



**“Aligning with National and Regional eHealth Strategies”**

**6 to 8 October 2014**

**Galadari Hotel, Colombo, Sri Lanka**

**PROGRAMME BOOK**



The logo for 'Health Sri Lanka 2014' features a stylized map of Sri Lanka on the left, composed of a grid of blue, yellow, and red dots. To the right of the map, the word 'Health' is written in a large, bold, blue sans-serif font. Below 'Health', the words 'Sri Lanka' are written in a smaller blue font, and '2014' is written in a yellow font.

# Health Sri Lanka 2014

**“Aligning with National and Regional eHealth Strategies”**

**Organised by the  
Specialty Board in Biomedical Informatics  
Postgraduate Institute of Medicine  
University of Colombo**

**6 to 8 October 2014  
Galadari Hotel, Colombo, Sri Lanka**

## **PROGRAMME BOOK**





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**MESSAGE FROM THE  
PRESIDENT OF THE DEMOCRATIC SOCIALIST REPUBLIC OF  
SRI LANKA**



I am pleased to send this message of felicitation to the “eHealth Sri Lanka 2014” conference organized by the Postgraduate Institute of Medicine (PGIM) of the University of Colombo.

It is noteworthy that the University of Colombo through the PGIM is partnering with the Commonwealth Medical Association for this important conference at a time when Sri Lanka holds the position of Chair-in-Office of the Commonwealth.

The PGIM has a very good record of producing medical specialists in all medical disciplines, maintaining high standards of training and conducting examinations recognized and acknowledged both regionally and internationally.

It is most significant that Health Informatics is among the specialties provided in the curriculum of the PGIM. This relates to improving the ICT literacy of professionals and others in healthcare, and is in keeping with the vision for the progress of the health sector as stated in the policy of my government – the Mahinda Chinthana.

I trust the PGIM will produce a team that will play a leadership role in expanding this sector of medical knowledge, making a major contribution to develop the healthcare sector of the Country, taking Sri Lanka closer to the goal of being a knowledge hub in Asia.

I wish this conference every success.

***Mahinda Rajapaksa***

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**MESSAGE FROM THE CHIEF GUEST  
PRESIDENT OF THE  
COMMONWEALTH MEDICAL ASSOCIATION**



The Commonwealth Medical Association (CMA) is proud to be joining with the University of Colombo and its partners including the Sri Lanka Medical Association (SLMA) in producing this very interesting and comprehensive conference looking at "eHealth in Sri Lanka".

eHealth is one of the major growth poles in Medicine and it is critical that there is a major focus on the concept and practice of eHealth at all levels. The depth and breadth of this meeting is impressive and augurs well for the future of Health Care in Sri Lanka.

The CMA is the parent body for the National Medical Associations (NMA's) in the Commonwealth and the SLMA has proven itself to be one of the more vibrant and progressive NMA's in the Commonwealth.

We look forward not only to this major conference but to working with the SLMA to spread the mantra of eHealth throughout the Commonwealth and beyond.

***Dr Solaiman Juman FRCS***

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**MESSAGE FROM THE GUEST OF HONOUR  
MINISTER OF HEALTH OF THE DEMOCRATIC SOCIALIST  
REPUBLIC OF SRI LANKA**



It gives me great pleasure to be invited to be the Guest of Honour at the Inauguration of eHealth Sri Lanka 2014 conference organized by the Postgraduate Institute of Medicine (PGIM), University of Colombo.

I understand that the main objective of this conference is to showcase the work done by the holders of the MSc in Biomedical Informatics conferred by the PGIM who are now working as Medical Officers/Dental Surgeons in Health Informatics in various institutions coming under my Ministry. I am very pleased to say that we have been extremely happy with the invaluable services provided by these graduates. They have helped to improve the information systems in the health sector which would in turn contribute to better quality of care provided by the health Services.

I congratulate the PGIM for the excellent work done. I wish the eHealth Sri Lanka 2014 conference all the success.

***Maithripala Sirisena***

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## MESSAGE FROM THE VICE CHANCELLOR OF THE UNIVERSITY OF COLOMBO



It is with great pleasure that I write this message on the occasion of the eHealth Sri Lanka 2014 conference, organized by the Postgraduate Institute of Medicine (PGIM) of the University of Colombo. I am well aware of the tremendous contribution made by this institute to enhance the quality of postgraduate medical education in Sri Lanka. Expectations, needs and aspirations of patients, doctors, students have changed with the globalization and advancement in social networking at present. This global phenomenon has made the medical professional role more challenging and complex. The government of Sri Lanka is embarking on an ambitious new policy which will enhance the opportunities of undergraduate medical education to local and foreign students. I have observed that the PGIM has already gone beyond and opened up its facility to international postgraduate students. I am happy to witness the positive contribution by our Faculty members to your institute.

Please accept the sincere congratulations and very best wishes for the eHealth Sri Lanka 2014.

***Dr Kumara Hirimburegama***

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## MESSAGE FROM THE DIRECTOR OF THE POSTGRADUATE INSTITUTE OF MEDICINE



I am delighted to send this message to eHealth Sri Lanka 2014.

The Postgraduate Institute of Medicine (PGIM), University of Colombo, was established in 1980, and is the sole national institute that offers accredited medical specialist training in Sri Lanka. In keeping with changing medical trends, the PGIM has been conducting an MSc in Biomedical Informatics since 2008. So far 73 doctors, have successfully completed this course, and we plan to commence an MD programme in this field soon. We are also planning to establish a regional center of excellence in Health Informatics together with the University of Oslo, with which we have had a very productive collaboration. Furthermore, at a time when the PGIM is looking to internationalise its courses, I am pleased that the Commonwealth Medical Association and the Asian eHealth Information Network are our partners in this conference. I sincerely hope that these partnerships will grow in strength in the years to come.

eHealth Sri Lanka 2014 is an opportunity for our graduates to showcase their work in Health Informatics and enable academic discussion, dialogue, debate and fellowship.

I wish the conference all success.

***Professor H Janaka De Silva DPhil (Oxon.), FRCP, FCCP, FNASSL, Hon. FRACP, Hon. FRCP (Thailand), Hon. FCGP(SL)***

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## MESSAGE FROM THE CHAIRPERSON OF THE SPECIALTY BOARD IN BIOMEDICAL INFORMATICS



On behalf of the Specialty Board in Biomedical Informatics at the Postgraduate Institute of Medicine (PGIM), University of Colombo it is my distinct honour to welcome you all to the eHealth in Sri Lanka 2014. This conference is a joint venture of the PGIM and the Health Informatics Society of Sri Lanka (HISSL).

One of the successful innovative degree programmes introduced by the PGIM recently is the MSc in Biomedical informatics. This programme has produced a unique set of human resource, in the form of medical doctors and dental surgeons with expertise in health informatics. Support given by various stakeholders and members of the Specialty Board was instrumental in delivering this programme. Special mention should be made of our main collaborator, the Department of Informatics of the University of Oslo for provided training and funding from the inception, and the Ministry of Health, for not only released the trainees to follow the programme, but also for providing training opportunities. Most importantly, after graduation, the Ministry of Health has secured positions for the graduates to continue and implement their projects. Accordingly, this conference will showcase certain success stories of our graduates which have already gained national and international recognition.

The main theme of the conference this year is 'Aligning with National and Regional eHealth Strategies'. Thus, we also have invited both regional and global speakers, to serve as a panel of international speakers of eminence in different disciplines.

Overall, this conference will not only provide opportunities to listen to talks, but also provide opportunities for meeting and interacting with eminent speakers and to build relationships in promoting eHealth in Sri Lanka and in the region alike.

I wish you all the very best!

***Dr Rohana Basil Marasinghe MBBS, MPhil, PhD***

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## MESSAGE FROM THE CHAIRPERSON OF THE ORGANISING COMMITTEE



It gives me great pleasure to welcome all of you to eHealth Sri Lanka 2014.

This conference is another milestone in a long journey of promoting eHealth in the Health Sector of Sri Lanka which began with the establishment of a Computer Committee in the Sri Lanka Medical Association in 1996. That effort gathered momentum with the formation of the Health Informatics Society of Sri Lanka in 1998 and was consolidated with the commencement of the MSc in Biomedical Informatics at the Postgraduate Institute of Medicine (PGIM), University of Colombo in 2008. The course has now produced 73 graduates who are spearheading the development of eHealth in the health sector of Sri Lanka. 20 more are in training. These graduates are a unique resource that no other country in the world has in their health sector. We showcase some of the work that they are doing at this conference.

Strengthening all forms of health information and decision support systems is vital if we are to improve the quality, efficiency and the cost effectiveness of our health care services. We cannot shy away from using information and communication technologies (ICT) in our health care services any more. This conference therefore, is aimed at giving health care professional a flavour of how they could make use of ICT to enhance the quality and effectiveness of their work. The graduates of our MSc in Biomedical Informatics course who are now working as Medical Officers/Dental Surgeons in Health Information in various health care institutions is the resource that other health care professionals can turn to for help when they want to integrate ICT into their work. I hope that this conference would lead to better understanding of how that could be done.

I wish to thank Dr Solaiman Juman, President of the Commonwealth Medical Association for accepting our invitation to be the Chief Guest at the conference; Honourable Maithripala Sirisena, Minister of Health, for his continuing support for all our eHealth activities; Dr. Kumara Hirimburegama, Vice Chancellor, University of Colombo and Prof, Janaka De Silva, Director, PGIM for their guidance, support, encouragement and outstanding leadership; the plenary and keynote speakers for readily accepting our invitations, and all others who contributed in numerous ways to make this conference a success. I wish to make special mention of the role played by Ms. Harshya Senarathne in coordinating all aspects of organizing this conference. She has

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been a tower of strength to the Specialty Board in Biomedical Informatics since its inception.

