REaSoN 20 YEARS

REaSoN 2014 Abstracts

30th June and 1st July 2014

University of Warwick, Coventry

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Biographical Sketch:
Consultant neonatologist, director of neonatal services in a large tertiary referral service, neonatal network clinical lead, higher degrees in advanced cynicism and incredulous scepticism.

Lecture Abstract:
Biographical Sketch: Consultant neonatologist, director of neonatal services in a large tertiary referral service, neonatal network clinical lead, higher degrees in advanced cynicism and incredulous scepticism.
Lecture Abstract: The REaSoN meeting attracts practitioners from around the United Kingdom and over the years has been graced by expert speakers from around the world. Neonatology is now widely accepted as a major specialty in its own right with carefully defined competencies and training programmes and the advances in neonatal care in recent decades have been dramatic. It is, however, quite a sobering thought to realise that neonatal intensive care as we know it now for any more than a handful of babies really only started in earnest in the UK in around 1980 and it is even more recently, and in some areas still very begrudgingly, that neonatal intensive care has moved out of the domain of general paediatrics and paediatricians into a specialist delivered service. It is even more sobering to realise that it is not very long ago (and in some areas of the world it is still the case) that looking after newborn babies was not accorded much importance – it was disposing of the surfeit of unwanted infants that caused problems.

This talk will take the form of a meander through history looking at some of the key factors that in my, probably slightly idiosyncratic, opinion have driven our approach to neonatal care from one of mass disposal of the unwanted to the highly technical service for all that we now offer. First comes the possibly slightly surprising reasons for the concerns about mass disposal through to an acceptance that babies had a right to care, then to the realisation that society actually had a need to provide that care and finally to agreement that such care needed investment of time, energy and large amounts of money and that this had to be directed and regulated centrally. The factors that I believe have really driven change are surprising and it is possible that you will disagree. Just to add to the controversy that I hope to generate can I suggest that below you write the ten events or factors that you think have most influenced our approach to caring for newborn babies. I start in about 1200 AD (I was tempted to go to 600 BC) but feel free to go back further.

My ten top events are:

1)  
2)  
3)  
4)  
5)  
6)  
7)  
8)  
9)  
10)  

If you have additional bits of information you think I should be aware of please let me know at alan.gibson@sth.nhs.uk
Biographical Sketch:

As the title suggests, I became a consultant neonatologist in 1994, having trained in the North East of England and Liverpool. After 18 happy years at University College London Hospitals I moved to Barts Health to be clinical academic group director for women’s and children’s health and have continued in neonatal practice at the Royal London Hospital and Newham Hospital. I have contributed to CEMACH and CMACE enquiries and to NICE guidelines, and am a member of the board of trustees of Bliss and the Independent Reconfiguration Panel.

Lecture Abstract:

I and my esteemed colleagues will share our reflections on our training pre-1994 and how life was for new consultants in 1994, what were the exciting new treatments and what may have been old hat but has come round again.
Name: Gopi Menon
Job Title: Consultant Neonatologist
Title Of Talk: CLASS OF ‘94

Biographical Sketch:

• Medical school University of Cambridge and St Mary’s Hospital Medical School
• Paediatric Training: London, Liverpool, Midlands and Edinburgh
• MD Research carried out Liverpool and Edinburgh: Studies of nutrition and growth in infants with Chronic cardiopulmonary disease
• Appointed consultant at Eastern General Hospital Edinburgh 1994 and Consultant at Simpson Centre for Reproductive Health, Royal Infirmary of Edinburgh 1998
• Interests Nutrition, Follow up and Pain

Lecture Abstract:

My perspective on neonatology in 1994 and what has changed since as part of panel discussion.
Name: William McGuire
Job Title: Professor of Child Health
Title Of Talk: Preventing infection- progress over the past 20 years and possibilities during the next

Biographical Sketch:
Bill McGuire is a consultant paediatrician in York Teaching Hospital and Professor of Child Health at the Hull York Medical School, University of York. He has undertaken numerous systematic reviews of strategies to prevent and treat neonatal infection and is a lead/co-investigator on several large pragmatic multi-centre trials of interventions to reduce the burden of infectious morbidity and mortality in preterm infants.

