Meningitis: Five Key Questions Beyond 2020

'Future Prevention Strategies for Meningitis'

Monday 23rd November 2020, 14.00-17.00 GMT

Approved for 3 CPD credits by RCP (Code: 133155)

Agenda:

14.00-14.05 Welcome and introduction. Vinny Smith, Meningitis Research Foundation

14.05-15.35 How should we protect babies against GBS now and in the future? Chair: Prof Paul Heath, St George's University of London

GBS is estimated to kill 90,000 babies and could be responsible for as many as 3.5 million preterm births and 60,000 stillbirths around the world every year, but no vaccine is available to prevent it. What are the prospects for a vaccine, and what strategies should be used meanwhile to protect mothers and babies against GBS?

14.05-14.20 Testing vs risk-based antibiotic prophylaxis in pregnancy: where are we at? **Dr Kate Walker, University of Nottingham**

14.20-14.35 Rapid GBS testing for women in labour. **Prof Jane Daniels, University of Nottingham**

14.35-14.50 What expectant parents want. **Jane Plumb, Group B Strep Support**

14.50-15.05 Update on progress towards a GBS vaccine and pathway to licensure. **Prof Kirsty Le Doare, SGUL**

15.05-15.20 Impact of GBS on long-term cognitive outcomes. **Prof Joy Lawn, LSHTM**

15.20-15.35 Q&A

15.35-17.00 - What strategies will help to control the rise of non-vaccine-preventable pneumococcal disease and pneumococcal meningitis. Chair: Prof Adam Finn, University of Bristol

There has been tremendous progress in preventing pneumococcal disease around the world - as of June 2020, 146 countries had introduced pneumococcal conjugate vaccine (PCV) into their national immunisation programmes. But in some countries that were early adopters of PCV, the number of non-vaccine-preventable pneumococcal cases is of concern. In older adults in the UK, for example,

levels are nearly as high as we saw with vaccine preventable strains before vaccines were introduced.

15.35-15.55 Impact of PCV on invasive pneumococcal disease across the age spectrum in 10 EU countries. **Dr Germaine Hanquet, EpiConcept, Brussels**

15.55- 16.10 Maximising the potential of PCV through smart scheduling. **Dr Shamez Ladhani, PHE**

16.10-16.35 Next generation pneumococcal conjugate vaccines **Dr Mark Alderson, PATH**, and Alternative approaches to pneumococcal prevention: progress and the protein vaccine graveyard **Dr Richard Malley, Harvard Medical School**

16.35-17.00 Q&A

Speaker and Chair biographies:

Professor Paul Heath is a Professor and Honorary Consultant in Paediatric Infectious Diseases at St George's University Hospitals NHS Foundation Trust and St George's, University of London, where he co-leads the Paediatric Infectious Diseases Research Group and is the Director of the Vaccine Institute. His training in paediatrics and infectious diseases was at the Royal Children's Hospital, Melbourne, Australia, the John Radcliffe Hospital, Oxford and St George's Hospital, London. His particular research interests are in the epidemiology of vaccine preventable diseases, in clinical vaccine trials, particularly in at-risk groups and in perinatal infections, and he has over 220 publications in these areas. He coordinates a European neonatal infection surveillance network (neonIN: https://www.neonin.org.uk) and the UK Paediatric Vaccine Group (UKPVG), and other recent work includes national surveillance on neonatal meningitis, neonatal GBS and Listeria infections, maternal immunisation trials and studies of different vaccine schedules in preterm infants. He sits on national UK committees concerned with meningitis, Group B streptococcus prevention and immunisation policies in children. He is Chair of the Research Committee of the European Society of Paediatric Infectious Diseases, Associate Chief Editor of the Pediatric Infectious Diseases Journal, Clinical Lead for Children's research for South London CRN and member of the Global Alignment of Immunisation safety Assessment in pregnancy (GAIA) Executive Committee.

