

9th International Conference on  
**TYPHOID AND INVASIVE  
 ENTERIC DISEASE** 4/30–5/3, 2015

Thursday, April 30<sup>th</sup>, 2015

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| 6:00 pm – 7:00 pm | <b>Welcome reception</b>   |
| 7:00 pm – 7:05 pm | <i>Overview of conference agenda and meeting objectives</i><br>Brian Davis, Sabin Vaccine Institute, United States   |
| 7:05 pm – 7:10 pm | <i>Opening remarks</i><br>Anita Zaidi, Bill & Melinda Gates Foundation, United States  |
| 7:10 pm – 7:15 pm | <i>Welcome address</i><br>Mohammad Subuh, MPPM, Director General CDC, Indonesia  |
| 7:15 pm – 7:30 pm | <i>Salmonellosis: an Indonesian perspective</i><br>Pretty Multihartina, Director of Center for Biomedical and Basic Technology of Health, NIHRD, Indonesia |
| 7:30 pm – 8:30 pm | <b>Buffet dinner</b>   |

Friday, May 1<sup>st</sup>, 2015

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| 8:00 am – 9:30 am   | <b>Symposium</b><br><i>Epidemiology of Enteric Fever</i><br><br><u>Moderator:</u> Eric Mintz, US Centers for Disease Control and Prevention   |
| 8:00 am – 8:05 am   | <i>Introduction</i>   |
| 8:05 am – 8:20 am   | <i>Typhoid Surveillance in Africa Project: Data Update</i><br>Florian Marks, International Vaccine Institute, Republic of Korea   |
| 8:20 am – 8:35 am   | <i>Surveillance for Enteric Fever in Asia Project</i><br>Kashmira Date, US Centers for Disease Control and Prevention   |
| 8:35 am – 8:50 am   | <i>Epidemiology and risk factors for typhoid fever in Central Division, Fiji, 2014</i><br>Namrata Prasad, University of Otago, New Zealand  |
| 8:50 am – 9:05 am   | <i>Environmental, socio-cultural, and behavioral determinants of typhoid fever in the Central Division, Republic of Fiji: an interdisciplinary investigation at multiple scales</i><br>Aaron Jenkins, Edith Cowan University, Australia |
| 9:05 am – 9:30 am   | <i>Questions</i>  |
| 9:30 am – 10:00 am  | <b>Tea /Coffee</b><br><b>Poster viewing</b>   |
| 10:00 am – 11:45 pm | <b>Oral Presentations: Epidemiology and Mathematical Modelling</b>  |

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| 10:00 am – 10:05 am | <u>Moderator:</u> Firdausi Qadri, icddr,b<br><i>Introduction</i>   |
| 10:05 am – 10:20 am | <i>Demographic and Clinical Characteristics of Adult Patients with Typhoid Fever in Cipto Mangunkusumo General Hospital Jakarta Indonesia in 2012-2014</i><br>Bonita Effendi, Universitas Indonesia, Indonesia   |
| 10:20 am – 10:35 am | <i>Mathematical modeling reveals the potential consequences of the worldwide emergence of the H58 haplotype of Salmonella Typhi</i><br>Virginia Pitzer, Yale School of Public Health, United States  |
| 10:35 am – 10:50 am | <i>Modelling the contributions of malaria, HIV, and malnutrition to a decline in paediatric invasive non-typhoidal Salmonella disease, Malawi</i><br>Melita Gordon, University of Liverpool, United Kingdom  |
| 10:50 am – 11:05 am | <i>Evaluation of a rapid real-time molecular assay to identify S. Typhi, S. Paratyphi A and S. spp from suspected typhoid blood specimen in Bangladesh</i><br>Jean-Noël Telles, Fondation Mérieux, France  |
| 11:05 am – 11:20 pm | <i>Typhoid fever in Bangladesh: from infection to protection</i><br>Firdausi Qadri, icddr,b, Bangladesh  |
| 11:20 pm – 11:45 pm | <i>Questions</i>   |
| 11:45 pm – 1:45 pm  | <b>Buffet Lunch</b>  |
| 1:45 pm – 3:15 pm   | <b>Panel discussion</b><br><i>Challenges and approaches in measuring typhoid fever disease burden</i><br><u>Moderator:</u> Rob Breiman, Emory University, United States<br><u>Co-Chair:</u> Anita Zaidi, Bill & Melinda Gates Foundation, United States<br><u>Panelists:</u><br>Leon Ochiai, Sanofi Pasteur, France<br>Samir Saha, Child Health Research Foundation, Bangladesh<br>Jacob John, Christian Medical College, Vellore, India<br>Jeff Stanaway, Institute for Health Metrics and Evaluation, United States<br>Shousun Szu, Fogarty International Center, National Institutes of Health, United States |
| 3:15 pm – 3:30 pm   | <b>Tea/ Coffee</b><br><b>Poster Viewing</b>  |
| 3:30 pm – 5:00 pm   | <b>Symposium</b><br><i>Water, Sanitation and Hygiene (WASH) interventions for enteric fever control</i><br><u>Moderator:</u> Steve Luby, Stanford University, United States  |
| 3:30 pm – 3:35 pm   | <i>Introduction</i>  |
| 3:35 pm – 3:50 pm   | <i>High rates of enteric fever diagnosis and low burden of disease in rural Nepal</i><br>Jason Andrews, Stanford University, United States   |

