



7<sup>th</sup> World Congress on  
**PUBLIC HEALTH, NUTRITION  
& EPIDEMIOLOGY**  
May 15-16, 2019 Singapore

# **Scientific Tracks & Abstracts**

## **Day 1**

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## PUBLIC HEALTH, NUTRITION &amp; EPIDEMIOLOGY

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**Risk factors for bacteremia in severely malnourished pneumonic children and their outcome****Abu Sadat Mohammad Sayeem Bin Shahid, Tahmeed Ahmed, K M Shahunja and Mohammad Jobayer Chisti**

International Centre for Diarrhoeal Disease Research, Bangladesh

**Background & Aim:** Bacteremia is quite common in Severe Acute Malnourished (SAM) children with pneumonia, who often experience a fatal outcome, especially in developing countries. There is limited information in the medical literature on the risks of bacteremia in SAM children with pneumonia. We have examined the factors associated with bacteremia and their outcome in under-five children who were hospitalized for the management of pneumonia and SAM.

**Methods:** In this unmatched case-control study, SAM children of either sex, aged 0-59 months, admitted to the Dhaka Hospital of the International Centre for Diarrheal Disease Research, Bangladesh (icddr,b) with cough or respiratory distress and radiological pneumonia during April 2011 to July 2012 were enrolled (n=405). Those with pneumonia as well as bacteremia constituted the cases (n=18) and randomly selected SAM children with pneumonia without bacteremia constituted controls (n=54).

**Results:** A wide range of bacterial pathogens were isolated among the cases of which 13 (72%) were Gram negatives. Death rate was higher among the cases than the controls (28% vs. 9%) but the difference was not statistically significant (p=0.111). In logistic regression analysis, after adjusting for potential confounders, such as the lack of DPT/oral polio/HIV/hepatitis vaccination, measles vaccination, vomiting and clinical dehydration (some/severe) the SAM children with pneumonia as well as bacteremia more often had the history of lack of BCG vaccination (95% CI=1.17-29.98) and had diastolic hypotension (<50 mm of Hg) (95% CI=1.01-12.86) not only after correction of dehydration but also in its absence.

**Conclusion:** The results of our study suggest that history of lack of BCG vaccination and presence of diastolic hypotension in absence of dehydration on admission are the independent predictors of bacteremia in SAM children with pneumonia. The results indicate the importance of continuation of BCG vaccination to produce benefits beyond the primary benefits.

**Biography**

Abu Sadat Mohammad Sayeem Bin Shahid has his experience in public health especially in nutrition and other emerging problems like childhood TB and pneumonia in developing world. He has been involved in different epidemiological research starting from observational study to clinical trial for the last 8 years.

sayeem@icddr.org

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## Customized wellness solutions using health technological platforms: An exploratory research protocol

**Elaine Wong Yee-Sing and Liaw Wee Tong**  
Red Element Health International, Singapore

Rapid transformations in demographic and socioeconomic shifts are leading to a growing global demand for health and beauty products and services that demands holistic concepts of well-being. In addition, technological breakthroughs such as internet of things make it convenient and offer innovative solutions for well-being and engage consumers to track their own health conditions and fitness goals. This new health economy encompasses three key concepts: Well-being, well-conditioned and well-shaped; which are shaped by wellness segments and goals that influence purchasing decisions of consumers. The research protocol aims to examine the feasibility, challenges and capabilities in provision for each customer with an ecosystem or platform that organizes data and insights to create an individual health and fitness, nutrition and beauty profile. Convenience sampling of 100 consumers residing in private housing within five major districts in Singapore will be selected to participate in the study. Statistical package for social science 25 will be used to conduct descriptive statistics for quantitative data while qualitative data results using focus interviews, will be translated and transcribed to identify improvements in provision of these services. Rising income in emerging global markets is fueling the demand for these general wellbeing products and services. Combined with technological advances, it is imperative to understand how these highly personalized services with integrated technology can be designed better to support consumer preferences, provide greater flexibility and high-quality service and generate better health awareness among consumers.

### Biography

Elaine Wong Yee-Sing first started working at the Health Promotion Centre in Curtin University as a Health Promotion Assistant and is currently the Executive Director of Red Element Health International (REHI). She is an active Member of Singapore Nutrition & Dietetics Association, Curtin University of Technology Singapore Alumni Member.