Lecture Abstract:
Although outcomes for preterm or sick newborn infants have improved substantially over the past 20 years, major morbidities associated with the need for prolonged intensive or invasive care have emerged. These include extra-uterine growth and developmental faltering secondary to nutritional deficiency, necrotising enterocolitis (NEC), and late-onset (hospital-acquired) invasive infection. Attributable mortality for NEC and severe infection is more than 20% and these are now the most common causes of death beyond the early neonatal period for very preterm infants (1, 2). NEC, infection, and nutritional insufficiency are also associated with increased rates of neuro-disability, longer durations of hospital stay, and higher (life-long) health service costs. This session will discuss the evidence-base for existing care practices, highlight on-going uncertainties, and consider research opportunities to further reduce the risk of infection in very preterm infants.

References:
Name: Charles Christoph Roehr, M.D., PhD.
Job Title: Consultant Neonatal Paediatrician
Title Of Talk: Neonatal resuscitation – the past, present and glimpses at the future

Biographical Sketch:

Charles started his training as a paediatric pulmonologist in Berlin but has had his head turned by working as a senior SHO in a busy UK neonatal unit. He completed his training as neonatologist at the Charité Hospital in Berlin, where he is now an assistant Professor of Paediatrics. Charles has a keen interest in all aspects of neonatal resuscitation, in the physiology of neonatal transition and in non-invasive ventilation. For the past 18 months, he was fortunate to do basic science research with Prof. Stuart Hooper at the Ritchie Centre, Monash University in Melbourne Australia where he currently also works as a consultant neonatologist. Charles is the co-founder and secretary of the European Scientific Collaboration for Neonatal Resuscitation (ESCNR), a member of the European Resuscitation Council (ERC) and very active in the field of resuscitation training with the European Society of Neonatology (ESN). He is about to return to the UK to pick up the strings of his neonatal initiation and work as a consultant neonatologist in Oxford.

Lecture Abstract:

Few areas in neonatal medicine have received as much interest over the past decade as delivery room (DR) management and neonatal resuscitation. The paradigm has shifted from the perceived need for instant resuscitation, i.e. “restoration of life” through an early initiation of pro-active resuscitation towards a more permissive, gentler approach of “helping babies breathe”, together with appropriate and objective monitoring (1). International resuscitation guidelines are in place and updated on a regular basis. These guidelines advise on the assessment of newborn infants throughout all gestational ages regarding the prenatal management (i.e. timing of cord clamping), initial assessment (heart rate and oxygenation), management of respiratory failure (invasive and non-invasive support, duration of initial respiratory support, choice of oxygen concentration) and on aspects of cardio-respiratory support, including drugs and post resuscitation care (2). Yet, despite a growing amount of data generated from systematic studies, there remains a plethora of unanswered questions on many aspects of DR care (3). More evidence is desperately needed to find out the best ways to manage a newborn in her/his vulnerable first hours of life (4).

In this presentation, I will focus on the progression of DR management over the past decades and highlight some of the current controversies of DR care. I will present how recent data on the physiology of neonatal transition has helped change the resuscitation guidelines and then give a brief outlook on how insight from latest human and animal trials might alter specific aspects of the DR management of preterm infants (5-8).

References:

Name: David Sweet
Job Title: Consultant Neonatologist
Title Of Talk: The Newborn Lung – Why is it different?

Biographical Sketch:

David Sweet graduated from Queen’s University Belfast in 1990 and trained in Paediatrics and Neonatal Medicine in Northern Ireland and Western Australia. Consultant Neonatologist in the Regional Neonatal Unit in the Royal Maternity Hospital in Belfast since 2003, and Honorary Clinical Lecturer for the Dept of Child Health, Queen’s University since 2007. 28 peer reviewed publications and review articles to date, mostly related to neonatal respiratory care and the evolution of neonatal bronchopulmonary dysplasia. Author of European Guidelines on the Management of RDS and Surfactant Chapter in Bancalari’s most recent edition of “The Newborn Lung”. Northern Ireland Co-ordinator of several multicentre trials and maintains an active interest in Perinatal Research and Evidence-based medicine.