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| 3:50 pm – 4:05 pm                         | <i>Linking typhoid transmission to the water distribution system in Katmandu, Nepal</i><br>Stephen Baker, Oxford University Clinical Research Unit, Viet Nam  |
| 4:05 pm – 4:20 pm                         | <i>Reduction in typhoid fever with improvement in water and sanitation infrastructure in Singapore</i><br>Goh Kee Tai, Ministry of Health, Singapore  |
| 4:20 pm – 4:35 pm                         | <i>Impact of a water quality intervention on typhoid incidence in urban India</i><br>Ayse Ercumen, University of California Berkeley, United States   |
| 4:35 pm – 5:00 pm                         | Questions   |
| 5:00 pm – 6:00 pm                         | <b>Keynote Presentation</b><br><br><i>The current state of Salmonella research: successes, challenges, barriers, research gaps</i><br>Gordon Dougan, Wellcome Trust Sanger Institute, United Kingdom<br><br>Introduction by Christopher Parry, London School of Hygiene and Tropical Medicine, United Kingdom |
| <b>Saturday, May 2<sup>nd</sup>, 2015</b> |   |
| 8:00 am – 10:30 am                        | <b>Symposium</b><br><i>Invasive Salmonellosis: Antimicrobial resistance, hospitalization and economic impact</i><br><br><u>Moderator:</u> Samir Saha, Child Health Research Foundation, Bangladesh  |
| 8:00 am – 8:05 am                         | <i>Introduction</i>   |
| 8:05 am – 8:20 am                         | <i>Data from Nigeria: hospitalizations and complications</i><br>Stephan Obaro, The University of Nebraska Medical Center, United States   |
| 8:20 am – 8:35 am                         | <i>Epidemiological data from Africa: case fatality and association with drug resistance</i><br>Jan Jacobs, Institute of Tropical Medicine, Belgium  |
| 8:35 am – 8:50 am                         | <i>Hospitalization and complication data from Karachi</i><br>Sajid Soofi, Aga Khan University, Pakistan   |
| 8:50 am – 9:05 am                         | <i>Data from Malawi: outbreak data and factors related to complications</i><br>Nicholas Feasey, Liverpool School of Tropical Medicine, United Kingdom   |
| 9:05 am – 9:20 am                         | <i>Cost of Illness Due to Typhoid Fever in Pemba, Zanzibar, East Africa</i><br>Arthorn Riewpaiboon, Mahidol University, Thailand  |
| 9:20 am – 9:35 am                         | <i>In-vitro resistance of Salmonella Typhi and Paratyphi A raises concern on the use of older fluoroquinolones as the first line therapy</i><br>Palpasa Kansakar, WHO-Nepal, National Public Health Library, Nepal  |
| 9:35 am – 9:50 am                         | <i>Clinically and microbiologically derived azithromycin susceptibility breakpoints for Salmonella enterica serovars Typhi and Paratyphi A</i><br>Christopher Parry, London School of Hygiene and Tropical Medicine, United Kingdom   |
| 9:50 am - 10:05 am                        | <i>Evolving susceptibility patterns in invasive Salmonella typhi isolates in South Africa during 2003 to 2014</i><br>Arvinda Sooka, National Institute for Communicable Diseases, South Africa  |
| 10:05 am – 10:30 am                       | Questions   |
| 10:30 am – 11:00 am                       | <b>Tea/Coffee</b>   |

