

Early Intervention and Diagnosis in Paediatric Neurodevelopment Defects in Brazil, 29-30 November, Rio de Janeiro, Brazil

Introduction

The trend in childhood disability has shifted over recent decades from physical and medical conditions to neurodevelopmental and behavioural disorders. Although long-term trends in paediatric neurodevelopment disorders have been difficult to track, it is widely believed that the prevalence of children with neurodevelopmental disorders, particularly autism and ADHD, is increasing¹.

Neurodevelopment is a very complex process and disorders arise from a multitude of genetic, environmental and sociocultural factors. Thus, diagnostics and interventions are likely to vary between countries where demographics, health services and social culture all differ. The global burden of neurological disorders is underestimated and large numbers of children are now displaying neurodevelopmental disabilities².

However, research and medical progression in the field of paediatric disability is lagging and neurological services and resources are disproportionately scarce particularly in low- and middle-income countries.

The main objective of this workshop is to consider the burden of neurodevelopmental defects in children in Brazil, discuss strategies for early intervention programmes and to address the challenges facing the translation of research into paediatric healthcare.

The workshop will bring together experts across Brazil, the UK and other countries to better understand the epidemiology, genetics and nature of neurodevelopment disorders in Brazil along with the latest evidence on brain neuroplasticity bringing together both human and animal models as well as basic and clinical science. The workshop will also investigate research and the future in the post-zika era in Brazil as well as current public health policies to cope with paediatric neurodevelopment defects.

Following the workshop, a written report will be produced and disseminated to UK and Brazilian stakeholders with key recommendations of next steps in addressing the diagnosis and early intervention of paediatric neurodevelopmental disorders in Brazil.

¹ America's Children and the Environment, Third Edition. U.S. Environmental Protection Agency, Washington, D.C., 2013

² Neurological Disorders: Public Health Challenges, World Health Organisation, Geneva, 2006

Day 1: Epidemiology, genetics and brain neuroplasticity

08:30-09:00	Registration
09:00-09:15	Chairs' welcome and introductions <i>Meeting co-chairs: Professor Maria Elisabeth Lopes Moreira and Professor David Edwards FMedSci</i>
09:15-11:10	Session 1: Understanding the epidemiology, genetics and nature of neurodevelopment disorders <i>Chair: Dr Juan Llerena</i> This session will aim to gain an understanding of the epidemiology, genetics and nature of the problem within the context of neurodevelopmental disorders in Brazil and South America more broadly. It will also provide context for the following sessions over the course of the workshop. <i>Speakers:</i> <ul style="list-style-type: none"> • Burden estimation and life course epidemiology <i>Dr Cally Tann</i> • Genetic and Molecular Aspects of Neurodevelopment Defects <i>Professor Iscia Lopes-Cendes</i> • Acquired brain injury, neonatal outcomes and follow-up care <i>Professor Neil Marlow FMedSci</i> • Developmental disorders: assessment and interventions <i>Dr Melissa Gladstone</i> Q&A (30 mins)
11:10-11:25	Break
11:25-12:25	Breakout Session 1 <i>Chair: Professor Neil Marlow FMedSci</i> <i>Group Facilitators: Professor Hannah Kuper, Professor Stevens Rehen and Dr Alex Paciorkowski</i> This session will give participants the opportunity to further discuss some of the issues raised in the opening session, focusing on identifying the nature of the problem, the size of the problem and what is known and unknown. Using this as the basis, through small group work, participants will develop research solutions to address these issues.
12:25-13:10	Feedback from breakout groups Each breakout group lead will report back to the rest of the participants on the responses to these questions in 10 minutes. This will be followed by 15 minutes of discussions and responses from the rest of the participants and the panel of speakers.
13:10-14:10	LUNCH
14:10-15:55	Session 2: Brain neuroplasticity and next steps <i>Chair: Professor Paulo Niemeyer Filho</i>

