp injuries



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Injuries to the scalp account for approximately 80% of all birth injuries experienced by babies during the perinatal period.¹ These delicate tissues can be damaged by both the birthing process itself and inadvertently by clinicians during necessary procedures. Most of these injuries are self-limiting and can be managed conservatively; however, some do need immediate recognition and intervention to minimise their impact on the baby. Scalp injuries are classified by the layer of scalp involved, be it skin, subcutaneous connective tissue, subaponeurotic space, or subperiosteal space.

Anatomy of the scalp

The outermost layer of the scalp is the skin, containing sebaceous glands, hair follicles and capillaries. Underlying this is a connective tissue layer, closely adhering to the overlying skin and connecting it to the galea aponeurosis. Deep to the aponeurotic layer is a space, across which valveless emissary veins travel, connecting superficial scalp vessels to the dural venous sinuses and diploic veins that pass through the bony plates of the skull and supply the intracranial structures. The deeper aspect of the subaponeurotic space is bordered by the periosteal membrane, which covers the bones of the skull and represents the lowest layer of the scalp.

Injuries to the skin

As well as providing the cosmetic function of hair growth and participating in temperature control by allowing heat radiation, the skin acts as a physical barrier to infection, which is particularly important in babies, especially if premature. Although uncommon, the skin (and underlying tissue) can be lacerated during caesarean birth and, if the wound is long or deep enough, might require suturing. Despite fetal laceration being a recognised complication of caesarean birth, it is difficult to determine numbers and rates of scalp laceration specifically from current literature, the issue being that scalp lacerations during caesarean are not separated out from either all laceration injuries during operative birth or all scalp injuries related to all birthing methods. Lacerations can also occur with application of both forceps and vacuum cups to the fetal head, and these are often associated with more diffuse injuries to the underlying tissues. However, isolated scalp lacerations are a very uncommon cause of admission to neonatal units, with the majority being small injuries, managed conservatively in maternity wards.

The use of fetal scalp electrodes (FSE) also injures the skin as the anchoring wire passes into the skin and subcutaneous tissue. An early study by Ashkenazi et al.² in 1985 reported an incidence of scalp lacerations of up to 41% in babies with FSE, although the vast majority were transient superficial lacerations that may or may not have been still present at discharge. Severe lacerations with ulceration occurred in 1.3% of their cohort, a figure confirmed more recently in 2016 by a Washington-based group.³ The development of abscesses is well described with FSE use, and more serious infective complications such as osteomyelitis, and epidural and brain abscesses, have also been reported in the literature, illustrating the importance of the skin as a protective barrier.

On occasion, cutis aplasia congenita of the scalp, a congenital defect in the skin (and sometimes the underlying subcutaneous tissue as well), might be mistaken for a scalp injury. If small and superficial, these defects tend to be self-healing, although they might be associated with other abnormalities and their presence should prompt an examination looking for evidence of syndromic features or underlying soft tissue anomalies.⁴

Injuries to the subcutaneous connective tissue

Given the dense structure of this layer, severe injuries involving only this tissue are extremely rare.⁵ It might become infected secondarily following injury to the skin, developing into cellulitis, but the primary injury tends to be either caput succedaneum or a chignon.

Caput succedaneum, commonly known as 'caput', is a diffuse, boggy, fluctuant swelling of the scalp, crossing suture lines, and gradually moving dependent on the baby's position. This oedema within the subcutaneous tissues arises secondary to direct pressure on the affected part of the head from maternal pelvic structures during birth. The fluid is most commonly serous, or haemoserous, and might be associated with the development of jaundice in the baby as the swelling resolves. Instrumental use might also cause caput, and macrosomic babies, those with a longer labour, and those with oligohydramnios also have an increased risk of its development.

Vacuum cup use during birth is particularly associated with scalp swellings, called a chignon. A chignon is more discrete in shape, following the contours of the cup itself and, unlike caput, it does not tend to move based on the

baby's position. There is commonly a larger component of blood in the swelling and a consequent increased likelihood of neonatal jaundice as the erythrocytes in the bruise are broken down. It differs from cephalhaematoma in that it is confined to the location of the vacuum cup, and consequently might cross suture lines. There might be superficial skin lacerations overlying the swelling, which should be observed for healing and for any signs of infection developing, and the baby should be monitored for jaundice, which might require treatment.

Bleeding into the subaponeurotic space

Subaponeurotic or subgaleal haemorrhages have the potential to be life-threatening, and early recognition and appropriate management is vital. The subaponeurotic space is extremely large and provides no natural tamponade to bleeding from the disruption of the emissary veins within the space. Blood loss into this space might be up to 80% of the baby's circulating volume, resulting in hypovolaemic shock, coagulopathy and death. Given the seriousness of these bleeds, many centres have developed guidelines to assist clinicians in providing support to affected babies, many of which are published online and all are broadly in agreement. It is always useful to be familiar with local guidance for such situations. Although extremely rare in non-instrumental deliveries, these haemorrhages are a recognised complication of instrumental birth, especially with the use of a vacuum cup, and RANZCOG has developed specific guidance on their use and the prevention and detection of subgaleal bleeds.⁶ Recognition of subgaleal haemorrhages can be difficult and most guidelines use an escalating surveillance system for babies at risk of subgaleal haemorrhages, detailing the investigations and assessments required with each level of concern or risk. Clinical features raising suspicion of a subgaleal bleed include a diffuse, fluctuant scalp swelling, which might cross suture lines, might be ballotable, and might demonstrate a fluid thrill, and fluid shift on repositioning the baby. The baby might have features of shock, although a normal heart rate and blood pressure might be falsely reassuring in unwell babies. Key factors in timely management of affected babies include:

- early recognition (based on risk factors, surveillance level and clinical appearance)
- immediate advice from a neonatologist
- not delaying stabilisation by waiting for diagnostic imaging
- aggressive resuscitation, including the use of blood products, to restore circulating volume and correct coagulopathy, and to correct acidosis
- regular reviews of haemodynamic stability and response to resuscitation and stabilisation measures

As with all births, intramuscular vitamin K use should be encouraged, but this is particularly important in instrumental deliveries.

Bleeding into the subperiosteal space

Unlike subgaleal bleeds, bleeding into the subperiosteal space is naturally tamponaded by the boundaries of the specific bony plate affected, resulting in a cephalhaematoma.⁷ These occur when shearing forces during birth strip the periosteum away from the underlying bone, with resultant rupture of blood vessels. Unlike a chignon, these bleeds are commonly not evident at birth, becoming apparent in the first few days of life as a discrete swelling, confined within the suture lines. There is usually no, or minimal, injury to the overlying skin. The swelling is often fairly firm initially, becoming more fluctuant over time. Like swellings in the superficial connective tissue

layer, cephalhaematomas are more common in macrosomic babies and those requiring instrumental delivery. There is also an increased incidence in occipitoposterior positioning of the fetus.

Cephalhaematomas commonly require no specific treatment and will resolve spontaneously over a number of weeks. They can become calcified, producing an unusual head shape, but these also resolve, usually within approximately three months. As with other conditions in which bruising occurs, babies are more likely to develop jaundice requiring treatment. They should not be aspirated, because of the risk of introducing infection. Affected babies should be evaluated for bleeding diatheses, such as von Willebrand disease, and some clinicians investigate for associated bony injury, especially if there are concerns for fractures and/or intracranial bleeding.

Summary

Injuries to the neonatal scalp are the most common of all birth injuries. Most of them are self-resolving and require little more than monitoring the affected baby for jaundice; however, development of associated infection, or the presence of a subgaleal haemorrhage, requires early recognition and prompt, definitive action.

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Current use of stem cells in infants

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It is now 40 years since it was discovered that umbilical cord blood is a rich source of blood stem cells, similar to those found in bone marrow, that can produce all the mature blood cells needed in the body. Since cord blood is traditionally a waste product, discarded with the cord and placenta following delivery, it can easily be collected and stored in a cord blood bank. All the cord blood obtained from the placenta and cord of a single delivery is known as a cord blood unit. Since the first cord blood transplant in 1988, cord blood has proven to be a valuable source of stem cells for bone marrow transplant for the treatment of leukaemia and up to 80 other disease indications. There are now more than 800,000 cord blood units stored in public cord blood banks globally, with more than 40,000 cord blood transplants performed. One of the greatest advantages of using cord blood for transplant is that unlike bone marrow, the cord blood cells do not need to be a perfect tissue typing match with the patient, thereby improving the likelihood of finding a suitable donor.

The BMDI Cord Blood Bank (CBB) opened in 1996 and is located at the Royal Children's Hospital (RCH) in Melbourne, operating as a partnership between the RCH, Murdoch Children's Research Institute and the Fight Cancer Foundation. The bank is one of three public cord blood banks in Australia, the others being in Sydney and Brisbane. The BMDI CBB operates a Cord Blood Collection site at the Royal Women's Hospital in Parkville, which also services Frances Perry House. Pregnant mothers can altruistically donate their cord blood to the bank, where they will be recruited by the bank's specially trained midwives. The role of the Cord Blood Bank Collection Coordinators is to obtain consent and family and medical history, collect the cord blood and a sample of the mother's blood for infectious disease testing, package up the cord blood for transport to the CBB Processing laboratory at the RCH and to contact the mums for long-term follow up. At the processing lab, the cord blood is tested and the white cells containing stem cells are isolated and stored in liquid nitrogen at -196°C . The cord blood donor (mother) is contacted six months later to check on her health and the health of the baby. If all is well, the information about the cord blood unit (tissue type and cell count) is uploaded to an international bone marrow donor registry where the information can be searched for patients around the world who require a stem cell transplant for the treatment of leukaemia and other disorders. The BMDI CBB has around 13,000 cord blood units stored onsite at the RCH and has released nearly 600 units for treatment of patients; approximately one-third being used in Australia and two-thirds going overseas.

As of 30 June 2023, the BMDI CBB has released 594 cord blood units. The age of transplant recipients ranges from infants through to 76 years. When looking at all 594 releases (Figure 1), the majority (66%) of patients received cord blood for the treatment of leukaemia, followed by lymphoma (9%), immunodeficiencies (8%) and myelodysplasia (7%). Only 4% and 3% of CBU were released for the treatment of bone marrow failure and metabolic disorders, respectively, with the remaining 3% comprising a mix of different indications. A closer look at the data highlights the important role that cord blood stem cell transplant plays in the treatment of infants. Of the cord blood units released, 93 went to infants aged <2 years, with 64 cord blood units going to infants aged <1 year. The distribution of the disease indications for released cord blood is very different in infants compared with that for all ages (Figure 2). Of the 93 cord blood units shipped for treatment of infants, 37% were for metabolic disorders (eg Hurler syndrome, mucopolysaccharidosis type 1, MPS-type 1H, mucopolidosis), 33% for immune deficiencies (eg SCID-Ommen syndrome, Wiskott Aldrich, Griscelli syndrome, chronic granulomatous disease), 19% for the treatment of leukaemia (eg ALL, AML, JMML) and 5% for myelodysplasias and bone marrow failure. The 6% for 'other' indications includes metachromatic leukodystrophy

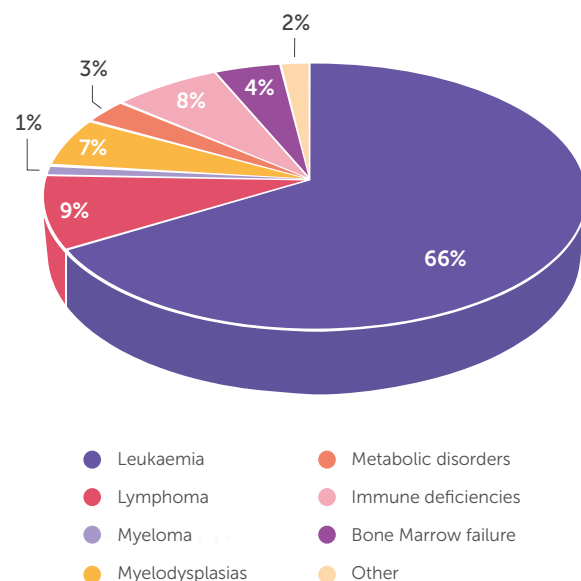


Figure 1. Disease indication for cord blood units released for transplant (n = 594).

(n = 2) and osteopetrosis (n = 3), severe disorders diagnosed in infancy. Almost half of the infants treated were Australian patients, with just over half of the cord blood units sent to treat infants overseas. With 63% of all patients treated as infants still alive, it feels appropriate that this stem cell source from newborns should play such a vital role in helping and curing other infants.

Looking into the future

In addition to blood stem cells, cord blood is a rich source of mesenchymal stem cells, endothelial progenitor cells, monocytes, B cells and regulatory T cells, which can function to regulate cellular signalling for growth, differentiation and immune responses via cell–cell interaction and/or paracrine mechanisms. Preclinical studies by our group and others have shown that in instances of tissue injury and inflammation cord blood is able to promote repair and new growth and dampen inflammation. Cord blood is increasingly being used to treat disorders and illnesses in infants beyond those treatable using a stem cell transplant. To date, none of these new uses are standard of care but clinical trials are being undertaken to confirm safety, feasibility and potential effectiveness.

In a ground-breaking clinical trial recently completed at the RCH, cord blood stem cell therapy has been used to treat infants born with the congenital heart abnormality hypoplastic left heart syndrome (HLHS).¹ HLHS is lethal unless the heart is re-plumbed via surgery to connect to the body's circulation in the first few days of life. At age 3–5 months, a second-stage surgery takes place to allow a more physiological circulation. Despite decades of continuous improvements in the surgical and medical management of HLHS, morbidity and mortality remain highest between birth and the second stage of surgery (ie the interstage period). This first-in-human clinical trial has shown safety and feasibility of delivering cord blood to the heart blood vessels during first-stage surgery performed at days 2–3 of life. The trial also provides evidence that cord blood stem cell therapy might support early heart remodelling with improved function during the critical interstage period. This clinical trial used autologous (baby's own) cord blood, but has paved the way for a planned clinical trial to assess safety and feasibility of using unrelated cord blood from the BMDI CBB in infants and children with heart abnormalities.

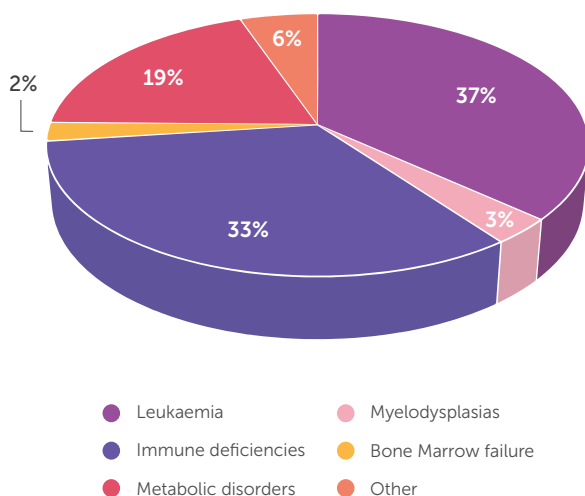


Figure 2. Disease indication for cord blood units released for transplant in patients ≤ 2 years old (n = 93).