Lecture Abstract:

Effective respiratory care from the first moments of life is a key component of modern neonatal intensive care. Newborn lungs are not just small adult lungs. Initiation of respiration and transition from fetal to adult circulation occurs simultaneously with lung fluid clearance at birth, and interventions need to be geared towards ensuring this process goes smoothly without causing lung injury. Preterm lungs are structurally immature as well as biochemically immature with a paucity of alveolar surfactant and immature antioxidant defences which can potentiate lung injury and inflammation. Prenatal steroids and chorioamnionitis can both have beneficial and potentially harmful effects of the lung that can predispose to the development of bronchopulmonary dysplasia. In this lecture we will discuss some of what is known about what makes the newborn lung particularly vulnerable to injury around the time of birth.
Name: Dr Martin Kluckow
Job Title: Associate Professor in Neonatology at University of Sydney
Senior Staff Specialist in Neonatology at Royal North Shore Hospital
*Neonatal Primate advisor to Taronga Zoo, Sydney

Title Of Talk: Ultrasound for haemodynamic assessment of the neonate

Biographical Sketch:
A/Professor Martin Kluckow is a senior clinician at Royal North Shore Hospital, and Associate Professor at University of Sydney, Australia. With his Sydney based research group, he has led the development of neonatal haemodynamics and point of care ultrasound in the neonatal unit for the past 20 years, publishing over 70 peer reviewed articles. His research has centered around the physiology and transitional circulation of infants born prematurely, the time frame of changes and the relationship of these changes to complications of prematurity. He has particular interests in the PDA, management of hypotension and PPHN and ultrasound training and accreditation. He has advised on the birth of 3 gorillas at Taronga Park Zoo but hasn’t yet had to cannulate or intubate one.

Lecture Abstract:
Clinician performed ultrasound (CPU) by the clinician caring for a sick patient is increasingly utilized in critical care specialties. The real time haemodynamic information obtained helps the clinician to understand underlying physiology, target treatment and refine clinical decision making. Neonatologists are increasingly using ultrasound to assess sick neonates with a range of clinical presentations and demand for training and accreditation programs is increasing. Ultrasound is helpful in managing many of our current dilemmas in Neonatology from the PDA and hypotension in the preterm infant through to sepsis and PPHN in the term infant. Ultrasound can also help in deciding when to wean therapy. Ultrasound assessment is more than just cardiac with the ability to assess flow in peripheral vessels, diagnose intra-thoracic collections, check line positions and assess the neonatal lung. This review discusses the current expanded uses for CPU in the haemodynamic assessment of the sick neonate and will touch on terminology, accreditation and training issues.

References:
1. de Waal KA, Kluckow M. Functional echocardiography; from physiology to treatment. Early Hum Dev 2010;86:149-54.
Name: Susmito Biswas  
Job Title: Consultant Paediatric Ophthalmologist  
Title Of Talk: Seeing The Whole Baby Through Their Eyes

Biographical Sketch:
Appointed consultant in paediatric ophthalmology at the Manchester Royal Eye Hospital in 2002.  
Trained in Ophthalmology at The Manchester Royal Eye Hospital, King’s College Hospital, London and Great Ormond Street Hospital  
Research Fellowship in Genetic Eye Disease – St Mary’s Regional Genetics Laboratory and University of Manchester, and Jules Gonin Hospital & CHUV, Switzerland.  
Leads the regional Retinopathy of Prematurity Service, Greater Manchester  
Ophthalmic lead ROP Governance  
Member of the Royal College of Ophthalmologists ROP Guideline Development Group  
Other interests include Paediatric Retinal and Corneal Diseases

Lecture Abstract:
The ocular fundus is the only part of the Central Nervous system that is able to be directly observed. Derangement of retinal vascular development, after removal of the neonate from the controlled, hypoxic intrauterine environment following premature delivery, is known as Retinopathy of Prematurity. The ability to assess the temporal progress of retinal vascular development provides a unique ability to directly observe the effects of neonatal interventions on the microvasculature and, indirectly, may reflect the on the overall microvascular development of other organs, such as Brain, Kidney, gastrointestinal tract and Lungs.