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|                     | <b>Poster viewing</b>  |
| 11:00 am – 12:30 pm | <p><b>Symposium</b><br/><i>Genomics and host susceptibility to enteric fever and NTS disease</i></p> <p><u>Moderator:</u> Andy Pollard, Oxford Vaccine Group, Oxford University, United Kingdom</p>  |
| 11:00 am – 11:05 am | <i>Introduction</i>  |
| 11:05 am – 11:20 am | <p><i>HLA and resistance to enteric fever</i><br/>Sarah Dunstan, The University of Melbourne, Australia</p>  |
| 11:20 am – 11:25 am | <p><i>Immunity to invasive Salmonella infections: lessons from animal models and man</i><br/>Pietro Mastroeni, University of Cambridge, United Kingdom</p>   |
| 11:35 am – 11:50 pm | <p><i>Dissecting the transcriptome during acute enteric fever: Novel insights into human host-responses to infection with Salmonella Typhi</i><br/>Christoph Blohmke, Oxford Vaccine Group, Oxford University, United Kingdom</p>  |
| 11:50 pm – 12:05 pm | <p><i>Salmonella Typhi host specificity: new insights from the study of Typhoid toxin</i><br/>Jorge E. Galán, Yale University School of Medicine, United States</p>  |
| 12:05 pm – 12:30 pm | <i>Questions</i>   |
| 12:30 pm – 1:30 pm  | <b>Buffet Lunch</b>  |
| 1:30 pm – 3:00 pm   | <p><b>Symposium</b><br/><i>The epidemiology, clinical presentation, and outcomes of invasive NTS disease</i></p> <p><u>Moderator:</u> Laura Martin, Vaccines Institute for Global Health, A GSK company, Italy</p>   |
| 1:30 pm – 1:35 pm   | <i>Introduction</i>  |
| 1:35 pm – 1:50 pm   | <p><i>Understanding NTS transmission</i><br/>Karen Keddy, National Institute for Communicable Diseases, South Africa</p>   |
| 1:50 pm – 2:05 pm   | <p><i>iNTS burden in sub-Saharan African children: an African view</i><br/>Simon Kariuki, KEMRI-CDC, Kenya</p>   |
| 2:05 pm – 2:20 pm   | <p><i>Dissecting immune responses against iNTS</i><br/>Tonney Nyirenda, Malawi-Liverpool-Wellcome Trust Clinical Research Programme, Malawi</p>  |
| 2:20 pm – 2:35 pm   | <p><i>Requirements for tackling NTS disease</i><br/>Allan Saul, Vaccines Institute for Global Health, A GSK company, Italy</p>   |
| 2:35 pm – 3:00 pm   | <i>Questions</i>   |
| 3:00 pm – 3:30 pm   | <b>Coffee/Tea<br/>Poster Viewing</b>   |
| 3:30 pm – 5:15 pm   | <p><b>Symposium</b><br/><i>Paratyphoid: Epidemiological perspective and path to control</i></p> <p><u>Moderator:</u> Stephen Baker, Oxford University Clinical Research Unit, Viet Nam</p> <p><u>Co-Chair:</u> Sushant Sahastrabudhe, International Vaccine Institute, Republic of Korea</p> |
| 3:30 pm – 3:35 pm   | <i>Introduction</i>  |

