

Australian College of Neonatal Nurses Inc.



24th Annual Conference

22 to 24 September, 2016



Rydges on Swanston, Melbourne

Registration

The registration desk is located at the conference venue in the pre-function area outside the plenary room.

Opening hours: Thursday – 9am to 6pm; Friday and Saturday – 7am to 4.30pm.

Venue

All conference and pre-conference meetings will be held at the Rydges on Swanston, 701 Swanston St Melbourne.

Social program

The Welcome Reception will be held at the conference venue, following the ACNN AGM. The conference dinner will be at the Il Gamboro Restaurant, 166 Lygon St.

Exhibitors

The trade exhibitors will be located in the conference venue exhibition space, near the plenary room. Please visit the exhibits as trade sponsorship forms an important part of the conference.

Program

The speakers, topics and times as shown are correct at time of printing. In the event of unforeseen circumstances the organisers reserve the right to alter the program or substitute speakers.

Catering

Morning and afternoon teas and lunch are included in the registration.

Liability

The ACNN 2016 Annual Conference does not include provisions for the insurance of participants against personal injuries, sickness, theft, and property damage. Neither the ACNN Conference Committee, nor its sponsors, assumes any responsibility for loss, theft, injury or damage to persons or belongings.

Conference Secretariat

Nikki Abercrombie CEM from Abercrombie Management. M: 0418 283 397



Thursday 22 September 2016: Meeting program and welcome reception

0930 – 1230	1300 – 1600	1615 – 1700	1705 – 1750	1800 – 1900
Nurse Practitioners Special Interest Group	Low Resource Countries Special Interest Group	Open forum meeting with the National Committee	Annual General Meeting	Welcome Reception
Nurse Education Special Interest Group	Research Special Interest Group			
Dinner at own leisure				

Low Resource Countries Special Interest Group annual meeting program

1330 – 1310	Welcome and overview of achievements for 2016	Karen New & Donna Hovey
1310 – 1330	Experiences of the HBB Master Trainer Program in Vietnam	Renee Collison
1330 – 1400	Working with Médecins Sans Frontières: fieldworker and recruiter insights	Kathleen Doherty Médecins Sans Frontières, and Nicole Ganderton (neonatal nurse and MSF fieldworker)
1400 - 1430	LRC activities and plans for 2017	All
1430 – 1500	Afternoon tea	
1500 - 1530	HBB program, measuring outcomes and impacts	All
1530 – 1600	LRC SIG Annual General Meeting	All

Research Special Interest Group annual meeting program

<i>Time</i>	<i>Subject</i>	<i>Presenter/s</i>
1300 – 1400	Networking and learning from six researchers who will give a short overview of their research experience and provide tips to help nurses interested in research.	Six guest presenters (TBC)
1400 – 1430	Research SIG survey results	Marg and Kim
1430 – 1500	Afternoon tea	
1500 – 1545	Research in the 21st Century: interactive research activity	Kaye, De and Jann
1545 – 1600	Research SIG AGM	Research SIG Committee

Friday 23 September program - morning

0715 – 0815: Breakfast sessions

Breakfast session 1: Presented by Professor Peter Davis, Neonatologist, Royal Women’s Hospital
Ventilation for transition and resuscitation
 Sponsored by ACNN

Breakfast session 2: Presented by Dr Rebecca Hill, Scientific Director, Children’s Nutrition
Can we reduce the risk of allergy in children through nutrition?
 Sponsored by Danone Nutricia

FRIDAY 23 SEPTEMBER: DAY 1 PROGRAM	
0800 hours - Trade exhibit / arrival tea and coffee	
0845 - 0910	<p><i>Welcome – ACNN President A/Prof Karen Walker</i></p> <p><i>Opening address – Dr Sue Matthews RN, Chief Executive Officer, The Royal Women’s Hospital, Melbourne</i></p> <p><i>Presentation of awards and scholarships</i></p>
<p>Session 1 0910 – 1020</p>	<p>Minimally-invasive surfactant therapy in preterm infants with RDS – <i>Professor Peter Dargaville</i></p> <p>Ventilation in low resource settings – <i>Dr Marta Thio Lluch</i></p>
1020 - 1050	Morning tea and trade exhibit
<p>Session 2 1050 - 1210</p>	<p>High-flow nasal cannulae in non-tertiary special care nurseries – <i>Dr Brett Manley</i></p> <p>Continuous positive air pressure or high flow nasal cannula: time to reassess? – <i>Dr Margaret Broom</i></p> <p>Trends in outcomes for neonates managed with CPAP in Victorian level 2 nurseries – <i>Leonie Girvan</i></p>
1200 - 1300	Lunch and trade exhibit
1230 - 1255	Poster presentations

Posters - platform

- An educational strategy to support neonatal nursing staff capability development in preparation for new service introductions in a Level 5 Special Care Nursery – *Leanne Mills*
- Predicting neonatal skin injury: evaluation of the Skin Assessment and Management Tool and Braden-Q Scale – *Bolan Song*

Posters

- Evaluation of a neonatal nursing graduate nurse foundation program – *Leanne Ehrlich*
- Improving breastfeeding results - A chore or a challenge? – *Cathy Krause*
- ReadyStepGrow - empowering parents of prems 4 years on – *Simone Mossop*

Friday 23 September program - afternoon

FRIDAY 23 SEPTEMBER: DAY 1 PROGRAM		
<p>Session 3 1310 – 1430</p>	<p><i>Concurrent 1: Parent and peer support</i></p> <p>Survey results of parents’ feelings before and after hearing live Reverie Harp music in a NICU/SCN environment – <i>Kay Parker and Carolyn Waters</i></p> <p>Facilitating closeness between babies with congenital abnormalities and their parents in the NICU: A qualitative study of neonatal nurses’ experiences – <i>Hannah Olley</i></p> <p>Promoting perinatal and infant mental health in the special care nursery – <i>Nicole Lloyd-Nyunja</i></p> <p>Impact of a Nurse Practitioner-led Acute Review Clinic of patients discharged from the surgical NICU – <i>Amy Barker</i></p> <p>An educational strategy to support neonatal nursing staff capability development in preparation for new service introductions in a Level 5 special care nursery (poster platform) – <i>Leanne Mills</i></p>	<p><i>Concurrent 2: Evaluating practice and care</i></p> <p>Thyroid function screening in the healthy term newborn – <i>Kim Fletcher</i></p> <p>Pneumothorax – is it still a problem? – <i>Jacquie Whitelaw</i></p> <p>Sensory exposure of neonates in single room environments (SENSE): an observational study of light exposure – <i>Kobi Best</i></p> <p>Differences in mortality and serious morbidity when a dedicated neonatal retrieval team attend births at 23-28 weeks’ gestation in non-tertiary hospitals – <i>Dr Rosemarie Boland</i></p> <p>Predicting neonatal skin injury: evaluation of the Skin Assessment and Management Tool and Braden-Q Scale (poster platform) – <i>Bolan Song</i></p>
1430 – 1455	Afternoon tea and trade exhibit	
<p>Session 4 1455 – 1545</p>	<p>Leadership ethics in neonatal nursing: responsibility, integrity and trust – <i>Professor Megan-Jane Johnston</i></p>	
1545 – 1550	Close of program	
1550 – 1745	Leadership Special Interest Group meeting (optional)	
1900 – Conference Dinner at Il Gambero Restaurant, Lygon Street		

ACNN Conference Invited Speaker



Professor Peter A. Dargaville

Director, Neonatal and Paediatric Intensive Care Unit, Royal Hobart Hospital, Tasmania
Honorary Research Fellow, Menzies Research Institute, University of Tasmania

The major focus of his research is the development and implementation of new therapies for neonatal lung disease. His endeavours have led to the completion of an NHMRC-funded multinational clinical trial on surfactant lavage therapy in meconium aspiration syndrome, and more recently to the conduct of a randomised controlled trial of minimally invasive surfactant therapy in preterm infants with respiratory distress syndrome (the OPTIMIST-A trial). Other projects include elucidation of the physiological principles of neonatal mechanical ventilation, optimisation of lung volume during high frequency oscillatory ventilation, and automated control of oxygen therapy in NICU.