Our understanding of the pathogenesis of ROP has extended beyond the simple facts that the smallest and most immature neonates exposed to high oxygen1 levels are at greatest risk, to an understanding of the critical periods of oxygen exposure and optimal oxygen saturation targets2; role of post natal weight gain3; circulating growth factors; locally produced growth factors influencing vascular development; role of inflammation and polyunsaturated fatty acids4, glycaemic control5 and haematological function6,7 The improved understanding of the pathogenesis of ROP and its temporal events has enabled new treatment paradigms and potentially new screening programmes to be developed.

References:
Name: Colin Morley
Job Title: Professor
Title Of Talk: Is High Flow the new CPAP?

Biographical Sketch:

Colin Morley was educated at the University of Cambridge and undertook his paediatric training in the UK. He was a Nuffield Research Fellow in Oxford where he developed artificial surfactant treatment for premature babies (ALEC) and then organised randomised controlled trials. He was appointed a University Lecturer / Paediatrician in Cambridge in 1979. In May 1998, he was appointed Professor/Director of Neonatal Medicine at The Royal Women’s Hospital and the Royal Children’s Hospital Melbourne, Australia. He has published over 290 research papers mainly related to improving respiratory support, of which more than 90 are related to neonatal resuscitation. He retired in 2008 but still lectures, supervises research and writes papers.

Lecture Abstract:

CPAP is very effective respiratory support for preterm babies. However, it is difficult to administer and often damaged babies’ noses. I was reluctant to believe HFNC treatment could substitute for CPAP. How could warm humidified gas flowing through small cannulae deliver any CPAP and if it did it would not be the right pressure? With little evidence for efficacy some hospitals started using HFNC claiming it was as effective as CPAP, easier to use, and did not damage noses. I thought they were crazy then I realised they might be on to something new. So I started studying HFNC. Heated humidified HFNC treatment is gas at 37oC and 100% relative humidity delivered through cannulae about half the nostril diameter at >2 L/min. Dysart(1), gave 5 reasons how HFNC might work: 1) Flushes nasopharyngeal deadspace and lowers CO2. 2) Reduces nasopharyngeal resistance and work of breathing. 3) Improves compliance and conductance. 4) Reduces work of gas conditioning. 5) Increases pharyngeal pressure. I realised this was similar to how CPAP works and so perhaps CPAP and HFNC were more similar than different. Studies have shown HFNC pharyngeal pressure is very variable. This is not surprising because will vary depending on the flow, how much the mouth is open, cannula size, and nasal secretions. With the mouth open pharyngeal pressure will be low and if shut the pressure could be dangerously high. With nCPAP, people only consider the pressure applied. What is not appreciated is there is flow of gas through the nose of several L/min, very similar to HFNC. There has been concern about the unknown pressures with HFNC. However, it is often not realised they are also variable and often low pressures with nCPAP, particularly if the mouth is open. Three RCTs have shown that HFNC is as effective as CPAP, particularly post extubation. Trials are needed to investigate HFNC immediately after birth(2-4).

In summary, the way nCPAP and HFNC treatment work may be more similar than initially thought. They both have a high flow of warm humidified gas passing through the nasopharynx, washing out that part of the deadspace and creating an increased pharyngeal pressure.

References:

Name:    Howard Clark
Job Title:  Professor of Child Health
Title Of Talk:  Surfactant past, present and future

Biographical Sketch:

Prof Howard Clark BA MA MB BChir MA MD (Cantab) MA DPhil (Oxon) MRCP MRCPCH is Professor of Child Health and Head of the Academic Department of Child Health at the University of Southampton and Honorary Consultant in Paediatrics (Neonatal Medicine) at the Southampton University Hospitals Trust.

Lecture Abstract:

Lung surfactant therapy was developed in the 1980s and has proven very successful in the treatment of neonatal respiratory distress syndrome. Early artificial surfactants made purely of phospholipids gave way to animal derived formulations which contained surfactant apoproteins B and C which are essential for optimal spreading and surface tension lowering properties of surfactant. A considerable amount of research has been dedicated to the development of new generation artificial surfactants containing recombinant synthetic analogues of SP-B and SP-C and the most recently developed of these appear to have comparable activity to the natural derived surfactants. However in the last 20 years it has emerged that lung surfactant clearly has other functions in the lung, acting as a natural barrier and first line host defence against inhaled particles, microbes and allergens. Next generation surfactants may include formulations containing recombinant surfactant proteins A and D which play an important role in limiting lung inflammation. If such recombinant formulations prove to be effective anti inflammatory agents in man, surfactant therapy could in future be applied to many lung diseases including microbial infections, allergic inflammation, asthma and chronic obstructive pulmonary disease.
Name: Karen Luyt
Job Title: Consultant Senior Lecturer in Neonatal Neuroscience
Title Of Talk: Newborn Genomics: What does the future hold?