The Department of Informatics of the University of Oslo has been our collaborator in the MSc in Biomedical Informatics course and they have been helping develop our Faculty by providing PhD training. They have expressed their support to us in the MD in Health Informatics course that we plan to commence in the near future. I wish to thank Professor Jørn Braa, Professor Sundeep Sahay and Professor Kristin Braa for their support to us always.

I wish all of you a very productive conference.

***Professor Vajira H. W. Dissanayake MBBS, PhD, FNASSL***

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## **PROGRAMME AT A GLANCE**

## PROGRAMME AT A GLANCE

|        |  |   |   |
|--------|--|---|---|
|        | <b>Monday, 6 October 2014</b>  |   |   |
| 18.00  | <b>INAUGURATION</b>  |   |   |
|        | <b>Tuesday, 7 October 2014</b>   |   |   |
| 09.00  | <b>Opening Plenary</b><br><b>How IT and Global Health Can Save Lives: Examples from the Global Burden of Disease Study and the Population Health Metrics Research Consortium</b><br>Dr Jed Blore |   |   |
| 09.45  | <b>Tea</b>   |   |   |
| 10.15  | <b>Parallel Symposium 1</b><br><br><b>eHealth Policies and Strategies</b>  | <b>Parallel Symposium 2</b><br><br><b>eHealth as a Political Priority and Partnership Building</b>        | <b>Parallel Symposium 3</b><br><br><b>mHealth</b>   |
| 12.00  | <b>Plenary 2</b><br><b>eHealth from a Medical Administrator's Perspective</b><br>Dr Champika Wickramasinghe  |   |   |
| .12.45 | <b>Lunch</b>   |   |   |
| 13.30  | <b>Parallel Symposium 4</b><br><br><b>Inter-Sectoral Collaboration in eHealth</b>  | <b>Parallel Symposium 5</b><br><br><b>Use of ICT to Strengthen the National Health Information System</b> | <b>Parallel Symposium 6</b><br><br><b>Organisational and Technological Infrastructure for eHealth</b> |
| 15.00  | <b>Interactive Session I</b><br><br><b>New Developments in DHIS2</b>   | <b>Commonwealth eHealth Dialogue</b>  | <b>Interactive Session 3</b><br><br><b>Open Source Tools for Bioinformatics</b>                       |
| 1600   | <b>Tea &amp; Close of Day 1</b>  |   |   |

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|-------|---|---|--|
|       | <b>Wednesday, 8 October 2014</b>  |   |  |
| 09.00 | <b>Plenary 3</b><br><b>Capacity Building in HIS - 20 Years of Experience</b><br>Professor Kristin Braa  |   |  |
| 09.45 | Tea   |   |  |
| 10.15 | <b>Parallel Symposium 7</b><br><br><b>Sustainable, Scalable and Interoperable<br/>eHealth for Health Service Delivery, Patient<br/>Management and Civil Registration and Vital<br/>Statistics</b> | <b>Parallel Symposium 8</b><br><br><b>Stakeholder Engagement for Adopting<br/>Data Standards and Interoperability</b> | <b>Parallel Symposium 9</b><br><br><b>Adopting Legal and Regulatory<br/>Frameworks to Support ICT in Health Care</b> |
| 12.00 | <b>Plenary 4</b><br><b>World Health Organisation's Regional eHealth Strategy</b><br>Jyotsna Chikersal   |   |  |
| 12.45 | Lunch   |   |  |
| 13.30 | <b>Parallel Symposium 10</b><br><br><b>Social Media for Medical Associations</b>  | <b>Parallel Symposium 11</b><br><br><b>IT Literacy, Facilitating eLearning and Health<br/>Education</b>               | <b>Parallel Symposium 12</b><br><br><b>Surveillance Systems</b>  |
| 15.00 | <b>Plenary Symposium on the National Nutrition Monitoring and Surveillance System</b>   |   |  |
| 16.00 | Tea & Close   |   |  |

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## **PROGRAMME IN DETAIL**

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## 6 OCTOBER 2014: INAUGURATION

- 6.00 pm Invitees Take Their Seats
- 6.15 pm Arrival of Chief Guest and Guest of Honour
- 6.20 pm Ceremonial Procession
- 6.30 pm National Anthem
- 6.35 pm Lighting of the Oil Lamp
- 6.45 pm Welcome Address by Professor Vajira H. W. Dissanayake; Chairperson, Organising Committee; Founder Chairperson, Specialty Board in Biomedical Informatics, PGIM & President Health Informatics Society of Sri Lanka
- 7.15 pm Address by Professor Janaka De Silva; Director, Postgraduate Institute of Medicine (PGIM), University of Colombo
- 7.30 pm Address by Dr Kumara Hirimburegama; Vice Chancellor, University of Colombo
- 7.45 pm Address by Professor Kristin Braa; Professor and Vice Head, Department of Informatics, University of Oslo and Head, Health Information Systems Programme
- 8.00 pm Address by the Guest of Honour, Honourable Maithripala Sirisena; Minister of Health, Sri Lanka
- 8.15 pm Keynote Address by the Chief Guest Dr Solaiman Juman; President, Commonwealth Medical Association
- 8.45 pm Vote of Thanks by Dr Rohana Marasinghe; Chairperson, Specialty Board in Biomedical Informatics, PGIM
- 9.00 pm Cocktails

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**Tuesday, 7 October 2014**

**09.00 Opening Plenary**

**[Main Hall]**

*Chairpersons: Professor Janaka De Silva & Dr Solaiman Juman*

**How IT and Global Health Can Save Lives: Examples from the Global Burden of Disease Study and the Population Health Metrics Research Consortium**

Dr Jed Blore

Research Fellow, Global Burden of Disease Group

School of Population and Global Health

The University of Melbourne

**09.45 Tea**

**10.15 Parallel Symposium 1**

**[Main Hall]**

**eHealth Policies and Strategies**

*Chairpersons: Dr Jayasundare Bandara & Dr Champika Wickramasinghe*

**eHealth for India - Challenges and Opportunities**

Dr Thanga Prabhu

**Strategizing eHealth in the Health Information Context**

Dr Pradeep Sylva

**Implementation of Proposed Standards and Guidelines on Privacy, Confidentiality and Information Security: A SWOT Analysis**

Dr Kusal Wijayaweera

**Policy Issues in Implementing Open Source Electronic Health Record Systems in Sri Lankan Hospitals**

Dr Samiddhi Samarakoon

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## Parallel Symposium 2

[Hall A]

### **eHealth as a Political Priority and Partnership Building**

*Chairpersons: Dr Sudath Samaraweera and Dr Roshan Hewapathirana*

### **eHospital-Dompe & mChanneling – Implementation Challenges and Change Management**

Dr Sampath Kulathilake

### **Lessons from the Longest Running HIMS in Sri Lanka**

Dr Prasad Ranatunga

### **Stakeholder Engagement in Developing Health Information Systems in the National Programme for Tuberculosis Control and Chest Diseases**

Dr Pramil Liyanage

## Parallel Symposium 3

[Hall B]

### **mHealth**

*Chairpersons: Dr B.J.C. Perera & Dr Rohana Marasinghe*

### **Innovative Mobile Technologies Improving Health in Developing Countries**

Professor Kristin Braa

### **A mHealth Solution to Strengthen Communicable Disease Surveillance System**

Dr Indika Jagoda

### **The SLMA Mobitel DocCall Service**

Dr Nishan Siriwardena

## 12.00 Plenary 2

[Main Hall]

*Chairpersons: Professor Sundaram Arulraj and Professor Rezvi Sheriff*

### **eHealth from a Medical Administrator's Perspective**

Dr Champika Wickramasinghe

Director, Health Information, Ministry of Health, Sri Lanka

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**12.45 Lunch**

**13.30 Parallel Symposium 4**

**[Main Hall]**

**Inter-Sectoral Collaboration in eHealth**

*Chairpersons: Dr Palitha Abeykoon & Dr S. R. U. Wimalarathne*

**Innovations in Public Health Surveillance**

Dr Miguel H. Torres-Urquidy

**Enterprise Architecture and How it Applies to the Sri Lankan Context**

Dr Manjula Dharmawardena

**Facilitating Inter-Sectoral Collaboration with EMR: Experience from the HIV Programme**

Dr Sriyantha de Silva

**Parallel Symposium 5**

**[Hall A]**

**Use of ICT to Strengthen the National Health Information System**

*Chairpersons: Dr Susie Perera & Dr Nilakshi Samaranayake*

**Electronic Morbidity and Mortality System and its Significance**

Dr Buddika Dayarathne

**Improving User Compliance by Reducing Complexities of Graphical User Interfaces (GUIs) of Healthcare IT Solutions in High Volume Clinical Settings**

Dr Nirmala Cooray

**Electronic Data Management in a Public Health Laboratory**

Dr Deepal Wijesuriya

**Neonatal Morbidity and Mortality Review: An ICT solution**

Dr Praveen De Silva

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**Parallel Symposium 6**

**[Hall B]**

**Organizational and Technological Infrastructure for eHealth**

*Chairpersons: Dr Achala Jayatilleke & Dr Rohana Marasinghe*

**The Value of Healthcare IT Continuity in an Expanded Healthcare Ecosystem**

Lacey A. Hart

**Readiness and Recommendations for Health Information Sharing: The Sri Lankan Scenario**

Dr Roshan Hewapathirana

**Developing Provincial Health Information Infrastructure: The Southern Province Experience**

Dr Buddhika Ariyaratne

**Overcoming Infrastructure Limitations in Implementation of an EMR System - a Sri Lankan Experience**

Dr Priyanga Senanayake

**15.00 Commonwealth eHealth Dialogue**

**[Main Hall]**

*Chairpersons: Dr Palitha Abeykoon & Professor Vajira H. W. Dissanayake*

**CMA eHealth Triennium**

Dr Solaiman Juman

**eHealth Solutions to Control Non Communicable Diseases**

Professor Sundaram Arulrhaj

**Health Care Quality Improvement Through eHealth**

Dr Saminda M. Dharmaratne

**Interactive Session I**

**[Hall A]**

**New Developments in DHIS2**

Professor Kristin Braa

Dr Roshan Hewapathirana

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**Interactive Session 2**

**[Hall B]**

**Open Source Tools for Bioinformatics**

Pubudu Samarakoon

**1600 Tea & Close of Day 1**

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## Wednesday, 8 October 2014