Dr Kate Walker is a Clinical Associate Professor in Obstetrics at the University of Nottingham, UK. She divides her time equally between clinical work and research. She completed her PhD in 2016 and during her PhD conducted a randomised controlled trial of induction of labour at 39 weeks versus expectant management for women over 35 years of age – the "35/39 trial", published in the NEJM in 2016. Her research work focuses on randomised controlled trials in obstetrics and neonatology. She is the Clinical Chief Investigator for an NIHR HTA funded cluster randomised trial to determine the clinical and cost-effectiveness of testing for Group B Streptococcus (GBS) in late pregnancy (the "GBS3 trial"). This is the first RCT of routine GBS screening in the world.

Professor Jane Daniels early career was in molecular immunology, including identification of virulence genes in Group B strep. She left the laboratory in 1998 and became a trial coordinator in the newly created Birmingham Clinical Trials Unit (BCTU). As an experienced academic trialist, she established the Birmingham Clinical Trials Unit as the leading trials unit for women' health research in the UK. In 2017, Jane moved to become Professor of Clinical Trials and Deputy Director of the Nottingham Clinical Trials Unit, where she seeks to continue to develop her portfolio of research in women's health and complement this with trials in new clinical areas. She undertakes translational and definitive randomised controlled trials and test evaluation studies, and complements this primary research with systematic reviews and meta-analyses. Her portfolio of research is principally in women's health, and she is particularly interested in the prevention of neonatal sepsis. She has worked on test accuracy studies for Group B Streptococcus, investigation of testing in high risk women and is now chief investigator for GBS3, a massive cluster randomised trial looking at the effectiveness of universal testing for GBS.

Jane Plumb co-founded Group B Strep Support with her husband Robert in 1996 after their middle child died from group B Strep infection. She is its Chief Executive. Group B Strep Support (GBSS) is the world's leading charity working to eradicate group B Strep infection in babies. They educate the public, doctors and midwives about group B Strep and provide information and support to affected families. Jane is Vice Chair of the Royal College of Obstetricians and Gynaecologists' Women's Network. She is a member of the World Health Organization's Extended Technical Taskforce on Defeating Meningitis By 2030 and contributed to the WHO's Roadmap to Defeat Meningitis by 2030. She is the Europe Africa Regional Leader for the Confederation of Meningitis Organisations. From 2017-18 Jane sat on the International Symposium on Streptococcus Agalactiae Disease Conference Scientific Organising Committee and led the Advocacy Stream. Jane was a member of the Department of Health's priority setting workshops for group B Strep research in 2015/6. Jane has sat on National Institute of Health & Care Excellence guideline development committees, including for Preterm Labour and Birth, and Antibiotics for Neonatal Infection. Jane was awarded an MBE in 2012 for services to child healthcare. Jane says: "Group B Strep Support works to prevent as many of group B Strep infections in babies as possible, by improving knowledge and awareness among health professionals and families; to support families affected by group B Strep; to improve national policies and practices aimed at preventing and treating group B Strep infection in babies; and to support research into better prevention and treatment."

Professor Kirsty Le Doare is a Professor of Vaccinology and Immunology at St George's. She was recently awarded a UKRI Future Leaders Fellowship to develop a maternal vaccination platform in Uganda. The work of her group aims to understand what it is that makes babies sick with sepsis and meningitis in the first months of life. Then she wants to understand whether there are things in the mothers' immune systems that can be transferred, whether via blood or breast milk, that might stop babies getting those infections. The idea is to investigate whether developing vaccines for women when they are pregnant, against Group B streptococcus and pertussis (and other bugs) could boost this natural immunity and result in babies that aren't infected with these diseases any more.