Cord blood stem cell therapy might also play a role in preventive or regenerative treatment of neonatal morbidities due to neurological injury. Within Australia, this field is being led by a group at Monash Children's Hospital and the Hudson Institute of Medical Research in Clayton. Recent reviews by this group have described the status of the many early stage clinical trials in progress using cord blood for neurological and lung conditions.² A safety and feasibility study (CORD-SAFE) is currently in progress using autologous cord blood in extremely preterm infants born at less than 28 weeks, a population with a high incidence of brain injury and subsequent neurodisability.³ This autologous clinical trial is still ongoing, but the findings to date have led to the planning of a safety and feasibility study, also led by Associate Professor Atul Malhotra at Monash Children's Hospital, using unrelated cord blood from the BMDI CBB in pre-term infants with severe brain injury (ALLO Trial). It is hypothesised that pre-term infants who demonstrate severe brain injury in the days after birth might benefit long term in their neurological function following the infusion of cord blood in the days after injury.

There have now been many clinical trials and cord blood infusions for treatment of cerebral palsy, with evidence mounting that in certain groups of patients cord blood therapy might be of benefit in improving motor outcomes. There is still much work to be done in this space. What these clinical trials have shown definitively is that both autologous and unrelated cord blood infusion is safe.⁴

Cord blood currently provides a vital source of cells for stem cell transplants for the treatment of infants with metabolic disorders, immune deficiencies and leukaemia. There are many children alive and well today because of the altruistic actions of mothers who donate their cord blood to the public cord blood banks, for potential treatment of patients they will never meet. Cord blood is set to play an even larger role in the future in the treatment of infants and others. As the many clinical trials in progress confirm safety and feasibility, the next phase of clinical trials will determine efficacy and benefit. It is truly exciting to see where the next decade leads.

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Neonatal jaundice



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Newborn jaundice, or neonatal hyperbilirubinaemia, is a common condition characterised by increasing levels of bilirubin, which manifests as visible yellowing of the skin and mucous membranes. This condition often arises due to physiological changes that occur in the first few days to weeks of a newborn's life. This article aims to provide a comprehensive overview of the identification, diagnosis and treatment of newborn jaundice, along with emerging trends in management.

While jaundice itself is often benign, resolving with time and effective feeding, there is a subset of infants that have underlying pathology that requires further investigation and management. These infants are identified through risk stratification, their feeding capabilities, background risk factors, circumstances surrounding birth and investigations reserved for those with factors or propensity for pathological jaundice. Treatment choices are broad and are utilised depending on the levels and degree of change in serum bilirubin. Inpatient phototherapy is often the first line of treatment. However, as will be discussed, many infants are able to be managed with conservative, non-invasive treatments. With point of care diagnostics, phototherapy at home is quickly evolving as a cost-effective and minimally invasive treatment to minimise separation of mum and baby.

Bilirubin is a result of heme breakdown, a component of red blood cells (RBC) necessary for oxygen transport. The liver is responsible for enzymatic breakdown of bilirubin, which is then excreted through the gastrointestinal (GI) and genitourinary (GU) tract.

Jaundice is frequently encountered in physiologically normal neonates due to:

- increased RBC (and therefore heme) mass¹
- shortened RBC lifespan (60–90 days in term infants compared with 120 days in adults)²
- reduced hepatic enzyme activity responsible for bilirubin breakdown (1% activity compared with adults)²
- reduced gut bacteria capable of breaking down bilirubin in sterile guts,² leading to increased reabsorption of bilirubin

Jaundice reflects an imbalance between breakdown and effective excretion of bilirubin, representing excess bilirubin deposition in peripheral tissues and mucous membranes. In neonates, this classically progresses in a 'head-to-tail' (cephalocaudal) pattern; however, this is not indicative of serum levels of bilirubin and cannot guide subsequent management.

When bilirubin levels rise, binding proteins in serum such as albumin lose their ability to bind bilirubin, leading to increased 'free' bilirubin. This unbound bilirubin can cross the blood-brain barrier and can cause direct damage to neurons. This can lead to irreversible neurological damage, collectively known as bilirubin-induced neurologic disorders (BIND) and formerly known as kernicterus. BIND is a broad diagnosis, with long-term symptoms reflecting the regions that were most severely affected by bilirubin, and can include visual, hearing, gait, speech, language and cognitive delays. Consequently, identifying babies with rising serum bilirubin and starting appropriate treatment is crucial for preventing BIND.

A critical part of reviewing jaundiced newborns is separating benign jaundice from causes requiring close investigation and prevention of BIND. Despite the increased bilirubin breakdown and reduced clearance capacity, neonates do not reach peak serum bilirubin levels until 48–96 hours,² and visible jaundice should generally resolve by 14 days.² Early identification involves separating benign jaundice from cases requiring in-depth investigation to prevent BIND. Newborns with jaundice appearing within the first 24 hours or persisting after two weeks require further evaluation.

In cases of mild physiological jaundice, one of the most effective ways in overcoming increased bilirubin is assisting movement of bilirubin through the GI tract. Increasing feeds fosters bacterial growth in the GI tract, which assists in breaking down bilirubin and reducing recirculation, both through formula or breast milk. If breastfeeding is not sufficient, supplementation with formula or pasteurised donor milk can help improve GI function and reduce bilirubin reabsorption. In a smaller cohort of newborns, intravenous hydration can also be used as an adjunct to facilitate further 'flushing' of bilirubin through GI/GU tracts.

If a baby has measured bilirubin levels that require treatment, has risk factors for developing jaundice as described in Table 1, or are associated with symptoms that could be suggestive of high bilirubin (such as poor feeding and not waking for feeds with observed jaundice), then phototherapy is first-line treatment.

Phototherapy uses blue light therapy to convert bilirubin into the soluble by-product lumirubin through absorption of light into the skin (Figure 1). Lumirubin is both non-neurotoxic and more effectively cleared by the body than bilirubin, being excreted both in urine and the GI tract.

In select, severe cases of hyperbilirubinaemia with concern for BIND, exchange transfusion is utilised, where a newborn's entire blood is replaced in small aliquots with donor blood, to remove bilirubin. This is a manually performed and a high-risk procedure, which although effective, is not as readily used in practice. By increasing skin exposure and the number of lights, phototherapy can often be more effectively performed, such that 'high intensity' phototherapy is often utilised in early stages to prevent the need for exchange transfusion.

On commencement of inpatient phototherapy or with clinical concern, babies will have serial measurements of bilirubin (Figure 2) and will be 'weaned' with periods off light to assess their capacity for bilirubin breakdown, monitoring for periods of 'rebound', and facilitate transition to home.

Recent developments in treatment

For low-risk newborns with bilirubin levels close to treatment thresholds, several centres can offer home phototherapy. This has numerous potential benefits, including improved early newborn-maternal bonding, decreased hospital bed occupancy rates and potentially lower overall costs of treatment.

Designs and techniques differ between hospital regions, but in general, families are counselled on the use of a portable phototherapy device, with babies wrapped in them, with short breaks for feeding, settling and care.

To ensure effective treatment of jaundice, families will be visited daily by community practitioners where point-of-care (POC) devices such as a transcutaneous bilirubinometer (TcB) are used. This device uses optical

Risk factors	Diagnostic tests
Birth trauma (eg cephalohaematoma)	Blood group and Coombs test
Prematurity (<35 weeks)	Blood film for RBC morphology
Family history of haemolytic disorders	Infective screen
Rhesus incompatibility	

Table 1. Common risk factors and diagnostic tests for newborn jaundice.

spectroscopy to analyse the amount of light absorption from the device by bilirubin into the skin and has been shown to be a highly sensitive screening tool for ruling out hyperbilirubinaemia in newborns.³ The limitations of these devices are their accuracy in infants with darker skin tones, their accuracy at higher bilirubin concentrations and they are unreliable once a biliblanket has been used,⁴ so confirmatory testing with serum bilirubin levels is required in these cases.

If there are concerns of worsening jaundice demonstrated with the TcB, a formal bilirubin test via heel prick is generally performed and discussed with local paediatric/neonatal teams for further decisions. Studies of wide-

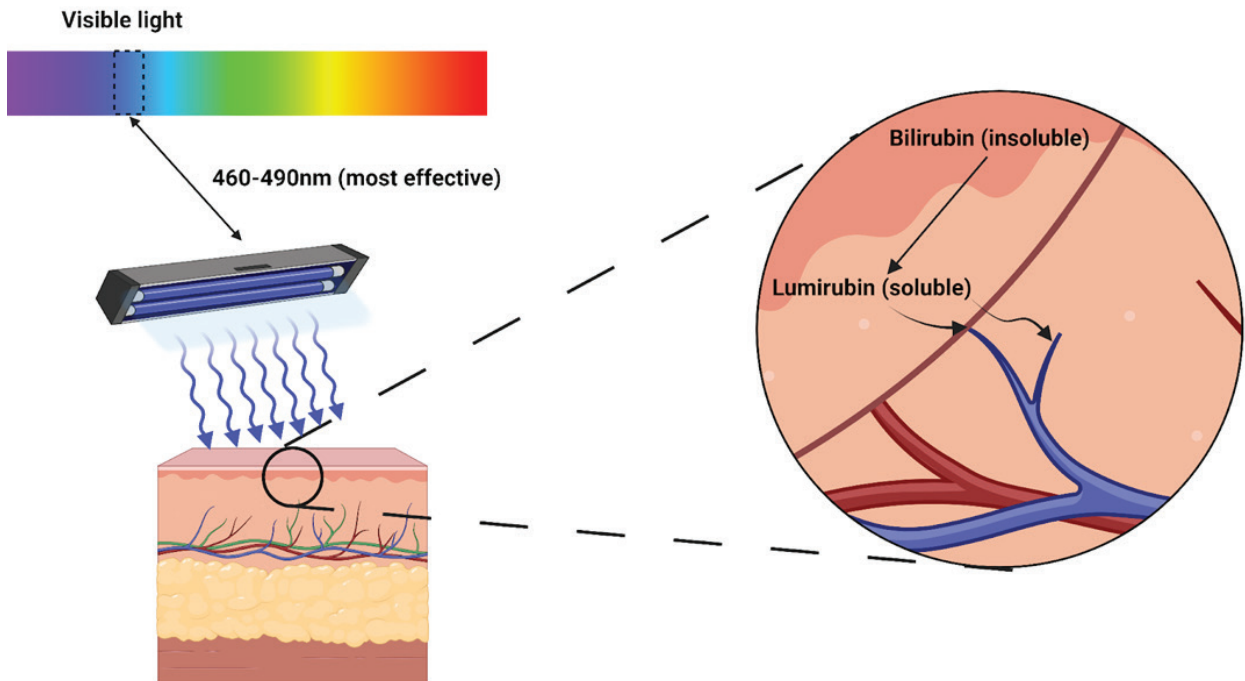


Figure 1. Overview of phototherapy. The use of blue light (with specific wavelengths as described) facilitates isomerisation (or transformation) of bilirubin into lumirubin, a substance capable of direct excretion in GI/GU tracts. Adapted from 'light' by BioRender.com (2023), available at <https://app.biorender.com/biorender-templates>.

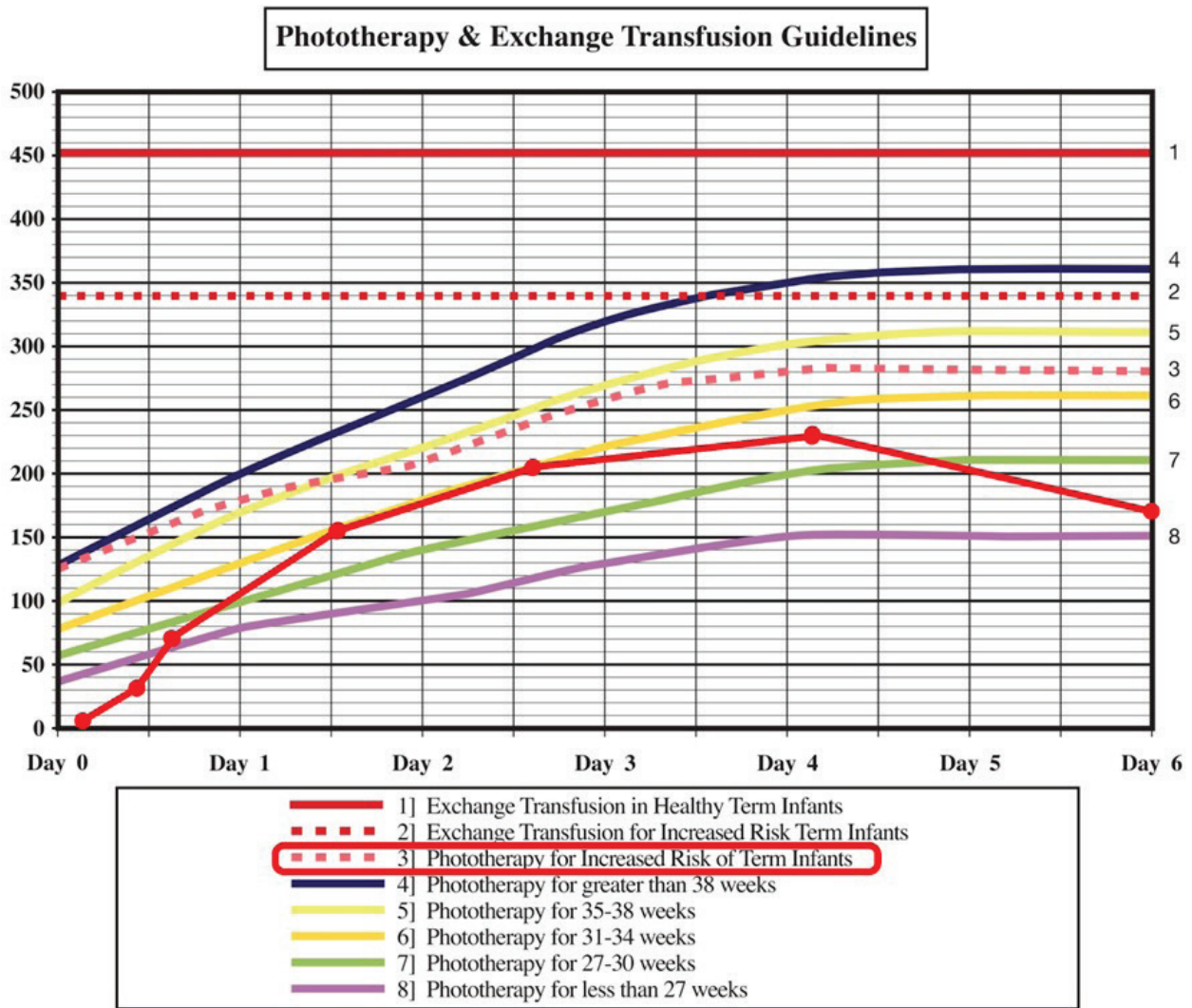


Figure 2. Example of inpatient bilirubin monitoring using a standardised nomogram. This 38-week macrosomic baby was born by ventouse and sustained a significant cephalohaematoma, thus monitoring their levels accordingly by line '3'. Concern for increasing jaundice and poor feeds lead to close bilirubin monitoring. They were discharged on the fourth day of life and had a follow-up heel prick bilirubin on day 6 with improving bilirubin levels, without further follow up. Adapted from Tasmanian Health Service South Guidelines, 2023.

scale home phototherapy have shown it to be an effective method to keep babies at home, with Australian statistics showing a \$2 million saving with 2 weeks of midwifery-at-home care compared with a 2-day, inpatient phototherapy admission among a cohort of 4038 infants.⁵ Given its cost-effectiveness, home phototherapy will likely become a main form of treatment for low-risk babies with physiological jaundice requiring treatment.