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| 3:35 pm – 3:50 pm                       | <i>Evolutionary history of serovar Paratyphi A</i><br>Mark Achtman, University of Warwick, United Kingdom  |
| 3:50 pm – 4:05 pm                       | <i>The growing burden of S. Paratyphi A in Kathmandu: epidemiological observations from a decade of clinical trials</i><br>Corinne Thompson, Oxford University Clinical Research Unit, Viet Nam                                  |
| 4:05 pm – 4:20 pm                       | <i>Development of a Human Model of Salmonella enterica serovar Paratyphi A challenge in Healthy Adult Volunteers.</i><br>Hazel Dobinson, Oxford Vaccine Group, Oxford University, United Kingdom                                 |
| 4:20 pm – 4:35 pm                       | <i>The current status of vaccine development for control of Salmonella Paratyphi A</i><br>Rodney Carbis, International Vaccine Institute, Republic of Korea  |
| 4:35 pm – 4:50 pm                       | <i>Salmonella enterica serotype Paratyphi A: Common cause of Salmonellosis among patients attending Om Hospital and Research Centre, Kathmandu, Nepal</i><br>Ram Krishna Shrestha, Om Hospital and Research Center, Nepal        |
| 4:50 pm – 5:15 pm                       | Questions  |
| <b>Sunday, May 3<sup>rd</sup>, 2015</b> |  |
| 8:00 am – 9:45 am                       | <b>Symposium</b><br><i>Past experience from typhoid vaccine implementation: translating global policy to country use</i><br><br><u>Moderator:</u> Kim Mulholland, London School of Hygiene and Tropical Medicine, United Kingdom |
| 8:00 am – 8:05 am                       | <i>Introduction</i>  |
| 8:05 am – 8:20 am                       | <i>Typhoid vaccine Introduction in Nepal</i><br>YV Pradhan, Society of Public Health Physicians, Nepal (SOPHYN)  |
| 8:20 am – 8:35 am                       | <i>Typhoid vaccination in Pakistan: Past and future</i><br>Dr. Mazhar Khamisani, Health department SINDH, Pakistan   |
| 8:35 am – 8:50 am                       | <i>Typhoid vaccination in Sri Lanka</i><br>Dr. Paba Palihawadana, Ministry of Health, Sri Lanka  |
| 8:50 am – 9:05 am                       | <i>Integration of typhoid conjugate vaccine in national immunization schedules: Opportunities and Challenges</i><br>Krishna Mohan, Bharat Biotech International Limited, India   |
| 9:05 am – 9:20 am                       | <i>New Vaccine Introduction Decision Making: Principles, Practices, and Realities</i><br>Michael Friedman, World Health Organization, Indonesia  |
| 9:20 am – 9:45 am                       | Questions  |
| 9:45 am – 10:15 am                      | <b>Tea /Coffee</b><br><b>Poster viewing</b>  |
| 10:15 am – 12:00 pm                     | <b>Symposium</b><br><i>Development of vaccines against typhoid, paratyphoid and NTS</i><br><br><u>Moderator:</u> Adwoa Bentsi-Enchill, World Health Organization, Switzerland  |
| 10:15 am – 10:20 am                     | <i>Introduction</i>  |

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| 10:20 am – 10:40 am | <i>Typbar-TCV™ - A Vi polysaccharide-Tetanus Toxoid conjugate vaccine: Safety and immunogenicity in healthy infants, children and adults in typhoid endemic areas.</i><br>Vineeth Varanasi, Bharat Biotech International, Limited, India  |
| 10:40 am – 10:55 am | <i>Progress in the development of a Vi-DT conjugate vaccine</i><br>Erman Tritama, Bio Farma, Indonesia  |
| 10:55 am – 11:10 am | <i>Progress in the development of a Vi-CRM<sub>197</sub> conjugate vaccine</i><br>Akshay Goel, Biological E, India  |
| 11:10 am – 11:25 am | <i>Live attenuated oral vaccine, age and anti-Vi antibody status at baseline significantly affect attack rate in a human Salmonella Typhi challenge model</i><br>Tom Darton, Oxford Vaccine Group, Oxford University, United Kingdom  |
| 11:25 am – 11:40 am | <i>Bivalent Core and O polysaccharide (COPS)-Flagellin conjugate vaccine against invasive non-typhoidal Salmonella Enteritidis and Typhimurium infections</i><br>Raphael Simon, University of Maryland School of Medicine, United States  |
| 11:40 am – 12:00 am | Questions   |
| 12:00 pm – 1:00 pm  | <b>Buffet Lunch</b>   |
| 1:00 pm – 2:30 pm   | <b>Panel Discussion</b><br><i>Emerging considerations for invasive non-typhoidal Salmonella disease prevention</i><br><br><u>Moderator:</u> John Crump, University of Otago, New Zealand<br><br><u>Panelists:</u><br><br>Karen Keddy, National Institute for Communicable Diseases, South Africa<br><br>Jan Jacobs, Institute of Tropical Medicine, Belgium<br><br>Antonio Martin, Medical Research Council, the Gambia Unit<br><br>Sam Kariuki, KEMRI-Wellcome Trust Sanger Institute, Kenya |
| 2:30 pm – 3:00 pm   | <b>Coffee/Tea</b><br><b>Poster Viewing</b>  |
| 3:00 pm -- 4:30 pm  | <b>Panel Discussion</b><br><i>Typhoid conjugate vaccines for public use: overcoming barriers</i><br><br><u>Moderator:</u> Zulfiqar Bhutta, University of Toronto<br><br><u>Panelists:</u><br><br>Thomas Cherian, World Health Organization, Switzerland<br><br>Hope Johnson, Gavi Alliance, Switzerland<br><br>Duncan Steele, Bill & Melinda Gates Foundation, United States  |
| 4:30 pm – 5:00 pm   | <b>Closing Remarks and Conference Highlights</b><br><br>Zulfiqar Bhutta, The Hospital for Sick Children, University of Toronto, Canada  |