	<p>This session will focus on brain neuroplasticity and aim to bring together both human and animal models as well as basic and clinical science. Speakers will cover the importance of early intervention in perinatal and childhood brain disorders and strategies for early intervention programmes for neurostimulation.</p> <p><i>Speakers:</i></p> <ul style="list-style-type: none"> • Development and plasticity of early brain circuits <i>Dr Patricia Garcez</i> • Imaging brain connectivity and plasticity <i>Dr Fernanda Tovar Moll</i> • Neurogenetics of developmental disorders <i>Dr Alexander Paciorkowski</i> • Hypothermic neural rescue – Proof of concept <i>Professor David Edwards FMedSci</i> • Q&A (30 mins)
15:55-16:10	Break
16:10-17:10	<p>Breakout Session 2</p> <p><i>Chair: Dr Fernando Kok</i></p> <p><i>Facilitators: Professor Neil Marlow FMedSci, Dr Melissa Gladstone and Dr Cally Tan</i></p> <p>This session will aim to give all participants the opportunity to discuss the evidence base in brain neuroplasticity in more detail and what lessons might be learned in the area.</p>
17:10-17:55	<p>Feedback from breakout groups</p> <p>Each breakout group lead will report back to the rest of the participants on the responses to these questions in 10 minutes. This will be followed by 15 minutes of discussions and responses from the rest of the participants and the panel of speakers.</p>
17:55-18:10	<p>Daily Wrap Up</p> <p><i>Meeting co-chairs: Professor Maria Elisabeth Lopes Moreira and Professor David Edwards FMedSci</i></p>
18:10-19:10	Break before dinner
19:10	DINNER

Day 2: Paediatric research post-zika

09:00-09:05	<p>Welcome</p> <p><i>Meeting co-chairs: Professor Maria Elisabeth Lopes Moreira and Professor David Edwards FMedSci</i></p>
09:05-10:40	<p>Session 3: Research and the future in the post-zika era</p> <p><i>Chair: Professor Maria Elisabeth Lopes Moreira</i></p>

	<p>This session will look at what the research landscape looks like post-zika, with a focus on the challenges for the production of knowledge in translational research in paediatrics, the lessons we can learn from the zika outbreak and ethical issues in paediatric research.</p> <p>Speakers:</p> <ul style="list-style-type: none"> • Infectious diseases impairing neurodevelopment <i>Dr Karin Nielsen-Saines</i> • Zika and microcephaly <i>Dr Patricia da Silva Souza</i> • "Impact of in utero Zika Virus infection on vision development" <i>Dr Andrea Zin</i> • Autism and Neurocognitive Disorders <i>Dr Lynn K. Paul</i> • Q&A (20 mins)
10:40-11:00	Break
11:00-12:00	<p>Breakout Session 3 <i>Chair: Professor Jerson Lima</i> <i>Facilitators: Dr Albert Ko, Dr Fernando Bozza and Dr Rubens Belfort</i></p> <p>This session will aim to give all participants the opportunity to discuss the future of research in Brazil in more detail post-zika and what lessons might be learned.</p>
12:00-12:45	<p>Feedback from breakout groups</p> <p>Each breakout group lead will report back to the rest of the participants on the responses to these questions in 10 minutes. This will be followed by 15 minutes of discussions and responses from the rest of the participants.</p>
12:45-13:45	Lunch
13:45-15:30	<p>Public Health Policies to cope with paediatric neurodevelopment defects <i>Chair: Dr Sergio Novis</i></p> <p>This session will aim to discuss key conclusions and the implications for policy in Brazil. It will include reflections from the Brazilian Ministry of Health and other participants.</p> <p style="text-align: center;">Effects of Breast feeding on the Building of Human Capital <i>Dr Bernardo Horta</i></p> <p style="text-align: center;">Strengthening public health interventions <i>Professor Hannah Kuper</i></p> <p style="text-align: center;">The social impact of the post Zika syndrome <i>Dr Nísia Trindade, President, Institute Oswaldo Cruz</i></p>

	<p>Problems and perspectives: the role of the Ministry of Health <i>Dr Thereza de Lamare Franco Netto, Brazilian Ministry of Health</i></p> <p><i>Q&A (30 mins)</i></p>
15:30-16:00	<p>Closing Lecture <i>Giving Visibility To Invisible Children</i> <i>Chair: Dr Rubens Belfort</i></p> <p><i>Speaker: Professor Maria Elisabeth Lopes Moreira</i></p>
16:00	End

Steering committee

Co-chairs

- Professor Maria Elisabeth Lopes Moreira, Senior Pediatrics Researcher and Professor of Neonatal Growth and Nutrition, National Institute of Women's Health (Brazil)
- Professor David Edwards FMedSci, Chair in Paediatrics and Neonatal Medicine, Kings College London (UK)

Members

- Dr Ana Maria Magalhães Costa, Medical Doctor, National Institute of Women, Children and Adolescents Health
- Dr Andrea Zin, Paediatric Ophthalmologist, Fernandes Figueira Institute
- Dr Fernanda Tovar Moll, Assistant Professor, Federal University of Rio de Janeiro and Vice-President, D'Or Research and Teaching Institute
- Dr Melissa Gladstone, Senior Lecturer in Paediatric Neurodisability, University of Liverpool