Professor Joy Lawn (BMedSci, MB BS, MPH, PhD, FRCPCH, FMedSci) Joy is an African-born, British-trained paediatrician and perinatal epidemiologist with ~30 years of experience including clinical care, epidemiological burden estimates, and design/evaluation of maternal, newborn and child care services at scale, especially in sub-Saharan Africa. Her medical degree and paediatric training were in the UK, followed by teaching, implementation and research, mainly living in Africa, including a decade for Save the Children. Her MPH was at Emory, Atlanta, USA, whilst at CDC, and her PhD at Institute of Child Health, London. Her main contribution has been in developing the evidence-base to measure and reduce the global burden of 2.5 million neonatal deaths, 2.6 million third trimester stillbirths, and 15 million preterm births, as well as coordinating the first estimates of the burden of Group B Streptococcus. She has published >280 peer reviewed papers including several Lancet series. She is currently Professor of Epidemiology, at the London School of Hygiene & Tropical Medicine and Director of Maternal, Adolescent, Reproductive & Child Health (MARCH) centre including several hundred academics from multiple disciplines organised around three research themes: Adolescents, Births, and Child health and development. She leads a research team working on newborn health, stillbirths and child development around the world, including being part of the ambitious NEST360 hospital newborn care scale up across four African countries. She is the School's Aurora Women's Leadership Champion, and committed to gender quality and diversity, with a focus on next generation leadership, especially in Africa. @joylawn

Professor Adam Finn is Professor of Paediatrics at the University of Bristol, UK. He studied Medical Sciences at Cambridge University and then moved to University of Oxford Medical School to complete his clinical degree in 1983. After qualifying he did training jobs in paediatrics in Sheffield, Bristol and Guy's Hospital London before taking up a fellowship in Infectious Diseases at the Children's Hospital of Philadelphia in 1987. He completed his academic training as Lecturer in Immunology at the Institute of Child Health, Great Ormond St, London where he wrote his PhD. In 1992, he took up a senior lecturer position at the University of Sheffield, UK. Over the following 9 years he established both clinical and laboratory research groups there, focussing on mucosal immune responses to paediatric conjugate vaccines and the pathogenesis of upper and lower respiratory tract pneumococcal infection. In 2001, he moved to Bristol where he is now Theme Leader for Infection & Immunity, University of Bristol and Clinical Research Lead - Children, Dermatology, Genetics, Haematology, Infectious Diseases and Microbiology, Reproductive Health and Childbirth for the NIHR Clinical Research Network: West of England. He is also a senior clinician in the paediatric immunology and infectious diseases clinical service for at Bristol Royal Hospital for Children and the South West region and heads the Bristol Children's Vaccine Centre. In addition, he became Chairman of the WHO European Technical Advisory Group of Experts (ETAGE) on Immunization in December 2011 and *ex officio* member of the WHO Strategic Advisory Group of Experts, Member of the UK Department of Health Joint Committee on Vaccination and Immunisation (JCVI) since October 2014. He was President of the European Society for Paediatric Infectious Diseases (ESPID) from 2015 to 2019. His research interests are elucidation of the nature of naturally acquired mucosal immunity to pneumococcus, meningococcus and other respiratory bacteria, the determinants of bacterial transmission and vaccine indirect effects and development of tools to assess human immune responses to candidate vaccine antigens. He also leads and supports numerous clinical trials of drugs and medicines in children. Most recently, he took on the role of leading the Bristol COVID Emergency Research Group (UNCOVER) – a group of researchers united in their efforts to understand and combat the many health and societal challenges raised by COVID-19. Bristol UNCOVER includes clinicians, immunologists, virologists, synthetic biologists, aerosol scientists, epidemiologists and mathematical modellers and has links to behavioural and social scientists, ethicists and lawyers.

Dr Germaine Hanquet from Belgium, is a medical doctor specialised in epidemiology at the Harvard school of public health and she holds a PhD degree on methods in vaccinology and PCV in particular. She is active in the field of vaccine-preventable disease since 1987. After 13 years with Médecins Sans Frontières around the world, she joined the Belgian Institute of Public Health (2005-08). Since 2008, she works on vaccine-related studies for different agencies: the Belgian Health Technology Assessment Agency (KCE), EpiConcept on PCV-related ECDC projects, for the European Medicine Agency (EMA) as external clinical assessor and for other EC projects. One of her focus since 2005 is the evaluation of the effects of pneumococcal vaccines at the national and European level, and she participated to the coordination of SpIDnet and I-MOVE+ since its start (2012-2019).