**09.00 Plenary 3**

**[Main Hall]**

*Chairperson: Dr Rohana Marasinghe and Professor Vajira H. W. Dissanayake*

**Capacity Building in HIS - 20 Years of Experience**

Professor Kristin Braa

Professor and Vice Head, Department of Informatics, University of Oslo, Norway

Head, Health Information Systems Programme

**09.45 Tea**

**10.15 Parallel Symposium 7**

**[Main Hall]**

**Sustainable, Scalable and Interoperable eHealth for Health Service Delivery, Patient Management and Civil Registration and Vital Statistics**

*Chairpersons: Dr S. R. U. Wimalarathne & Dilip Hensman*

**Civil Registration and Vital Statistics**

Jyotsna Chikersal

**Open Source Reuse for Cost-Effective Software Development in a Low-Resourced Setting: the Sri Lankan Health Sector Disaster Management System**

Dr Prasanna Weerakoon

**Customisation of the Clinic Management Information System of the Cancer Early Detection Centre Using DHIS2**

Dr Neranga Liyanarachchi

**Parallel Symposium 8**

**[Hall A]**

**Stakeholder Engagement for Adopting Data Standards and Interoperability**

*Chairpersons: Dr Nilakshi Samaranayake & Dr Achala Jayatilleke*

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**Stakeholder Engagement for Adopting Data Standards and Interoperability**

Thushara Suraweera

**Strategic Planning for eReadiness: Experience of North-Western Province of the North-Western Province**

Dr Arjuna Wijekoon

**Lanka Interoperability Framework – Health Domain (LiFE HD)**

Dr Clive James

**Parallel Symposium 9**

**[Hall B]**

**Adopting Legal and Regulatory Frameworks to Support ICT in Health Care**

*Chairpersons: Dr Champika Wickramasinghe and Dr Pradeep Sylva*

**Legal Framework for Implementation of ICT in Sri Lanka**

Jayantha Fernando

**CoBIT and its Possible Applications in the Sri Lankan Context**

Dr Kosala Randeniya

**Open Source Governance in the Health Sector**

Dr Roshan Hewapathirana

**Internet Use Monitoring and Filtering in a Government Hospital**

Dr Prasad Ranatunga

**12.00 Plenary 4**

**[Main Hall]**

*Chairpersons: Dr Palitha Maheepala and Dr Champika Wickramasinghe*

**World Health Organization's Regional eHealth Strategy**

Jyotsna Chikersal

Regional Adviser, World Health Organization, SEARO Office

**12.45 Lunch**

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**13.30 Parallel Symposium 10**

**[Main Hall]**

**Social Media for Medical Associations**

*Chairpersons: Dr Ruvaiz Haniffa & Professor Vajira H. W. Dissanayake*

**Capturing Attention and Converting Leads: The SLMA Website and Email List**

Dr Deepal Wijesuriya

**Interacting with Professionals and Public via Social Platforms**

Dr Rikaz Sheriff

**Publishing Online: The SLMA Online Library**

Dr Prasad Ranatunga

**Parallel Symposium 11**

**[Hall A]**

**Surveillance Systems**

*Chairpersons: Dr Thilak Siriwardena & Dr Roshan Hewapathirana*

**Injury Surveillance: DHIS2 Beyond Public Health**

Dr Achala Jayatilleke

**Implementing Birth Defects Surveillance in Industrially-Developing Settings: Experience in Sri Lanka**

Dr Kapila Jayarathne

**National Feto-Infant Mortality Surveillance System**

Dr Manodya Rajapaksa

**The National Non Communicable Diseases Surveillance System**

Dr Deepal Wijesuriya

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## Parallel Symposium 12

[Hall B]

### **IT Literacy, Facilitating eLearning and Health Education**

*Chairpersons: Dr Neelamani Paranagama & Dr Nilakshi Samaranayake*

### **Computer Literacy Among Health Care Workers in District Base Hospitals in Kalutara District**

Dr Ayanthi Jayewardene

### **Automation of the Medical Library at the Medical Research Institute Using an Open Source Library Information and Management System**

Dr Sanath Thubellage

### **Suwasariya - The Way Forward In Electronic Health Education for All**

Dr Gumindu Kulatunga

## 15.00 Plenary Symposium on the National Nutrition Monitoring and Surveillance System

[Main Hall]

*Chairpersons: Dr Amal Harsha De Silva, Mr. Anura Dissanayake & Professor Vajira H. W. Dissanayake*

### **Introduction to the Multi Sectoral Plan**

Dr Lalith Chandradasa

National Coordinator, National Nutrition Secretariat, President's Office

### **Gathering Real Time Data Related to Nutrition Indicators at PHM Level**

Dr Roshan Hewapathirana

### **The Proposed Monitoring and Evaluation System for Nutrition for the Multi Sectoral Plan at Divisional/National Level**

Dr Indika Jagoda

### **Panel Discussion**

Dr Amal Harsha De Silva, Dr Lalith Chandradasa, Professor Vajira H. W. Dissanayake, Edward Archibald (*Aus Aid*), Ms. Una McCauley (*Country Representative, Unicef*), Dr Renuka Jayatissa, Professor Kristin Braa

## 16.00 Tea & Close

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## **SPEAKER PROFILES AND ABSTRACTS**

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## 7 OCTOBER 2014: OPENING PLENARY: MAIN HALL

### Dr Jed Blore PhD



Jed Blore is a Research Fellow at the University of Melbourne and an independent consultant to the Institute for Health Metrics and Evaluation (IHME) at the University of Washington. Dr Blore has previously held appointments as a lecturer and research scientist at the IHME and the University of Queensland, where he was jointly responsible for generating estimates of health loss for the Global Burden of Disease 2010 Study, a study which quantified the comparative health loss from almost 300 diseases and injuries and 70 risk factors in 188 countries over two decades (1990 - 2010). Dr Blore now works as a research translation specialist, engaging with policymakers, researchers, donors, and health-sector leaders in the Asia Pacific region on the application and translation of complex health data to health policy, in addition to building and maintaining relationships with health professionals to strengthen and expand the global network of collaborators contributing to annual updates of the Global Burden of Disease Study. Dr Blore is originally from Melbourne, Australia.

**E-mail:** [jed.blore@unimelb.edu.au](mailto:jed.blore@unimelb.edu.au)

**How IT and Global Health Can Save Lives: Examples from the Global Burden of Disease Study and the Population Health Metrics Research Consortium**

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## 7 OCTOBER 2014: PARALLEL SYMPOSIUM I: MAIN HALL

### **Dr Thanga Prabhu MBBS, MSc (Health Informatics)**



Thanga Prabhu is the Clinical Director of GE Healthcare IT, South Asia. He is the Founding Secretary of Indian Association for Medical Informatics (IAMI) Bangalore Chapter and currently an Executive Committee Member of IAMI India. He serves as the International Ambassador for Swansea University.

Dr Prabhu heads the Health Information Network(HIN), which is one of three components of Indian Health Information Network Development (iHIND) a Government of India effort under the aegis of National Knowledge Commission(NKC). He is a member of the 'EMR Interoperability Standards for India' expert committee formed by the Health Secretary, Government of India, which has published a set of standards in Aug 2013. He was also key to India joining International Health Terminologies Standards Development Organization (IHTSDO), Denmark thereby making SNOMED-CT freely available to all.

**E-mail:** thangas@gmail.com

**eHealth for India - Challenges and Opportunities**

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## Dr Pradeep Sylva BDS, MSc (Biomedical Informatics)



Pradeep Sylva is presently attached to the Health Information Unit of the Ministry of Health as a Dental Surgeon (Health Informatics). His work involves facilitating policy and strategy formulation in the area of health information and eHealth.

**E-mail:** pradeepsylva@gmail.com

### **Strategizing eHealth in the Health Information Context**

Healthcare is an information intense service. Health Information constitutes all data or information that are generated, captured, transmitted, stored, processed, analyzed and disseminated in either paper or electronic format, pertaining to health or healthcare service. Thus, the term encompasses data and information related to preventive health services, curative health services, health administration and research.

The government of Sri Lanka is committed to provide universal access to essential health care that would benefit its people through preventive and curative healthcare services. In this context an efficient and ubiquitous health information system plays a vital role. It is observed that the advent of ICT as a tool to improve health information systems has been embraced by most healthcare authorities the world over. Without doubt, eHealth brings about efficiency and accuracy in data management and numerous ways of data analysis and presentation. Further, information sharing is encouraged and facilitated bringing down the barriers of manual systems.

In contrast, disclosure of individually identifiable health information poses a serious threat to privacy and confidentiality of patients especially when health information is stored and shared in the electronic format. Therefore, the application of morals of healthcare to information governance and the governing legislature needs due consideration. Moreover, application of eHealth is a considerably high cost investment, needing parallel infrastructure and human resource capacity building. Thus, appropriate and sustainable eHealth interventions needs high level policy direction and well defined strategies in order to be in line with achieving the ultimate goals of healthcare.