Biographical Sketch:
Karen Luyt read medicine in South Africa and specialised in Neonatal Medicine in the UK. She was appointed as Walport Senior Lecturer and Consultant in Neonatal Medicine in 2009 with a research interest in brain injury in high risk infants. She has a clinical academic post, based in the Neonatal Intensive Care unit at St Michael’s Hospital, Bristol.

Her laboratory based research has focused on mechanisms of brain injury and regeneration in the newborn central nervous system. Her translational clinical research concerns genetic susceptibility indicators and MR Imaging biomarkers in the high risk newborn infant groups (preterm infants, term infants with perinatal asphyxia and infants with congenital cardiac disease). She completed a PhD in Neonatal Neuroscience in the MRC Centre for Synaptic Plasticity at the University of Bristol in 2006. She is Principal Investigator for the Neonatal Gene Study; the largest multicentre genetic susceptibility study of preterm brain injury in the UK. This study is ongoing and has recruited 600 infants, linking DNA with functional neurodevelopmental and structural (imaging) outcomes.

Lecture Abstract:
With the vast amount of data on human DNA generated by the Human Genome Project and other genomic research, scientists and clinicians now have more powerful tools to study the role that multiple genetic factors acting together and with the environment play in many complex diseases. Genome-based research is already enabling researchers to develop improved diagnostics and more effective therapeutic strategies. Ultimately, it appears inevitable that treatments will be tailored to a patient’s particular genomic makeup. Thus, the role of genetics in health care is starting to change profoundly and the first examples of the era of genomic medicine are upon us. As health professionals involved in neonatal care we are approaching the dawn of a genomic revolution which brings promise of improved clinical diagnostics, limitless research tools and the inevitable associated ethical issues that we’ll all need to face.
Name: Nicola Jayne Robertson
Job Title: Professor of Perinatal Neuroscience & Honorary Consultant Neonatologist
Title Of Talk: Natural Therapies for Newborn Brain Protection

Biographical Sketch:
Nikki has been a consultant neonatologist at UCH for the last 10 years. She also leads the Preclinical Neonatal Neuroprotection and Neuroscience Research Group at UCL investigating new ways to protect the brain in neonatal encephalopathy. Her team consists of basic neuroscientists, physicists and neonatologists and she focuses on magnetic resonance biomarker development and validation in both her preclinical model and in babies. Her 10 year vision is to develop a balanced therapy of compatible and complementary neuroprotective interventions that can be combined with maximal safety and efficacy; the aim is that this combination can then translate to the clinic to improve neurodevelopmental outcomes after perinatal asphyxia in all settings across the world.

Lecture Abstract:
Neonatal encephalopathy leads to a significant global public health burden, resulting in 50 million disability-life-adjusted years in babies who survive. In high-income countries therapeutic hypothermia is a safe and effective treatment for moderate to severe NE. There are, however, around 40% of treated infants who, despite cooling have an adverse neurodevelopmental outcome. Other treatments are needed to augment cooling or to be used alone in settings without routine therapeutic hypothermia.
I will discuss two new but very promising neuroprotective agents – melatonin (a naturally occurring hormone) and remote ischaemic post conditioning (an intervention which harnesses the body’s own natural neuroprotection pathways)

Melatonin
We have shown that high doses of melatonin given just after hypoxia-ischaemia augment hypothermic neuroprotection (1). Melatonin’s multiple neuroprotective actions, its ability to penetrate the brain and organelles and lack of toxicity in humans and animals makes it a very attractive neuroprotective agent. One of the most important actions of melatonin is its protective role in the mitochondria and in inflammatory sensitised brain injury.