[elainewong@redelementhealth.com](mailto:elainewong@redelementhealth.com)

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**Energy balance of Indian rural women determined by their activity-based energy cost: A cross-sectional study****Zoobi Khanam**

Banaras Hindu University, India

Caloric requirements above basal levels are directly dependent on the degree of activity. Activity thus becomes a very significant factor in determining the caloric adequacy of the marginal diets consumed by many individuals in technically under developed countries. Present study has examined the situation of energy expenditure and energy balance in women of reproductive age group. This study was conducted in rural areas of Varanasi district of Uttar Pradesh state, India. A community based cross sectional design was adopted. By multi stage sampling 610 women of reproductive age group (15-49 years) were interviewed with the help of a pre-designed and pre-tested schedule. Dietary intake and energy expenditure were calculated by using 24-hour dietary recall and activities performed by study subjects in previous 24 hours were recorded. Data was analyzed with the help of SPSS software. The findings of this study revealed that as much as 67.4% study subjects were in negative energy balance and 32.6% had positive energy balance. The overall energy expenditure for study subjects was  $1943.05 \pm 553.24$  kcal/day. There existed significant association between energy expenditure of the subjects and their age, type of family, educational status and socioeconomic class ( $p < 0.001$ ). Negative energy balance was to the extent of 65.3%, 64.7%, 76.8% and 56.8% in the age group of 15-24, 25-34, 35-44 and  $\geq 45$  years, respectively. This was maximum (73.8%) in illiterate and least (58.5%) in subjects with educational status as graduate and above. As much as 69.4% lower, 81.9% lower middle and 72% middle socioeconomic status subjects had negative energy balance. Since negative energy balance in women of reproductive age prevailed in two third subjects and average calorie intake of the subjects was more than 80 percent of the RDA. A prospective follow up can be carried out for linking energy balance of women of reproductive age group and their nutritional status.

**Biography**

Zoobi Khanam is currently working as a Post-Doctoral Fellow in Institute of Medical Sciences, Banaras Hindu University, India. She has her expertise in food and nutrition and has a passion to work for food security and improving its level in the disadvantaged community. She has worked as a Lecturer of Food and Nutrition in SSPG College, Dr. R. M. L. Avadh University, UP, India. She is also serving as an Editorial Board Member of reputed journals.

zoobi.bhu@gmail.com

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**An AI-based diabetic retinopathy screening system and its use in real-world clinical settings in Australia and Singapore****Tan Teck Jack and Di Xiao**  
TeleMedC Group, Singapore

**Statement of the Problem:** The World Health Organization announced in 2018 that 422 million people worldwide suffer from diabetes mellitus. The projected impact of vision impairment and blindness caused by Diabetic Retinopathy (DR) will result in significant public health and economic consequences. DR is preventable and treatable if detected early through an annual eye screening. However, screening rates are low globally due to a paucity of trained eye-health professionals in developing countries and in rural or remote areas of developed countries.

**Method:** Based on the research from CSIRO Australian e-Health Research Centre, TeleMedC group commercialized an AI-based Diabetic Retinopathy screening system-DR grader, an automated DR grading and preliminary referral decision support tool for patients with diabetes. The cloud-based tele-ophthalmology system has the functionalities of: (1) Deep learning based image quality assessment tool; (2) Deep learning based DR “disease/no disease” grading for color retinal images; (3) DR lesion localization and DR level indication; (4) Preliminary report of patient referral/no referral decision; and (5) DR disease audit by eye experts and developing patient referral pathway. DR grader has been deployed in a GP Super clinic at Midland, Western Australia from December 2016 onwards.

**Results:** Results of this implementation were published in a JAMA Network Open article (September 2018) evaluated a total of 291 patients. The system correctly identified all 12 patients with true disease (sensitivity 100%) and misclassified 23 patients as having disease (specificity 92%). The DR grader has been undergoing testing in Singapore since early 2018 at the Department of Ophthalmology, National University Hospital and in 30 GP clinics with similar or better preliminary results pending publication.

**Conclusion:** The AI-based DR screening system provides quick DR patient referral decision support in the primary care setting. It benefits patients from poorly-resourced and underserved remote areas for its low cost, time savings and high patient acceptability. The system was well received by primary care providers.

**Biography**

Tan Teck Jack is the Chief Medical Officer of TeleMedC Group, an ophthalmic diagnostics technology company originating from Silicon Valley. He is the Founder and Medical Director of Northeast Medical Group. He has more than 20 years of experience in clinical work with managing a group of clinics, a specialist center and the group's HQ & pharmacy.

jack.tan@telemedc.com

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**Pneumonia in severely malnourished children: Etiology, diagnosis, management and future direction****Mohammad Jobayer Chisti, Abu S M Sayeem, K M Shahunja and Tahmeed Ahmed**

International Centre for Diarrhoeal Disease Research, Bangladesh

**Background:** Management of pneumonia in severely malnourished children is critically important in reducing deaths in such children. Understand the etiology of pneumonia in severely malnourished children is one of the essential components of appropriate management. Diagnosis of pneumonia in children with severe malnutrition is also intriguing. Etiology and diagnosis of pneumonia in Severe Acute Malnutrition (SAM) is not well described in medical literature. Data on management of pneumonia in such children are also lacking.

**Methods:** We have done a systematic review using specific search criteria in PubMed to evaluate the overall role of severe malnutrition in children with pneumonia in SAM children.

**Results:** Among a total of 215 isolates 26% were *Klebsiella* and 25% *S. aureus* species, 18% *Pneumococcus*, 8% each *E. coli* and *Salmonella* species. A recent study conducted in Bangladesh found 87/385 (23%) MTB as the bacterial etiology of pneumonia in SAM children. In SAM children, the sensitivity of fast breathing as a predictor of radiographically proven pneumonia ranged from 14% to 76% and specificity from 66% to 100%. Surprisingly, metabolic acidosis found to have no impact on the diagnostic clinical features of pneumonia in SAM children having diarrhea. Studies revealed that as a first line therapy ampicillin and gentamicin are more effective against enteric Gram-negative bacilli than chloramphenicol in SAM children with pneumonia. Both the groups received in addition to diet, micronutrients, vitamins and minerals.

**Conclusion:** The currently available data suggests that the spectrum and frequency of causative agents of pneumonia in severely malnourished children differ from that observed in well-nourished children. Clinical signs are relatively poor predictors of pneumonia in severely malnourished children. However, injectable antibiotics in addition to diet, micronutrients, vitamins and minerals are the *sine qua non*. High prevalence of pulmonary tuberculosis in severely malnourished children having acute pneumonia underscores the importance of further research that may help to evaluate the determinates of TB in such children.

**Biography**

Mohammad Jobayer Chisti has been working in International Centre for Diarrhoeal Disease Research, Bangladesh since 1998 as a Clinician as well as Researcher.

chisti@icddr.org

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**Equity principle in the national health policy in India and its implementation since past to present****Saroj Shinde**

Tata Institute of Social Sciences, India

The principle of equity has considered as more ethical and also closely allied with the human right principles. In India the drafts of the National Health Policy (NHP) are ensuring large space for the equity principle to build healthy nation. Despite of that, there are a very prevailing differences and gaps between the health statuses of people from different sections of society in India. People from the lower caste and the tribal population are with the lowest health status. This situation highlights that particular section counters the unjust and unfair treatment in terms of health and services. There is a need to focus inequity in the health sector because it is unnecessary and certainly avoidable to the large extent. Certainly, all three NHPs guided to make progress in achieving the goals of health for all, MDGs and now SDGs to less or large extent, however, it is to accept that at the implementation level only certain determinants of the health focused on larger scope and some neglected. This study is the result of a critical review of all the three national health policies in India from 1983 to 2017 to find out in what way equity principle gained importance in the draft. Further, to highlight the existing gap in the health status, the published reports of the National Family Health Survey I, II, III and IV also reviewed and used as the supporting sources in this study. Other articles also reviewed to understand the equity principle and to support the arguments of prevailing health inequity in India. All the policy drafts had given concern towards the equity principle. Still, we are struggling to bring it into the implementation and not meeting equity principle that has been promised by the health policies. Historically, the gaps in the health status of the people were there on the basis of caste hierarchy (General, OBCs, SCs and STs) and even today we encounter the same pattern of gaps sharply.

**Biography**

Saroj Shinde is interested in working on the health issues of vulnerable population pockets such as pavement dwellers, tribal population, sugarcane cutters and lower caste people in India. Her specific research areas are women and health, reproductive health, migrant health, menstrual hygiene and sanitation and family planning.

shinde.saroj4@gmail.com

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