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**Dr Kusal Wijayaweera MBBS, MSc (Biomedical Informatics), DPM  
(SLIDA)**



Kusal Wijayaweera is currently working as a Medical Officer (Health Informatics) in the Ministry of Health. He was a member of the working committee that drafted the eHealth Policy, Strategy Standards and Guidelines for Sri Lanka. His interests include Privacy, Confidentiality and Information Security for eHealth and Public Health Informatics with special focus on health policies, health information systems and spatial epidemiology.

**E-mail:** kusalwijayaweera@yahoo.com

**Implementation of Proposed Standards and Guidelines on  
Privacy, Confidentiality and Information Security: A SWOT Analysis**

eHealth presents an excellent opportunity for the improving health of a nation, by making health services more efficient, effective, and also by improving access to care. eHealth has ethical, legal and human rights aspects. Among them privacy, confidentiality and information security are some of the key areas that should be addressed in policies, standards and guidelines concerning eHealth.

National eHealth standards and guidelines were drafted by the working committee appointed by the National eHealth Steering Committee about two years back. This document has a section on Privacy, Confidentiality and Security of health information. However these standards and guidelines are still not implemented in the state health sector.

Since there is a huge interest at present in developing and implementing eHealth systems in the state health sector, it is the right time to implement the said guidelines, to protect the privacy and confidentiality of electronic health information. A study was done with aim of identifying the Strengths, Weaknesses, Opportunities and Threats (SWOT) in relation to implementing the above drafted standards and guidelines on Privacy, Confidentiality and Security of Information. Strategies to capitalize on the Strengths and Opportunities, as well as to overcome the Weaknesses and Threats are discussed in the study.

**Project Team:** Dr Kusal Wijayaweera, Dr Dilmini Karunaratne, Dr Nirmala Cooray, Dr Mayura Yapa

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**Dr Samiddhi Samarakoon MBBS, MSc (Community Medicine), MSc (Medical Administration)**



Samiddhi Samarakoon is a Registrar in Medical Administration and MD (Medical Administration) trainee. She has served as Director, District General Hospital, Matara for 4 years. Dr Samarakoon is also a Visiting Lecturer to the Department of Community Medicine, Faculty of Medicine, University of Ruhuna, a Research Advisor, Critical Care Forum and a National Resource Person for Gender Based Violence awareness and training activities in Sri Lanka.

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**Policy Issues in Implementing Open Source Electronic Health Record Systems in Sri Lankan Hospitals**

**Introduction:** Electronic health records (EHR) are expected to improve efficiency, quality and safety of patient care and ultimately reduce costs to patients and health system. However successful implementation of EHR, among other things requires policies which support the purpose. Overcoming policy issues is a major challenge when implementing eHealth solutions. This paper describes implications of policy issues in implementing an open source electronic health record system in Sri Lankan hospitals.

**Methodology:** Literature survey was done to find out experience in other countries. Focus group discussions and key informant interviews were held to identify policy issues in the Sri Lankan context.

**Results:** Main policy issues were identified under following 9 themes. (1) networked care, (2) interjurisdictional practice, (3) diffusion of eHealth/digital divide, (4) eHealth integration with existing systems, (5) response to new initiatives, (6) goal-setting for eHealth policy, (7) evaluation and research, (8) investment, and (9) ethics in eHealth

**Conclusions:** It was revealed that Sri Lanka requires a health information policy which addresses the above issues.

**Project Team:** Dr Indika Jagoda, Dr Samiddhi Samarakoon, Shriyananda Rathnayake

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## 7 OCTOBER 2014: PARALLEL SYMPOSIUM 2: HALL A

### **Dr Sampath Kulathilake MBBS, Cert. in Health Programme Management**



Sampath Kulathilake is the Medical Officer In-Charge of the “eHospital-Dompe” Project at the District Hospital, Dompe, Sri Lanka.

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#### **eHospital-Dompe & mChanneling – Implementation Challenges and Change Management**

“*eHospital-Dompe*” project is the most successful eHealth solution deployment of a government hospital in Sri Lanka. Improving the quality of care provided was the main objective of the project. Achieving productivity and efficiencies of conventional healthcare service processes through adaptation of Information and Communication Technology (ICT) enabled and streamlined process automation together with appropriate change management were also among the objectives. This initiative at District Hospital – Dompe (WP) covers the entire patient care service offering workflow inclusive of Patient Registration, Electronic Queue Management system, Medical Consultation & Diagnosis (based on Electronic Health Records), Prescription & issuing of medicine, Requesting and Reporting Medical Laboratory Examinations, Medical clinics and other connecting auxiliary caring services.

“*mChanneling*” solution module is another important and successful service extension of the project. It is the first-ever automated appointment management system in a government hospital in Sri Lanka that provides service for the Out Patient Department (OPD). This service is free of charge and delivers through more patient friendly service interfaces. Simplifying and re-engineering the process, strengthening the staff with Information Technology (IT) knowledge, building up the team spirit, facilitating the routine duty, continuous improvements with time line and methodical approach, direct communication with users and customers, monitoring and evaluation, appreciation and motivation of the users were among the key factors for success. A unique public and private sector partnership of Ministry of Health, all categories of hospital health staff, Information and Communication Technology Agency (ICTA), well-wishers from the community, software and hardware providers, presidential secretariat and mobile partner were among the cornerstones of the success of this project.

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## **Dr Prasad Ranatunga MBBS, MSc (Biomedical Informatics)**



Prasad Ranatunga is the Medical Officer (Health Information) at the Provincial General Hospital Kurunegala. He plays a leadership role in managing a team who manages the HMS, a software used for Hospital Information Management which had been functioning for the last 10 years and its hardware including the hospital wide local area network. Prasad is a life member of the Sri Lanka Medical Association, Health Informatics Society of Sri Lanka, Asia eHealth Information Network and Secretary of the Hospital Health Information Management Software, Project Management committee under National Foundation of Open Source Health Software. He was also a visiting lecturer to the Post Graduate Institute of Medicine. He is currently involved in island wide implementation of the Health Information Management Software developed jointly by the Ministry of Health and University of Kelaniya.

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### **Lessons From the Longest Running HIMS in Sri Lanka**

Sri Lanka can boast of a well-developed system for gathering health data, which in turn had contributed to the excellent health statistics achieved by our country. Still there is room for improvement where timely data gathering can be made more efficient. Information Technology (IT) solutions have been used world over to bridge these gaps with various levels of success. This had been same with Sri Lanka with IT solutions being introduced from time to time to various hospitals by various parties.

Kurunegala Provincial General Hospital is the fourth largest hospital in Sri Lanka with a bed capacity of 1771 and spread over a land area of 35 acres. The Hospital Management Software (HMS) was introduced to this hospital in 2003. HMS operates over the local area network in a client – server model. HMS supports for an extensive array of functionalities including, Patient administration, Pharmacy, Theatre, Radiology, Pathology, Inventory management and report generation. But currently it is used only for patient registration, admission to hospital, admission to ward and discharge.

It had been modified since its first installation and the last major software update was done in 2007. The software company that developed and updated the HMS no longer supports the software as they do not do developments using the platform used for

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developing HMS. No agreement exists between the Software development company and the hospital or the Ministry of Health, Sri Lanka regarding the source code. But some attempts were made recently to enhance the original functionality of HMS using separate modules written in Java which accessed the original MSSQL database used by HMS.

There are around 100 computers at the hospital which is used for HMS with three computers at the Admission counter, nine at the Medical Records Department & rest distributed among the wards and other units. Application server and these computers are connected through the local area network spread throughout the hospital.

As of June 2012 out 63% of these computers were with a Pentium IV® processor while 45% had less than 512MB of memory. Upgrading these computers and repairing was a problem as brand new replacement parts were very difficult to be obtained from the market. Also monitory allocations to purchase new computers, replacement parts to repair computers & damaged network accessories is a problem as the ministry of health does not have a separate budget to deal with them.

But for the last 10 years the HMS has been functioning well due to the enthusiastic support of the staff using the system, network and hardware administration and maintenance staff and the unrelenting support from the administration.

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## **Dr Pramil Liyanage MBBS, PG Cert Med Ed, MSc (Biomedical Informatics)**



Pramil Liyanage is a Medical Officer (Health Information) and Head of Health Information and Management Unit of the National Programme for Tuberculosis Control and Chest Diseases, Ministry of Health. He is also a Visiting Lecturer at the Post Graduate Institute of Medicine. He is a life member of Sri Lanka Medical Association and founder member of Forum of Sri Lankan Medical Educationists. His special interests include Public Health Informatics, eLearning, Continuous Profession Development (CPD), and ICD-10.

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### **Stakeholder Engagement in Developing Health Information Systems in the National Programme for Tuberculosis Control and Chest Diseases (NPTCCD)**

Being the main Governmental Organization responsible for control of respiratory diseases including tuberculosis in Sri Lanka, the information need of the National Programme for Tuberculosis Control and Chest Diseases (NPTCCD) relates to the management of National TB program and also tracking and management of individual patients with TB and other respiratory diseases. Aggregated reporting, disease surveillance, patient tracking, clinical decision supporting, laboratory information and drug management modules were identified as essential components of an ideal information system thus multi-modular approach is a necessity.

Recent attempts to fulfill this requirement failed to deliver the expected outcome mainly due to lapses in financing and technical expertise. To overcome these and to improve sustainability of the system, engagement of a wider circle of stakeholders was attempted where all identified stakeholders can contribute within their capacity. In 2013, collaboration was initiated by NPTCCD with PGIM, aimed at obtaining technical assistance and infrastructure development through the NOMA project, and a DHIS2 based system was initiated, backed by Global Fund (GFATM), which is one of the main funding sources of NPTCCD. Informatics Department of University of Oslo, together with PGIM and HISP India pledged for extensive technical support and resources for its implementation over the next three years.

Electronic Asthma and Chronic Obstructive Pulmonary Disease (COPD) Clinic Registry was developed using DHIS Tracker with engagement of the College of Respiratory Physicians. The TB Program Reporting Module was also completed and piloted successfully. An assessment was conducted by experts from University of Oslo on

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request from GFATM exploring the possibility of horizontal integration with other healthcare institutions.