Remote ischaemic Postconditioning (RIPostC) (2)
The early moments of reperfusion after cerebral hypoxia-ischaemia are a highly dynamic period. Postconditioning (PostC) stimulates existing endogenous physiological and molecular brain mechanisms at the time of reflow. PostC is stimulated by interrupting early reperfusion with brief intervals of ischemia and reperfusion (the R/I cycles) repeated several times. Ischemic PostC has been shown to work if applied in the same organ or in a remote organ. We have demonstrated neuroprotection with remote (both lower limbs) IPostC following hypoxia-ischaemia in our perinatal asphyxia model, based on magnetic resonance spectroscopy and reduction in cell death. Our data suggest which pathways are activated by this low tech, simple intervention.

References:
Name: Heather Rutherford
Job Title: Student
Title Of Talk: My Story

Biographical Sketch:

I’m a 25 year old who was born at 26 weeks gestation and as a result of this I developed CP. Despite this I attended main stream school, where I achieved my Silver and Gold DOE award and also gained the qualifications to gain entry into Wolverhampton University.
At present I am training to become a counsellor and also have two voluntary jobs. One with Mentor Link where I give students one to one help and support, the other with Youth Offending Service helping young people to revert from crime.
In 2008 I started showing pugs this soon became a hobby which I thoroughly enjoy. I have competed and gained awards at Crufts for the last five years.

Lecture Abstract:

I will be talking about how being born at 26 week gestation has affected mine and other people’s lives. I will give an insight into both positives and negatives influences that have impacted upon my life.
Name: John Watson
Job Title: Managing Director
Title Of Talk: SCBU ‘95 – ‘Baby’s Doing Nicely’

Biographical Sketch:

• Born – Newcastle on Tyne
• 25 Year’s Service with Royal Air Force
• IT Executive
• Regional Account Director (Asia-Pacific)
• Managing Director – own business

Lecture Abstract:

• How it was in the beginning
• Text Book Prem
• The Team
• Narrow Escapes
• Challenges and Wins
• Where we are now

References:

Personal Experience
Shared Journey with Sallie
**Name:** Kate Costeloe  
**Job Title:** Professor of Paediatrics  
**Title Of Talk:** Improving long term outcomes

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**Biographical Sketch:**

Kate Costeloe is Professor of Paediatrics at Barts and the London School of Medicine and Dentistry, and Honorary Consultant at Homerton University Hospital in Hackney, London, UK. She was Principal Investigator for the Perinatal Component of the EPICure studies of population based outcomes following extremely preterm birth in the UK and Chief Investigator for the PiPS multi-centre trial of Bifidobacterium breve BBG-001 to prevent sepsis and necrotising enterocolitis.

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**Lecture Abstract:**

The survival of preterm infants has improved steadily with the increasing availability of neonatal intensive care over the last forty years. However the proportion of survivors with impairments has remained high and is remarkably similar across different populations despite different survival rates. During childhood and adolescence the most frequent problems are those related to central nervous system injury resulting in learning, behavioural and motor disorders. The origin of these rests in a range of genetic, developmental, hypoxic-ischaemic and inflammatory factors the relative contribution of each often being poorly understood.

Studies of the long term burden of respiratory and circulatory morbidity in relation to decreasing gestation at birth are as yet limited and will be important as the current population based cohorts of preterm survivors grow into adulthood.

Strategies to reduce rates of preterm birth in developed countries have been unsuccessful and in a number of countries, including the UK, rates have risen in recent years. Similarly interventions that limit long term morbidity after the causative early insult have had little success, thus the urgency to identify interventions that prevent damage in the perinatal and neonatal periods. There have been huge successes such as the development of surfactant replacement therapies but also there have been frustrating experiences with the completion in recent years of a number of large and costly randomised controlled trials with negative outcomes. The availability of modern laboratory techniques, molecular technologies and safe methods of imaging are driving an explosion of understanding of the biological processes underpinning perinatal pathologies. This is essential to the development of biologically plausible interventions to take forward for testing in clinical trials. While the double blind randomised controlled trial remains the gold standard for evaluating interventions it is inconceivable that every therapeutic modification can be tested in this way. The completeness and accuracy of routinely collected electronic clinical data steadily improves. This rich data source should be harnessed, not only to support clinical trials, but as a source of data for observational studies to assess interventions and for hypothesis generation.
Name: Ian Laing
Job Title: Consultant neonatologist
Title Of Talk: Evolving Ethics of Neonatal Care

Biographical Sketch:
For 22 years, Dr Laing was lead Consultant Neonatologist in the Simpson Centre for Reproductive Health, Edinburgh. He was also Clinical Lead for the Neonatal Managed Clinical Network for the last three years of his career. He now plays the violin, takes photographs and goes for long walks in the ever-present Scottish sunshine.