Newborn jaundice is a condition encountered in newborns, commonly due to physiological transitions and, rarely, pathological processes. Benign jaundice is often self-resolving with time and increased feeds, whereas jaundice in at-risk babies or with a pathologic origin requires investigation and close observation. Clinical examination cannot determine the level of jaundice in a baby, and babies with jaundice in the first 24 hours or persisting after two weeks require urgent/close reviews, respectively. Phototherapy and regular feeding continue to remain the most effective way to assist babies in offloading bilirubin. Home phototherapy with POC diagnostics is a highly cost-effective and rewarding technique to foster maternal-infant bonding and will likely become a key method of care for low-risk neonates needing ongoing jaundice management.

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Newborn vitamin K, vitamin D and delayed cord clamping



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The wellbeing of newborns is unquestioned. In this article we summarise three key newborn medical interventions: vitamin K, vitamin D and delayed cord clamping.

Vitamin K

Vitamin K is essential to prevent haemorrhagic disease of the newborn (HDN). This devastating and potentially fatal condition is prevented by the administration of vitamin K. For reasons of practicality, the intramuscular route is advised.

In decades past, there has been discussion that vitamin K might be linked to childhood cancer, but this has not been supported by several research studies. Oral administration has also been studied and found to be less reliable, given the dose administration is less clear and the repeated dosing interval is harder to adhere to.

For most newborn infants, they will receive intramuscular vitamin K soon after birth, often part of their neonatal check. The drug is administered into the thigh muscle, with a lower dose for preterm infants.

Vitamin K's role mitigates the known vitamin K deficiency newborn infants are born with. Vitamin K is essential for blood clotting. Where vitamin K is not given after birth, this can present at different times: early, 'classic' and late onset HDN.

Early:

This is HDN within the first 24 hours.

Classic:

This can present within the first week following birth, but can lead to irreversible bleeding (often around the brain) and can be fatal.

Late:

This is defined as occurring between the second week and six months of age and might have unpredictable areas and presentation of bleeding, but can also present with intracranial bleeding.

There might be instances where whanāu decline vitamin K treatment. It is important these feelings and thoughts are explored given the potentially devastating outcome for the newborn. For many parents, this might be the first decision they are making about their precious newborn.

If there is concern about consent for vitamin K it is advisable to have a discussion well before labour and delivery where thought processes are stressed. Some birthing centres will refer whanāu to their local paediatric service if consent is not achieved, which can be useful for reducing the burden on midwives.

Vitamin D

Vitamin D is an ongoing area of scientific and clinical research. Vitamin D has important involvement in numerous biological processes and links are being made to immune function, respiratory health and growth and development. It has long been known to be important for bone health and deficiency can lead to rickets (bowed bones).

Vitamin D is formed in the skin on exposure to sunlight, but this is inappropriate for newborns who cannot safely get vitamin D from sun exposure. At present, there are established risk factors for infants to receive supplemental oral vitamin D, such as:

- maternal vitamin D deficiency
- siblings with vitamin D deficiency
- darker skin complexion
- newborns that are small for gestational age or preterm
- breastfed infants born in the lower sunlight months during winter

Fortunately, the oral administration of vitamin D is effective in addressing newborn vitamin D deficiency and is generally advised to be given until the newborn is 1 year of age when sun and food vitamin D sources increase. Helpfully, the present dose of infant vitamin D given to newborns with risk factors is one drop daily. This small amount is generally well tolerated and can be given using a dropper or by putting it onto the nipple of a breastfeeding mother prior to feeding.

Deficiencies in vitamin D are not benign and might present for an infant with bone issues (ie fractures, bowed legs) and also seizures due to hypocalcaemia, which can require intensive care support.

Delayed cord clamping

Delayed cord clamping is a more recently adopted practice following research demonstrating that it can be effective in increasing a newborn's haemoglobin and iron stores. There is also thinking that there are other useful nutrients in the

cord blood that are beneficially transferred to the infant, but are harder to measure and prove.

Low iron and haemoglobin is associated with several bad outcomes in infants including growth, feeding and developmental issues. In addition, many mothers themselves are low in iron and haemoglobin, which can affect the newborn.

The method of delayed cord clamping currently has some variation but is generally accepted to be between 30 seconds to 3 minutes following birth. The exact way in which to transfer cord blood to the newborn has become more simplified and most infants will be managed with cord clamping delay alone. Previous procedures such as milking the cord and placing the newborn in a low position beneath the mother have not been supported by current research.

There is an increased risk of jaundice due to the 'transfusion' of blood from delayed cord clamping, but for many infants it is felt that the benefits outweigh this risk.

For newborns who require neonatal resuscitation, limiting or not performing delayed cord clamping is left to the decision-making of those caring for the mother and newborn.



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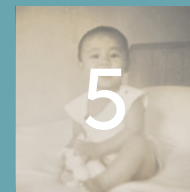
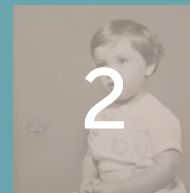
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Guess who? Solution

How many did you guess correctly?
Here is the solution to the Guess who?
baby quiz on page 21.

1. Kirsten Connan
2. Michael Permezel
3. Vijay Roach
4. Nisha Khot
5. Yee Leung
6. Gillian Gibson
7. Marilyn Clarke
8. Cindy Farquhar
9. Paul Howat
10. Archana Rao
11. Lindsay Edwards



Elected Representatives on the Diplomates Committee for the Thirteenth RANZCOG Council

Following the conduct of the election of the members to the Diplomates Committee for the term of the Thirteenth RANZCOG Council, to take office from November 2023 to November 2025, the following nominees have been successful:

Intrapartum Care (Procedural) Diplomate Representative

- Dr Stephanie Breen
- Dr Louise Manning
- Dr Kylie Sterry

Shared Care Diplomate Representative

- Dr Ka-Kiu Cheung
- Dr Felicity Constable



Microbial maternity: the importance of the gut microbiome in pregnancy



Professor Peter Vuillermin

Director of Research, Barwon Health
Chair in Medicine, Deakin University

In 2009, a group of renowned scientists proposed a set of 'planetary boundaries' within which humanity must remain to develop and thrive.¹ These relate to climate change, ozone depletion, atmospheric aerosol loading, ocean acidification, freshwater change, land system change, biogeochemical flows, and biodiversity. In the broader context of reducing biodiversity of the macro and microenvironment, we should consider the importance of the human microbiome during pregnancy.

The combined genetic material of microorganisms within a particular environment is known as the microbiome. We have co-evolved with our microbiome; consequently, it plays a non-redundant role in human health. Most human commensal organisms are found in the gut, where they contribute to the digestion and metabolism of food to produce biologically active molecules critical to gut wall integrity, immune homeostasis, brain function and cardiometabolic health. Recent studies suggest that approximately half of the bacteria in a traditional human gut microbiome are no longer present in communities living in the industrialised world,² and there is intense interest in determining the extent to which depletion of the maternal gut microbiome impacts pregnancy complications and infant outcomes.

Technical advances have enabled rapid advances in understanding the microbiome in health and disease. We have progressed from early cataloguing studies toward an increasingly robust understanding of mechanisms and, more gradually, toward robust evidence of causality.³ Numerous diet-by-microbiome pathways have been described. Best known are the processes by which plant-derived complex carbohydrates, or fibre, are metabolised by gut anaerobic bacteria to produce the short-chain fatty acids (SCFAs) acetate, butyrate and propionate.⁴ SCFAs provide a nutrient source that promotes gut wall integrity, they promote the production of regulatory T cells (Treg) that control excessive inflammation, they impact immune cell precursor development in the bone marrow, and they promote immune regulation in distal organs such as the lung. Moreover, SCFAs cross the placenta and impact fetal development.⁵

The pathways by which commensal bacteria in the gut metabolise plant-derived polyphenols to produce many

anti-inflammatory and antioxidant molecules are less known. Over 8000 types of polyphenols have been identified, many of which convey biological benefits. Dietary intake of polyphenols-rich foods, such as fruits and vegetables, in combination with the metabolic competence of the gut microbiome, is likely to be crucial.⁶

The immunological mechanisms enabling the mother to grow a genetically foreign fetus over the course of pregnancy is an evolutionary masterpiece. Unsurprisingly, diet-by-microbiome pathways might impact these processes and, in turn, the depletion of specific diet-by-microbiome pathways may be critical. In the Barwon Infant Study (BIS), we found a lower concentration of SCFAs in the serum of women who subsequently developed pre-eclampsia.⁷ Moreover, the infants of women who developed pre-eclampsia had a lower proportion of thymic-derived Treg at birth, and this persisted until at least 4 years of age. Our collaborators went on to show that the offspring of germ-free mice have a strikingly underdeveloped thymus that can be rescued by the administration of SCFAs via the mother's drinking water during pregnancy.⁷ Whether diet-by-microbiome pathways can be targeted to prevent preeclampsia is the subject of ongoing research.

Maternally derived IgG carrying small bacterial fragments across the placenta to impact the fetal immune system might also be crucial. In an elegant study, it was shown that colonisation of the germ mouse with the bacteria *Escherichia coli* during pregnancy had a profoundly beneficial impact on the infant's developing immune system and their susceptibility to postnatal infections.⁸ Intriguingly, serum taken from an *E. coli* colonised mouse could rescue the immune development of a germ-free pregnancy, but not if the IgG were removed from the serum. IgG is both passively and actively transported across the placenta carrying bacterial epitopes, or fragments, and is therefore ideally placed to prepare the developing baby for the microbial environment it will face during and following birth.

Prenatal fetal immune programming is likely leveraged following birth to enable efficient postnatal immune development and regulation.⁹ Infants born to mothers living in more diverse microbial environments, such as a farm

with livestock, have greater expression of innate immune receptors at birth, presumably enabling more efficient interaction with their postnatal microbial environment. The resulting efficient and well regulated responses to infectious challenges, such as respiratory viruses, might contribute to the low rates of wheezing illnesses among children in traditional farming environments, such as among the Amish.¹⁰

In Australia, approximately 10% of babies develop clinically proven IgE-mediated food allergy, and approximately 20% will subsequently develop asthma.^{11,12} These are among the highest rates in the world. The maternal microbiome may be critical in preventing allergic disease and asthma in the infant.⁹ In BIS we found that maternal carriage of the commensal bacteria *Prevotella copri* is associated with protection against food allergy and the infant.¹³ The genus *Prevotella* is an archetypal symbiont virtually ubiquitous in hunter-gatherer communities, such as the Hadza in Tanzania, which is becoming increasingly uncommon in the industrialised world.¹⁴ The underlying basis of the association between maternal carriage of *P. copri* and protection against allergic disease remains unknown. *Prevotella* might be intrinsically impactful, or alternatively, it might be a biomarker of a less industrialised gut microbiome.

There is also mounting interest in the role of the maternal microbiome in fetal brain development and subsequent behavioural and neurocognitive outcomes of the children. For example, we produced the first human evidence that a healthier dietary pattern was associated with improved child behavioural outcomes via increased diversity of the mother's gut microbiota during pregnancy.¹⁵ Indeed, there are now numerous studies underway investigating the potential role of the maternal microbiome in the prevention of adverse neurobehavioural outcomes in children such as autism and attention deficit hyperactivity disorder.

It is an exciting area but also essential to acknowledge some critical limitations of the microbiome field. Some 500 microbiome papers are published monthly, yet examples of translation to clinical and public health impact are difficult to find. The majority of human research is observational and associative. Most experimental work has been conducted in highly artificial environments, with animals that generally have microbiomes that are very different from humans.³ In this context, we must support research that combines high-quality longitudinal research in human cohorts with cutting-edge mechanistic work and experimental research. We need large-scale, high-quality randomised control trials of interventions addressing microbiome-immune pathways during pregnancy. Good examples of such trials include the SYMBA Study assessing a prebiotic supplement for the prevention of infant allergic disease,¹⁶ and the recently funded Bugs and Bumps trial, which is being conducted within Deakin University Pregnancy Research and Translation Ecosystem (PRT-E).¹⁷

So, what then are the currently actionable clinical and public health messages regarding the microbiome during pregnancy? A high-quality diet is associated with benefits in a range of maternal and infant outcomes, and some of these benefits are likely to be mediated by diet-by-microbiome pathways. What is a high-quality, microbiome-friendly diet? Well, it is one that your great, great grandmother would recognise: it is high in vegetables, fruit, legumes, and fish. Equally important, it is low in highly processed foods and simple carbohydrates. An excellent way to improve diet quality is to be involved in the local production of fruit and vegetables, either at home or as part of a community. Minimising unnecessary exposure to antibiotics is also important. Antibiotics can be

life-saving when used to treat a serious bacterial illness, but unfortunately antibiotics are overused in many countries, including Australia, impacting both ecological diversity and antimicrobial resistance patterns. Moreover, misuse of antibiotics is a critical issue in the industrialised food system – another excellent reason to prefer locally grown, organic food. A healthy intake of fermented foods such as yoghurt and fermented vegetables is also likely beneficial. There is inadequate evidence to suggest routine supplementation of specific gut bacteria with currently available probiotics, but this is a fast-moving space. Consider participating in a diet-by-microbiome clinical trial, as these are crucial to testing and translating the potential of the microbiome field.

Pregnancy is fundamentally about nurturing the next generation. In this context, we can take comfort in the knowledge that a microbiome-friendly diet is not only colourful and delicious, not only does it decrease the risk of pregnancy complications and benefit the baby's early life growth and development, but it is also a diet that is associated with environmental benefits that are crucial to tackling ecological crisis our children will inherit.

Conflict of interest

Financial interest in the biotech company Prevatex, seeking to develop next-generation probiotics.

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Pushing the limits of viability: how low should we go?



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With advancements in perinatal and neonatal care, the lower limits of viability have dropped, with many centres in the world now routinely offering resuscitation at 23 and even 22 weeks gestation.¹ Importantly, survival rates of extremely premature infants are improving, with some centres of excellence around the world achieving >50% survival in infants born at 22 weeks.² In addition, a recent meta-analysis of infants born at 22 weeks who received active management found that 37% survived without moderate or severe disability,¹ which leads us to question where the limit of viability really lies?

Currently in Australia, only Victoria and Western Australia have published outcome data for infants born at ≤ 23 weeks. From 2009 to 2017, there were 191 live births at 22 weeks gestation in Victoria, of which only 5% received active

management; however, none survived to one year of life. At 23 weeks gestation, 45% of the 260 live births were actively managed and 50% of these infants survived to one year.³ In Western Australia, between 2004 and 2010, there were three survivors at 22 weeks gestation, of whom two went on to have a moderate level of disability while the third had only a mild level of disability at standard follow up. At 23 weeks gestation, 68% of the 44 surviving infants (45.8% survival) were free of moderate or severe disability.⁴

While Australian data suggests survival at 22 weeks is rare, other countries around the world have demonstrated increased survival over time. In the United Kingdom, 17.9% of live-born infants at 22 weeks gestation from 2008 to 2014 survived to discharge and crude survival of 22–23 week infants rose by an average of 6% over the study period.⁵ In Sweden, survival rates of live born infants at 22 weeks rose from 10% during their first study epoch to 39% in the most recent epoch from 2017 to 2019. Of surviving infants at 22 weeks, approximately 20% did not have major neonatal morbidities (eg severe intraventricular haemorrhage, surgical necrotising enterocolitis).⁶ Interestingly, the proportion of live-born infants admitted to a neonatal intensive care unit (NICU) was higher in both these studies compared with Australian data, which suggests that our approach to extreme prematurity is more conservative.

In centres that routinely resuscitate infants ≤ 23 weeks, prenatal factors such as steroid administration and birth in a tertiary hospital are key factors that reduce infant mortality and morbidity.^{1,2} Appropriately timed steroids accelerate fetal lung maturation and reduce the rate of intraventricular haemorrhage^{7,8} and necrotising enterocolitis;⁸ the combined effects leading to a reduction in mortality in the extremely preterm population.^{7–11} Unfortunately, the majority of evidence for steroids in infants at 22–23 weeks comes from observational data as less than 50 infants under 26 weeks were included in the original clinical trials of antenatal steroids.⁷ Nevertheless, the timely administration of steroids is crucial if resuscitation of this highly vulnerable group is to be considered. In addition, birth in a tertiary centre has been shown to significantly improve the chances of survival to one year in extremely preterm infants (adjusted odds ratio 2.78), as well as decrease the risk of long-term disability.¹² Therefore, timely *in utero* transfer of mothers considering active resuscitation of an extremely preterm infant is essential. This might necessitate discussions with neonatal retrieval services to provide telehealth counselling to at-risk women in order to ensure the right women are being transferred for consideration of neonatal care.

What does this mean for clinicians counselling women at risk of delivering an extremely preterm infant? Unfortunately, there is no standard approach to these extremes of viability, therefore thorough discussions with the parents and an understanding of local data becomes crucial. Experts advocate for a shared decision-making model where the parents' values and beliefs can be incorporated into the management plan for the delivery.¹³ However, this should not come at the cost of providing a realistic picture of the risks of preterm delivery at a given

gestation. Currently in Australia, guidelines recommend palliation at gestations <23 weeks. However, Safer Care Victoria has recently moved to include infants born at 22 weeks gestation within the 'zone of parental discretion' and suggests that resuscitation can be offered to these infants in some circumstances.¹⁴ When taking the parents' perspectives into account it is worth noting that previous studies have shown that while most parents acknowledge the difficulty of giving birth to an extremely preterm infant, the majority also recognise the positive impact the experience has had on their family life.¹⁵

It is important to note that the decision to resuscitate an infant at birth and provide antenatal corticosteroids does not preclude the parents from the decision to withdraw care at a later date if significant morbidity occurs in the neonatal period. Nor does the decision to actively manage an infant at birth and subsequently offer withdrawal of care due to changing clinical condition provide additional ethical challenges. By engaging in a shared decision-making paradigm, parents and clinicians can continually re-evaluate the infant's clinical picture with the aim of making ongoing decisions in the best interest of the child.

While the resuscitation of infants at 22–23 weeks gestation remains controversial, what is clear is that the limits of viability have already shifted and with advances in perinatal and neonatal care the grey zone of viability might continue to decrease. Clinicians should consider multiple factors when confronted with the possible delivery of an extremely preterm infant. What are the positive prognostic factors? What are the parents' wishes? Is our centre the best place for delivery or should maternal transfer be offered? How can we optimise the situation for this baby and family – have we given steroids? The answers to these questions should help guide the clinicians' course of action in lieu of strict gestational age criteria and in time we might find that the limits of viability are less defined than previously thought.

Further information

- Tiny Baby Collaborative (Global) – tinybabycollaborative.org
- Safer Care Victoria – <https://www.safercare.vic.gov.au/clinical-guidance/neonatal/extreme-prematurity>

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Neonatal early-onset sepsis



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Introduction

Neonates are vulnerable to bacterial sepsis, a condition recognised for its rapid progression. Preventing sepsis-related complications and mortality necessitates early, empirical treatment of neonates based on risk factors before severe symptoms manifest. This differs from other areas of clinical medicine, where treatment typically begins after confirming a diagnosis. The prevailing approach is to treat when there is a reasonable suspicion of sepsis and discontinue antibiotics if sepsis is ruled out. This approach underscores the fear associated with unrecognised neonatal sepsis. Notably, clinicians tend to have a low threshold for treatment, leading to frequent overuse of antibiotics. Over the past decade, a significant shift has occurred in the management of early-onset sepsis (EOS) in infants born after 35 weeks of gestation. This shift involves the adoption of the Kaiser Permanente newborn early-onset sepsis calculator,¹ replacing categorical algorithms.

Early-onset sepsis

This article focuses on EOS, defined as neonatal sepsis within the first 48–72 hours after birth. The primary causative organisms are group B streptococcus (GBS) and *Escherichia coli* (*E. coli*). EOS transmission typically occurs during childbirth, with an incidence ranging from 0.3 to three cases per 1000 live births.^{2,3} In the most extensive study to date, encompassing 757,979 infants born between 2014–2018 in Europe, North America and Australia, 2.86% of all live births, approximately one in 35, received antibiotics for suspected EOS.⁴ However, the incidence of EOS was only 0.49 cases per 1000 live births in the study population. Notably, there was also a wide variation in antibiotic use among study centres, ranging from 1.2% to 12.5%.

Early-onset sepsis calculator

Escobar et al. used maternal data and clinical neonatal findings from 608,014 live births to develop a predictive model to estimate the risk of EOS and stratify neonatal management.⁵ This calculator is available online at <https://neonatalsepsiscalculator.kaiserpermanente.org/>. A validation study of the calculator at a Kaiser Permanente Northern California hospital showed that there was a decrease in antibiotic use from 5% to 2.6% without adverse events.⁶ Similarly, implementation of the EOS calculator in Western Australia saw a reduction in antibiotic use from 12%

to 7.6%.⁷ Perinatal units across Australia increasingly use this calculator to stratify the management of newborns rather than algorithmic flow charts that were previously used to guide decision-making.

Determinants used to guide EOS risk stratification

Figure 1, from <https://sepsiscalc.org> (a localised implementation based on the regression equations of the Kaiser Permanente EOS sepsis calculator), shows the various factors used to determine EOS risk. These 'inputs' into the calculator are as follows:

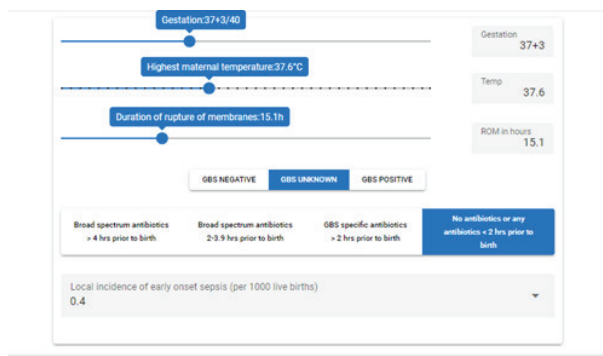
1. Gestation at birth of the infant.
2. Highest maternal antepartum temperature.
3. Duration of rupture of membranes.
4. Maternal GBS status and maternal antibiotic administration.
5. Local incidence of sepsis: a site-specific baseline risk of EOS. A risk of 0.4 per 1000 live births is used at the Royal Women's Hospital in Melbourne.

The above input determines the EOS risk of birth, shown as 0.5 in Figure 1. A further composite risk is then determined by incorporating the neonate's clinical presentation in the first 24 hours. The clinical presentation is classified as one of the following:

1. Well appearing: infant with no persistent physiological abnormalities.
2. Equivocal: infant with a single physiological abnormality lasting >4 hours (or two lasting >2 hours), such as tachycardia ≥ 160 , or tachypnoea ≥ 60 , temperature instability or respiratory distress.
3. Clinical illness: infant requiring respiratory support, showing haemodynamic instability or presenting evidence of neonatal encephalopathy.

This approach to EOS risk stratification allows for clearer clinical recommendations, using a traffic-light color-coding style. Recommendations are based on the composite risk score:

1. Composite EOS risk <1 per 1000 (Green): no blood culture or antibiotics required. Additional observations only required if EOS risk at birth is >1 per 1000.
2. Composite EOS risk 1 to ≤ 3 per 1000 (Amber): the recommendation is that blood culture is collected but no antibiotics are instituted.



EOS risk at birth is 0.5

Clinical	Risk	Clinical recommendation	Observations
Well	0.21	No culture + no antibiotics	Routine observations
Equivocal	2.50	Blood culture	AC obs for 24hours
Clinical illness	10.52	Empiric antibiotics	Obs in SCN/NICU

Estimated number needed to treat: Well = 4762, Equivocal = 400, illness = 96

Figure 1. Example early-onset sepsis risk calculation (available at <https://sepsiscalc.org>).⁸

- Composite score of ≥ 3 (Red): empiric antibiotic treatment is recommended with admission to special care of newborn intensive care unit.

It should be noted that, irrespective of composite score, the calculator will always recommend empiric antibiotics should the infant have clinical illness.

Empiric treatment

For infants requiring empiric antibiotics, the mainstay of treatment is intravenous benzylpenicillin and gentamicin, given that GBS and *E. coli* are the most common pathogens. Increased attention has also been placed on early cessation of antibiotics (ie at 36 hours) if the blood culture remains negative and the neonate remains well.

Areas of controversy

The practice of obtaining a blood culture from a neonate without immediately starting intravenous antibiotics is novel for neonatologists. In the past, it was customary that if a neonate was deemed at risk enough to undergo a blood culture, they should also receive empiric antibiotics right away. Critics of the new approach contend that following the calculator's guidelines might result in delays in initiating antibiotic treatment in cases where the blood culture eventually reveals a positive result. In contrast, the authors of the calculator argue that these trade-offs are rooted in statistical data and therefore are justifiable.⁹

A meta-analysis to assess the sensitivity of the calculator prior to implementation in the United Kingdom compared the existing National Institute for Health and Care Excellence (NICE) guidelines to the EOS calculator approach and noted that in the subset of babies exposed to chorioamnionitis the calculator might be more likely to miss cases.¹⁰ The authors of the calculator state that one of their explicit goals was to estimate risk without use of the obstetric diagnosis of chorioamnionitis, which can be subjective (prior to histopathology). The calculator is intended to capture objective measures that correlate with

chorioamnionitis, but the authors concede that in cases such as maternal bacteraemia or hypotension the newborn would warrant treatment irrespective of risk estimates.

Conclusion

Recognising the pivotal role of antepartum factors in risk assessment, effective management of early-onset neonatal sepsis necessitates close collaboration among midwives, obstetricians and paediatric teams. This collaborative approach facilitates the timely identification of potential risk factors and enables clinical assessment of newborns within the context of these risk factors. Treatment strategies involve the early administration of antibiotics for clinically unwell infants and more judicious use of antibiotics in cases where there is significant risk. Transitioning from broad algorithmic guidelines to individualised, data-driven recommendations will help minimise unnecessary treatment. Furthermore, vigilant observational care will assume increasing importance in identifying infants who might not be adequately captured by the risk calculators as antibiotics use rightfully becomes increasingly judicious.

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Stillbirth CRE



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The death of a baby before, or shortly after, birth is one of the most devastating outcomes of pregnancy. The past two decades have seen a spotlight clearly shone on stillbirth, both globally and nationally. In 2016, the National Health and Medical Research Council funded the Centre of Research Excellence at the Mater Research Institute in Brisbane (the 'Stillbirth CRE'), and in 2017 a Senate Inquiry was held into Stillbirth Research and Education that led to two round-table meetings at Parliament House. This Federal government-led activity ultimately led to the release of a Stillbirth National Action and Implementation Plan in December 2020. Although much has been achieved already, the important work of the Stillbirth CRE is ongoing, and we were rewarded in 2021 by being refunded for another 5 years. Two major components of our work are developing and helping to implement strategies for stillbirth prevention and promoting best practice care after stillbirth and neonatal death, which includes respectful and supportive bereavement care.

In 2018, the Stillbirth CRE was awarded an NHMRC partnership grant, working with the three largest health jurisdictions (Queensland, New South Wales, and Victoria), to introduce the 'Safer Baby Bundle', a bundle-of-care



package designed to improve practice in maternity care, and aimed at reducing late gestation (>28 weeks) stillbirth by at least 20% by 2025. The five elements of the strategy are shown in Figure 1, and this program has been delivered to maternity services and health professionals through the development of position statements based on the best evidence, a range of resources for clinicians and women, and an e-learning program (which has now been completed by over 10,000 clinicians).

These five elements were chosen specifically based on evidence-practice gaps across Australia and have the potential with improved care to not only reduce stillbirth but reduce neonatal morbidity and mortality plus improve maternal health outcomes. In partnership with the Australian Preterm Birth Prevention Alliance, the timing of birth element of the Safer Baby Bundle is linked to the safe prevention of preterm and early term birth in Australia. Shared decision-making and improved surveillance for women with risk factors aims to ensure that pregnancies continue where it is 'safe to stay' and that planned births are limited to situations where earlier timing may prevent stillbirth. In working together, these two National Quality Improvement Initiatives cover the two most important outcomes of pregnancy. Over the past 2 years government funding has supported the co-design of a set of new resources to support timing of birth and stillbirth prevention discussions with our first nations and migrant and refugee families.

The SBB was rolled out in the three initial states in very different ways. Victoria began in 2019 using a collaborative model in partnership with the Institute for Health Improvement. Queensland launched the program in 2020 with all maternity services signing up to the program, and statewide meetings were held to share ideas about implementation. NSW chose a small number of Local Health Districts (LHDs), based on their stillbirth risk profiles. In 2021, the CRE received additional MRFF funding to roll-out the program nationally and all states and territories have now become involved to different degrees in the implementation of the SBB. Clearly, in the 4 years since we started program, the COVID-19 pandemic has been a major distraction for maternity services, as well as having both direct and indirect impacts on stillbirth rates. Regardless, early data from Victoria, NSW and Queensland are showing positive signs in terms of some of the process and balance measures, including improved detection of FGR and reductions in early term planned birth, as well as slowing of late stillbirth rates, despite COVID-19. Nationally, the stillbirth rate >28 weeks of pregnancy is decreasing and has fallen from 2.9 to 2.4 per 1000 births between 2012 and 2020. A full evaluation of the impact of the SBB both locally and nationally is currently underway, and the development

What is the Australian Safer Baby Bundle?

The Safer Baby Bundle is a national initiative with five evidence-based elements to address key areas where improved practice can reduce the number of stillborn babies



GOAL

Reduce stillbirth from 28 weeks' gestation by at least 20% by 2025

Figure 1. The five elements of the Safer Baby Bundle.

work towards the next iteration of the SBB has already begun. Qualitative work with both healthcare professionals and pregnant women indicates that the program is already improving conversations around stillbirth, reducing stigma and improving women's experience of care.

In an ideal world, all perinatal deaths would be prevented, but this is an unrealistic goal and the best we can achieve is to minimise the number of preventable stillbirths and neonatal deaths. Reducing the overall impact of perinatal loss on families, and the wider community, is one of the goals of respectful and supportive perinatal bereavement care. The Perinatal Society of Australia and New Zealand (PSANZ) has developed a classification system for both perinatal and neonatal deaths, which has been published as part of a clinical practice guideline for care around stillbirth and neonatal death, and this has been available since 2005 with regular updates. Recently, a multidisciplinary team of researchers, clinicians and parents have worked together to produce an updated, comprehensive, evidence-based guideline, which is currently awaiting NHMRC endorsement. This new guideline (the fourth update) will include new chapters on Perinatal Palliative Care and Care in Subsequent Pregnancy, as well as new advice on investigations after stillbirth and neonatal death. The diagram in Figure 2 illustrates the proposed framework for providing best practice perinatal bereavement care in the guideline plus accompanying resources for parents.

Complementary to the Care after Stillbirth and Neonatal Death Guidelines, The Australian Commission on Safety and Quality in Health Care published The Stillbirth Clinical

Care Standard in November 2022. This clinical care standard describes clinical care to support the prevention and investigation of stillbirth, and bereavement care for all forms of perinatal loss, including stillbirth, miscarriage, termination of pregnancy and neonatal death. It contains 10 quality statements and seven indicators to reduce unwarranted variation and improve the appropriateness of care for stillbirth prevention, and the quality of bereavement care following perinatal loss. Clinical care standards help support the delivery of evidence-based clinical care and promote shared decision-making between patients, carers and clinicians. They aim to ensure that people receive best-practice care for a specific clinical condition or procedure, regardless of where they are treated in Australia.

Once endorsed, the Stillbirth CRE, working in conjunction with PSANZ, will be developing an implementation plan for the new guidelines, which will include a perinatal bereavement pathway toolkit for clinicians. If we can't prevent all stillbirths and neonatal deaths, we can try to reduce the impact on families by providing respectful and supportive bereavement care, which begins at the time of diagnosis of fetal or neonatal (or when it is realised that death of a baby is inevitable) and continues on to care in the next and sometimes subsequent pregnancies. An educational program, which is available both as a face-to-face workshop or online, has been developed and is named Improving Perinatal Mortality Review and Outcomes via Education (IMPROVE); it is primarily designed to inform clinicians about the PSANZ guidelines. The CRE has recently received additional Federal government funding to update



Figure 2. Proposed framework for providing best practice perinatal bereavement care (left) accompanying resources for parents.

this popular educational package and include information on cultural safety and inclusiveness for Aboriginal and/or Torres Strait Islander families and South Asian or African-born families, miscarriage, care in subsequent pregnancies and the wellbeing of care providers. The last point is in recognition of the fact that those of us who deal with perinatal death on a regular basis, and who are frequently caregivers to those families who have experienced the loss, can be impacted significantly themselves and might also need support.

As a community, and as a caring group of health professionals, we have come a long way since the days when stillbirths were not discussed or even acknowledged, the identity of the baby not recognised (which denies parenthood), and little attempt made to investigate and try to find out the reason why it happened. It is not long ago that there was stigma attached to the death of a baby, and women were often blamed for this adverse outcome of pregnancy. Indeed, this is still the case in many countries around the world where a common response to stillbirth will be to find someone or something to blame, and it is often the mother herself. Working together with bereaved parents, the Stillbirth CRE and our many partners have made a significant difference, but as always there is so much more to do!

Q&A

For the broader *O&G Magazine* readership, balanced answers to those curly-yet-common questions in obstetrics and gynaecology.

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Dr Melody Jackson
MBBS, FRACGP, IBCLC, MPH, DCH, DCBT, BSc(Nurs)

Dr Melanie Mapleson
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Dr Eliza Hannam
MBBS, DRANZCOG, IBCLC, FRACGP

Q Lactation consultant: what does this role involve?

A Drs Eliza Hannam, Melody Jackson, Melanie Mapleson and Marisa Nguyen are all GP-Lactation Consultants (GPLCs) practising in NSW. They join us for a Q&A session to explore the role of a GPLC in the care of breastfeeding parents and their babies in the perinatal period.

Q: Melanie, can you tell us a bit about the role of a lactation consultant?

A lactation consultant is a healthcare provider with expertise in the management of breastfeeding and lactation. Lactation consultants come from a variety of different backgrounds, notably midwifery and medicine. The globally recognised title of IBCLC (International Board Certified Lactation Consultant) distinguishes high-level clinical professionals who have undergone extensive study, training and examination.

IBCLCs are relied on by many other health practitioners as an integral part of the parent–baby care team, both on the wards and in the community. IBCLCs are skilful at providing compassionate, hands-on support to parents in need at any stage of their breastfeeding journey (including anticipating difficulties in advance). They also play a very important role in breastfeeding education, advocacy and policy development.

Q: How did each of you come to work as a lactation consultant?

Marisa:
I didn't realise I was passionate about breastfeeding until my children were born. I had significant feeding challenges with my first two babies and found it extremely difficult to access feeding support. When I did manage to get support, I found that the information from my medical providers and lactation care providers often conflicted – even as a medical professional myself, this was confusing and distressing. I decided the solution was to train in lactation medicine to fill the gap I found in my own care.

Eliza:
My passion to learn more followed my own unexpected

difficulties breastfeeding my second baby. I found it difficult to access the right help, including from GPs who were experienced in breastfeeding medicine. I also had not anticipated how much breastfeeding difficulties would affect my mood and overall enjoyment of early parenthood – so I feel passionate about supporting other families going through the same.

Melanie:

I guess one could say I got my calling through misadventure! I went on maternity leave, during the COVID-19 crisis, feeling burnt out and dispirited. After facing significant feeding difficulties myself and being 'rescued' by a skilled breastfeeding practitioner, I fell in love with this area of medicine and haven't looked back. Moving away from regular GP work to practice exclusively in lactation medicine and perinatal care was a big leap into the unknown but it's proven to be one of my best decisions in life so far.

Melody:

After a challenging experience breastfeeding my first baby, I did what I always do when searching for answers – I went searching high and low for information that would help me. I ended up attending a conference of the Breastfeeding Medicine Network Australia and New Zealand (BMNANZ), which gave me the knowledge, skills, education pathways and colleagues to practice breastfeeding medicine. In 2020, I opened my own parents and baby clinic as a 'part-time hobby', but with the need growing rapidly, I stopped general practice soon after and now spend all my clinical life in the world of breastfeeding medicine. I couldn't be happier.

Q: Melody, what does your medical training add to your lactation consultant work?

I have found that being both a doctor and an IBCLC has placed me in a unique position where I am a bit of a 'one stop shop'. Doctors possess a strong medical background, enabling them to diagnose and treat various health issues in both breastfeeding parents and babies. In contrast, IBCLCs specialise in lactation and breastfeeding support. They offer in-depth knowledge of breastfeeding techniques, positioning and attachment and milk supply concerns.

The synergy of these two roles creates a holistic approach to healthcare for breastfeeding families. Professionals can offer evidence-based medical advice and intervention while also providing practical, hands-on support for breastfeeding success. This dual qualification ensures that families receive the most well rounded care, and care that can deal with the intersection of breastfeeding with other medical or mental health issues. This integrated approach prevents parents from having to seek out support from many different services. An additional benefit is that patients can access Medicare rebates for doctors that are not available to IBCLCs of a different discipline.

Q: Marisa, can you tell us a little about the most common presentations you see?

The most common presentation I see overall is nipple pain, followed closely by supply concerns and 'breast refusal'.

Interestingly, all of these presentations are most often caused by a problem with positioning and attachment. While each problem requires a slightly different history and assessment, the starting point is always positioning and attachment.

When I assess positioning, I'm looking for three key elements: first, I want to know that baby has a stable position against the breastfeeding parent to allow comfortable and easy transfer of milk. I'll also check the attachment to ensure there is a good vacuum seal around the breast allowing a deep latch. Finally, I'll check that parent and baby are fitting with each other in such a way that the breast can sit comfortably in a natural position. When all these elements are optimised, pain is reduced, and milk transfer is improved – this results in an improvement in most presentations.

The focus of the assessment will change depending on the presentation. With nipple pain, I will focus more on positioning and attachment to minimise nipple trauma. I will also assess for rarer causes of nipple pain such as vasospasm, dermatitis, mastitis and fungal infection. When there are supply issues, I will focus on milk transfer and ensuring frequent removal of milk from the breasts – either by direct feeding or pumping.

Breast refusal can be a challenging presentation. It is often the result of increasing frustration of both parent and baby when there are breastfeeding challenges. When these challenges are left unchecked, both parent and baby start to think of breastfeeding as an unpleasant and frustrating exercise. In these cases, prioritising pleasant time at the breast is key.

Q: Eliza, in a perfect world, when would you like to see breastfeeding parents and babies for lactation advice and/or assessment?

In a perfect world, all expectant parents who intend to breastfeed would have individualised lactation education and advice in pregnancy! Antenatal lactation education can be so valuable, especially for those at increased risk of breastfeeding difficulties. This includes people who have had:

- previous breastfeeding difficulties
- previous breast surgery (including augmentation or reduction)
- medical conditions that can potentially affect supply, such as gestational diabetes, polycystic ovarian syndrome and thyroid conditions
- expected pre-term birth or other known fetal conditions that might affect feeding

Antenatal lactation education appointments include discussions about normal breastmilk production, optimal latch and positioning, management of nipple pain, and when and where to access help if breastfeeding issues arise postpartum. Ideally, antenatal appointments could also include information about normal infant sleep and behaviours and postpartum planning.

Otherwise, for breastfeeding issues that arise in postpartum, early assessment and management is ideal. In addition to hands-on assistance with latch and positioning, management can include referral for radiology/pathology and prescription of medications such as galactagogues and antimicrobials. Assessment should also consider an infant and parent's general and mental health. Thus, GPs who are also IBCLCs are perfectly placed to assess and manage breastfeeding issues!

Q: Can each of you share your one 'hot tip' for other health professionals working with breastfeeding parents and babies?

Marisa:

If you are seeing a pregnant person who intends to breastfeed, please encourage them to have a dedicated antenatal breastfeeding consult. This will arm them with skills and knowledge they can use to advocate for themselves and their baby at the time of delivery. It also means they will have an existing relationship with a lactation expert and know where to turn for help if they experience challenges.

Melanie:

Please don't dismiss any breastfeeding pain as normal. If you're not sure how to help or don't have enough time, refer the parent on (search easily online for an IBCLC through LCA NZ or a breastfeeding medicine doctor through BMNANZ). The courage and heroic determination it takes to feed a baby through excruciating pain quickly turns into deep despair if the parent is told to go home and ride it out. Painful breastfeeding isn't normal and it's one of the leading preventable causes of early weaning.

Melody:

I would say to always check in on mental health. Sometimes breastfeeding is the problem, but sometimes mental health is the problem, and it is easier to present with a breastfeeding issue. Additionally, sometimes when breastfeeding is really difficult, it overwhelms the parent's ability to cope.

Eliza:

Management of issues such as low infant weight gain or low maternal milk supply cannot simply involve prescription of formula supplementation without understanding and addressing the underlying breastfeeding issues. Suboptimal latch and positioning can commonly contribute, and therefore hands-on support with an IBCLC is an essential part of management of breastfeeding issues.

How should I clean my ultrasound probe?



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Every practitioner should have a documented procedure for cleaning ultrasound probes, with the dual aims of preventing infection transmission and prolonging the life of the probe.

General considerations

- When considering which processes and products to use for probe cleaning, always make sure that you check your institutional infection control guidelines (where relevant), as these may vary between institutions. Products used for disinfection should be approved by the Therapeutic Goods Administration (TGA) for use on medical devices and approved by the manufacturer of the transducer. Consult the manufacturer's website for a list of approved disinfection methods for each transducer, as they may vary even between products in the same range.
- All residue on the probe, such as ultrasound gel, should first be removed to optimise the efficacy of the cleaning process. Any grooves or crevices should be cleaned with a soft brush prior to disinfection.
- Be aware that probes are fragile and regular use of abrasive cleaning methods (even towels), heat or non-approved disinfectants can degrade the probe.
- Check the probe regularly for cracks or other signs of damage and contact the manufacturer immediately if damage is found.
- Be alert to the risks of cross-contamination to the surrounding environment, including hands, transducer cables, consoles and furniture. Handle probes and remove and dispose of covers carefully, adhere to hand hygiene protocols and wipe other surfaces regularly.
- Many outbreaks of infection in ultrasound departments have been attributed to contamination of ultrasound gel. Non-sterile gel from multi-use bottles should only be used for transabdominal examinations; for transvaginal scanning or for a patient with a potentially transmissible infection, single use sterile gel sachets should be used. Lids should be closed on disposable gel bottles after each use, and they should be emptied and thoroughly washed on a regular basis.

What is the evidence for infection risk?

Failure to follow appropriate infection control procedures when using ultrasound has led to numerous documented infectious outbreaks.¹ Of particular concern in the context

of transvaginal scanning are organisms such as *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, *Treponema pallidum*, *Mycoplasma genitalium*, *Trichomonas vaginalis*, human immunodeficiency virus (HIV), hepatitis and herpes viruses, and human papillomavirus (HPV). HPV can persist in the environment and retain a high proportion of infectivity for 7 days.¹

Probe covers protect against infectious contamination of ultrasound probes, but, due to the risk of breakage or micro-perforations, disinfection procedures must still be followed. In general, commercial non-latex probe covers probably perform better than condoms, but still have leakage rates up to 5%.² Probe covers also do not protect transducer handles, which were shown in one study to have a 98.8% rate of bacterial contamination after routine use. Disinfection procedures must therefore include the entire transducer, including the handle.³

Abdominal transducers

Abdominal transducers are classed as non-critical medical devices under the Spaulding classification system for medical devices¹ because they come into contact with intact skin. As such, they require low level disinfection (LLD) after each use. After removal of gel, they should be cleaned with a TGA-approved disposable cleaning wipe or system intended for use on medical devices.

If an abdominal transducer is used on infected or non-intact skin, a transducer cover should be used and high-level disinfectant procedures should be followed. For interventional procedures, such as amniocentesis or chorionic villus sampling (CVS), sterile transducer covers should be used, and high-level disinfection (HLD) procedures should be followed if there was any possibility of the probe or its cover contacting body fluids during the procedure.¹

Transvaginal transducers

Because transvaginal transducers come into contact with mucous membranes, they are classified as semi-critical medical devices under the Spaulding classification and require HLD. HLD procedures aim to eliminate all pathogens except bacterial endospores. Methods for HLD that are approved for use in Australia include:

1. Automated high-level disinfection systems:
 - ultraviolet disinfection systems (eg Germitec, Lumicare): the transducer is placed in a closed cabinet and exposed to high-intensity ultraviolet type C radiation
 - chemical disinfection systems (eg Nanosonics): sonicated hydrogen peroxide mist.
2. Liquid high level instrument grade chemical disinfectants (eg Opal): ortho-phthalaldehyde.
3. High level instrument grade disinfectant wipes (eg Tristel).

Algorithm for Probe Use and Reprocessing in OBGYN/MFM

Based on the recommendations from Standards Australia, the NHMRC and ACIPC/ASUM

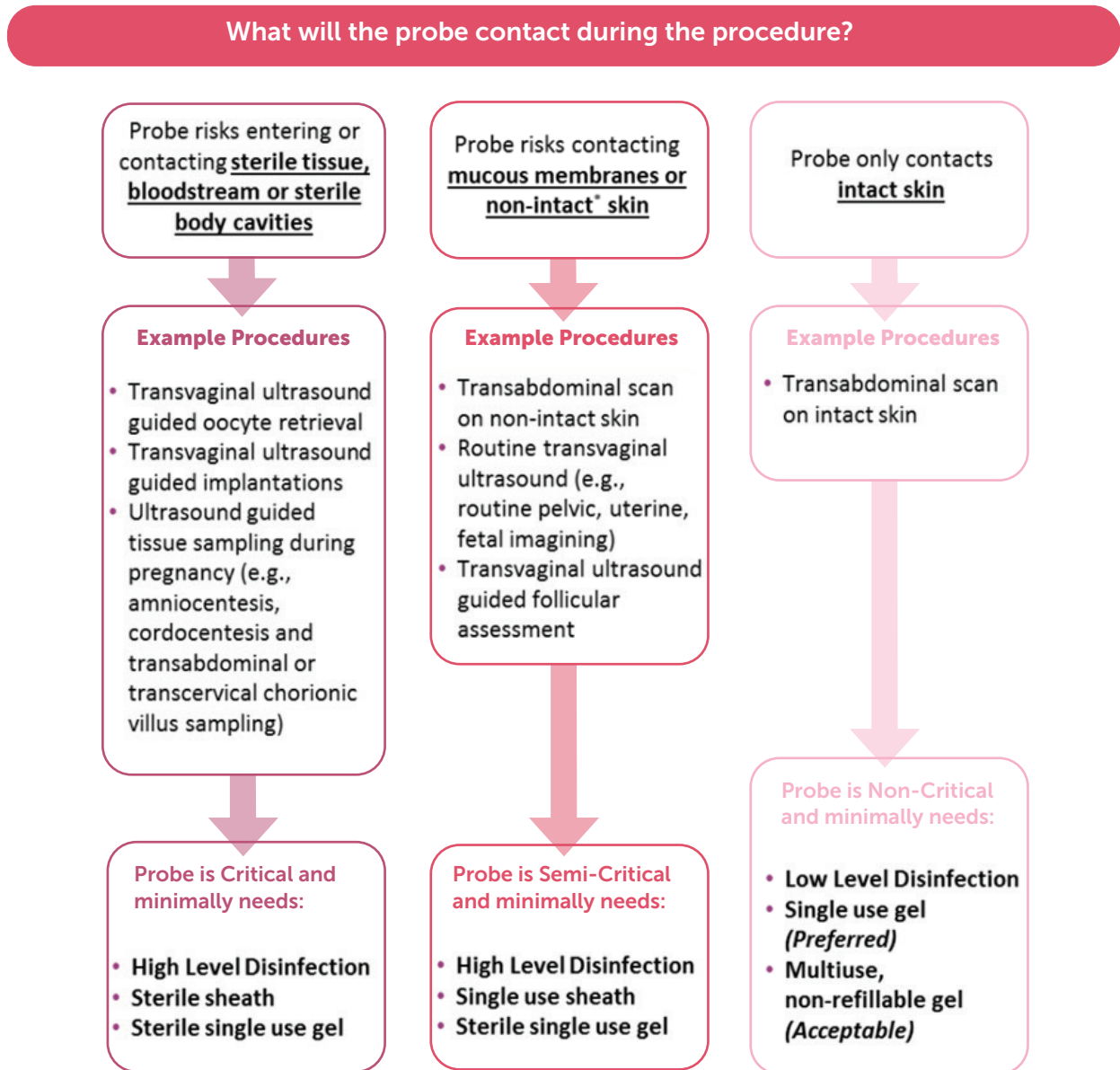


Figure 1. Algorithm for probe use and reprocessing in OBGYN/MFM. Source: <https://www.ultrasoundinfectionprevention.org.au/>.

Automated HLD systems are less prone to operator error than manual systems and eliminate concerns about toxic fumes or spillage. A 2015 study showed superior performance of an automated disinfection system compared with a manual disinfection process involving disinfectant wipes, although use of wipes in this study did not include routine wiping of instrument handles.³ However, automated systems are expensive to purchase and for this reason tend to be used mainly in practices that perform a high volume of semi-critical scans.

Records of HLD must be kept to ensure traceability in the event of decontamination failure. See the ASUM Guidelines on Reprocessing Ultrasound Probes¹ for details of documentation requirements.

Following disinfection with chemical disinfectants, transducers should be rinsed with water and dried with a disposable low-lint cloth. They should be stored in such a way as to prevent environmental contamination, either in a specific cabinet or covered with a clean, disposable cover.

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Supporting breastfeeding women in emergencies



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It has been more than 3 years since my family and I faced the harrowing Black Summer Bushfires, and as another scorching, dry summer looms on the horizon, I've made it my mission to ensure that families receive better preparation and support in times of crisis.

I am a GP, an International Board Certified Lactation Consultant (IBCLC), a volunteer breastfeeding counsellor with the Australian Breastfeeding Association (ABA) and a mum of three young children. I live in Eurobodalla on the NSW South Coast and so experienced the Black Summer Bushfires first hand. The first time my family evacuated, on the final day of December 2019, it took us entirely by surprise. As the power went out and my husband set out for work at the hospital, I found myself seeking refuge with my children at our neighbour's home, where we watched in dread as the bushfire steadily approached. Shortly after, my husband returned, his face drained of colour from witnessing the ferocity of the fires on his journey back from work. His words were blunt: 'We have to evacuate immediately; it's worse than you can imagine'.

I found the weeks and months during and following the bushfires exhausting. Over 500 homes were lost in my community. Countless families were evacuated, often multiple times. During this time, it became glaringly evident that infants and their mothers were among the most

vulnerable in this ongoing disaster, and desperately needed more support.

As well as working as a GP, I am the Community Engagement Officer for the 'Community Protection for Infants and Young Children in Bushfires Project', an initiative of the ABA, launched in July 2022 with the support of the Australian Government. My co-author on this article, Dr Karleen Gribble, is the Project Lead and has worked for nearly 20 years to ensure protection and support for infants and young children and their mothers and other caregivers in disasters. We are eager to share our research insights as well as resources we have developed from our Project with those who care for pregnant women and new mothers across Australia.

What are disasters like for breastfeeding mothers?

In recent weeks, residents in many states across Australia have experienced the threat of bushfire. As we face the prospect of a hot arid summer, a combination of El Nino and climate change, memories of the 2019/20 bushfires are to the fore. During that disaster, infants and their mothers were vulnerable and in need of support.

Disruption of sanitation and water, electricity and food supplies are common in emergencies. When this occurs, breastfeeding safeguards infants, offering nourishment, hydration, protection from infections and comfort. However, emergencies can be challenging for breastfeeding mothers; they often worry about their milk supply and stop breastfeeding early. Obstetricians have a pivotal role in supporting and empowering mothers to continue breastfeeding amid adversity.

Consider Sarah's experience. Her baby arrived via caesarean section in rural New South Wales and she was discharged on the third day after birth. When her baby was one week old, she had to evacuate due to a bushfire. Sarah, unable to drive, relied on her neighbour to reach the nearest evacuation centre, while her partner stayed behind to protect their property. Sarah spent a gruelling 24 hours sitting and sleeping on the floor of a basketball stadium with no privacy. She struggled to cope with the heat, smoke, post-operation pain and breast engorgement. She felt exposed breastfeeding in the crowded evacuation centre and feared for her partner. Her baby became increasingly unsettled, struggling to latch and feed effectively, leading Sarah to worry about her milk supply. Seeing her distress, someone gave her a tin of infant formula but on returning home, she was confronted with a power outage and a boil water notice. Sarah was in a quandary, believing her baby needed more milk but being concerned by the risks of formula feeding without the ability to boil water or access hot water for washing.

Experiences like Sarah's are not uncommon during disasters. The Australian Breastfeeding Association's Babies and Young Children in the Black Summer (BiBS) Study revealed the immense strain that the 2019/20 bushfires placed on families with babies and toddlers. Factors such as women evacuating alone with children and ill-equipped evacuation centres that were overcrowded with strangers and animals, with limited privacy and child care resources,



all contributed to the challenges faced by breastfeeding mothers in the acute phase of the disaster.

Misconceptions about the impact of stress on breastfeeding were not uncommon among mothers and emergency responders supporting them. Mothers often interpreted infant fussiness and frequent feeding as signs of inadequate milk. Support for breastfeeding was not always available, leading some mothers to cease breastfeeding prematurely.

By offering support and guidance and dispelling myths, obstetricians can enable mothers to breastfeed their babies through emergencies.

Understanding the science of breastfeeding

Skin-to-skin and initiation of breastfeeding

Placed skin-to-skin with their mother immediately after birth, healthy newborns perform a series of behaviours culminating in them locating their mother's nipple and suckling at the breast. More effective first breastfeeds occur in this skin-to-skin environment and the high levels of catecholamines in the infant promote learning. Thus, mothers whose infants experience their first breastfeed skin-to-skin have less problems with breastfeeding and their babies are less likely to be given infant formula in hospital or after discharge.

How milk is made

During pregnancy, the hormones progesterone, prolactin and oestrogen develop the alveoli (milk making structures) within the breasts. The removal of the placenta at birth causes a precipitous drop in progesterone, initiating copious secretion of milk. The hormone oxytocin is released from the mother's brain when the infant suckles, causing myoepithelial cells that surround the alveoli to contract. This milk ejection reflex releases the milk to the baby, enabling them to feed. Over weeks, breastmilk production moves from hormone-driven (endocrine) production to a demand and supply (autocrine) way of working. This means that the more milk the baby removes by breastfeeding and the more frequently milk is removed, the more milk is made.

Milk production is unaffected by stress

Stress cannot disrupt the demand and supply milk-making process. Just as kidneys continue to function under stress, so too do mammary glands. However, babies pick up on the disrupted circumstances and the stress of their mother in emergencies. They often became more unsettled and want to feed more frequently, do not want to be separated from their mother, and wake more often overnight. While stress cannot reduce milk production, acute stress can slow the release of oxytocin, which can mean infants become fussy at the breast and can take longer to feed. Mothers often misinterpret these behaviour changes as indicating that there is a problem with their milk supply.

Dehydration and breastfeeding less can reduce milk supply

During emergencies, mothers' water intake might be reduced because of lack of access to water, because they are too busy or stressed to remember to drink, or because they have restricted their intake due to a lack of toilets. Dehydration will decrease milk supply, but it rebounds if women rehydrate.

The chaotic nature of emergencies and lack of privacy might lead to mothers missing feeding cues or delaying breastfeeding, resulting in less frequent feeds and, in turn, reduced milk supply. More frequent feeding will enable milk supply to rebound.

How obstetricians can support mothers to protect their babies through breastfeeding in emergencies

Encourage women to consider emergencies in their infant feeding decisions and make an emergency preparedness plan

Support women to breastfeed and to delay weaning until after the emergency season as a way of making them and their infants resilient to disasters.

Advise pregnant women and their partners to create an emergency plan that includes packing an evacuation kit for themselves and their infants. Encourage them to

leave early and, if possible, seek shelter with relatives or friends rather than in evacuation centres. Refer mothers to the Australian Breastfeeding Association's emergency preparedness resources (aba.asn.au/emergency), which include evacuation kit lists and fact sheets on breastfeeding or expressing milk in disasters.

Help mothers and babies get off to a good start with breastfeeding

Ensure that all mothers and infants experience skin-to-skin immediately after birth and until the baby breastfeeds (this takes a median of one hour). Avoid early supplementation with infant formula unless medically necessary.

Provide mothers with anticipatory guidance on normal infant behaviour in emergencies

Let them know to expect increased breastfeeds during emergencies. Emphasise the importance of keeping baby close and breastfeeding regularly. Let them know that if they feel their baby is fussy because their milk flow has slowed, a reliable way of getting the 'love hormone' oxytocin to speed up milk release is for them to look at their baby and think about how much they love them.

Empower mothers to recognise signs of adequate milk intake and to know how to increase their milk supply

Educate mothers on signs that their baby is receiving enough breastmilk, such as at least five heavily wet nappies in 24 hours (at 5 days of age or older), pale urine and soft stool consistency. Let them know that more frequent feeding will increase their milk supply and that if a woman is mixed feeding, it is possible to return to exclusive breastfeeding or even to relactate if she has stopped breastfeeding altogether.

Advise mothers to seek help

Assure mothers that if they encounter breastfeeding difficulties or have concerns about their milk supply, they can seek assistance from healthcare providers or the National Breastfeeding Helpline, available 24/7 on 1800 686 268.

Advocate for inclusion of pregnant woman and new mothers in your community emergency plans

This helps ensure that pregnant women and new mothers get the support they need during and after disasters. For more information on what the Black Summer Bushfires were like for pregnant women and new mothers, and what needs to be done to improve Australian emergency planning to better support them, read the BiBS Study Report at aba.asn.au/emergency.



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Trisomy 21: an unexpected joy



Emily Jones
BA, BTeach

Emily Jones is an experienced teacher (K–12), mother of three children and expecting the arrival of baby four.

Before our baby was diagnosed with Trisomy 21, we assumed disability only happened to other people. Now we are glad it 'happened' to us. Today, it's my privilege to share why the way we speak – the language we use, the information we share – about Trisomy 21 matters, and invite healthcare professionals to partner with the Down syndrome community as we strive for positive change.

My experience

At my 12-week scan, the nuchal thickness indicated fetal hydrops and my GP said it was fatal. This was utterly devastating news and we spent five long days expecting to miscarry. However, on seeing our high-risk obstetrician, she determined it was a chromosomal variation, likely Turners syndrome with Down syndrome a possibility. Hope returned that our baby might live, although I felt anxious about the idea of having a child with an intellectual disability.

We finally received the news: we were having a little girl and she had Trisomy 21. There was grief and many questions. However, being the personality I am, I was online researching Down syndrome within hours, where I found positive information among the terrible misinformation. Almost immediately my greatest fears were dispelled; half-truths and myths were corrected.

Before I had baby Florence, I considered myself educated and compassionate; I now realise I had an ill-informed, pity-filled projection of disability and how it would impact my life. Not having lived experience with someone with Trisomy 21 also contributed to my ignorance.

I wrote in my journal, 'Part of processing the diagnosis has been adjusting our expectations of what our child's future will look like. The more we think about it, the more we think it's not a big deal. Yes, her development might take longer but the victories will be sweeter. She will be loved and given every opportunity our other kids have. We need to adjust our middle-class expectations of what a "successful" future for a child looks like'.

Children with Trisomy 21 are more like typical children than they are different, and capable of so much given the opportunity; they merely 'take the scenic route' in their development. Is this a problem? Or, is our collective expectation of 'a typical child' the problem? Anyone who knows a 'typical kid' knows that they are not homogenous.

The upside of our diagnosis is we knew from the beginning and had a head start. I'm not naïve about potential unique challenges, but the lived experience is so different to the 'list of medical issues' presented at the initial diagnosis. I hear this sentiment repeatedly from parents and research supports this.

Florence is now 2 years old. She loves reading, blocks, exploring, singing, childcare, and socialising; she's placid and charming, and potty training earlier than her siblings. We love watching her achieve other milestones in slower motion. She recently learnt to stand independently and she was so proud of her achievement; her delighted expressions were priceless!





Florence was induced at 37 weeks and delivered naturally in good health. However, we did experience other stressful events during that time, including a rare chorioamniotic membrane separation, and 12 weeks of NGT feeding until she mastered breastfeeding. I also felt the psychological stress of diligently attending appointments and educating others about Trisomy 21.

The first moment I felt understood was day three after birth. The lovely midwives left a pretty suitcase in my room full of gifts and letters from 21 Gifts, a not-for-profit kindness project working towards reframing disability. The letters were from parents who knew this journey; the anxiety, fear, joy and hope. It was a beautiful gesture and brought tears of relief and comfort.

Language matters

Words have power, especially in the medical setting as patients look to healthcare professionals for wisdom and guidance, which can be issued positively or negatively.

'Mongoloid idiocy', 'feeble-minded', 'imbecile', 'idiot', 'moron', and 'mentally retarded'¹ were regrettable historical terms used by doctors. Thankfully, those terms have ceased, but words used to describe Trisomy 21 are often still negative: 'risk', 'abnormal', 'unhealthy', 'bad news' or 'I'm sorry' [p. 3].²

Reframing language is powerful; for example, 'congratulations on your baby' means more than 'I'm sorry' or using person-first language like 'baby with Down syndrome' rather than 'Downs baby'.

Sadly, research shows that there is work to be done. In findings by Down Syndrome Australia (DSA) about attitudes from medical professionals, 40–50% of families: felt pressure to terminate; received inadequate and/or untrue information; and received inappropriate support. A total of

69% felt they had an inadequate understanding of the lived experiences of people with Trisomy 21 and their families.²

Examples are too prevalent and most parents have a story. 'I was told my child was not really human, she would have a body like a human but nothing inside. I was told she would never be able to show she loved us. But we would love her like a family pet.' [p. 15].² 'She would never walk, talk...' [p. 12].² 'How it would possibly/likely negatively impact our older child and our parental relationship' [p. 15].² A friend recounts a specialist's words about her newborn, 'He's quite pretty considering he's got Down syndrome'.

Conversations matter

Overall, I had a positive experience and obstetricians who respected my wishes. However, nearing full-term I recall one jarring moment with a fill-in obstetrician. She began informing us about the IQ average of people with Down syndrome. I was taken aback, not only by the context of speaking about IQ during pregnancy but the appropriateness of using IQ as a way of speaking about intellectual disability and developmental delay. She was speaking beyond her area of expertise. This conversation went beyond blunt medical speak into a value judgement. Educational experts like Dr Rhonda Faragher, University of Queensland (an employer of adults with Trisomy 21 as research assistants), has written extensively on best practice for educating learners with Down syndrome and does not mention IQ measurements when describing intellectual disability.³ Best practice emphasises a strengths-based approach, not deficits, and highlights learners can be literate and numerate given the opportunity.

Specialists work hard to care for patients; however, there can be blind spots. The average medical degree only has 2.6 hours of training in intellectual disability.⁴ I wonder if our conversation would have been different if this obstetrician had undertaken this free, online short course, 'Down



syndrome: the essentials', at the University of Melbourne?⁴ It is designed to equip healthcare professionals with the knowledge and skills to provide informed and inclusive healthcare for people with Trisomy 21 (including prenatal diagnosis).⁴

In contrast, the most holistic interactions with medical staff were those who had real-world relationships with people with Trisomy 21 and showed us helpful information and resources. They acknowledged that the medical model alone can fall short of being neutral when only potential medical complications are explored with parents. It is half the story.

Information matters

Organisations such as DSA and the Canadian Down Syndrome Society (CDSS) have excellent resources for expectant parents that provide evidence-based, balanced and holistic information. I would have appreciated having the following two guides printed and offered to us at diagnosis.

I clearly recall the relief I felt reading the 'Dispelling Myths' section [p. 13] in DSA's 'A guide for expectant parents'.⁵ It highlights research that families with a child with Down syndrome are closer and more empathetic.

Similarly, CDSS's '21 welcomes' includes letters from parents, siblings and grandparents.⁶ I was comforted by the overwhelming message that this is a positive new adventure that brings a new kind of joy to your life, so 'spare your tears'.⁶

Conclusion

The Down syndrome community is proud and diverse, captured in a popular saying 'we are the lucky few'. However, DSA's statistic [p. 3] that 90% of pregnancies

diagnosed with Trisomy 21 end in termination suggests we still have some way to go to dispel misinformation and reduce stigma.² Early conversations matter and inclusion matters. The future is bright regarding education, health and employment, and the National Disability Insurance Scheme (NDIS) is a gamechanger. We have access to top quality supports such as physio, speech and occupational therapy. Visibility is ever increasing in TV, film, advertisements, and Instagram. Adults with Down syndrome are breaking barriers as models, actors, aged and childcare workers, athletes swimming the English Channel, and presenting TED Talks. Of course, we don't love Florence any more or less based on what she will or won't achieve, we're just happy to be part of her journey.

Healthcare professionals, please partner with the Down syndrome community to reduce stigma and change the narrative about Trisomy 21.

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Overview of cervical cancer in Papua New Guinea

and a narrative of a successful HPV POC test-and-treat program in a provincial hospital



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Cervical cancer burden in Papua New Guinea

Cervical cancer is the fourth most common cancer of women worldwide with an estimated 570,000 cases and 311,000 cancer-related deaths annually.¹ Papua New Guinea (PNG) has the highest cervical cancer incidence and mortality rates in the Asia-Pacific region, with an incidence that is five times that of Australia,¹ and contributes to 1500 preventable deaths annually in PNG. It is a disease of health inequity, with more than 85% of the global burden occurring among women in low and middle-income countries (LMIC), such as PNG, where the highly effective strategies of human papillomavirus (HPV) vaccination, HPV-based cervical screening, and treatment of pre-cancer and cancer are largely unavailable.¹

While there have been some emerging primary prevention strategies for cancers in general in some neighbouring Pacific Island countries,² cervical cancer prevention and control has not been considered a national priority in PNG. There are no effective cervical cancer treatment facilities, particularly radiotherapy, chemotherapy and supportive surgical oncology services and technical expertise. Effective public health primary prevention programs such as HPV vaccines are relatively expensive and not available in public health facilities. Over the years, there has been a lack of political will and inadequate public sector budget support, in part deriving from limited access to updated data on the burden of disease, competing health and development priorities, and limited access to the available tools and technology for prevention and control of cervical cancer. As a result, the personal and family impacts of untreated or locally advanced cervical cancer have been profound with non-availability of timely surgical intervention and radiotherapy, and lack of appropriate medication for pain relief and the absence of proper palliative services in PNG. These all lead to unacceptable suffering, incapacitation and isolation within the community, and lastly a terrible demise.

Historical perspectives of cervical cancer screening programs in Papua New Guinea

Until 2002 there were no effective national cervical cancer screening or prevention programs for PNG. As the disease burden continued to take the lives of women within the community, the government and national health authorities advocated and introduced the Pap smear screening as a possible national screening program from 2002 to 2012. It was piloted across 35 clinics in 15 provinces in PNG, funded by Meripath, a non-governmental organisation (NGO) from Australia. However, only 3.7% of the target population was reached and the majority of clients were lost to follow up.³ The reason for discontinuation was multifactorial. From 2011 to 2014, visual inspection with acetic acid (VIA) and cryotherapy was trialled in three provinces. However, overtreatment was associated with this method of screening, along with numerous technical and logistical challenges, so was therefore discontinued.³

More recently, the human papillomavirus point-of-care (HPV POC) testing and treatment from self-collected vaginal specimens has yielded results that promise to have wide coverage as a national screening program for cervical cancer. This strategy is widely being supported and recommended for LMIC by the World Health Organization (WHO) to accelerate access to cervical screening and treatment services.⁴ WHO has also recommended thermal ablation over cryotherapy for the treatment of cervical precancer lesions due to greater cure rates, a more favourable adverse events profile, and reduced logistical requirements.⁴

HPV POC test-and-treat project in Madang Province

Even though the HPV POC test-and-treat strategy has been an effective cervical cancer screening and treatment program, it has not been implemented in all health facilities and hospitals in PNG. With the overwhelming burden of cervical cancer incidence in the country and particularly in Madang (a province on the northern side of mainland PNG), the business communities of Madang and a few notable individuals who lost family members to cervical cancer

initiated a series of fundraising drives. These included Islands Petroleum Colour Fun Run, barbecues, cycling and a few walkathons that also included climbing Mt Wilhelm, the tallest mountain in PNG, which is approximately 4500 meters above sea level (Figures 1 and 2).

Mt Wilhelm is located along the rugged terrains of the central Highlands Bismarck Range in Simbu Province. It takes two days of steep climbing through thick evergreen forests, savanna grassland, alpine forests and lastly the gruelling rocky mountains to reach the summit and enjoy a memorable and breathtaking scene of the country. Regular climbs are organised through Friends of Madang Provincial Hospital Group for fund raising events and anyone interested can contact the author for more information. Hearing of our plight, more of the sponsors assisted and notably the Cabrini Hospital in Melbourne, Victoria, donated funds through its outreach program. From all of the funds raised and donations, we were able to build the clinic infrastructure and purchase the Gene-Xpert Machines and consumables to start the first of what is now the Centre of Excellence in HPV POC test-and-treat centre in PNG. This clinic is now engaged in training and assisting in setting up of HPV POC test-and-treat centres for other provincial hospitals around the country and many corporate entity sites in PNG to screen and treat HPV infections. A further collaboration with the Kirby Institute (UNSW) has enabled this community project to partner and screen 4300 women (including Mt Hagen Hospital Clinic), the results of which have recently been published in the *Lancet*.⁵

The HPV POC intervention is a 'one-stop shop', where a woman will attend a clinic, self-collect her vaginal specimen, have it tested on the same day, receive her result on the same day and receive treatment on the same day if found to be positive. This cuts back on all the logistic, technical, transportation and patient follow-up requirements that we frequently encounter when using other forms of interventions, such as the Pap smear test, where results are not available on the same day. An additional benefit of the HPV POC intervention is that the self-collection method of sample collection is associated with less stigma and is more appropriate, particularly in our Melanesian Society where there is a lot of shame barriers associated with examination of a female private part. This remains a significant cultural taboo, which often results in many women presenting late and prematurely dying from late-stage cervical cancer.⁶ The HPV POC screening and treatment program for cervical cancer is tailored to our needs, has been trialled and found to be highly sensitive, cost-effective and acceptable in our setting,^{5,7,8} and is highly recommended by the WHO.⁴

Papua New Guinea's contribution to global literature

The first field trials anywhere in the world to demonstrate the effectiveness, safety, acceptability, scalability and cost-effectiveness of HPV screen-and-treat programs were carried out in PNG, (2014–21) and involved more than 5000 women in Eastern Highlands, Madang, and Western Highlands Provinces.^{2,6–12} The innovative screening model pioneered in PNG comprises point-of-care Gene-Xpert HPV-DNA testing of self-collected vaginal specimens, followed by same-day thermal ablation for women who test positive for HPV. This strategy enables more than 90% of all cervical pre-cancers to be detected and treated on the same day, is highly acceptable among women, their families and health workers, can be delivered by trained nursing staff in routine primary health facilities, and it is highly cost-effective and efficient compared with the earlier Pap test or VIA-based screening.

From our recent publication in the *Lancet Global Health* of

work done in Madang and Mt Hagen, 4300 women were recruited through this pilot project – HPV POC test and same-day treatment. The HPV positivity rate was 15% (645 women), and 93% of these women received treatment on the same day, with only 7% referred to a gynaecologist for further management. It was very effective, highly acceptable, cost-effective and feasible.⁵

Furthermore, the recent study by Nguyen et al.⁸ with economic modelling evaluation work showed that the HPV POC test is cost-effective and can easily be sustained with limited funding, particularly in resource-limited settings like PNG.

WHO global elimination strategy and scaling up in Papua New Guinea

In May 2018, the Director-General of the WHO announced a global call to action towards achieving the elimination of cervical cancer as a public health problem. In November 2020, WHO launched the global elimination strategy¹³ that included the '90–70–90' coverage targets to be met by 2030:

- 90% of girls fully vaccinated with the HPV vaccine by age 15 years
- 70% of women screened with a high-precision HPV test by age 35 years, and again by age 45 years
- 90% of women with cervical precancer treated, and 90% of women with invasive cancer managed and treated appropriately

Achieving the triple-intervention targets in the next decade would put countries on the path to achieving elimination in the next century, reducing cervical cancer mortality by 99% and saving the lives of more than 62 million women over the next century.¹⁴

Moreover, with the unavailability of HPV vaccines in most LMICs, it is still possible to accelerate and expedite elimination of cervical cancer with HPV POC test-and-treat alone.¹⁵

Following the findings from the PNG field trials and the endorsement of HPV screen and treat for primary screening by the WHO in 2021, the PNG National Technical Working Group on Cervical Cancer recommended the introduction



Figure 1. Madang Fundraising Team before climbing Mt Wilhelm.

and scale-up of HPV screen and treat in December 2021. At present there is ongoing advocacy done by the Obstetrics and Gynaecology Society of PNG through different platforms and meetings.

Few philanthropic groups, industry partners and fundraisers strengthen the expansion of HPV screen and treat in PNG, and significant new investment is required from government and donor agencies to advance nationwide scale-up to ensure no woman in PNG is left behind as the global elimination agenda advances.

Conclusion

The HPV POC test-and-treat approach is by far the most acceptable, highly effective, scalable and cost-effective strategy available to optimise the early detection and treatment of cervical cancer. A 'one-stop shop' that involves self-collection of vaginal specimens, same-day test, same-day result, and treatment instituted on the same day. We have all the local data and evidence to advocate for implementation. Moreover, it needs political will and support from all stakeholders and donor agencies in implementing this program across the country in order to achieve the WHO elimination targets by 2030 and reduce the burden of cervical cancer in PNG.



Figure 2. Ascending the summit of Mt Wilhelm.

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Dr Peter Scott Education Centre

Mother Ignacia Hospital, Soe, West Timor

David O'Rourke OAM
FRACGP, FARGP, FRANZCOG

The Dr Peter Scott Education Centre, Mother Ignacia Hospital, Soe, West Timor, Indonesia, was opened on 10 June 2016.

Dr Peter Scott (14 July 1957 – 26 May 2022) was a doctor for 40 years, initially in general practice and later trained to become an obstetrician and gynaecologist through the Nepean and Canberra Hospitals.

Peter initially started in private obstetric and gynaecological practice; however, in 2002, he decided his passion was teaching and the public medical system, which was no surprise to all who observed Peter through this journey.

Since 2003, Peter worked as a staff specialist at the Canberra Hospital until 26 May 2022 where he died as a result of suicide. A beautiful public memorial service, at the Llewellyn Hall, Australian National University, was held 5 June 2022 where over 1000 people attended to celebrate his life and hear about Peter in his roles as a father, mentor, friend, husband, work colleague and teacher of emergency obstetric skills in the developing world.

Peter, a general obstetrician and gynaecologist, held the roles of senior consultant, training supervisor and ITP

co-ordinator, and ran the interhospital transfer service for the catchment under the umbrella of The Canberra Hospital.

Peter truly was a friend and mentor to registrars, residents and medical students for over 20 years and a common theme was they aspired to be just like him. Peter was committed to teaching and training of the skills and human factors required to be a success as a doctor and in this profession. Most importantly, he lived and demonstrated, very naturally, empathy, compassion and kindness to everyone regardless of colour, appearance, postcode, education or any other factor that might separate them from the 'normal' that our world has often defined.

I first met Peter in 2003 when I was a first-year registrar and clicked with him, just like so many others had over and over again. Peter Scott was a zero-ego person, humble, no inclusion or exclusion policy, and lived his life, helping out others, not concerned about appearance of personal importance.

In my fifth year of speciality training in Adelaide in 2007, by an act of serendipity, I met a general surgeon, Dr Peter Riddell, who had been travelling to Kefamenanu, West



Mother Ignacia Hospital Staff and visitors outside the Peter Scott Education Centre (the wind blew the 'P' of Peter the night before and that has now been fixed).

Timor, for many years and providing a consultation and surgical service. After discovering that I was almost finished my training, Dr Riddell suggested I should come on a trip and have a look, as that part of the world was in need of services and education, especially maternal and neonatal care, and he was going on a trip in two weeks' time. My wife Sue-Ann was 36-weeks pregnant with our baby number two at this point, and if I had gone, I am certain it would have ended our marriage, as baby Jack would have been delivered while I was in Indonesia. I arranged a proxy, I called Peter Scott, and he was on the plane to an unknown place, with another Dr Peter, to see what all of this was about. This trip occurred under the wing of the Flinders Overseas Health Group (FOHG; www.fohg.com.au).

I couldn't wait to hear the report back from Peter Scott, and it was fascinating – the poverty, lack of services, simplicity of life over there, but the happiness and contentment of everyone. Peter Scott told me this trip paved a new path for his life, and it did. The Monday morning after the previous week in West Timor, he found working at the outpatient gynaecology clinic at The Canberra Hospital to be very different indeed.

In 2009 I went with the two Dr Peters (who became known as Peter 1 and Peter 2) to Kefamenanu and similarly was forever changed by what I saw and realised I had the capacity to help in some manner.

Peter Scott and I met Sr Yasinta Hoar and Sr Rosalind Ma, Catholic religious sisters from the order Religious of the Virgin Mary (RVM), originating in the Philippines, with an arm in West Timor since 1987. Both sisters expressed to us of the need for a hospital in Soe for patients and for healthcare and also the need for education, especially maternal and neonatal care, and it was their dream one day it could occur. As it later turned out, I got into building and Peter got into teaching.



The Foundation Stone. Ms Ann-Maree Parker and Dr David O'Rourke.

I came back with itchy feet about this and eventually Sue-Ann and I decided that we would build this hospital, not knowing how much it would cost or how to achieve the goal. With the logistical assistance of the Flinders Overseas Health Group, based in Adelaide, that had previously forged a working relationship with the RVM sisters, the project began. Mr Andrew Love and Mr Richard Turnbull dealt with plans, I raised the money and Sr Yasinta dealt with all the local logistics and politics.

After a construction period of 12 months, the Mother Ignacia Hospital, a 25-bed facility was opened 11 June 2016 and so far has served almost 55,000 patients, outpatients, inpatient admissions, antenatal care, vaginal deliveries, and dental, pharmacy and laboratory services. Close to 60 staff are employed. The hospital is accredited with the Indonesian Ministry of Health, as per the required standards, as a Primary Class D Hospital.

Going forward, the whole site is approved to be a 50-bed facility and, with the addition of extra buildings, will qualify for financial funding from the Indonesian government as full Class D status is reached, and the BPJS, the Indonesian 'Medicare' will be able to be used at the facility to provide income.

The next building due to start soon, called the Central Unit Building, will include an operating theatre, 25 more beds, a high-dependency unit and others as required according to the government-approved site plan. This building is approximately 2500 square metres and will cost approximately A\$1.2 million. Sr Bernadette is the head of the hospital and has navigated all of these hurdles.

At present, the hospital is funded by myself, for capital improvement and running costs, and over the past 10 years a total of \$2 million has been raised for this endeavour to this point. Some patient income is also raised, although instead of money at times it might be a bag of fruit, or an offer to do some jobs.

I accept a reduced income from some patients as I have them pay some of their fee for my services to the John James Foundation (www.jjf.org.au) in Canberra, who then pass the money on to the Mother Ignacia Hospital. This simply means the patient receives a discount on their fees, the Mother Ignacia Hospital continues to grow physically and in the services it provides, and all parties are very happy with this arrangement.

If anybody would like to contribute to this hospital, I can be contacted at office@drdor.com.au. I estimate from now another A\$1.5 million is required to reach the point of a fully constructed and self-funded hospital service.

Back to Peter Scott, whose passion was education, and he believed in the power of education – it is cheap, transportable and can make all the difference. Over approximately 10 years, Peter travelled to West Timor around 30 times, all self-funded trips, providing emergency obstetric education to doctors and midwives who would come and join him, his wife, midwife Ann-Maree Parker and other medical and midwife participants who came from Australia.

'Teach the teacher' was the scheme; all training was approved by the local health department, participants were given paid time off to attend, CPD points and certificates were allocated and pre- and post-test assessments were done. Topics included breech birth, post-partum haemorrhage, hypertensive disorders, and adult and neonatal resuscitation. Real-time interpretation was used to overcome language barriers.



Ms Ann-Maree Parker and Dr Elise Parker and Ms Taylor Parker, wife and stepchildren of the later Dr Peter Scott.

In our first world facilities, almost all obstetric emergencies are overcome by the simple techniques and knowledge imparted by Peter and his team in West Timor.

Peter and Ann-Maree loved the anecdotal feedback that was provided on subsequent trips. Such as 'Dr Peter we rubbed the woman's abdomen, uterus contracted and she stopped bleeding and she lived', and Ibu (midwife) Ann Maree, 'the baby was born blue and floppy and we used the device and what you showed us to breathe for the baby and it lived'. Peter and Ann-Maree, with small smiles on their faces, knew that their contribution to this impoverished part of the world was working and would be passed on to others as the course participants took the knowledge and confidence back to their remote villages.

Part of the site plan of the Mother Ignacia Hospital was a teaching and education centre, and so shortly after his death, the decision was made to build the education centre and name it the Dr Peter Scott Education Centre. This building was opened 10 June 2023, one year after his sudden death. A wonderful healing day occurred – the traditional indigenous welcome, presentation of gifts, mass, lunch, music and dancing. This allowed the healing of Peter's passing to occur, as all can now see he is permanently present in the Mother Ignacia Hospital, physically and in spirit. From Australia, approximately 30 family, friends and colleagues made the journey to visit Soe for this occasion. All the hospital staff and their families were present and the education centre was officially opened by myself and Ann-Maree Parker, after the celebratory mass and blessing by the Bishop of Kupang. The building is 200 square metres of hall, stage and floor with audiovisual and Internet equipment to facilitate teaching. Ann-Maree and her team conducted a teaching day in the new facility, the first since the COVID-19 closures of early 2020. Since the education centre was opened, it has been used regularly by many local and government

organisations for holding training sessions.

Travelling for the first time in 4 years reminded me of how lucky and what a privilege I have been gifted to be involved in all of this and it reaffirms my commitment to see the whole project through to the end.

This whole experience for me is a stark contrast to our society and I always come home not quite sure of who the most lucky people are. We live in different worlds, so comparisons are very hard to make.

Peter said often that participants from Australia 'get more out of going than what we give back', and having experienced this myself, he was spot on.

I hope you have enjoyed the story of the David O'Rourke and Peter Scott involvement with the Mother Ignacia Hospital and the Dr Peter Scott Education Centre.

If you would like to be involved as a donor or a trip participant, please make contact (office@drdor.com.au).

Thank you very much.

Anybody wanting to donate to this cause, please feel free to make contact with me at office@drdor.com.au or the John James Foundation at www.jjf.org.au.

Obstetrics in Vietnam



Kimberly Nguyen
O&G Senior Resident Medical Officer, SESLHD



Figure 1. Dr Kimberly Nguyen with the O&G department at E Hospital.

In early 2023, I was introduced to the Hoc Mai Australia-Vietnam Medical Foundation. The Hoc Mai Foundation is a not-for-profit foundation established in 2001 by Australian Professor Emeritus Kerry Goulston and now continues under the guidance of Associate Professor Christopher Pokorny. Since its beginnings, the Hoc Mai Foundation has aimed to bring healthcare professionals in Australia and Vietnam together in an educational partnership to improve health outcomes through education and research in Vietnam. Every year, several programs including international student exchange programs and teaching workshops are held. As the first-generation daughter of two immigrants who fled Vietnam by boat and came to Australia as refugees building their lives from the bottom up, I felt aligned with this foundation's values and goals and jumped at the opportunity to be involved.

In September 2023, a group of 20 individuals with the Hoc Mai Foundation, including myself, embarked on a trip to Hanoi, Vietnam, for the medical and nursing teaching program. Specifically, within the Obstetrics and Gynaecology (O&G) program, I had the opportunity to visit and be involved with the O&G department at E Hospital and the Hanoi Obstetrics and Gynaecology Hospital, along with

Obstetrician Gynaecologist Dr Quang Phu Ho and midwife Carol Cooke (Figure 1). It was an incredible experience to see first-hand how obstetrics and gynaecology was done in Vietnam, a developing country that is in fact developing at an astonishingly quick pace with an impressive standard of patient care. Detailed below are the routine antenatal, intrapartum and postnatal cares provided at the Hanoi Obstetrics and Gynaecology Hospital.

Labour rooms

Women in labour are first reviewed by a doctor in a designated assessment room equipped with a bed and ultrasound machine. Their antenatal details are reviewed electronically. Prior to this, low-risk women would have been seen three times in their pregnancy by a doctor – once in each trimester – or more often depending on any antenatal complications they have. Those in early labour are moved to the 'Early Labour' room and allowed to progress through labour alongside other labouring women, and fetal wellbeing is assessed with intermittent auscultation. Once in the active stage of labour, women then proceed to the delivery room (Figure 2), with up to four beds in one room separated by a curtain, and CTG monitoring is commenced. The delivery room is abuzz with energy, with the midwives and obstetric and anaesthetic doctors working efficiently and attending to the needs of the labouring women. The women tended to be exceptionally stoic, delivering babies with coached pushing, minimal analgesia (although epidural analgesia is readily available) and a routine episiotomy was performed for all primiparous women.



Figure 2. Room for perineal steaming.



Figure 3. The delivery room.

Operating theatres

In this particular department at the Hanoi Obstetrics & Gynaecology Hospital, there are 40–50 deliveries every day. The instrumental rate is effectively 0% with a caesarean section rate of 40%. This is comparable with the reported caesarean rate of 43%¹ across urban Vietnam. Interestingly, a recent qualitative study¹ on Vietnamese mothers and healthcare professionals attributed the increasing caesarean rate to patient fear of vaginal birth (eg labour pain, episiotomy, negative previous experiences) and clinician fear of the unpredictable complexity of the labour course and litigation in the face of intrapartum complications.

The operating theatres are always busy with up to three caesarean sections occurring simultaneously in an individual theatre and women efficiently being wheeled in and out as one caesarean ended and another one started. On one particular day, it appeared significantly busier – according to the staff it was a highly desirable day of the Lunar Calendar and evidently many women had opted for their baby to be born on this day!

In one notable case, a primiparous woman was brought to the operating theatre for a caesarean section at 32 weeks gestation. Unfortunately she had ruptured her membranes at 18 weeks gestation and had received fortnightly transabdominal amnioinfusions up to this point and was closely monitored throughout her pregnancy. The emotions of the patient and the operating room staff was palpable as her live baby boy was delivered in good condition, especially considering her history of pregnancy loss and subfertility.

Postnatal

Following vaginal delivery, all women are monitored in one room for the first 6 hours. A handful of midwives manage this room where they have eyes on all the immediate postpartum women and thus any deteriorating patient is easily identified. Postnatally, women are provided with several services including a hair washing service and massage therapy for mum (and baby!). Skin-to-skin contact is highly encouraged with dedicated ‘kangaroo rooms’ – a quiet space for mothers and partners to breastfeed and bond with their baby. Perineal care routinely involves laser therapy and perineal steaming (Figure 3) with a blend of essential oils to soothe pain and promote wound healing. Women tended to stay for 1–2 days following vaginal delivery before being discharged home.

Final thoughts

‘Hoc Mai’ means ‘forever learning’ in Vietnamese. The Hoc Mai Foundation is based on the concept of mutual learning, rather than the idea of developed countries educating colleagues in developing countries. I truly believe that this is the case from my recent trip to Hanoi – it was incredibly rewarding to witness how the Vietnamese healthcare system works to accommodate the incredibly high patient load while providing holistic care to women.

Reference

1. Takegata M, Smith C, Nguyen HAT, et al. Reasons for increased caesarean section rate in Vietnam: a qualitative study among Vietnamese mothers and health care professionals. *Healthcare* 2020;8(1):41. doi:10.3390/healthcare8010041



Dr Claude Hakim
(1942–2023)

Claude Hakim arrived in Sydney in 1979 from South Africa and entered private practice. He soon was very successful in Obstetrics and Gynaecological practice.

He had appointments at St Margarets Hospital (public and private) and Crown Street Women's Hospital. After their closure, he was appointed at Royal Hospital for women and Prince of Wales Private Hospital.

Claude obtained his medical degree at the University of Witwatersrand in Johannesburg. He then spent seven years in London with appointments at Charing Cross Hospital and Hammersmith Hospital where he obtained his MRCOG in 1970. Later being elevated to FRCOG.

Even though he was very busy in practice, his main priority was his family.

Claude enjoyed travel, which he did with his wife Roslyn extensively to many countries, and they both enjoyed France, which they visited almost yearly.

Claude was French speaking, as well as five other languages, which he used daily in his practice, consulting with many patients in their own language. He was referred patients from all over Sydney but also from New Caledonia and Vanuatu.

Claude was a gourmet and enjoyed fine wines, which he collected.

He was truly a 'bon vivant'.

He is survived by his wife Roslyn and his two sons Jean-Marc and Daniel.

Claude passed away on 28 August 2023.



Dr John Trevor Martin
MB, BS, MRCOG, FRCOG

John Trevor Martin was born in Semaphore SA on 17 March 1937. After attending Adelaide Boys' High School, he received a Commonwealth Scholarship to Adelaide University to study Medicine. He was awarded Bachelor of Medicine, Bachelor of Surgery in 1961.

John joined the Citizen Military Forces (CMF) in 1963 as a Medical Officer in the 3rd Field Ambulance and then the 27th Battalion, before he departed to the UK. His studies were ongoing, and he gained his Membership of the Royal College of Obstetricians and Gynaecologists in 1967 and his Fellowship in 1979.

Leaving Australia, John worked twice as a Ship's Surgeon, first on the Port Vindex from Dunedin to the UK, and then on the Blue Star Line's SS Brasil Star. Memorable moments included performing an appendicectomy with local anaesthetic on a Captain's table, and his lifeboat transfer of a patient, ship-to-ship in the mid-Atlantic, for care and observation.

After arriving in England, John was working as a Specialist O&G when he met his future wife Janet, who was practising Midwifery in Manchester. They lived and worked with NATO forces in Germany for four years. In addition to his clinical expertise, John's fluent knowledge of the German language was a great advantage when treating his patients.

Returning to live in Adelaide in 1976, John held Senior Visiting Medical Specialist appointments at the Queen Elizabeth Hospital and the Women's and Children's Hospital, as well as Clinical Privilege positions at several private hospitals.

In later years, John worked in a variety of O&G private practices. He and Janet eventually purchased Private Rooms on Hackney Road, where they worked until John's retirement from Private Practice in 2002. John continued to work in the Public Hospital system until full retirement in 2006.

John was a loving and much-loved husband, father, grandfather, and friend. He was a patient and tolerant man, knowledgeable in current affairs, and possessed a delightful sense of humour. Among family and friends, he was renowned as a great raconteur. University was a major part of his life – socially as well as academically – and he could count the Medgrads Group of former Adelaide Medical School colleagues among his many life-long friendships.

John died peacefully in his sleep early on 17 November 2022. He will be greatly missed.

Dr Ken Rollond
OAM

Beloved South Australian doctor and former Holdfast Bay Mayor Ken Rollond OAM has passed away aged 83.

Dr Rollond's family confirmed he passed away from a 'drawn out illness' at home in Glenelg South on Tuesday (24 October 2023).

Dr Rollond helped deliver over 10,000 South Australian babies during his time as an obstetrician, and was the mayor of Holdfast Bay for three terms, from 2002 to 2014 after spending three years as a councillor.

He was a visiting gynaecologist at the Royal Adelaide Hospital from 1971 to 2016, and was awarded an OAM for services to medicine and the local government.

Dr Rollond's daughter Fiona Allen told *The Advertiser* her father was passionate about serving the local community.

'Dad has touched thousands of lives in South Australia through his work as an obstetrician and later in life as Mayor of Holdfast Bay for 12 years', Ms Allen said.

'He was passionate about serving the community, and he loved Glenelg.

'He was a loving husband to our mum Anne for 54 years, and a wonderful dad to both me and my brother Bill.'

She said he was also a 'beautiful grandfather' to Madeleine and Amelia.

(This article, which was first published in The Advertiser on Wednesday 25 October 2023, has been edited.)

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