Involvement of different stakeholders (local and foreign, technical and financial) ensured overcoming issues and facilitated decision making and capacity building. To ensure sustainability, enhanced collaboration among institutions, not individuals have to be developed and should be aimed at achieving institutional goals.

**Project Team:** Dr Pramil Liyanage, Dr Sudath Samaraweera, Dr Janaka Wickramaratne, Dr Manaf Abthul, Dr Roshan Hewapathirana, Dr Amitha Fernanado

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## 7 OCTOBER 2014: PARALLEL SYMPOSIUM 3: HALL B

### Professor Kristin Braa



Kristin Braa is a Professor and Vice Head at the Department of Informatics at the University of Oslo since she returned from Telenor a Norwegian international telecom company in 2009. There she established and headed a research and innovation center for Telenor's Asian operations. She is currently heading the Health Information Systems Program (HISP) network, initiated at the University of Oslo in 1994. HISP is a global action research network which is responsible for the development of the open source based District Health Information Software (DHIS 2). 20 PhD students have graduated and 34 are currently doing their PhD with this program. DHIS 2 is developed, customized and used for reporting, analysis and dissemination of health data for all health programs in an integrated way. It is a shared and integrated data warehouse for essential health data with the aim of supporting information for action. It is implemented in over 40 countries in Africa and Asia including 12 states in India. 12 countries has selected it as a national online HIS using mobile internet. Data can be captured and visualized on any type of mobile device including tablets, smart phones and feature phones.

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**Innovative Mobile Technologies Improving Health In Developing Countries**

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## Dr Indika Jagoda MBBS, MSc (Medical Administration)



Indika Jagoda joined the Ministry of Health as a Medical Officer in the year 2000. He was appointed to the Deputy Medical Administrative grade in 2010 after completing his MSc. He has worked as a Hospital Director, Regional Director of Health Services and as the Deputy Director for Private Health Sector Development. He is currently following the MD (Medical Administration) training programme of the PGIM. His interests include eHealth and innovations in health care. He was involved in establishing the first paperless Out Patient Department in Sri Lanka and developing an Open Source Health Information Management System.

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### **mHealth Solution to Strengthen Communicable Disease Surveillance System**

**Introduction:** Sri Lanka has a well-established communicable diseases notification system which is a legal requirement from 1897. However there are delays in communication associated with this.

**Objective:** To develop a mHealth solution which will support the current procedure of notification of communicable diseases and minimize delays associated with it.

**Design/Methodology:** Focus group and key informant interviews were held to identify reasons for delays in notification and feedback. Meetings with a team of software engineers were held to develop a possible m-health solution. Android OS: Version 4.0 (Ice Cream Sandwich) based solution was developed to suit the need and it was presented to the target group and their concerns were noted and necessary modifications made. Tablet computers were given to infection control nurses to improve notification process from the hospital end. Public health inspectors were given tablets to eliminate delays in receiving notifications and reporting back. MOH had an interface to oversee the whole process. The solution was implemented on pilot basis in one MOH area and in three hospitals surrounding the MOH area.

**Results:** After one year of implementation pilot project proved successful. It reduced delays associated with notification procedure significantly. The geographic information system incorporated to the solution not only helped to map communicable diseases more precisely but helped to supervise the activities of PHI's more effectively.

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**Conclusion:** The implemented solution helped to strengthen the communicable disease surveillance system

**Project Team:** Dr Indika Jagoda, Dr Samiddhi Samarakoon

### **Dr Nishan Siriwardena MD, MSc (Biomedical Informatics)**



Nishan Siriwardena at present works at the Health Information and Research Unit at the National Cancer Institute. He is the project manager for the National Hospital Information Management System (HIMS) Development programme for the Ministry of Health, Sri Lanka. He has worked as a clinician and as a medical administrator in curative and preventive health sectors at the Ministry of Health. His research interests are HIMS development, telemedicine, cancer prevention and quality improvement in health care.

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#### **The SLMA Mobitel DocCall Service**

Non-availability of access to authentic health advice when needed, especially in emergency situations, is one of the major problems in Sri Lanka. Convenience is a must in today's fast paced world, hence areas which were hitherto not considered fit for technical innovation have evolved to match the needs of the modern society. Instantaneous access to advice by competent medical professionals on health conditions is considered to be vital. A pre-requisite of such a service include protection of privacy and anonymity of the care recipient. Moreover, availability of a governing professional body to scrutinise the ethical behaviour of the care provider is deemed essential to deliver trustworthy medical advice to the recipients. Use of Information Communication Technology to provide health care at a distance (telemedicine) is a novel tool. Empowerment of people to use telemedicine tools to access medical advice in an emergency, chronic care as well as in confidential and sensitive matters is a new landmark in the history of healthcare in Sri Lanka.

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## 7 OCTOBER 2014: PLENARY 2: MAIN HALL

### **Dr Champika Wickramasinghe MBBS, MD (Medical Administration)**



Champika Wickramasinghe is the Director, Health Information and acting Senior Assistant Secretary – Medical Services in the Ministry of Health Sri Lanka. She obtained her MBBS from University of Peradeniya and her MSc and MD in Community Medicine from University of Colombo. Having worked as a Medical Administrator for the past 12 years holding key administrative posts including that of Director Planning, Director International Health and Medical superintendent District General Hospital Negombo, she possess an in depth understanding of the intricacies of the state health sector. She is also presently involved in several large scale projects as the Project Director, viz. SHSDP and JICA, in the Ministry of Health. She is the incumbent Vice-President of the College of Medical Administrators and a member of the Specialty Board in Biomedical Informatics at the Postgraduate Institute of Medicine, University of Colombo. Her special interests are health economics, and health planning.

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### **eHealth from a Medical Administrator's Perspective**

Healthcare delivery is increasingly becoming a burden to many economies. The intense resource requirements of this essential service have posed a considerable challenge on Medical Administrators on decisions of efficient and equitable resource allocation, planning and monitoring. Moreover, concerns of service quality and patient safety are on the rise. In this context the emphasis on health information system based evidence for decision making cannot be over emphasized.

The majority of health information systems in Sri Lanka are mainly paper-based and manual with inherent short comings in efficiency, accuracy and timeliness thus creating a dearth of quality health information. The fruits of an efficient management information system are well appreciated by health planners and decision makers at all levels. Therefore, tools of information system automation are being introduced increasingly, with a view of overcoming this challenge.

Though, the pros and cons of automation and incorporation of ICT in healthcare is well

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documented in more developed nations the challenges which lay ahead for Medical Administrators of a developing nation are unique, considering the limitations of financial and relevant human resources. The healthcare setting in Sri Lanka is presently not fully geared for eHealth adoption especially considering the deficiencies in cadres for ICT and information management. Thus, the implementation of sustainable eHealth solutions calls for a more pragmatic and cost-effective approach.

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## 7 OCTOBER 2014: PARALLEL SYMPOSIUM 4: MAIN HALL

### Dr Miguel H. Torres-Urquidy DDS, MS



Miguel H. Torres Urquidy is a Senior Service Fellow at the Division of Health Informatics and Surveillance from the US Centers for Disease Control and Prevention. He is also former BioSense Program Manager for CDC which is one of the largest biosurveillance systems in the world. Dr Torres Urquidy first joined CDC's Influenza Division as Informatics Fellow where he led the development of several visualization systems of influenza information including mobile technologies. Internationally, he assisted in assessing the influenza surveillance capabilities in Central America. Dr Torres Urquidy's work in visualization earned him several awards including the 2013 National Center for Immunization and Respiratory Diseases Honor Award for "Excellence in Domestic Epidemiology." Previously, he was a post-doctoral associate at the Center for Dental Informatics at the University of Pittsburgh working on National Institutes of Health-funded research related to clinical terminologies. Dr Torres Urquidy was trained as a dentist at the National University of Mexico and continued his education with a master's degree in biomedical informatics from the School of Medicine at the University of Pittsburgh. There, he developed a biosurveillance system that detected oral manifestations caused by bioterrorist agents by using emergency department data. In 2004, he rotated with the NIH's National Library of Medicine conducted analyses on U.S. public policy. Dr Torres Urquidy is past chair of the Dental Informatics Working Group at the American Medical Informatics Association and the International Medical Informatics Association. His work has been featured in several peer-reviewed health journals, US media and conferences. His book, *Medical and Dental Data Integration*, is published by Springer-Verlag.

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**Innovations in Public Health Surveillance**

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## **Dr Manula Dharmawardhana MBBS, MSc (Biomedical Informatics)**



Manjula Dharmawardhana in the Medical Officer (Health Information) at the National Hospital of Sri Lanka, Colombo – the largest tertiary care hospital in Sri Lanka. He is a TOGAF 9 Certified Enterprise Architect. He is a member of AeHIN and the Association of Enterprise Architects. He is skilled in TOGAF 9, HL7, Software Development, JAVA, MySQL, OWL, and Perl. His professional interests include application of Enterprise Architecture on Healthcare, Health information Management using application of Enterprise Architecture Principles, EHR Interoperability, Personalized Medicine using Integration of Genomics and EHR, Application of theory of Ontology.

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### **Enterprise Architecture and How it Applies to the Sri Lankan Context**

Enterprise Architecture (EA) is a well-defined practice of enterprise analysis, design, planning and implementation using a holistic approach at all times. The global context of EA is growing rapidly with more and more enterprises in the region moving towards it. Application of EA on Sri Lankan health sector is bound to overcome many irregularities and information deficiencies within the system. However EA capability within the health sector in Sri Lanka is still in its infancy. In addition there is lack of country wide vision on the objectives and goals of application of Health Information Technology. This study explores the application of EA on the eHealth in Sri Lanka and lists the advantages, constraints and gaps. It is based on the lessons learned while application of EA on eHealth within the biggest hospital of Sri Lanka, the National Hospital.