Lecture Abstract:
For 22 years, Dr Laing was lead Consultant Neonatologist in the Simpson Centre for Reproductive Health, Edinburgh. He was also Clinical Lead for the Neonatal Managed Clinical Network for the last three years of his career. He now plays the violin, takes photographs and goes for long walks in the ever-present Scottish sunshine.

Lecture Abstract: The last thirty years have seen dramatic changes in the Ethics of Newborn Care in the United Kingdom. In the early 1980s there were landmark legal findings which changed the approach to the invasive management of children with Down Syndrome. Ethics and the Law do not always progress at a similar speed, and neither may provide clinicians with ready solutions to individual clinical problems. The days of complete paternalism and complete autonomy are behind us, so how do we address ethical issues in the 21st century? We cannot always know what is best for our patients. All professionals involved in care of the newborn should recognise that we are working with probabilities and not certainties. Euthanasia is illegal in the United Kingdom today, but, given the experience in Netherlands and Belgium, it is probable that the subject will be visited and revisited in the next twenty years. It is healthy that retired clinicians remember their undoubted mistakes rather than their perceived successes.

References:
4) Laing IA, Freer Y. Reorientation of care in the NICU. Semin Fetal Neonatal Med 2008 13(5) 305-9
5) Laing IA, Piyasena C. Analgesics, sedatives and neuromuscular blockers as part of end-of-life decisions in Dutch NICUs. Arch Dis Child Fetal Neonatal Ed. 2010 Sep;95(5):F385.
**Name:** Eugene Dempsey  
**Job Title:** Consultant Neonatologist  
**Title Of Talk:** Delivering an evidence based approach to blood pressure support

**Biographical Sketch:**

Dr. Dempsey is a Consultant Neonatologist in the Cork University Maternity Hospital and Clinical Professor of Paediatrics, University College Cork. He qualified from University College Cork, and completed subspeciality training in Neonatology at McGill University, Montreal. He is the Chief investigator for the HIP trial (Management of hypotension in the preterm infant), an FP7 funded project including centres from around Ireland, UK, Europe and North America. Dr. Dempsey is a Principal Investigator for Science Foundation Ireland and is a member of the Infant Centre at University College Cork, which has facilitated the development of strong multidisciplinary links with neurophysiology, engineering, computing and business informatics, all of whom are collaborating on a number of ongoing research projects, the theme of which involves improving outcome for the preterm infant.

**Lecture Abstract:**

A very large proportion of preterm infants continue to receive intervention for hypotension in the immediate transitional period. A number of international surveys(1-3) highlight the continued reliance on mean blood pressure values to guide intervention, despite a lack of good quality evidence to support this intervention criterion(4). Whilst a blood pressure based approach to the diagnosis and management of hypotension remains the current standard. Other methods of assessment of cardiovascular wellbeing continue to be evaluated including point of care functional echocardiography, near infrared spectroscopy and more recently methods of non-invasive cardiac output monitoring. The most common intervention is volume administration followed by dopamine therapy(1, 2) and whilst dopamine is one of the most studied drugs in this population of infants (19 randomised controlled trials to date), none have been adequately powered to address clinically relevant end points. A recent feasibility study highlighted some of the potential problems in conducting trials in this area (5). However, a number of trials are now underway (HIP, NEOCIRC, TOHOP) and will hopefully provide clinicians with a greater understanding of the diagnosis and treatment of hypotension in the preterm infant during neonatal transition.

**References:**

Name: Merran Thomson  
Job Title: Consultant Neonatologist  
Title Of Talk: Service provision past, present and future

Biographical Sketch:
I became a Consultant Neonatologist in 1994, and along with my clinical work I’ve been fortunate to have had the opportunity to gain experience in many aspects of neonatal care, the wider NHS, and in healthcare and research settings in high, middle and low income countries.