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Minimally-invasive surfactant therapy in preterm infants with RDS

It is now well accepted that applying continuous positive airway pressure (CPAP) at the beginning of the life of an extremely preterm infant is a reasonable alternative to intubation and ventilation. Meta-analysis of large controlled trials comparing these two approaches suggests a benefit of CPAP, with a small reduction in the risk of the composite outcome of death or bronchopulmonary dysplasia (BPD). Starting life on CPAP, without prior intubation, means that exogenous surfactant is not administered, and there is concern that for some preterm infants this leads to a progression in respiratory distress and ultimately to CPAP failure (intubation <72 h). Both cohort and population-based studies indicate that CPAP failure because of worsening RDS is a relatively common occurrence, and is associated with adverse outcomes compared with infants successfully managed on CPAP in the first days of life. In an effort to circumvent this problem, techniques of minimally-invasive surfactant therapy have recently been investigated, aiming to administer surfactant to a spontaneously breathing infant, allowing them to remain on CPAP in the critical first days of life, and hopefully beyond. These techniques have included administration of exogenous surfactant i) into the pharynx, ii) by laryngeal mask, iii) by brief tracheal catheterisation, and iv) by aerosolisation. Of these, the methods involving brief tracheal catheterisation have been most extensively studied. In recent clinical trials (AMV trial, Take Care study and NINSAPP trial), instillation of surfactant after catheterisation of the trachea with a flexible feeding tube has been found to reduce the need for subsequent intubation and ventilation, and lower the incidence of short-term adverse respiratory outcomes. This approach is now part of routine clinical practice in some centres. Our research group has developed an alternative method of brief tracheal catheterisation in which surfactant is delivered via a semi-rigid vascular catheter inserted through the vocal cords under direct vision (the Hobart method). In studies to date this technique has been relatively easy to perform, and resulted in rapid improvement in lung function, and reduced need for subsequent ventilation and duration of oxygen therapy. We are now conducting a large scale multicentre international clinical trial comparing surfactant therapy via the Hobart method with continuation of CPAP in preterm infants 25-28 weeks gestation (the OPTIMIST-A trial). The result of this and other studies will help to define the place of minimally-invasive surfactant therapy in preterm infants.

ACNN Conference Invited Speaker



Dr Marta Thio-Lluch

Neonatologist, The Royal Women's Hospital, Melbourne, Australia

Dr Marta Thio-Lluch is a Spanish-trained Neonatologist who joined the Royal Women's Hospital as a clinician and researcher in 2010. She has an interest in training, education and research related to Neonatal Resuscitation. Her PhD evaluated equipment used to provide neonatal respiratory support. She divides her time between clinical service (0.5 EFT), ongoing research (0.3 EFT) and PIPER- Neonatal transport and Education (0.2 EFT), especially focused on the Victorian Neonatal Resuscitation Project "neoResus".

The title of this presentation is *Ventilation in low resource settings*.

ACNN Conference Invited Speaker



Dr Brett Manley

Consultant Neonatologist, The Royal Women's Hospital, Melbourne, Australia

Brett is a Consultant Neonatologist at the Royal Women's Hospital, and a Senior Lecturer at The University of Melbourne. Brett recently completed a PhD studying the use of high-flow nasal cannulae (HFNC) therapy for respiratory support of preterm infants. He is involved in several ongoing clinical trials in neonatal medicine.

The title of this presentation is *High-flow nasal cannulae in non-tertiary special care nurseries*.

Continuous Positive Air Pressure or High Flow Nasal Cannula: Time to reassess?

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2 Australian Catholic University, Canberra, Australia

3 Australian National University Medical School, Canberra, Australia

4 Centre for Advances in Epidemiology and IT, Canberra, Australia

Background: Our multicentre randomised controlled trial (RCT) found **Ceasing Cpap At standard D** criteria (CICADA method) significantly reduced CPAP time¹. Post implementation of the CICADA method (2010 to 2012) there had been an increased use of heated humidified high flow nasal cannula (HHFNC) in preterm babies (PBs) admitted to our neonatal unit.

Aims: To identify clinical characteristics between PBs <30 weeks gestational age (GA) who did or did not receive HFNC.

Method: Prospective data was collected to compare baseline characteristics and respiratory outcomes over the 2010 to 2012 time period. Comparisons were completed on: CPAP duration, oxygen duration, chronic lung disease (CLD) and retinopathy of prematurity (ROP) between PBs who received CPAP (67/98[68.4%]) to those who received multimodality CPAP and HHFNC (31/98[22.6%]).

Results: Although there was a difference in GA (28.3±1.3 Vs 27.4±1.2[weeks] respectively, p=0.003), there were no differences in birth weight (BW) (1102±205 Vs 1057±403 [grams], ns), gender (M/F: 36/31 [54%M] Vs 18/13 [58%M], ns), surfactant requirements (51/67[76%] Vs 27/31[87%], ns) and PDA (12/67[18%] Vs 7/31[23%], ns) between the groups respectively. When analysing outcome measures and adjusting for GA, BW, Apgar scores, antenatal steroids and surfactant use, corrected GA when off oxygen remained a significant outcome and was longer in the HHFNC group (32.2±3.2 Vs 36.5±2.8[weeks], p<0.0001, Hazard Ratio 1.6, CI[95%] 1.3-1.9, p<0.0001). As well higher rates of all stage retinopathy of prematurity (ROP) (30% Vs 55% [p=0.05]) and severe ROP (stage≥3) (4% Vs 19%, respectively [p=0.04]) were observed.

Conclusions: Questions remain regarding the impact of HHFNC on neonatal outcomes. Implementation and weaning protocols are imperative.

Reference

Todd DA *et al.* (2012). *Dis. Child. Fetal Neonatal Ed.* 97; F236-F240.

Trends in outcomes for neonates managed with CPAP in Victorian level 2 nurseries

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Background: This study is an overview of trends in outcomes for neonates with respiratory distress syndrome and transient tachypnoea of the newborn managed by CPAP in metropolitan and rural level 2 nurseries since 2003, close to where they live.

Aim: The aim is to explore the implications for management of neonates with these conditions for the neonates, their families and for staff.

Method: Data was collected by an anonymous paper survey of Nurse Unit Managers of Level 2 Special Care Nurseries in the State of Victoria to establish what categories of neonates are being managed with CPAP in Level 2 nurseries, their clinical outcomes, outcomes for parents and outcomes for nursing staff in terms of job satisfaction and skill development. The survey included ten short-answer questions describing the unit profile and 14 Likert scale questions about care and nursing practice. Participants were asked to rate their responses from 1 = 'Strongly disagree' to 5 = 'Strongly agree'. An explanatory statement was provided to participants. Ethical approval was provided by Peninsula Health.

Results: The response rate was 40 per cent. Respondents reported 10 to 100+ neonates treated with bubble CPAP not requiring transfer to a level 3 nurseries and 0 to 16 requiring unplanned transfer. The nurseries were located between 5 and 200 km from a level 3 nursery. Positive impact was reported on breast feeding rates, parent-craft abilities, skill level of staff, staff feeling supported, participation in on-the-job training, mentoring and buddying.

Conclusions: Transfers have been reduced. Outcomes have been positive for neonates, families and staff.

Survey results of parents' feelings before and after hearing live Reverie harp music in a NICU/SCN environment

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Background: In 2014 live reverie harp music played by a pastoral carer was introduced into NICU/SCN. Anecdotal evidence of the spontaneous response of parents and staff of all categories was documented. All was positive. In 2016, pastoral care staff developed a quality project to determine parent's feelings before and after hearing live Reverie harp music played for 20 minutes.

Aims: To provide live Reverie harp music for parents, babies and caregivers in NICU/SCN to enhance and encourage relaxation and reflection; to provide parents with an option to play the harp themselves to promote relaxation for themselves and their baby; to promote a calm atmosphere in NICU/SCN.

Method: A total of 20 parents were surveyed; 18 women and two men were recruited. Parents were given written and verbal explanations then signed consent. The survey tool was the Institute of Music In Medicine questionnaire (introspective measure of feelings, adapted with permission from Peter Roberts) and parents were asked to rate their feelings on a scale of 1 to 5 at two time points, before then after hearing the harp played for twenty minutes. The questionnaire contained ten feelings of which five were positive and five challenging. Space was provided for additional comment.

Results: In the range of positive feelings all categories recorded an increase in feeling. All but one parent recorded a decrease in challenging feelings, however commenting that this was the first time she had opportunity to feel and reflect – thus experienced her increase of challenging feelings as positive.

Conclusions: Live Reverie harp music increased positive feelings and decreased challenging feelings. Feelings of relaxation, calm and peacefulness recorded the highest ratings.

Facilitating closeness between babies with congenital abnormalities and their parents in the NICU: a qualitative study of neonatal nurses' experiences

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Background: Parents of babies born with a congenital abnormality may struggle to become emotionally close to their baby and the physical separation due to their baby's hospitalisation in the NICU can exacerbate this. NICU nurses have an important role in facilitating the development of closeness between babies and parents in the NICU.

Method: This qualitative, interpretive descriptive study aimed to explore the experiences of neonatal nurses with facilitating closeness between parents and babies with congenital abnormalities in the NICU. In addition, the study examined the factors which enable or impede nurses' abilities to facilitate closeness between parents and their infant with a congenital abnormality. Twelve neonatal nurses participated in face-to-face, semi-structured interviews and the data collected were thematically analysed and interpreted for meaning.

Results: Three major themes emerged: "Everyone copes differently", "You have to focus on what is the normal thing" and "It's very much an individualised approach". Participants often felt unprepared to care for babies with congenital abnormalities, and implemented coping mechanisms to overcome the 'emotional labour' they experienced caring for these babies and parents. Skin-to-skin cuddles were deemed the most beneficial strategy for parents to develop closeness with their baby, but participants recognised that they sometimes 'pushed' parents into engaging with their baby. Participants highlighted the importance of individualised, supportive care for these parents.

Conclusions: Neonatal nurses require further education and formal and informal support to care effectively for infants with congenital abnormalities and their parents.

Promoting perinatal and infant mental health in the special care nursery

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As the knowledge base in Perinatal and Infant Mental Health increases it is becoming even more evident how important the experiences in the early years of life are to long-term developmental and mental health outcomes.

Undeniably one of the most at-risk populations of infants is those who are born prematurely. Current research has provided evidence of the impact of the parent-infant relationship on outcomes for these preterm infants. This relationship is at-risk for multiple reasons: separation due to hospitalisation; the parents' stress and trauma; the parent's 'fear' of their 'fragile' infant; the parent's perception of being inadequate in the parenting role and the preterm infant's limited ability to communicate and interact with their parent. Subsequently parents of preterm infants have an increased risk of anxiety and depression and symptoms of post-traumatic stress disorder. These mental health issues in the parent will also impact the developing parent-infant relationship.

Research has shown that the more involved parents of preterm infants are in the care of their infant the better the parent-infant relationship and the better the outcomes for the infant. Nurseries caring for these families need to be aware of such research and implement measures aimed at promoting family involvement with the family being at the centre of the infant's care. Other worthwhile interventions educate parents on reading infants' cues and skill acquisition to increase the parent's confidence in the parenting role.

Impact of a Nurse Practitioner-led Acute Review Clinic of patients discharged from the surgical NICU

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Background: The surgical NICU provides quaternary intensive care to the sickest neonates requiring general and cardiac surgery and complex medical conditions. Following recovery from illness, many newborns cared for in a surgical NICU are medically safe for discharge however require ongoing close surveillance for but not limited to feeding, weight gain, wound review and pathology assessment. As there was not previously a service to facilitate this process, newborns experienced longer waiting times to discharge for extended periods of monitoring, or discharge into resource-poor community services.

Method: A pilot project was initiated for a Nurse Practitioner (NP)-led Acute Review Clinic (ARC). The aim was to facilitate early discharge and support continuity of care and transition to the community services following discharge from the NICU. A retrospective chart audit of patients seen in the ARC was performed. Key indicators including primary diagnosis, gestational and corrected age at review, weight, reason for review and rate of readmission were captured.

Results: During the six-month pilot period from May 2015 to January 2016, 18 patients were seen by the NP with six patients requiring multiple visits. There were 109 saved days of hospitalisation with an estimated financial benefit of \$163,500. No patients required readmissions within 48 hours following discharge, and there were two readmissions within 30 days unrelated to NICU discharge.

Conclusions: An NP-led ARC is a cost-effective and useful service to facilitate at risk newborns into follow up community services.

An educational strategy to support neonatal nursing staff capability development in preparation for new service introductions in a Level 5 special care nursery

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Background: Limited evidence in neonatal literature exists regards the effectiveness of educational strategies to support neonatal nursing capability development in preparation for introduction of new services.

Aim: To implement an education program to support the introduction of new services including bubble CPAP, pneumothorax management, surfactant therapy, humidified high flow and mechanical ventilation, recognising variation in staff learning styles.

Method: A suite of learning resources was developed for each new service and comprised pre-requisite reading to ensure all neonatal nursing staff had the same level of foundation knowledge. Each new service was further supported by neonatal nursing staff attendance at a combination of theoretical, practical and simulation education sessions. A Gantt chart was used to track and communicate the development and completion of each suite of learning resources and staff preparedness for each new service. Evaluation was undertaken pre and post education via Survey Monkey®.

Results: Evaluation results highlighted the varied approach to education facilitated an increase in individual neonatal nurse perception of their own confidence, knowledge and skills sets to support the introduction of each new service.

Conclusions: The education strategy resulted in neonatal nurses having the necessary knowledge and skill set to enable the commencement of new services as planned, thereby providing an effective approach to support new service introductions through an educationally sound program.

Thyroid function screening in the healthy term newborn

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Background: Thyroid dysfunction is reported to affect 2 to 3 per cent of pregnant women. The healthy term newborn is routinely screened for congenital hypothyroidism on the Newborn Screening Test, whilst additional screening is subject to local guidelines. A retrospective audit in 2015 of babies, screened according to local guidelines for maternal thyroid dysfunction, identified no dysfunction for 842 neonates in a 3-month period, with an annual cost to the organisation estimated at \$18,942. The local clinical guidelines were changed in February 2016 to align with current Victorian recommendations.

Method: A pre- and post-retrospective audit will be completed to compare practice before and after implementation of the new clinical guideline. The audit identifies all live births of infants >35 weeks GA delivered at our centre over two 3-month periods: 2015 (n=842) and 2016 (n=pending). Audit data includes demographics, thyroid function test results, and maternal thyroid function where available. The results of the two time periods will compare total number of tests, identification of thyroid dysfunction, and estimated cost to the organisation.

Results: Before the new clinical guideline was implemented, 62 of 842 infants were screened for thyroid dysfunction due to maternal dysfunction (7.4%). sixteen infants that met criteria for screening due to maternal dysfunction were not screened. Of those tested, no baby had abnormal thyroid function identified. A total of 140 tests were processed, equating to \$4,735.50 over three months. The results post implementation of the new guideline are pending.

Conclusions: This evaluation may provide evidence that guidelines reducing thyroid function testing in some neonates could reduce unnecessary painful interventions and costly testing, without compromising identification of at risk infants.

Pneumothorax – is it still a problem?

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Background: Pneumothorax during the first days after birth is not uncommon with an incidence between 1 to 6 per cent, increasing with lower gestation, lung disease and ventilation interventions. During newborn resuscitation training, questions regarding the risk, incidence and management of pneumothorax often arise. Our aim was to provide a snapshot of infants with pneumothorax transferred by PIPER during the first trimester of 2016.

Method: Examination of the PIPER neonatal database for the 2016 first trimester, searching for 'pneumothorax' as primary diagnosis. Fourteen infants from a total of 307 retrievals were identified and transferred from regional and metropolitan hospitals into metropolitan Level 4 and 6 hospitals.

Results: Mean gestational age was 37 weeks (range 33 – 40), 5 were born via emergency caesarean section, 7 received resuscitation interventions at birth, 4 of whom received intermittent positive pressure ventilation (IPPV). Two infants were born through meconium stained liquor, 1 was diagnosed with respiratory distress syndrome. Time of referral to PIPER was a mean of 10.6 hours (range 1.5 – 43). Eight infants received respiratory support, 6 of whom had this initiated by the referring hospital. Four infants were intubated and had chest drains inserted by PIPER.

Conclusions: Pneumothorax is a significant cause for retrieval. Many infants with pneumothorax have management initiated prior to retrieval, but need additional support implemented for retrieval. Most infants in this series were transferred without chest drains, two of them safe air transfers.

Sensory exposure of neonates in single room environments (SENSE): an observational study of light exposure

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Background: The detrimental effects of the neonatal unit environment upon preterm neurodevelopment are well documented. Despite the development of Australasian and international recommendations regarding safe exposure, current evidence indicates that guidelines are not always being achieved.

Method: Light meters were placed in the internal and external environment of the open cot or incubator within 51 occupied single rooms between September 15 and October 28, 2015. Data were recorded in one-second increments over a minimum of 48 hours.

Results: Light predominantly fell below 100 lx for internal (day=92.78%; night=97.53%) and external open cot and incubator environments (day=73.34%; night=83.08%). External Incubator light in NICU was brighter than external open cot and incubator light in SCN across day (151.67 ± 127.86 vs. 32.41 ± 20.41) and night (119.10 ± 126.70 vs. 10.67 ± 10.14). In NICU, external incubator light was considerably brighter than internal incubator light for day (151.67 ± 127.86 vs. 30.08 ± 30.42) and night (119.10 ± 126.70 vs. 18.48 ± 40.36). Cot covers significantly reduced external light exposure, but contributed to very low internal light (< 10lx). Periodically, light peaked up to 6.05 times greater than the recommended maximum (600 lx).

Conclusions: Overall, light exposure was low compared to recommendations with peak light periods well above recommended ranges. However, the recommendations for exposure are questionable as the broad range may not be suitable for neonates of all gestational ages. Furthermore, the guidelines do not stipulate the optimal cyclic light levels required to safely establish circadian rhythms, especially for very preterm neonates.

ACNN Conference Invited Speaker



Dr Rose Boland

Postdoctoral Researcher, Murdoch Children's Research Institute
Melbourne, Australia

Rose is a postdoctoral researcher, perinatal educator, neonatal nurse and midwife. She completed her PhD in perinatal epidemiology at the University of Melbourne in 2014. Rose is now leading a postdoctoral research program aimed at improving outcomes for babies born in non-tertiary hospitals, supported by a 3-year Career Development Award from the Murdoch Children's Research Institute, and the Mona Menzies major research grant

from the Nurses Board of Victoria.

Differences in mortality and serious morbidity when a dedicated neonatal retrieval team attend births at 23-28 weeks' gestation in non-tertiary hospitals

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Background: In Victoria, Australia, a dedicated retrieval team (PIPER) attends 'out-born' births <29 weeks in non-tertiary hospitals whenever feasible. The effectiveness of this strategy in reducing serious morbidity and infant mortality has not been investigated.

Method: We conducted a prospective study of all 23 to 28 weeks gestation livebirths retrieved by PIPER in 2010-2011. Serious morbidity to hospital discharge and infant mortality data were compared for births PIPER attended, with those PIPER retrieved after birth. Outcome data were analysed by logistic regression, adjusted for gestational age, birthweight and sex.

Results: Of 92 out-born livebirths, 60 were referred to PIPER for retrieval. PIPER was present at 21/60 (35%) births. By one year, 2/21 infants whose births PIPER attended died, compared with 8/39 retrieved after birth (adjusted odds ratio [aOR] 0.36, 95% CI 0.05, 2.71, $p=0.32$). There were no significant differences in rates of necrotising enterocolitis (aOR 1.14, 95% CI 0.17, 7.64, $p=0.89$), intraventricular haemorrhage (aOR 1.19, 95% CI 0.37, 3.89, $p=0.77$), periventricular leukomalacia (aOR 2.99, 95% CI 0.44, 20.23, $p=0.26$), or bronchopulmonary dysplasia (aOR 0.48, 95% CI 0.08, 2.97, $p=0.43$). Infants whose births PIPER attended had lower rates of retinopathy of prematurity (ROP) (aOR 0.13, 95% CI 0.02, 0.70, $p=0.02$) and the combined outcome of death or ROP (aOR 0.15, 95% CI 0.04, 0.61, $p=0.008$) compared with infants retrieved after birth.

Conclusions: Mortality risk was not significantly lower in births attended by PIPER compared with those retrieved after birth, but rates of ROP and the combined outcome of death or ROP were lower.

Predicting neonatal skin injury: evaluation of the skin assessment and management tool and Braden-Q scale

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Background: Over a five-year period a prospective study has been undertaken at the Canberra Neonatal Intensive Care Unit (NICU), to develop and evaluate a skin assessment and management tool (SRAMT) for neonates. The SRAMT has three sections: risk assessment score, management and preventative strategies. In 2015 a pilot study was undertaken to evaluate if the SRAMT is as effective as the Braden-Q (BQS) when predicting neonates at risk of skin injury.

Methods: Prior to the evaluation, in-services covering both tools were held. Categories of risk were defined to standardise grading. Over a six-week period clinicians completed the two tools on all infants admitted to the NICU prospectively. A group of senior clinicians categorised neonates as low versus high risk without knowledge of the score the neonates received for the two tools (gold standard). Areas (AUC) under receiver operating characteristic (ROC) curves were used for comparison.

Results: Total of 248 assessments were completed; 38% (n=96) recorded skin injuries. The median gestation and birthweight at time of assessment were 36.7 (34.2-39.6) weeks and 1.6 (1.2-2.7) kg, respectively. Analysis highlighted the SRAMT had AUC (SE) of 0.94(0.02) compared to 0.81(0.03) for BSQ (difference 0.013, p <0.001). The SRAMT and BQS had sensitivity of 73.0% and 62.9% and specificity of 96.9% and 3.1% respectively.

Conclusion: The newly designed SRAMT has had better predictive value than BQS in recognising neonates at higher risk of skin injury. The next stage of establishing the effectiveness of the SRAMT is prospective large study before widely implementing SRAMT.

ACNN Conference Invited Speaker



Professor Megan-Jane Johnstone

Chair in Nursing, School of Nursing and Midwifery, Deakin University
Melbourne, Australia

Professor Johnstone is one of Australia's foremost nursing scholars and an internationally renowned healthcare ethicist. Her scholarly work and research have focused on a range of issues including: patient rights; cross-cultural ethics; patient safety ethics; professional conduct; and end-of-life ethics. In 1989, Johnstone published *Bioethics: a nursing perspective*, the first book of its kind to be written from an Australasian perspective. Recently published as a 6th revised edition, this work has the distinction of having been in print for 27 years. Her most recent publication, a three volume major reference work on *Nursing Ethics* (2015; Sage, UK) has been released worldwide.

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https://www.researchgate.net/profile/Megan-Jane_Johnstone

Leadership ethics in neonatal nursing: responsibility, integrity and trust

Nursing leaders at all levels and in all areas of practice, including neonatal nursing, have to deal daily with a range of ethical issues associated with the effective management and delivery of safe, high quality healthcare. One of the greatest challenges facing nursing leaders today is how best to lead the continual development, improvement and provision of safe, high quality healthcare services, while also remaining economically viable in the face of ever dwindling and often severely reduced healthcare resources. The planning and delivery of sustainable and universally accessible healthcare is high on the political agendas of countries around the world. Whether these agendas will succeed, however, and whether healthcare organisations will be enabled to 'plan for and respond appropriately to marketplace forces, while maintaining a coherent vision of their values' will depend ultimately on the ethics of its leadership¹. Indeed, there is an emerging consensus that *ethical leadership* is crucial for the future survival, viability and flourishing of healthcare and, it should be added, the nursing services upon which healthcare depends. But what is 'ethical leadership'? In this paper, attention will be given to: clarifying the nature of *leadership ethics*, exploring the relationship between *ethical* and *effective* leadership, identifying seven key characteristics of ethical leadership, and outlining strategies that neonatal nurses might use to enhance their capacity to lead the effective-ethical development of sustainable neonatal nursing care services.

¹ Spencer E, Mills A, Rorty M, Erhane P (2000). *Organization Ethics in Health Care*. New York: Oxford University Press.

Saturday 24 September program – morning

0715 – 0815: Breakfast sessions

Breakfast session 3: Presented by Dr Jane Williams

'Science of the senses' – bonding and infant neurophysiological development

Sponsored by Johnson & Johnson Pacific

Breakfast session 4: Presented by Caitlin Watson, Paediatric Dietitian, Monash Children's Hospital

Early life nutrition: getting it right from the start

Sponsored by Nestlé Australia

SATURDAY 24 SEPTEMBER: DAY 2 PROGRAM Registration from 0700			
0815 - Trade exhibit open / arrival tea and coffee			
0840 - 0845	<i>Welcome – ACNN Professional Officer, Dr Kim Psaila</i>		
Session 1 0845 – 1045	<p>Seeing the premature baby as a person and how can we understand them better – <i>Associate Professor Frances Thomson-Salo</i></p> <p>The 'forgotten' parent – <i>Associate Professor Carl Kuschel</i></p> <p>How NICU creates radical dads – <i>Radford White</i></p> <p>PER-FACT: Promoting Enhanced Relationships – FaceTime as a Communication Tool – <i>Melissa Drew</i></p>		
1045 - 1115	Morning tea and trade exhibit		
Session 2 1115 - 1235	<table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 50%;"> <p><i>Concurrent 3: Examining neonates and care</i></p> <p>'Behind closed doors': Reflections on moving from an open plan to a single/double room neonatal environment – <i>Anne Illingsworth</i></p> <p>Maternal obesity in pregnancy: what neonatal nurses need to know – <i>Rena Gengaroli</i></p> <p>Neonatal physiological parameter ranges: A literature review – <i>Michelle Paliwoda</i></p> <p>The prevalence of cerebral palsy in 2016: an overview – <i>Amy Forbes Coe</i></p> </td> <td style="vertical-align: top; width: 50%;"> <p><i>Concurrent 4: Education and research challenges</i></p> <p>Leadership - a big challenge – <i>Holly Murphy</i></p> <p>Real Lessons from unreal situations: the Neonatal Pocket Skills Centre – <i>Michelle Evans</i></p> <p>Exploring registered nurses' attitudes towards postgraduate education – <i>Linda Ng</i></p> <p>Recognising capability in nursing students undertaking a Postgraduate Certificate in Neonatal Intensive Care (NIC) – <i>Patricia Bromley</i></p> </td> </tr> </table>	<p><i>Concurrent 3: Examining neonates and care</i></p> <p>'Behind closed doors': Reflections on moving from an open plan to a single/double room neonatal environment – <i>Anne Illingsworth</i></p> <p>Maternal obesity in pregnancy: what neonatal nurses need to know – <i>Rena Gengaroli</i></p> <p>Neonatal physiological parameter ranges: A literature review – <i>Michelle Paliwoda</i></p> <p>The prevalence of cerebral palsy in 2016: an overview – <i>Amy Forbes Coe</i></p>	<p><i>Concurrent 4: Education and research challenges</i></p> <p>Leadership - a big challenge – <i>Holly Murphy</i></p> <p>Real Lessons from unreal situations: the Neonatal Pocket Skills Centre – <i>Michelle Evans</i></p> <p>Exploring registered nurses' attitudes towards postgraduate education – <i>Linda Ng</i></p> <p>Recognising capability in nursing students undertaking a Postgraduate Certificate in Neonatal Intensive Care (NIC) – <i>Patricia Bromley</i></p>
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1235 - 1320	Lunch and trade exhibit		
1300 - 1315	Poster presentations		

ACNN Conference Invited Speaker



Associate Professor Frances Thomson-Salo

Consultant Infant Mental Health Clinician
Centre for Women's Mental Health
The Royal Women's Hospital Melbourne, Australia

Associate Professor Frances Thomson-Salo has many years' experience of working in Infant Mental Health. She is an Honorary Principal Fellow in the University of Melbourne's Department of Psychiatry, an affiliate researcher for the Murdoch Children's Research Institute, and teaches in the University of Melbourne Graduate Diploma/Masters in Infant and Parent Mental Health. Her research interests have focussed on the field of parent and infant mental health.

Seeing the premature baby as a person and how can we understand them better

While I'll touch on some interventions with parents I also aim to bring some infant mental health issues that may not be quite so well known. An infant needs a specificity of care, from several attachment figures who are there as much as possible and put the infant first, able to interact playfully, with positive reciprocity and contingency without being overwhelming. This has positive results for cognitive and psychomotor development, and parents feel supported knowing that their sensitivity optimises brain development. Infants also respond positively to a mutually supportive relationship between parents. Parents usually want to know how to help their babies be happy.

Helping parents help their infant find pleasure in their body is likely to increase resilience, as is being able to explore novel experiences. I can stress the importance of recognizing that the infant has agency, and point out that negative affect expresses intention, and when parents view this as being active and can share it in a social exchange, infant competence increases. When there are difficulties connecting, I may talk with them about the infant's personality traits to see if that can connect them quickly.

Parents who need help to think about the infant's mind as intentional can be encouraged to carefully observe their infant and become curious about the meaning of behaviour. It is possible to help quite quickly even when there are extreme difficulties in connecting, when the infant is not understood very well; this may prevent neglect and abuse resulting from unrelieved stress.

ACNN Conference Invited Speaker



Associate Professor Carl Kuschel

Medical Director, Neonatal Service
The Royal Women's Hospital, Melbourne, Australia

Carl trained in Auckland, New Zealand, Sydney and Toronto. Carl is an active supporter of research to improve outcomes for babies and their families. His research interests have included neonatal ventilation, functional echocardiography and neonatal drug withdrawal. His current clinical interests include the use of information technology to assist with clinical care.

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The forgotten parent

In 2013, a fortnightly group for fathers of infants was established in the neonatal unit of the Royal Women's Hospital, in an attempt to address the considerable – but often unrecognised – paternal stress in the perinatal period. This presentation will describe the events leading to the formation of this group, review research findings about the multiple roles that fathers take on when their baby is unwell, and identify particular stressors or issues that predominantly affect them. The structure and function of the Dad's Group will be described, as well as themes that have emerged from the regular meetings. The predominant theme arising concerns the traumatic aspects of the baby's birth and subsequent difficulties in parenting and bonding associated with the NICU admission.

ACNN Conference Invited Speaker



Radford White

Dad to Rupert and Maisie

On Father's Day in 2013 new dad Radford White was featured in a story for the *Sunday Age* newspaper. He was an obvious choice to grace the front page: over-joyed, over-the-moon and he admitted, a little over-awed at becoming a dad to twins Rupert and Maisie, born in July 2013. The babies, the first for Radford and wife Kirsten, were born at the Women's after an emergency caesarean just before 30 weeks' gestation when a scan showed placenta complications for tiny Rupert. Both babies were then cared for in the Women's NISC with Maisie coming home 10 weeks after birth and Rupert 14 weeks. They are now healthy two and half year olds and this talk shares some of Radford's experiences and recollections of the time spent in the neonatal unit.

ACNN Conference Invited Speaker



Ms Melissa Drew

Neonatal Nurse, Associate Unit Manager & Clinical System Administrator
Neonatal Services, The Royal Women's Hospital

Melissa Drew is an Associate Unit Manager and Clinical Systems Administrator in the Neonatal Intensive and Special Care Nurseries at the Women's Hospital, Parkville. A personal interest in health informatics and improving maternal-infant attachment led to the implementation of a FaceTime pilot program for mothers who are unable to be physically present with their newborn.

PER-FACT: Promoting Enhanced Relationships – FaceTime as a Communication Tool

Maternal-infant attachment is critical following birth; however, unfortunately some mothers and babies are separated due to one or both requiring significant medical treatment. Through the use of real-time communication with mothers, we aimed to: increase maternal-infant attachment; alleviate the 'fear of the unknown' for mothers; increase family involvement in care; promote positive relationships between families and the health care team, and; increase satisfaction with the overall healthcare experience.

FaceTime was used to communicate with an unwell mother for the first time in December 2013. A step-by-step guide was developed to enable any staff member to be able to easily use the iPads and FaceTime, regardless of their technological competence. Associate Unit Managers were enlisted to approach families who fulfilled the criteria of the mother unwell in the complex care unit (CCU) or Royal Melbourne Hospital ICU, and an infant receiving intensive care. Education for staff was provided on a case-by-case basis.

As the program progressed the criteria for use broadened to include: mothers requiring further treatment in birth suite following birth; non-ambulant mothers post caesarean section; mothers who remain in an outlying hospital whilst their infant receives intensive care at The Women's, and; families who are unable to visit due to social circumstances (distance, money, childcare etc.).

Twenty-two mothers took part in the pilot program: 10 inpatients at The Women's, 10 at other hospitals and two from home. Feedback has been overwhelmingly positive. Mothers all found it helpful and enjoyed the experience. General staff responses have been positive, although work is still required to ensure all staff are appropriately educated in the use of FaceTime and that all eligible families are offered the service.

'Behind closed doors': reflections on moving from an open plan to a single/double room neonatal environment

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Background: The Townsville Hospital Neonatal Unit was previously an open-plan environment. When we redeveloped our unit, we moved to a single/double room model. The motivation for this change was multifactorial: to enhance family centred care, improve patient safety and infection control, and to support neuro-developmental care. We identified that significant adaptations were required to successfully manage this vast change in practice. Appropriate change management strategies were utilised to ensure staff engagement with the process.

Results: The adaptation to the single/double room environment has been beneficial to enhancing family centred care, improving patient safety and infection control, and to supporting neuro-developmental care. It has not, however, been an unmitigated success. The same closed room that promotes privacy, infection prevention and control processes and individualised care, also contributes to feelings of isolation, allows for lapses in infection control processes and deviations from evidenced based care. The closed room environment does not allow for the undervalued benefits of observational teaching/learning and role modelling which were inherent in the open plan nursery.

Conclusions: The single/double room model is achievable and somewhat advantageous. Careful consideration of whether these benefits would outweigh the challenges is warranted by any neonatal unit considering adopting a single/double room environment.

Maternal obesity in pregnancy: what neonatal nurses need to know

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Background: According to the World Health Organisation (WHO) approximately 1.5 billion people around the world are overweight and of those nearly 300 million women are obese. The prevalence of obesity is increasing around the world at an alarming rate and is fast becoming known as one of the most serious health concerns of the 21st century. The growing prevalence of maternal obesity and its potential impact on maternal, fetal and later outcomes is important and neonatal nurses need to be aware of the impact of obesity in order to facilitate optimal care for babies and their families.

Method: Medical subject heading (MeSH) terms were used for the purpose of obtaining relevant and recent literature. CINAHL, PubMed, ProQuest and Medline were the databases of choice for this review.

Results: Maternal obesity now represents one of the highest risk factors commonly presenting in obstetric practice and affects every aspect of maternity care. It is the most common risk factor for maternal morbidity and mortality in developed countries. The developmental over nutrition hypothesis recognises that maternal obesity and over nutrition are programming factors for the risk of disease in the growing fetus. It is important that neonatal nurses are aware of the increasing impact maternal obesity may have on our NICU population.

Conclusions: The emerging evidence suggesting the detrimental consequences of maternal obesity on offspring and later health outcomes is alarming as it presents the concept of a vicious cycle of potentially intergenerational obesity.

Neonatal physiological parameter ranges: a literature review

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Background: A lack of consensus on key physiological parameter ranges and the use of broad parameter ranges for all newborns, irrespective of gestational age at birth, affected the responsiveness of three Early Warning Tools (EWTs). As such, it is postulated that the effectiveness of EWTs could be improved if normal neonatal physiological parameter ranges for each specific gestational age (GA) group were known and incorporated into the design of age specific EWTs.

Aim: The aim of this review was to examine the literature to identify physiological parameter ranges of neonates >34⁺⁶ weeks gestation.

Methods: Electronic searches of CINAHL, MEDLINE, EBSCO, The Cochrane Library and Google Scholar databases were conducted.

Results: The literature has revealed that there is very little consensus on the normal physiological parameter range for heart and respiration rate, temperature, blood glucose level, blood pressure, and oxygen saturations in neonates. Health care facilities continue to incorporate parameters based on locally defined parameters.

Conclusions: The literature reveals a lack of consensus on normal neonatal physiological parameters for the gestational age groups. Further robust studies are needed to determine parameter ranges. This will allow for neonates who are exhibiting early signs of deterioration to be identified and trigger an escalation of care to prevent serious adverse events.

The prevalence of cerebral palsy in 2016: an overview

Amy Forbes-Coe

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Background: This literature review was conducted to determine if there has been a change in the prevalence of cerebral palsy (CP).

Aim: To ascertain if the incidence of CP has changed in the neonatal period.

Methods: A comprehensive review of current literature was performed following the PRISMA guidelines. Inclusion criteria: articles discussing the prevalence of CP within the neonatal period regardless of gestation at birth, all relevant articles were peer reviewed.

Results: Eight articles focused on the prevalence of CP with gestation, birth weight, the motor type, distribution and severity of this disability being discussed. Interestingly, the studies had varying outcomes regarding whether the prevalence of CP had increased, decreased or remained static.

Conclusion: The prevalence of CP has remained unchanged, which is probably due to an increase in the survival of the extremely preterm infant and the advances in perinatal and neonatal care. This review concludes that babies born less than twenty-six weeks and after thirty-seven weeks' gestation are still at an increased risk of CP; however, the distribution of the disability is diminishing.

Leadership – a big challenge

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Background: While attending a seminar on leadership and management, our Nurse Manager set our team a series of challenges to be completed on the day. These challenges seemed like a bit of fun at the time, but were set out to extend us and push us. We were given these challenges to develop our own leadership skills

Method: A series of tasks were set out for our team to complete while attending a leadership day. These tasks were to be documented in a creative way and evidence needed to be provided of the completion of each task. This evidence was to be presented to our leadership group once completed.

Results: Evidence was collected by way of photographs, video and personal conversations. Photographs of our team with the university sign, a photo of our team with the neonatal academics from the university and a video of one our team members introducing herself to one of the speakers were some of the challenges. Upon completion of the set tasks, we could see that these challenges were set out to do exactly that, challenge us.

Conclusions: We know being a leader isn’t always easy; these challenges showed us that even in uncomfortable situations we can be leaders and in turn, mentor others to become leaders themselves. They taught us about ourselves, so we can lead others.

Real lessons from unreal situations: the neonatal pocket skills centre

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Background: Simulation-based training can facilitate the acquisition and maintenance of the cognitive, technical and behavioural skills necessary for successful resuscitation of the newborn. According to Atkinson (2010), the key components which aid a successful resuscitation are: planning ahead; ease of availability of resuscitation equipment; training utilising multidisciplinary scenarios; feedback and review of practice from real and simulated events; audit and process evaluation and integration of new research findings into daily resuscitation practice. Clinicians can find simulation-based learning confronting and anxiety provoking.

Aim: The aim of having a pocket skills centre was to provide a facility to conduct ad hoc simulation-based training on various neonatal emergencies and procedures to improve clinical practice and performance.

Method: To conduct planned and ad hoc multi-disciplinary mock scenarios within the neonatal unit to assess the application of clinical skills of participants and document learning objectives achieved and lessons learned from debriefing post scenario.

Results: Mock scenarios in the neonatal unit have been conducted on a regular basis in the pocket skills room in NICU and in bed spaces in the Special Care Nursery. The lessons learnt from these scenarios have also highlighted process issues where potential risks have been mitigated. Clinicians have also reported improved confidence in clinical skills and decreased anxiety in relation to simulation-based learning.

Conclusions: Regular mock scenarios can improve team performance in technical and behavioural skills. The review of unit and inter-unit processes in emergencies can improve communication, mitigate risks and improve patient outcomes.

Exploring registered nurses' attitudes towards postgraduate education

Linda Ng¹, Rob Eley², Anthony Tuckett^{1,3}

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²Emergency Medicine Research Program, The UQ School of Medicine – PAH, Queensland, Australia

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Background: Studies have shown specialty nurses require a higher level of academic knowledge that will enable individuals to combine the science and art of nursing. Specialist nurses require advanced education to increase their ability to positively influence patient care, leading to improved care delivery and improved patient outcomes. Despite the increased requirement for PGE for advanced practice, little has been reported on the barriers.

Method: The NATPGE (Nurses' Attitudes Towards Postgraduate Education) instrument was administered to 1632 registered nurses from the Nurses and Midwives e-Cohort Study (NMeS) across Australia, with a response rate of 35.9 per cent (n=568). Data reduction techniques using principal component analysis with varimax rotation was used.

Results: Accounting for 52.5% of the variance of the scale, the analysis identified a three-factor solution for 14 items: 'facilitators'; 'professional recognition'; and 'barriers'. The one higher order factor, representing facilitators to postgraduate education; accounting for 28.5% of the variance: (1) improves knowledge; (2) increases nurses' confidence in clinical decision making; (3) enhances nurses' careers; (4) improves critical thinking; (5) improves nurses' clinical skill; and (6) increased job satisfaction.

Conclusions: The findings from our research demonstrated that registered nurses pursue postgraduate education because of the consequent influence on patient care, patient outcomes as well as on quality and safety of patient care; and possibilities of career advancement. These findings have the potential clinical and research applications to support registered nurses' pursuit of postgraduate education.

Recognising *Capability* in nursing students undertaking a Postgraduate Certificate in Neonatal Intensive Care (NIC)

Patricia Bromley

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Background: This study is being conducted in partial fulfilment of a Doctor of Education seeking to better understand how *Capability* is recognised in the student nurse undertaking any Postgraduate Certificate in Neonatal Intensive Care in Australia.

This presentation will introduce the findings from the third and final stage of the study, to establish from the opinions of experts (experienced neonatal nurse clinicians), what it is students demonstrate that provides evidence of *Capability* in neonatal intensive care nursing in Australia.

Method: Using person-to-person semi-structured interviews, to gather qualitative data to elicit subjective and even tacit knowledge to tease out the finer nuances in relation to the demonstration of capability in clinical practice.

Results: At the time of writing, data are being analysed and findings will be shared at the conference.

Conclusions: It is expected the results from this research will go some way towards providing educators, in both academic and clinical environments, and designers of curriculum with concepts to aid the development of education programs that are aimed at fostering the concept of *Capability* in NIC nurses; with well-developed clinical reasoning skills, who have confidence in themselves and their clinical judgements, who work just as effectively in unfamiliar as familiar clinical environments devising solutions to unfamiliar clinical problems.

Saturday 24 September program - afternoon

SATURDAY 24 SEPTEMBER: DAY 2 PROGRAM		
Session 3 1320 - 1450	<i>Concurrent 5: Low resource settings</i> Plan, Do, Study, Act: partnering for quality improvement to address refugee perinatal health and health care inequalities – <i>Professor Christine East</i> Personal experience of Helping Babies Breathe in Vietnam – <i>Renee Collisson</i> Challenges presented by local and cultural environments when volunteering in PNG – <i>Melissah Burnett</i>	<i>Concurrent 6: The challenges of nursing neonates</i> NIC-PREDICT: A tool to predict the risk of NICU admission and outcomes for 28 to 36 weeks' gestation babies – <i>Dr Rose Boland</i> Reducing maternal stress and improving neonatal developmental outcomes: moving in a new direction – <i>Dr Jane Williams</i> Feeding challenges in late preterm infants – <i>Emma McInnes</i>
1450 - 1515	Afternoon tea and trade exhibit	
1515 - 1615	Session 4: The late preterm infant The long-term outcomes for children born preterm – can they be improved? – <i>Professor Peter Anderson</i> What can MRI tell us about preterm brain development? – <i>Dr Deanne Thompson</i>	
1620	Awards and close	

ACNN Conference Invited Speaker



Professor Christine East

Professor of Midwifery
 Monash University / Monash Health, Monash Medical Centre
 Melbourne, Australia

Chris is a midwife with extensive clinical and research experience. She has numerous publications in peer-reviewed journals and is an editor with the Pregnancy and Childbirth Group of the Cochrane Collaboration. Her experience provides a unique platform for merging academia and clinical leadership through her joint appointment with Monash University and Monash Health.

See abstract on next page

Plan, Do, Study, Act: partnering for quality improvement to address refugee perinatal health and health care inequalities

Christine East¹ and the Bridging the Gap partnership²

¹Monash Health / Monash University;

²<https://www.mcri.edu.au/bridging-the-gap>

Introduction: Bridging the Gap is an NHMRC-funded partnership of 11 organisations spanning health services, government and research. The partnership has developed projects to address refugee inequalities through healthcare service reform and quality improvement. Today's presentation outlines of a quality initiative that was developed by the Bridging the Gap partnership.

Around 2,600 women give birth annually at Dandenong Hospital, which is one of the three hospitals that form Monash Women's Maternity Services within Monash Health, Victoria. Over two thirds of the women attending Dandenong Hospital were born outside Australia and 19 per cent identify as requiring an interpreter. Local Afghan families reported limited use of professional interpreters in labour and health professional identified challenges when family members interpreted.

Aim: We aimed to improve the engagement of professional interpreters for women giving birth at Dandenong Hospital.

Methods: A multidisciplinary group co-designed this quality initiative and implemented it with birth suite midwives using the plan-do-study-act (PDSA) framework to test out cycles of change. Women were offered an interpreter when they were in early labour – a time when communication needs are often greatest and before clinical escalation. The initiative was modified over a number of PDSA cycles.

Results: Prior to this initiative, only 28 per cent of women who required an interpreter went on to have one during their labour. This improved to 62 per cent within nine months of the PDSA cycles in 2015 and has been sustained in the intervening period since.

Comment: We demonstrated that engaging a multidisciplinary planning team and the adoption of the PDSA framework to continuously improve the provision of language services to women of low English proficiency is feasible in a busy maternity service. The success of this program has generated interest in its implementation at the other two Monash Women's Maternity Services hospitals, and at maternity services across the state.

Further details of this initiative can be found at:

- Yelland J, Biro MA, Dawson W, Riggs E, Vanpraag D, Wigg K, Antonopoulos J, Morgans J, Szwarc J, East C, Brown S. Bridging the language gap: a co-designed quality improvement project to engage professional interpreters for women during labour. *Aust Health Rev* 2016: <http://dx.doi.org/10.1071/AH16066>
- Policy and Practice Brief, available at <https://www.mcri.edu.au/bridging-the-gap>

Personal experience of Helping Babies Breathe program in Vietnam

Renee Collisson

Mercy Hospital for Women, Melbourne

reneecollisson@hotmail.com

Background: Day of birth remains the most dangerous day of a person's life. Globally neonatal deaths account for 45 per cent of under-five mortality, birth asphyxia causing 11 per cent of under-five deaths. Helping Babies Breathe (HBB) aims to reduce this, supporting MDG4 previously and currently SDGs 3 and 17.

Method: Global Engagement Institute (GEI) is a social enterprise passionate about sustainable development, providing healthcare programs in Asia and Africa. In Vietnam, GEI provides HBB training to nursing, midwifery and medical staff. International volunteers receive HBB Master Trainer certification, teaching and intercultural experience.

Results: I received HBB master training certification, participated in training and assessing local master trainers at Vinh obstetric-children's hospital, and provider training in AnhSon to 50 healthcare workers from 30 surrounding centres. Participants take a knowledge test at commencement of training and at conclusion of training to evaluate improvements in knowledge. Skills' testing was also performed. New master trainers from Vinh assisted in AnhSon. HBB resources were provided to Vinh hospital allowing master trainers to continue providing HBB training to surrounding health centres, and neonatal masks and ambu bags were provided to health centres participating in provider training.

Conclusion: GEI continues building relationships in Vietnam allowing training to be provided more extensively throughout Vietnam and worldwide. GEI depends on international participation to provide financial support for resources needed for the program to continue growing. Future data on neonatal deaths due to birth asphyxia in areas this program has been taught can be used to assess its impact.

ACNN Conference Invited Speaker



Ms Melissah Burnett

Neonatal Nurse
Melbourne, Australia

Melissah is a Neonatal Nurse recognised as an experienced clinician, educator and manager. She completed her NICU training at the Mercy Hospital for Women in 1995 (and has worked there ever since) and is qualified with a Masters of Nursing. With experience in both NICU and SCN, she has also been a lecturer and course coordinator of post graduate neonatal nursing courses.

Melissah has strong professional affiliations, roles and responsibilities at both state and national level. She is visiting PNG for a second time this year with ACNN and feels that volunteering is one of the most rewarding things you can do in your life.

The title of this presentation is *Challenges presented by local and cultural environments when volunteering in PNG.*

ACNN Conference Invited Speaker



Dr Rose Boland

Postdoctoral Researcher, Murdoch Children's Research Institute
Melbourne, Australia

Rose is a postdoctoral researcher, perinatal educator, neonatal nurse and midwife. She completed her PhD in perinatal epidemiology at the University of Melbourne in 2014. Rose is now leading a postdoctoral research program aimed at improving outcomes for babies born in non-tertiary hospitals, supported by a 3-year Career Development Award from the Murdoch Children's Research Institute, and the Mona Menzies major research grant from the Nurses Board of Victoria. Rose will provide an overview of one of her current research projects: the development of a web-based application to predict the need for neonatal intensive care unit admission for babies born at 28-36 weeks' gestation.

NIC-PREDICT: A tool to predict the risk of NICU admission and outcomes for 28-36 weeks' gestation babies

Boland RA^{1,2,3}

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Background: Currently one-in-eight infants born at 32-36 weeks' gestation in Australia require neonatal intensive care unit (NICU) admission, despite guidelines recommending they can be delivered in non-tertiary hospitals with high dependency special care nursery services. Rates of NICU admission are much higher for infants born at 28-31 weeks' gestation, however approximately 20 per cent will not require intensive care. The challenge for non-tertiary clinicians is to predict which babies are at risk of requiring NICU admission and opting for in-utero transfer. Such predictions are made more difficult by a lack of contemporary data or a tool to estimate these risks.

Aim: Our aim is to develop the first Australian web-based tool designed to identify infants at high risk of requiring NICU admission and potential outcomes, (serious morbidity and mortality risk) based on perinatal risk factors.

Method: Analysis of population-based perinatal data from all livebirths at 28-36 weeks' gestation in Victoria in 2009-2014 (approx. 32,000 infants) will inform the development of NIC-PREDICT: a web-based application accessible from a secure site to generate the likelihood of the need for NICU admission and infant outcomes for livebirths at each week of gestation from 28 to 36 weeks.

Significance: Access to NIC-PREDICT has the potential to reduce morbidity and mortality by providing perinatal clinicians with access to a readily available, accessible tool to guide decision-making regarding the ideal place of birth for an individual infant to optimise outcome. Unnecessary in-utero transfers of infants at low risk of requiring NICU admission may also be avoided.

ACNN Conference Invited Speaker



Dr Jane Williams

GymbaROO
RN (Paeds), BMgt, Cert Tertiary Teaching, PhD

Dr Jane Williams is a researcher and educator who has taught across very diverse environments, to people with a large variety of interests and professions. For the past 20 years she has been involved in a varied program of tertiary teaching and research in the College of Healthcare Sciences, James Cook University, Townsville, Australia, where she is currently holds the position of Adjunct Senior Lecturer. She is also the Director of Research and Education of GymbaROO. She has written neuro-developmental programs for schools, kindergarten, toddlers, babies and pregnant mothers as well as articles on pregnancy, baby and child development. Dr Williams also has a number of journal publications aimed at drawing the attention of early childhood health professionals to the importance of early childhood development, prevention and early intervention. She lectures extensively and has been an invited keynote speaker at many conferences in Australia, the EU, Singapore, Turkey, Indonesia, Russia, and China.

The title of this presentation is *Reducing maternal stress and improving neonatal developmental outcomes: moving in a new direction* (abstract not supplied).

ACNN Conference Invited Speaker



Ms Emma McInnes

Neonatal Nurse
The Royal Women's Hospital Melbourne, Australia

Emma is a Neonatal Nurse currently working within the Victorian Infant Brain Studies group (VIBeS) and is based at the Women's in Newborn Research. Emma completed her NICU training at the Women's in 2001 and has worked in NICU at the Royal Women's, Royal Children's and also in London. Emma recently completed a Master of Public Health with her main research area focusing on feeding patterns and outcomes for infants born late preterm.

Feeding challenges in the late preterm infant

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In Australia approximately 80 percent of all preterm births occur between 32 and 36 weeks. The morbidities and mortalities for this group of infants remain largely unreported in Australia, with most of the research coming from the Northern hemisphere, where it is reported that when compared with healthy term born infants, the late preterm infant is significantly more likely to have temperature instability, jaundice, hypoglycemia and lower rates of breast feeding.

Aims: The aim of this study was to compare the feeding patterns of late preterm infants with term-born controls.

Method: Late preterm infants and term-born controls from the Royal Women's Hospital in Melbourne were recruited prospectively for a longitudinal study of growth and development. Feeding patterns of both groups during the primary hospitalisation were recorded. The method (breast vs bottle feeding) and type of feed (breastmilk vs formula) at discharge from hospital were documented.

Results: 201 late preterm infants (mean gestational age 34.4 weeks) and 50 term born infants (mean gestational age 39.4 weeks) were included. Significantly more term infants were exclusively breastfed at discharge (90%) compared with late preterm infants (10%, $p = <0.001$), although 57 per cent of late preterm infants were receiving breast milk via either the breast or bottle at discharge. Late preterm infants who were exclusively breastfed were discharged significantly earlier (mean 1.6 days) than those who were breast and bottle fed (mean 4.6 days; mean difference 2.6, 95% CI 0.473 to 4.83).

Conclusions: Many mothers intend to give breast-milk to their late preterm infants, however only a small proportion are fully breastfed upon discharge. Once full sucking feeds are established the exclusively breastfed late preterm infant is discharged sooner than the late preterm infant who goes home combination feeding.

ACNN Conference Invited Speaker



Professor Peter Anderson

Principal Research Fellow
Murdoch Children's Research Institute
Melbourne, Australia

Professor Peter Anderson is a Principal Research Fellow at the Murdoch Children's Research Institute and Professorial Fellow in the Department of Paediatrics at the University of Melbourne. He is Group Leader of the Victorian Infant Brain Studies (VIBeS) team, which has an international reputation for studying the impact brain injury and brain development has on cognitive, motor, educational and behavioural outcomes in high-risk infants.

The long-term outcomes for children born preterm – can they be improved?

Children born preterm are at risk of cognitive, motor, academic and behavioural problems, but how many children develop these deficits and is the rate of impairment declining with advances in perinatal medicine? This presentation will document the rates of neurodevelopmental impairments in extremely preterm children in the state of Victoria in three eras (1991-2, 1997 and 2005), with a focus on change over time.

Group data often hides the fact that considerable variability in outcomes is observed, with some children developing severe impairments while others escaping with mild to no impairments. I will discuss some of the factors that may contribute to this variability in outcome, in particular parental mental health and parenting style.

Finally, I will describe some options for improving long-term outcomes such as early intervention and cognitive training.

ACNN Conference Invited Speaker



Dr Deanne Thompson

Neuroscientist
Murdoch Children's Research Institute, Melbourne, Australia

Dr Thompson is a Senior Neuroscientist leading a Neuroimaging team focused on outcomes following preterm birth. She coordinates the critical Magnetic Resonance Imaging (MRI) analysis component of nine projects including two multi-centre randomised controlled trials, and an intervention trial.

What can MRI tell us about preterm brain development?

This presentation will outline MRI techniques that my research team have applied or developed to study how adverse perinatal events impact brain structure and function, and the trajectory of brain injury and development in infants and children born preterm. We have developed novel infant brain tissue segmentation and parcellation techniques which provides volumes for almost 100 different cortical or subcortical structures, brain tissues or regions. Some preliminary results applying these tools to infant cohorts will be presented, which further our ability to understand brain development at this critical early time-point.

Results from the application of other cutting edge imaging techniques will also be discussed, including novel diffusion MRI techniques that can estimate the microstructural complexity of dendrites and axons, providing a rich description of white matter abnormalities. Furthermore, Structural connectivity analyses will be presented. This technique enables white matter fibre network analyses, providing insight into how the 'wiring' of the preterm brain changes in response to adverse perinatal events, and how it relates to neurodevelopmental outcomes.

Finally, recent results from our longitudinal analyses following the trajectory of injury and development in preterm survivors from infancy to childhood will be presented. This will include volumetric and shape analyses, as well state-of-the-art constrained spherical deconvolution diffusion imaging that enables virtual reconstruction of key fibre tracts via probabilistic tractography. The series of studies presented will highlight the importance of prevention or intervention following adverse perinatal events, and increase understanding of the neurological mechanisms and brain networks underlying impairments common to preterm children.

Posters

Evaluation of a Neonatal Nursing Graduate Foundation Program

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Background: Since 2012 new graduate nurses have completed the Canberra Neonatal Nursing Foundation Program when first employed in the unit. Over the past five years the program has been altered to meet the participant's needs and changes in clinical practice. In 2016 the education team undertook to investigate the evolution of the program with the aim to assess the scope of the program for future planning.

Method: The Neonatal Education Team (NET) met to review policies, guidelines and the overarching course outline to identify changes that have occurred. The team also evaluated participant surveys that have guided the direction of the program to meet the participant's needs.

Results: Twenty-one new graduate nurses have completed the program and 17/21(80%) of the participants continue to be employed in the unit with the majority continuing their education to complete tertiary qualifications in neonatal nursing. The NET identified factors updated over the past five years that have enhanced the program. These have included: improved recruiting process, revised module content according to current evidence based practice and participant survey results (breastfeeding education day in orientation, CPAP workshop), improved communication between ACT Health New Graduate Program Coordinators and NET to facilitate participant support and provide timely feedback. Consolidation of morning theory sessions through practical application each afternoon was suggested by participants.

Conclusion: The Foundation program provides a structured, learning program that facilitates new graduate transition to practice and has shown to achieve high retention of those who participate. Continuing review will ensure the program meets participant's needs.

Improving breastfeeding results – a chore or a challenge?

Cathy Krause and Raeleen Walker

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Background: After review of literature it was evident that late preterm and 37-week gestation infants were less likely to be discharged exclusively breastfeeding from hospital than early preterm infants and that the number of infants exclusively breastfeeding at 3, 6 and 12 months falls short of Australian Government recommendations.

Method: We looked at a sample size of 40 infants admitted to Special Care Nursery at SVHA born between K32 and K36. The data collected included gestational age, birth weight, type of delivery, type of first feed, mother's parity, postcode, whether the infant was given a bottle in SCN and the number of days to discharge after the most recent nasogastric feed. We telephoned mothers with regard their feeding method at 3, 6 and 12 months.

Results: On discharge 95.6 per cent of infants were receiving breast milk. Exclusive breastfeeding accounted for 57.8 per cent of infants on discharge. At 3 months 44.4 per cent were breastfeeding, at 6 months 42.2 per cent, and at 12 months 35.6 per cent.

Conclusions: We then proposed changes to our post discharge breastfeeding support and for this to include Skype appointments, emails and social media.

Posters

ReadyStepGrow – empowering parents of prems – 4 years on

Simone Mossop

Founder & CEO | ReadyStepGrow

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Background: ReadyStepGrow is a non-profit social enterprise providing therapeutic programs to families of prems from discharge to school age. The prems we see range from extremely low birth weight to late preterm babies, infants and children and through our work, we recognise their ongoing needs are the same. We would like to share a case series of families who have been through the ReadyStepGrow program over the last four years.

Method: Our expert multidisciplinary therapy team (neuropsychologist, physiotherapist, speech pathologist and occupational therapist) design and facilitate five separate age appropriate programs and offer eight programs per term in Melbourne. Program goals and objectives target areas relating to parenting, parent well-being and increasing parent knowledge in the following developmental areas: social and emotional, gross motor, feeding, communication, sensory and fine motor.

Results: Each term parents complete post program feedback relating to the goals and objectives of ReadyStepGrow (see method above). The feedback identifies 100 per cent satisfaction for increased parent confidence, 95 per cent satisfaction for improved parent well-being, 90 per cent satisfaction with developmental knowledge that is transferable to everyday life.

Conclusions: The ReadyStepGrow program is filling a gap in the health and education systems for families of preterm babies, infants and children. With over 90per cent retention rates and excellent program feedback we need to move into our next phase which will be to test the long term benefits of the program.

Exhibitors

Parker Healthcare

Johnson & Johnson Pacific



Dräger

PHILIPS



PCS
Point of Care Systems P/L



ThermoFisher
SCIENTIFIC

Johnson's
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TEMPLE
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