Dr Shamez Ladhani is a paediatric infectious diseases consultant at St. George's Hospital, senior lecturer at St. George's University of London and consultant epidemiologist at Public Health England. He is the clinical lead for a number of national vaccine preventable infections, including Haemophilus influenzae type b (Hib), Streptococcus pneumoniae and Neisseria meningitidis, which are all major causes of childhood bacterial meningitis. He completed his medical training at Guy's and St. Thomas's Hospitals, London, and then worked in a children's hospital in rural Kenya. Upon returning to London, he obtained his PhD in genetic epidemiology and vaccine failure in children and completed his specialist paediatric infectious diseases training at St. George's and Great Ormond Street Hospitals, London. He is currently responsible for the national evaluation of the meningococcal group B vaccine, Bexsero®, in the national infant immunisation programme and the meningococcal ACWY conjugate vaccination programme for teenagers. His main research interests include vaccine-preventable infectious diseases and he has published extensively in this fields.

Dr Mark Alderson is the Bacterial Vaccine Initiative Leader with PATH's Center for Vaccine Innovation and Access, playing a lead role in the Pneumococcal Vaccine Project (PVP), Group B Streptococcal (GBS) Vaccine Project and Meningococcal Vaccine Project, Polyvalent (MVPP). These projects seek to accelerate the development and licensure of promising pneumococcal, GBS and meningococcal vaccines and ensure their availability and use in developing countries. Dr. Alderson has more than 30 years of experience in medical research, biotechnology, pharmaceuticals and vaccine development. He joined PATH in August, 2006, serving initially as PVP Scientific Director until his appointment as PVP Director in July, 2007. He was appointed MVPP director in 2012 and GBS Vaccine Project Director in 2016. Prior to joining PATH, Dr. Alderson was Director of Immunology at GlaxoSmithKline Biologicals, Seattle, where he led preclinical work on synthetic adjuvants for a variety of vaccine targets. Prior to GSK, he was Senior Director of Immunology at Corixa Corporation where he was responsible for the preclinical discovery and evaluation of adjuvants and vaccines for tuberculosis, Chlamydia and HSV. Dr. Alderson has extensive experience in vaccine development and has published over 80 manuscripts in peer reviewed journals. He served as an Affiliate Associate Professor, Department of Pathobiology at the University of Washington from 2002 until 2006. Dr. Alderson earned his PhD in immunology at the Walter and Eliza Hall Institute of Medical Research in Melbourne, Australia and his MBA at Seattle University.

Dr Richard Malley received his B.A. from Yale University, his M.D. from Tufts University in 1990, and pediatric infectious diseases and emergency medicine training at Boston Children's Hospital. In 1997, a chance meeting with Dr. Porter Anderson (one of the co-inventors of the *Haemophilus influenzae* type b conjugate vaccine) led to his interest in the development of a species-specific pneumococcal vaccine for use in developing countries and vaccinology in general. Under Dr. Anderson's mentorship, he shifted his research to the development of novel vaccines against pneumococcus and other pathogens, leading to numerous scientific publications describing various aspects of pneumococcal pathogenesis and prevention, such as acquired and innate immunity, correlates of protection, and mechanisms of protection from nasopharyngeal colonization. Dr. Malley is the Kenneth McIntosh Chair in Pediatric Infectious Diseases at Boston Children's Hospital and Professor of Pediatrics at Harvard Medical School. Dr. Malley regularly attends on the Pediatric Infectious Diseases service at Boston Children's Hospital, providing consultation on inpatients. Dr. Malley runs a research laboratory with past and present funding from the Meningitis Research Foundation, NIH, PATH and the Bill and Melinda Gates Foundation (BMGF), focusing on vaccine development for pneumococcus, *Staphylococcus aureus*, Salmonella *typhi* and *paratyphi*, and *Mycobacterium tuberculosis* and more recently SARS-CoV-2. In collaboration with PATH and the BMGF, Dr. Malley led an international effort for the development of a pneumococcal vaccine for developing countries. In 2014, Dr. Malley and collaborators started Affinivax, a biotechnology company seed-funded by BMGF and based on a novel technology called MAPS (Multiple Antigen Presenting System) to develop vaccines for developing countries. *Streptococcus pneumoniae* is the lead target being developed at Affinivax. A pneumococcal MAPS vaccine is currently in Phase 2 clinical testing in older adults.

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