Lecture Abstract:
In this session I will discuss how the UK model of neonatal care developed from “adhoc provision” in the 1970’s and 1980’s to managed clinical networks and latterly operational delivery networks and then speculate where we might end up. 
I will highlight some the positive and negative influences, developments and policies which have shaped neonatal services and the challenges we face in providing high quality, safe, affordable baby and family centred neonatal services. 
Success will depend on whether we (the large multidisciplinary team of healthcare professionals essential for high quality neonatal care), can work collaboratively with parents, provider institutions, commissioners, regulators, educationalists, politicians, the public and media to break down the many boundaries and barriers that still hinder our ability to deliver the best possible and most appropriate care to newborn babies.
Name: Roger F. Soll  
Job Title: H. Wallace Professor of Neonatology  
Title Of Talk: Quality Improvement in Neonatal Care  

Biographical Sketch:

Dr. Soll received his M.D. degree from the University of Health Sciences/Chicago Medical School in 1978 and completed his residency training in Pediatrics at Bellevue Hospital/New York University Medical Center in 1981. After 2 years with the Public Health Service, Dr. Soll returned to academic training and completed the postgraduate fellowship in Neonatal Perinatal Medicine at the University of Vermont in 1983. Currently, Dr. Soll is H. Wallace Professor of Neonatology at the Department of Pediatrics of the University of Vermont College of Medicine. He co-founded the Vermont Oxford Network and is the Coordinating Editor of the Neonatal Collaborative Review Group. His research interests include the design and conduct of clinical trials aimed at improving clinical practice and health outcomes and developing better methods for synthesizing and integrating trial evidence with other information for improved clinical decision making.

Lecture Abstract:

Quality Improvement Initiatives in Neonatal Intensive Care
Large collaborative networks have evolved in neonatal-perinatal medicine worldwide. These large databases have shown one thing very clearly; there is extreme variation in both our practice and our outcomes. (1,2) This variation in outcome may in part be due to case mix, the severity of illness of our patients, or random chance – that difficult stretch of weeks or months where nothing seems to go right. However, what remains after we adjust for such factors quite possibly is our effectiveness of care. Sources of variation may include our practices, processes, staffing and organizational structure and culture. Quality improvement allows us a way forward in making efforts to minimize this variation and to see the entire of neonatal-perinatal medicine move forward.

Quality improvement is quantitatively different from clinical research. (3) Unlike research, quality improvement seeks to implement current evidence or knowledge and is usually based on a series of small observational tests used to evaluate whether or not an improved outcome has been achieved. Quality improvement begins with data; data to inform you how your unit is performing compared with other units and how your unit is performing over time. However, data is clearly not enough. A collaborative team is needed that has the training, skills and resources to move the quality agenda forward.

There are many examples of collaborative quality improvement work in neonatal perinatal medicine. (4) The discussion below focuses on the efforts of the Vermont Oxford Network (VON), a voluntary collaboration of neonatal intensive care units dedicated to improving the quality and safety of medical care for newborn infants and their families through a coordinated program of research, education and quality improvement. (5) The Vermont Oxford Network’s first formal quality-improvement project, the NIC/Q Project, brought together ten NICUs to apply the methods of collaborative improvement and benchmarking to neonatal intensive care. These units were able to demonstrate decreased rates of coagulase-negative staphylococcal infection and chronic lung disease as well as decreased costs of care. (6,7)

Building on the lessons learned in that initial project, the Vermont Oxford Network now has conducting multiple quality collaboratives, using both formal meetings, virtual hospital visits and internet educational sessions. (5) Hundreds of VON member NICUs have participated in one or more of these efforts. Through the past decade, nosocomial infection rates have dropped. The rate for best performers at the beginning of the decade would equal the rate for the worst performers in 2012. Using only available information and existing processes, tremendous strides have been made. Some have argued that hospital acquired infection should never occur, but it certainly is reasonable to think that we can all perform as well as the top 25% of neonatal units. Why should this not be the case for all neonatal outcomes? Work from collaborative quality improvement has been successful in reducing the rate of infection and chronic lung disease. Ultimately,
all untoward outcomes of our neonates should be addressed through this quality process and a commitment should be made towards achieving our current best outcomes.

References:


