

CELEBRATING THE YEAR OF THE NURSE & MIDWIFE

| Thursday 3 September 2020 | |
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| 0915 | Welcome address & Acknowledgement to Country – <i>Anndrea Flint, President</i> |
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| 1532 | Challenges, opportunities and reflections of 2020 – <i>Anndrea Flint & Dr Margaret Broom</i> |
| 1550 | Program concludes |

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For group registration, only one representative to pre-register, and we ask that you take a simple attendance sheet: full name, organisation, email, so we can issue certificates of attendance for PD hours.

Dr Jennifer Dawson jennifer.dawson@thewomens.org.au

Jennifer has been a neonatal nurse for 34 years. She is a post-doc neonatal nurse researcher at The Royal Women's Hospital Melbourne in the Newborn Research Centre. Her research has focused on investigating the physiology of newborns and the changes in oxygenation and heart rate during the first minutes after birth. She has over 100 publications in peer-review journals. Her current role is Clinical Trial Coordinator for the PLUSS trial- Preventing Lung Disease Using Surfactant + Steroid.



Presentation synopsis:

Through the looking glass is a reference to the Lewis Carroll novel, *Alice through the looking glass* (the sequel to *Alice in Wonderland*). She crosses over into a bizarre universe when she enters the flipped world on the other side of a mirror. The phrase implies unpredictability and strange happenings. 2020 the year of the Nurse/Midwife is one of those years!!!

Through the Looking Glass might also be seen as Alice's journey through childhood and into adulthood. If this is indeed the case, an important lesson to learn along the way is to keep a firm hold on one's identity. For today's talk I am going to use the title to look at how neonatal nursing has developed over the past 30 years.

Dr Jo Scott joanne.scott@rch.org.au

Jo Scott is a Neonatal Nurse Practitioner (NNP) on the Royal Children's Hospitals Paediatric Infant Perinatal Emergency Retrieval (PIPER) team in Melbourne. She earned her Diploma of Nursing and NICU certification in New Zealand. Jo moved to the USA early in her nursing career gaining NICU experience in Hawaii, Washington State and Virginia. She achieved her Master of Science degree at the University of Virginia where she graduated as a Family Nurse Practitioner. While working as a neonatal transport clinician on the Children's Hospital of the Kings Daughters retrieval team she earned her Post-Master's certification as an NNP and her Doctorate of Nursing Practice with a research focus on non-accidental head injury in children under 1 year of age.



Presentation synopsis:

Advanced practice nursing in Australia – a work in progress

Advanced practice nurses (APNs) make up 9% of the total Australian nursing workforce, but they are underutilized. In December 2019 the Australian College of Nursing presented a White Paper to policy makers in Canberra. This was subsequently launched and adopted by the Health Minister Greg Hunt, who plans on integrating the White Paper into the 2030 vision for nursing. In this session we will discuss the history and the future of APNs in Australia.

Member 'Quickfire' presentations

Is workplace-based learning meeting the needs of the 21st century Neonatal Nurse in Australia?

Bromley Patricia¹

¹University of Tasmania, Hobart.

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Method: The study surveyed neonatal RNs and neonatal CNEs working in nurseries throughout Australia to identify whether there is a discord between the provision of education and the educational needs of nurses working in neonatal clinical practice.

Results: 112 neonatal RNs participated in the online survey conducted between April and May 2019. The survey identified factors such as 12-hour shifts, understaffing, and lack of organisation to support time for learning, were barriers to attending educational sessions while at work. While carer responsibilities, costs, and organisational support for time to attend to education, were barriers to learning outside of working hours. A key theme emerging from this survey was many staff preferred one-to-one workplace-based learning, with educators available on the floor and responsive to clinical learning needs. However, CNEs not officed within the clinical environment miss *teachable moments*.

Discussion: The current strategies of workplace-based education may not be meeting the learning needs of nursing staff. The CNE will need to consider more 'learner-centred' approaches for the 21st century neonatal RN.
Limitations: The small population sample is a prominent limitation to this study. However, the trustworthiness of the study and the fact that findings reflect other studies exploring workplace-based learning, suggest the conclusions drawn may be transferable to other contexts.

The psychological impact on mothers of very low birth weight babies in the NICU.

Blewer, E¹

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Background: To determine the impacts on mothers of VLBW infants within the NICU and to consider strategies that may support psychological wellbeing.

Method: Databases Pubmed, CINHALL and The Cochrane Library were searched.

Results: Fifteen articles were deemed to meet the inclusion criteria, with three themes emerging: the predictors and causes of psychological distress in mothers of VLBW babies, the long-term impacts on mothers' and strategies that can be implemented within the NICU to support mothers.

Discussion: Prematurity presents many challenges that interfere with a mother's transition to parenthood. Mothers' of VLBW infants in the NICU experience distress due to a variety of causes, most notably the shock and trauma often associated with preterm birth. Recommendations from the review to reduce stress include, cognitive behavioural therapy, parent support groups, greater parental involvement, skin to skin therapy and further education for staff on this topic.

Conclusion: Mothers of VLBW infants are at a serious risk of developing mental health complications that may continue to affect them in the long term. There are many strategies available to assist mothers during their NICU stay, however, many rely on implementation by nursing staff. More research regarding staffing attitudes towards maternal mental health and the impact of staff on mothers would be beneficial in the future.

The Prevalence of Post-traumatic Stress Disorder symptoms in parents of high-risk infants in the Neonatal Intensive Care Unit.

McKeown, L^{1,2} (MPhil Candidate)

¹ Royal Brisbane and Women's Hospital, Brisbane; ²The University of Queensland.

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Background: The hospitalisation of an infant to the Neonatal Intensive Care Unit (NICU) is stressful for parents. Symptoms of posttraumatic stress (PTSS) for NICU parents may go unrecognised (Hynan et al., 2013) because screening is not a standardised practice. Screening parents for posttraumatic stress is critical as posttraumatic stress disorder (PTSD) is associated with negative long-term maternal and infant adverse effects.

Aim: To assess the prevalence of PTSS and probable PTSD in mothers and fathers of high-risk infants admitted at the NICU, Royal Brisbane & Women's Hospital (RBWH).

Method: A prospective longitudinal design will be conducted to determine (1) The proportion and trajectory of mothers and fathers with probable PTSD measured at five different timepoints and (2) The differences in PTSS and probable PTSD between mothers and fathers.

Outcome measures will include well-validated questionnaires and medical charts (maternal and infant health variables).

Conclusion: It is hypothesised that the findings of this thesis will directly benefit parents, infants and the health care industry as PTSD is associated with high economic cost and strained interpersonal relationships (American Psychiatric Association, 2013). Early psychological support and intervention may reduce the severity and impact of PTSD for NICU parents and their infants.

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Carmen Betteridge carmen@suicideriskassessment.com.au

Carmen is Director and Principal Psychologist with Suicide Risk Assessment Australia, delivering training, supervision and consultation services specific to suicide prevention and workplace psychological health and safety for the mental health sector. She is an innovator, developing solutions for occupational rehabilitation providers, workplaces and mental health providers alike, to not only to respond to suicidality, but preventing psychological injury in psychologically hazardous environments and limiting the impact of psychological hazard exposure within the workforce. Carmen is Co-chair of the Suicide and Workplace special interest group with the International Association of Suicide Prevention. Carmen has in excess of 15 years' experience in the assessment of psychological injury and psychological functional capacity for medico-legal purposes. She is a Lecturer and Researcher with the Australian Institute of Suicide Research and Prevention (AISRAP), Griffith University. Carmen delivers training on the Screening Tool Assessing Risk for Suicide (STARS) Protocol, with STARS Protocol author, Jacinta Hawgood.



Presentation Synopsis:

This presentation examines the research supporting compassion led leadership in establishing psychologically safe teams and work environments, in addition to the causal factors in compassion fatigue, burnout and secondary trauma. How to effectively support your peers and colleagues using principles of self-compassion and positive modelling will also be discussed.

Member 'Quickfire' presentations

Conceptualising skin development diagrammatically from foetal and neonatal scientific evidence.

August, D^{1,2} (PhD Candidate); van der Vis, K^{3,4}; and New, K⁵

¹James Cook University, Townsville; ²Adjunct Fellow Griffith University, Alliance for Vascular Access Teaching and Research Group, Brisbane; ³University of Otago, New Zealand, ⁴Otago Polytechnic, New Zealand, ⁵University of Queensland, School of Nursing, Midwifery and Social Work, Brisbane

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Background: Skin injury is a problem for at least 40% of the neonatal population, with increasing risk for neonates of decreased gestational age and those who require devices to support medical care. Clinicians' understanding of the skin's physiology, structure, and development informs clinical decisions and is traditionally learned through text sources, accompanied by occasional figures or diagrams. Yet, the existing visual examples many were found to have limitations such as: the need for interpretation of electron micrographs and images of histological slides, the absence of structures such as periderm and vernix and missing gestational ages within figures. This presentation will provide the foetal and neonatal scientific evidence and the diagram created for skin development from 0 to 40 weeks gestation.

Diagram development: A PhD student and a medical student with a background in communication design identified there was a need for a diagram that would help clinicians conceptualise skin development. The model was constructed in Adobe Illustrator software with lateral markers (time brackets for weeks of development) like the work of Fox (2011), but the new illustration would include content from 0-40 weeks' gestation and, detail essential skin structures.

An evidence-based visualisation for skin development from 0-40 weeks: The skin diagram developed will be presented along with an accompanying table which outlines key development aspects for each lateral marker time period. This diagram is derived from the available evidence; and therefore, makes some assumptions about development after preterm birth. Despite these challenges the authors believe this is the closest representation of overall skin structure and development based on currently available data. Continued research regarding pre and post-natal skin development will likely require non-invasive measurements applied to graphic illustrations to enhance clinician's knowledge of skin development and inform strategies to reduce the majority of neonatal skin injuries.

Lessons learned from neonates with Difficult Intravascular Access: Two case reports.

Cobbald L¹, Lack G¹, McIntyre C¹, August D^{1,2}, New K^{1,3}, Smith P¹, Koorts P¹, Foxcroft K¹, Marsh N^{1,2,4}, Ullman A^{1,2,4}

¹ Royal Brisbane and Women's Hospital, Brisbane; ² Alliance for Vascular Access Teaching and Research, Griffith University, Brisbane; ³ School of Nursing, Midwifery and Social Work, University of Queensland, Brisbane; ⁴ School of Nursing and Midwifery, Griffith University, Brisbane, Australia

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Background: Vascular devices (VAD) while necessary can result in complications for hospitalised neonates. Additionally, difficult intravascular access (DIVA) describes patients whose vascular access devices (VADs) are difficult to insert and maintain. The expected number of VADs to achieve treatment, average insertion attempts, and frequency of VAD-associated complications for neonates are poorly understood.

Method: The Neonatal Observation Vascular Access [NOVA] study was conducted at the Grantley Stable Neonatal Unit in 2018. Two cases (Neonate A and B) were identified that demonstrated DIVA attributes, including difficult VAD insertion procedures, and uncommon but significant vascular access sequelae. Ethics was obtained from the Human Research Ethics Committee (HREC/18/QRBW/196).

Results: Neonate A required 14 VADS to complete treatment, acquired numerous extravasation injuries, required multiple insertion attempts to achieve access for Acyclovir with discharge home after 15 days. Whereas, Neonate B required 16 VADs to facilitate treatment for extreme prematurity, Necrotising Enterocolitis and sepsis. The treatment journey included an acquired perfusion complication from an umbilical arterial catheter; tissue ischemia of the right toes which lasted for 90 days. Both Neonate A and B's complications were tracked and documented in clinical records with appropriate escalation, documentation, clinical images and management.

Conclusions: Neonatal DIVAs and their associated VAD complications occur despite provision of best practice recommendations. While rare, these complications are likely to occur in other neonatal settings. Early identification of neonatal DIVAs will likely promote optimal vein health.

Differences in physiological vital signs between well late preterm and term newborns: A pilot study.

Paliwoda M^{1,2} (PhD Candidate), Ballard E³, Bogossian F^{1,4}, Davies MW^{1,2}, New K^{1,2}

¹The University of Queensland, Brisbane; ²The Royal Brisbane and Women's Hospital, Brisbane; ³Queensland Institute of Medical Research, Brisbane; ⁴University of the Sunshine Coast, Sippy Downs, Australia

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Background: Newborns have their vital signs measured to ensure continued adaptation to extrauterine life. However, there is inconsistency in what is considered a 'normal' vital sign reference range for well newborns beyond the post-delivery stabilisation period which has implications for identifying the early signs of deterioration.

Method: Heart rate, respiratory rate and oxygen saturation were continuously monitored for six hours. Periodic measurements of temperature and blood pressure were obtained twice during the monitoring period.

Results Late preterm newborns have on average, a higher heart rate of 13.4 beats per minute (bpm) (95% CI 6.5 – 20.4) compared to term newborns 120.8 bpm. Heart rate was significantly different based on sex with females on average 7.7 bpm (95% CI 1.9 – 13.5) higher than males 122.2 bpm.

Conclusions: This study demonstrated statistically significant difference in higher heart rate in those born late preterm. This may have implications for current "one-size fits all" newborn early warning tools, as well as care of well late preterm infants in maternity units.

Physiological vital sign reference ranges for well late preterm newborns.

Paliwoda M^{1,2} (PhD Candidate), Ballard E^{1,3}, Bogossian F^{1,4}, Davies MW^{1,2}, New K^{1,2}

¹The University of Queensland, Brisbane; ²The Royal Brisbane and Women's Hospital, Brisbane; ³Queensland Institute of Medical Research, Brisbane; ⁴University of the Sunshine Coast, Sippy Downs, Qld

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Background Our recent pilot study of 30 newborns found differences in vital signs parameters between late preterm (LPT) and term newborns. Data was collected study between February and September 2019 on a larger sample of 120 well LPTs to develop a reference range for LPTs.

Method: Heart rate (HR), respiratory rate (RR) and oxygen saturation (SpO₂) were continuously monitored for up to two hours. Temperature (T) and blood pressure (BP) were measured twice during the monitoring period.

Results: Continuous monitoring resulted in 364,596 HR, 365,208 RR, 360,494 SpO₂ and 240 T and BP data points available for analysis. Reference ranges were calculated as the following: HR 102-164 bpm; RR 15 – 67 rpm; SpO₂ 85 – 100 %; T 36.4 – 37.6 °C; BP[systolic] 51 – 86 mmHg; BP[diastolic] 28 – 61 mmHg; and BP[mean arterial pressure] 35 – 68 mmHg.

Conclusions: Vital sign reference ranges for LPTs differ to those currently used as cut off points in newborn early warning tools (NEWTs) which are: HR 110 -150 bpm; RR 31 – 60 rpm; T 36.5 – 37.5°C and generalised to all newborns. BP and SpO₂ are not currently incorporated into the design of NEWTs. These findings have implications for current newborn early warning tools which are a one-size fits all. Further research is needed to extend the inclusion criteria to all LPT newborns including mothers healthy or otherwise.

Dr Eveline Staub Eveline.Staub@health.nsw.gov.au

Eveline is a Neonatologist at the Royal North Shore Hospital, Sydney. Her research activities focus on the development of the kidneys after preterm birth and long-term renal health in former preterm infants. With a background of clinical epidemiology, she is also interested in building evidence for best clinical practice.



Presentation synopsis:

The forgotten organ: Kidney development after preterm birth and long-term consequences on renal health

“Lung and brain development have traditionally been and remain at the centre of research endeavours in an effort to improve short- and long-term outcome of premature infants. The kidneys have only very recently started to receive more attention, particularly as data emerges on kidney related health problems of former preterm adolescents and young adults. As more infants born at extremely low gestational ages and extremely low birth weights survive into adulthood, it becomes more important to understand aberrant kidney development after preterm birth, including long term consequences on blood pressure and renal function.”

Dr Atul Malhotra, MD, PhD atul.malhotra@monash.edu

Atul is a senior neonatologist at Monash Children’s Hospital, and a clinician-scientist at the Ritchie Centre, Hudson Institute of Medical Research, with the Department of Paediatrics, Monash University in Melbourne. His research interests include neonatal neurodevelopment, neuroprotection and regenerative cell therapies for neonatal conditions. He led a first-in-human study on placental stem cells in neonates and is currently leading another world first study on cord blood stem cells. He is also the co-founder of the global health oriented ONE-Sim program, an interprofessional obstetric and neonatal emergency simulation-based skills training initiative. Twitter handle: @Atul_Monash



Presentation synopsis:

Fetal growth restriction: pathophysiology and neonatal impact

Fetal growth restriction (also known as IUGR) is an important and serious complication of pregnancy with significant short term and long-term implications. In this session, antenatal and postnatal aspects of care and management of the growth restricted infant will be discussed, with particular emphasis on neonatal morbidities.

Stem cell therapies for bronchopulmonary dysplasia

Bronchopulmonary dysplasia (chronic lung disease of prematurity) is a common complication of prematurity. Despite advances in the care of very premature infants, BPD continues to cause significant impact on the infant, family and community. In this session, recent advances in cell therapies for BPD will be discussed. In particular, world first work from Australia on the use of placental stem cells for BPD will be discussed.

Dr Calum Roberts, MD, PhD calum.roberts@monash.edu

Calum is a Research Fellow in the Department of Paediatrics, Monash University, and is a Consultant Neonatologist at Monash Children’s Hospital. He is the current recipient of an NHMRC Early Leadership Grant. Calum's research interests are neonatal resuscitation and respiratory management. He is currently studying ways to optimise cardiorespiratory transition at birth and early non-invasive respiratory support.



Presentation synopsis:

Supraglottic Airway Devices in Neonatology: An Underused Resource?

This talk will summarise currently available evidence relating to the use of supraglottic airway devices in neonatal care. This will include trials assessing their use to provide positive pressure ventilation during neonatal resuscitation, and as a route for the administration of surfactant treatment. A summary of potential areas for further research will also be provided.

Member 'Quickfire' presentations

Understanding parental attitudes towards reading to their baby in the neonatal care setting.

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Background: Reading in the neonatal period is recognised as an imperative factor in a child's foundational neurodevelopment with regular exposure to language/reading linked to improved literacy skills in early childhood. The developmental care team in a surgical neonatal unit frequently recommend reading to parents as a neurosupportive parent led intervention, yet little was known of parent's perception of the recommendation.

Method: A single site survey design was utilised, n=35 parents were surveyed either prior to n=21, or during a unit-based reading intervention n=14. The intervention provided parents with resources and promoted the importance of reading.

Results: Reading was recommended pre-birth to 76% of parents and there was an increase of 10% post-intervention. Barriers to reading identified were self-consciousness (80%) baby sleeping (60%) and lack of resources (30%). An increase incidence of reading within the first week of life (50%) was reported. An overall (20%) increase in parental awareness of the benefits of reading was also reported.

Conclusions: Parent-focussed intervention demonstrated an increase in incidence of reading in the neonatal setting. Providing parents with resources on admission promoting the benefits of reading to baby in the neonatal setting is recommended.

The influences on mothers when breastfeeding a late preterm infant within the context of a Special Care Nursery.

Blake Melissa¹ (PhD Candidate), Kerr D¹, Nagle C², Hutchinson A¹

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Background: Late preterm infants, born between 34 weeks and 36 weeks and six days gestation, face higher rates of morbidity after birth compared to their term counterparts. Breastfeeding is known to help reduce the incidence of neonatal morbidity and mortality; however, the establishment of breastfeeding in mothers of the late preterm infants can be problematic. Late preterm infants are commonly admitted into a Special Care Nursery (SCN) after birth, separating them from their mother and accentuating the challenges of breastfeeding.

Aim: To explore the contextual influences on mothers when breastfeeding a late preterm infant within the SCN.

Method: The principles of Naturalistic Inquiry and Focused Ethnography guided the study. Ethnography involves immersion of the researcher in the setting, enabling observations and conversations with participants within the SCN environment. A Mixed Method Sequential Explanatory Design was used to ascertain the perspectives of mothers of late preterm infants, neonatal nurses, midwives and medical doctors in two Victorian SCNs. Phase 1 included a medical record review to provide baseline data on breastfeeding rates and feeding methods of late preterm infants admitted to the SCNs. Phase 2 involved 1) semi-structured interviews with mothers, neonatal nurses and midwives, 2) observations of breastfeeding practices within the Special Care Nursery and 3) surveys of medical staff.

Results: Data collection at both sites occurred between January 2019 to February 2020. Medical records of infants (n=240) admitted to a SCN over a five-year period were reviewed. Phase Two captured mothers' and staff experiences of, and attitudes towards breastfeeding practices for late preterm infants within the context of a SCN. Data were collected through interviews with 26 mothers of late preterm infants and 24 nursing/midwifery staff, surveys of 24 medical staff, and observations of 24 episodes of a breastfeeding activity within the SCN.

Using IBM Statistical Package for the Social Sciences software, Phase One data are being analysed using descriptive statistics to describe late preterm infant breastfeeding outcomes within the SCN cohort. Phase Two data are being analysed using an inductive-style thematic analysis to identify themes representative of participants' perspectives. It is anticipated the findings will identify contextual factors that influence breastfeeding in the SCN. These findings may inform strategies to enhance breastfeeding practices in the future.