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## Dr Sriyantha de Silva MBBS



Sriyantha De Silva is a Medical Officer attached to Ministry of Health Sri Lanka and currently reading for the MSc in Biomedical Informatics at Post Graduate Institute of Medicine. He has been involved in the development of ART management system at the Pharmacy of the National STD/AIDS Control Programme customizing OpenMRS. He is currently working on developing an EMR for HIV.

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### **Facilitating Inter-Sectoral Collaboration with EMR: Experience from the HIV Programme**

A multi-sectoral response means involving all sectors of society -governments, business, civil society organisations, communities and people living with HIV/AIDS, at all levels - pan-Commonwealth, national and community -in addressing the causes and impact of the HIV/AIDS epidemic. Such a response requires action to engender political will, leadership and co-ordination, to develop and sustain new partnerships and ways of working, and to strengthen the capacity of all sectors to make an effective contribution. The main strength of a multi-sectoral approach is that It creates a mechanism for information sharing and coordination, supporting the inclusion of all major stakeholders in society, regardless of their sector or work and their organisational affiliation. Development of the HIV EMR has strengthened the information system with quality and reliable data to share with other sectors. The HIV EMR was developed with OpenMRS and will be used to share with stakeholders through aggregation of data with DHIS2.

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## 7 OCTOBER 2014: PARALLEL SYMPOSIUM 5: HALL A

### Dr Buddika Dayaratne MBBS, MSc (Biomedical Informatics)



Buddika Dayaratne is attached to the Medical Statistics Unit, Ministry of Health, as the Medical Officer (Health Informatics) since June, 2011. He is the co-developer of the Electronic Indoor Morbidity and Mortality (eIMMR) System – the first electronic system approved by the Ministry of Health for island wide implementation in Sri Lanka.

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#### **The Electronic Morbidity and Mortality System and its Significance**

The public health sector of Sri Lanka provides inward healthcare services for approximately 5.6 million patients each year. There are 624 hospitals geared for this activity. The patient data generated in this process is a vital part of the health information system which supports the management of healthcare, monitoring of disease patterns, disease prevention and evaluation of treatment outcomes. The main publication of the Ministry of Health, based on this health related data is the “Annual Health Bulletin”. This provides the required information for healthcare administrators, clinicians, researchers, NGOs, and the general public. The present manual process of data collection for this publication involves a tedious mechanism of data collection, compilation and analysis. The Indoor Morbidity and Mortality Report (IMMR) generated by hospitals is the core paper based return for this data collection.

It has been observed that this paper based return has many inherent drawbacks. Presently the data collection method is time consuming and error prone due to repeated data entry. Further, the ability to analyse and share data is limited. This process also involves a high level of resource requirements including manpower. As a result the publication of the annual health bulletin has been significantly delayed. Therefore the users of this information currently do not rely on the data provided.

The Electronic Indoor Morbidity and Mortality System (eIMMR) is a web based system design to facilitate collecting, storage, analysis and dissemination of inward patient statistics to improve efficacy, efficiency and accuracy. This project will be one of the initial attempts of digitalization of the Sri Lankan health system.

The proposed automation will ensure the timely publication of the annual health bulletin with accurate and validated data. This system will have the sophistication to cater for numerous analytical requirements and will also function as a disease surveillance system. Also in hospitals where there are electronic data bases, data

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capturing will be done through a 'Data Extraction Module' coupled to the eIMMR. The recurrent costs incurred for data collection will be significantly reduced due to the reduction in printing, postage and logistical costs.

This system was piloted in seven hospitals for a period of one year and found to be successful in operation. The island-wide implementation of this system is proposed to be carried out in a phased-out manner. The phasing will be done on the basis of available and required resources. At present 170 hospitals send their Indoor Morbidity and Mortality Data through the eIMMR.

### **Dr Nirmala Cooray MBBS, MSc (Biomedical Informatics)**



Nirmala Cooray is a Medical Office (Health Information) in the Ministry of Health.

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### **Improving User Compliance Through Reducing Complexities of Graphical User Interfaces (GUIs) of Healthcare IT Solutions in High Volume Clinical Settings**

Data capturing in high volume setups like Out-Patient Departments and Clinics has been a challenge for developers of healthcare IT solutions, as it requires a meticulous balance between maintaining Doctor-Patient relationship, efficacy of capturing accurate data, and time spent per patient.

As these IT solutions are implemented with the intention of improving the collection of accurate data, developers have incorporated various data capturing tools panning in many different frames into their GUIs to capture different classes of data. While this enhances the accuracy it also makes the GUIs more complex.

Due to the complexity of their GUIs, most of the current healthcare IT solutions have shifted the doctors' focus and time from the patient towards data entering. This has reduced the quality of interaction between doctor and patient, and lead to poor patient experiences. More importantly, this has also increased the workload of the doctors

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leading to build up of frustration resulting in user resistance towards healthcare IT solutions.

The prototype was developed with the aim of reducing the complexity of GUI's, and easy navigation within the system. The GUI is self-customized by the doctor to set own preferences in diagnosis and treatment, making interaction easier with the system, leading to more free time on hand for a better doctor-patient experience, while maintaining accuracy of patient data.

The prototype was developed as a web based application using JavaScript, PHP, and MYSQL, adhering to AMIA guidelines. The prototype will be tested in selected high volume setups prior to the development of next phase.

**Project Team:** Dr Nirmala Cooray, Dr Kusal Wijayaweera, Dr Mayura Yapa

**Dr Deepal Wijesooriya MBBS, MSc (Biomedical Informatics), MBA (Health Care Services), Dip Psych**



Deepal Wijesooriya is a Medical Officer (Health Information) at the National Institute of Health (NIHS), Kalutara. He is also the Founder and Chairman of Family Care Hospital (Pvt.) Ltd, Kalutara and Founder & Chairman of Web Care Hosting Solutions (Pvt.) Ltd. He is a Council Member of the Sri Lanka Medical Association (SLMA) since 2012. His professional interests include human behaviour in organizational structure, future trends in health care delivery and influence of information technology, clinical auditing, statistical predictions of health related data. He is currently involved in the following projects: National Non Communicable Diseases (NCD) Data Management software development team of the Ministry of Health, Public Health Data Collection and Analysis of “Nirogi Deviya” Project, Development of the Public Health Laboratory System, Online Medical Training “Dialog E-teacher Programme” team at the SLMA.

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**Electronic Data Management in a Public Health Laboratory**

NIHS Public Health Laboratory is the very first food analytical laboratory of the

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Ministry of Health and provides services to all administrative areas of the country except the city limits of Colombo. The laboratory functions in the two main sections namely Food Chemistry and Food Microbiology are supervised by a Chief Chemist and Consultant Microbiologist. Both of them are gazette.

The laboratory is authorized to analyze food and water samples under the Food Act. And the key function of the laboratory is analysis of samples brought by the inspectorate and issue of reports to the authorized officers.

Existing business process was paper based and suffered all the common issues of any paper based system like clerical mistake, repeated data entry, issues in information tracking, timing of the process, monitoring and auditing of the system.

The electronic data management system is an online web portal. Authorized persons can access anywhere at any time by using a web browser. It is platform independent and device independent.

The new system was designed to address all the limitations of the paper based system and it has improved business processes by minimizing repeated data entry and reducing paper usage. It increased user satisfaction at every level, viz. superadmin, admin, analysts, quality controller, sample collector, PHI/FDI.

All the data can be exported to Comma Separated Values (CSV) file format and the data can be analysed to find more complex relationship within the data element using stranded statistical packages. It will help analysts to find out new relationships within the data element. That information can be used by field officers to improve search criteria for poor quality foods. At the same time this information can be used to educate the public about food quality and selection criteria for better foods.

This system can be further extended to other public laboratory to improve quality of data and process management. Information generated through the system can be used to evaluate efficiency of the employees at various parameters.

**Project Team:** Dr Deepal Wijesooriya, Dr Yavidu De Alwis, Dr Lakshman Gamlath, Dr Gamini Wijayarathna, Ms. AMK Hemalatha , Ms S Udakara, Ms. HV Senanayaka

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## **Dr Praveen De Silva MBBS, MSc (Biomedical Informatics)**



Praveen De Silva is the Medical Officer (Health Information) at the Castle Street Hospital for Women, the premier Maternity Hospital in Sri Lanka.

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### **Neonatal Morbidity and Mortality Review – An ICT Solution**

One of the key methods employed to identify preventable causes of neonatal morbidity and mortality is to review its causes. A requirement has been imposed by the Ministry of Health to hold monthly perinatal reviews in hospitals with Special Baby Care Units and the reports generated there are required to be sent to the Family Health Bureau.

When computing statistics for perinatal reviews, the need to obtain timely, accurate, relevant, valid, reliable and complete data is underscored. Low quality data, as can be expected, results in poor or loss of achievement of the core objectives of the reviews.

To optimize data recording, software has been designed to capture admissions and discharges to Special Care Baby Units (SCBU) and Neonatal Intensive Care Units (NICU). Discharge diagnosis is captured according to the ICD 10 codes and required statistics for the monthly perinatal review meeting are generated by the software. It facilitates the generation of daily reports similar to the normal admission book.

This software is currently being piloted at the Castle Street Hospital for Women, which has the largest SCBU in Sri Lanka and it has shown a great improvement in the quality of data presented at the perinatal review meetings.

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## 7 OCTOBER 2014: PARALLEL SYMPOSIUM 6: HALL B

### Lacey Hart MBA



Lacey Hart, MBA, is a Project Management Institute–certified project manager with a master's degree in business administration with 17 years in the healthcare field. She is the Vice President of Strategic Planning and Business Development for Brandix I three. Ms. Hart, formerly of Mayo Clinic, was the program director for research programs including the U.S. Department of Health and Human Services/Office of the National Coordinator for Healthcare IT (ONC) Strategic Health IT Advanced Research Projects (SHARP) on Secondary EHR Data Use and the Beacon Community grant, and the National Institutes of Health/National Human Genome Institute–funded consortium of biorepositories linked to medical records (eMERGE) to name a few. Brandix I three Healthcare Sector is enabling healthcare transformation through innovative health IT solutions and process improvement expertise.

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**The Value of Healthcare IT Continuity in an Expanded Healthcare Ecosystem**

**This talk is Sponsored by Brandix i3 (Pvt) Ltd.**

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## Dr Roshan Hewapathirana MBBS, MSc (IT), MIEEE, SCMAD



Roshan Hewapathirana is a PhD candidate at the Department of Informatics, University of Oslo. He is serving as a Visiting Lecturer at the Post Graduate Institute of Medicine (PGIM), University of Colombo and a Joint Executive Editor to the Sri Lanka Journal of Biomedical Informatics. He is involved with post graduate teaching programmes in health informatics as a lecture and an academic supervisor for the Masters in Biomedical Informatics programmes of the PGIM. Prior to joining the academic community, he was a senior software engineer at the Lanka Software Foundation. He is an active member of Open Source communities, *Sahana* disaster management system project and *DHIS2* public health information system project. He is also the Editor of Health Informatics Society of Sri Lanka (HISSL) and represents HISSL in Working Group 10 of the International Medical Informatics Association. Apart from this, he is a member of Asian eHealth Information Network, IEEE Society for Engineering in Medicine and Biology and Working Group 9.4 of International Federation for Information Processing. Roshan is currently contributing to several public health information system implementations for the Department of Health, Sri Lanka in the capacity of health information analyst and a *DHIS2* expert. Roshan was the project manager of the MSc (Biomedical Informatics) course when it was established in 2008.

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### **Readiness and Recommendations for Health Information Sharing: Sri Lankan Scenario**

Health being a knowledge industry, information plays a major role in programme planning and service delivery. Non-sharing of health information is well known for fragmented data flow leading to poor quality data. Systematic sharing of health information is vital to realize evidence based decision making in health sector. In Sri Lanka, despite department of health spending considerable proportion of annual health budget on information management, duplication of data collection at various levels imposes unnecessary burden on grass-root level health care workers compromising timely reach of high quality data to decision making strata. Hence this study was designed to understand the stakeholder requirements, barriers and possible solution in Sri Lankan state health sector for a sustainable health information sharing model.

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The majority of respondents from vertical health programmes expressed the organizational willingness for information standardisation and to operate under integrated and interoperable health information architecture. However, ownership of information was stressed highlighting the independent vertical decision making process. Legislative measures and information stewardship were the areas where improvements were required. Lack of national guidelines and policy for health information governance and sharing was seen as a major hindrance for integrated information architecture by curative and preventive sector. Need for system wide awareness of health information standardization and improving information accountability was also identified.

**Project Team:** Dr Wasanthi Dharmadasa, Dr Roshan Hewapathirana, Dr SRU Wimalaratne

### **Dr Buddhika Ariyaratne MBBS, MSc (Biomedical Informatics)**



Buddhika Ariyaratne is a Medical Officer (Health Information) in the Department of Health Services of the Southern Province. His interests include Agile Software Development, Enterprise Health Applications and Free and Open Source Software (FOSS).

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### **Developing Provincial Health Information Infrastructure: The Southern Province Experience**

The paper based health information infrastructure of Sri Lanka contributed immensely to achieve health indices that match those of developed countries. The process of introduction of Information and Communication Technology to a time-tested paper based mechanism needed careful attention to detail. The department of health services, Southern Province has successfully completed the customization of DHIS2 to automate the data flow from MOH level to Provincial Level related to Maternal and Child Health Services. The experience gathered in the process can be used in shaping the implementations at National Level.

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## **Dr Priyanga Senanayaka MBBS, MSc (Biomedical Informatics)**



Priyanga Senanayaka is presently attached to the Sri Jayewardenepura General Hospital as a Medical Officer (Health Information). His work involves applying health informatics initiatives in the hospital with the view of enhancing efficiency and efficacy of health care delivery.

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### **Overcoming Infrastructure Limitations in Implementation of an EMR System - a Sri Lankan Experience**

The Orthopaedic Unit, National Hospital of Sri Lanka, handles a huge set of information during the process of patient care. This was performed with a paper based record system which was found to be inefficient. Preliminary study showed that involvement of an Electronic Medical Record (EMR) System would enhance the efficiency and efficacy of the clinic.

Main drawback in implementing an EMRS was inadequate organizational and technological infrastructure. Lack of funding, inadequate space, non-availability of computer and network facilities, lack of an organizational policy, low computer literacy among users and negative attitudes were major problems identified and to be addressed.

An Information Management System was designed, developed and implemented to suit domain requirements and available infrastructure. Measures were taken to minimize conflicts with the environment and to optimally use available infrastructure facilities.

After successful implementation, it was clearly evident that the EMR system was more efficient in patient management compared to the paper based system and was successfully accepted by the users.

**Dr Solaiman Juman FRCS**



Solaiman Juman is a graduate of the University of West Indies (UWI). He subsequently did Postgraduate training in the UK, obtaining the FRCS (Eng) in General Surgery and Otolaryngology. Since 1995 he has been a Lecturer in Otolaryngology at the University of the West Indies in Trinidad. At present, he is the Programme Director in Otolaryngology in the St. Augustine Campus of UWI. His research interests include Paediatric Otolaryngology and the demographics of ENT disease in Trinidad & Tobago. He is the Past President of the Trinidad & Tobago Medical Association as well as the Trinidad & Tobago Society of Otolaryngology and Head & Neck Surgery. He is the Editor of the Caribbean Medical Journal and also a member of the American Academy of Otolaryngology & Head and Neck Surgery (AAOHNS). In 2013 he was elected the President of the Commonwealth Medical Association (CMA). His vision is to use the vehicle of the CMA to empower the National Medical Associations of the Commonwealth. There is a high penetration of Digital technology (e-Health and m-Health) in the countries of the Commonwealth and lends itself to being the ideal and cost-effective medium for the sharing of knowledge amongst the countries of the commonwealth to provide optimal care for their citizens

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**CMA eHealth Triennium**

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## **Professor Sundaram Arulraj**



Sundaram Arulraj is an adjunct Professor of Medicine at the Dr MGR Medical University, Chennai. He plays an active role in the Indian Medical Association (IMA) and Association of Physicians in India and was honored by the Life Time Achievement Award from the Dr MGR Medical University, Chennai. He was elected as the Vice President of the Commonwealth Medical Association for 2004 to 2007 and the President of the Commonwealth Medical Association for 2007 to 2010. Dr Arulraj was the Dean of IMA College, New Delhi from 1996 to 1998 and the National President of IMA from 2002 to 2003. Currently he is the Chairman, Commonwealth Health Professions Alliance and the Chairman, Commonwealth Medical Association Trust.

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**eHealth Solutions to Control Non Communicable Diseases**

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**Dr Saminda Dharmaratne MBBS, DCH, MSc (Biomedical Informatics),  
PG Cert in Basic Statistics**



Saminda Dharmarathne is the Medical Officer (Health Information) and Medical Officer In charge of the Health Information and Research Unit, Teaching Hospital, Kandy

Saminda is a clinician with experience in Neonatology, Paediatrics, Paediatric Surgery, General Surgery, Cardiology and General Practice. He is currently working as a Health Informatician for the last 3 years in the Ministry of Health. He has been a resource person for number of National and International Conferences and Teaching Programmes. He was the chairman of the organizing committee for eHealth Sri Lanka International Conference in 2010 and has represented Sri Lanka Medical Association for Commonwealth International eHealth Conference in 2012 in Chennai. Saminda has presented number of papers in local conferences and has published some of his work in internationally recognized journals. He has been a Visiting Lecturer at the Postgraduate Institute of Medicine.

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### **Health Care Quality Improvement through eHealth**

In most services other than healthcare, electronic data storing, exchanging and retrieving has been used for so many decades. But 'eHealth' the solution for healthcare provision has comparatively a very short history globally. Nevertheless there is a considerable trend nationally and internationally to explore the possibilities of delivering better quality healthcare by digital transformation. Most properly designed, developed, piloted and implemented solutions have become successes. They have proven to be effective in delivering quality healthcare.

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## **7 OCTOBER 2014: INTERACTIVE SESSION 1: HALL A**

**Conducted by: Professor Kristin Braa and Dr Roshan Hewapathirana**

### **New Developments in DHIS2**

DHIS 2 is a Free and Open Source Software (FOSS) tool for collection, validation, analysis, and presentation of aggregate statistical data, tailored to integrated health information management activities. It is a generic tool rather than a pre-configured database application, with an open meta-data model and a flexible user interface that allows the user to design the contents of a specific information system without the need for programming. DHIS2 allows managing aggregate data with a flexible data model with improving functionalities to collect, manage and analyse transactional, case-based data records as well. Everything can be configured through the user interface without needing for programming knowledge to enjoy a high end public health information visualization platform rich with GIS, charts, pivot tables and dashboards bringing meaning to the data. It is possible to expand the reach of DHIS 2 through a wide range of mobile solutions. Also, DHIS2 Web API and DHIS2 Apps are gaining popularity rapidly increasing its range of functions, customizability and interrogation options.

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## 7 OCTOBER 2014: INTERACTIVE SESSION 2: HALL B

### Conducted by: Pubudu Samarakoon BSc, MSc (Bioinformatics)



Pubudu Saneth Samarakoon is reading for his PhD at the Department of Medical Genetics, Faculty of Medicine, University of Oslo and works as a bioinformatician at the Norwegian Sequencing Center. He obtained his B.Sc degree in 2006 from the Faculty of Science, University of Kelaniya, Sri Lanka and M.Sc in Bioinformatics from the Vinayak Missions research Foundation, India in 2008. His interests are genomics and bioprogramming and made his contribution to the advancement of the field of bioinformatics by developing a protocol to predict and to confirm short exonic CNVs using exome data. He was a co-investigator of the Sri Lankan Genetic Variation Databases (SLGVD) project and the Sri Lankan Genome Sequencing project during 2008-2010 while working at the University of Colombo and contributed to the development of bioinformatics in Sri Lanka. Currently he is working on studying the combined effect of Copy Number Variant and Single Nucleotide Variants associated with rare diseases.

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### Open Source Tools for Bioinformatics

Rapidly developing technologies now allow genomes to be sequenced more quickly and cheaply than ever before. Thus we have organized this workshop to cover state of the art methods and applications of next generation sequencing. The Workshop consists of a lecture and a practical session, introducing next generation sequencing technologies, variant calling process and the annotation of identified variants. The combination of the lecture and the practical session is aimed at familiarizing participants with the analysis of high-throughput sequencing (HTS) data when searching for clinically significant genomic variants. We encourage the participants to bring their own laptop computers and they will be able to access a remote Linux server during the practical sessions.

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## 8 OCTOBER 2014: PLENARY 3: MAIN HALL

### Professor Kristin Braa



Kristin Braa is a Professor and Vice Head at the Department of Informatics at the University of Oslo since she returned from Telenor a Norwegian international telecom company in 2009. There she established and headed a research and innovation center for Telenor's Asian operations. She is currently heading the Health Information Systems Program (HISP) network, initiated at the University of Oslo in 1994. HISP is a global action research network which is responsible for the development of the open source based District Health Information Software (DHIS 2). 20 PhD students have graduated and 34 are currently doing their PhD with this program. DHIS 2 is developed, customized and used for reporting, analysis and dissemination of health data for all health programs in an integrated way. It is a shared and integrated data warehouse for essential health data with the aim of supporting information for action. It is implemented in over 40 countries in Africa and Asia including 12 states in India. 12 countries has selected it as a national online HIS using mobile internet. Data can be captured and visualized on any type of mobile device including tablets, smart phones and feature phones.

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**Capacity Building in HIS - 20 Years of Experience**

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## 8 OCTOBER 2014: PARALLEL SYMPOSIUM 7: MAIN HALL

### Jyotsna Chikersal



Jyotsna Chikersal is the Regional Advisor for Health Situation and Trend Assessment (HST) for the WHO's South East Asia Region based in New Delhi, India. She leads WHO's technical advice to member countries in the region on strengthening Health Information Systems, Civil registration and Vital Statistics, Health Statistics and eHealth as key pillars to strengthen Health Systems. She has over 15 years of experience in building strategic collaborations with development partners and academic institutions to promote technical cooperation as well as capacity building in the area of HST. In recent years, unit's work has also focused on the use of information and communication technologies (ICTs) in improving quality health services, accelerating universal health coverage, monitoring results, and improving information and accountability for better health outcomes. She has also been spearheading work in the region towards the direction of implementing Open Source Tools, District Health Information System, Electronic Medical Records and Health Data Standards. Ms Chikersal has also been taking forward the coordination of the activities under the Commission on Information and Accountability for Women's and Children's(COIA) health in SEAR countries, and monitoring of international health goals such as MDGs.

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**Civil Registration and Vital Statistics**

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## Dr Prasanna Weerakoon MBBS, MSc (Biomedical Informatics)



Prasanna Weerakoon is a Medical Officer (Health Information) at the Ministry of Health. He is a member of AeHIN and AHIMA. His professional Interests are: Public health informatics with emphasis on health information policies, information systems management and applied public health informatics (chronic diseases, environmental health and health statistics), and Free and Open Source Software (FOSS).

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### **Open Source Reuse for Cost-Effective Software Development in a Low-Resourced Setting: An Empirical Case from the Healthcare Domain**

**Objectives:** The study was designed to develop a cost-effective disaster management information system, which supports all activities of the disaster management cycle. This requirement was highlighted in the Health Master Plan and the Strategic Plan of the Disaster Preparedness and Response Division (DPRD) of the Ministry of Health.

**Methodology:** The project followed the action design research method. The most appropriate platform for the system was selected based on the number of possible reusable components, strong developer community, and expertise in the disaster management domain, cost, maintenance, scalability and interoperability with stakeholder systems. A requirement analysis was performed to identify the software specifications requirements (SRS) and Agile methods and Free and Open Source Software (FOSS) reuse was utilized to develop the software.

**Results:** The Sahana (mainly Vesuvius) was identified as the FOSS platform for reuse development. The compilation of the SRS resulted in the identification of all functional and non-functional requirements for the demo version, which comprised of five reused components of the Sahana platform and three new components.

**Discussion and Conclusion:** The software was produced within 8 months with no cost to the Ministry of Health and the continuous support from the Sahana Community will significantly reduce the maintenance cost. Moreover, FOSS reuse enabled the software to retain the time-tested functionalities of the Sahana platform, while satisfactorily fulfilling the requirements of the DPRD. Therefore, FOSS reuse can be considered in low-resource settings and more emphasis should be given to it in future projects.

**Project Team:** Dr Prasanna Weerakoon, Dr Roshan Hewapathirana, Dr HDB Herath

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## **Dr Neranga Liyanaarachchi MBBS, HDIT**



Neranga Liyanaarachchi is Medical Officer in the Ministry of Health Sri Lanka and he is currently reading for his MSc at the PGIM. He is a member of AeHIN, HISSL, and ISTeH. His professional interests include public health informatics, health information policy studies, information systems management, Free and Open Source HMIS, District Health Information System, cancer surveillance, data quality standards

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### **Customization of the Clinic Management Information System of the Cancer Early Detection Centre using DHIS2**

Strengthening existing services for early detection of cancer by evidence-based, feasible, scalable and cost-effective screening services is a national priority. The cancer early detection centre is one such initiative. The difficulty in proper storage and analysis of quality name-based data to facilitate decision-making is one of the information management issues at the cancer early detection centre.

A structured minimum clinical dataset was developed by following first iteration of a five step modified framework and a free and open source software solution (District Health Information System version 2.0) was customized and deployed as the clinic management information system. Participatory action research model was followed.

The District Health Information System version 2.0 could be customized to capture name-based client information and store securely for data analysis and participatory action research model could be used in similar situations.

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## 8 OCTOBER 2014: PARALLEL SYMPOSIUM 8: HALL A

### **Thushara Suraweera BSc, Pg. Dip. in Business Management**



Thushara Suraweera holds a Bachelor's Degree in Science and also a Post Graduate Diploma in Business Management from the University of Colombo. Presently, he is reading for his MBA in e-Governance in University of Moratuwa. Thushara is an officer from Sri Lanka Administrative Service (SLAS) with nine years of experience. He has started his career as an IT Specialist at the Policy Research & Information Unit of the Presidential Secretariat in 1998 and also has got his first appointment as a SLAS officer to the same secretariat. He has undertaken various IT management assignments in organizations he has served. Thushara served as an Assistant Secretary to the President, at Presidential Secretariat before he joined the ICTA.

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### **Stakeholder Engagement for Adopting Data Standards and Interoperability**

### **Dr Arjuna Wijekoon MBBS, MSc (Biomedical Informatics), Dip. Diplomacy and World Affairs**



Arjuna Wijekoon is the Head of the Health Information Management Unit, Chief Innovation Officer, and Secretary of the Ethics Review Committee of the Department of Health Services, North-Western Province of Sri Lanka. He is a member of the SLMA and HISSL. His professional interests are: community health, medical ethics and privacy of care recipients, strategic planning, sustainability of information systems, interoperability and open standards, and writing systems and Unicode standard.

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### **Strategic Planning for e-readiness: Experience of Department of Health Services, North-western province of Sri Lanka**

Electronic readiness is the degree to which an entity is prepared to obtain benefits from

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adopting ICT. A minimum level of infrastructure (hardware & connectivity), training and system improvement (standards, guidelines, regulations and coordination) needs to be in place in order to obtain any such benefits and to sustain any computer based information system.

Several attempts in the past to incorporate ICT within the Department of Health Services of the province could not be sustained or successfully replicated mainly due to focusing on individual information systems before improving the e-readiness. The Department has successfully implemented a medium term strategic plan improving the e-readiness.

### **Dr Clive C. James MD, MSc (Biomedical Informatics)**



Clive C. James is Medical Officer (Health Information) in the Health Information Unit, Ministry of Health, Sri Lanka. He is a member of AeHIN, HISSL. His professional interests are: Electronic Health Information Systems interoperability and standards, and Healthcare Identification Number.

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### **Lanka Interoperability Framework – Health Domain (LiFE HD)**

With the rapid development in the field of ICT, its adoption in all aspects of healthcare is increasing. Sri Lanka too is rapidly adopting the use of ICT in the field of healthcare. While this is commendable and should be encouraged there is a need to ensure interoperability between these ICT solutions which use various different technologies, platform and etc. The government of Sri Lanka has already set up an interoperability framework for ICT solutions implemented in the country, which is the Lanka Interoperability Framework (LiFE). But this is a general set of interoperability standards and does not address specific needs of the health sector. Therefore a set of specific standards for the health sector is being developed under the main Lanka interoperability frame work and this is called Lanka Interoperability Framework – Health Domain (LiFE-HD)

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## 8 OCTOBER 2014: PARALLEL SYMPOSIUM 9: HALL B

### Jayantha Fernando LLM



Jayantha Fernando is an Attorney by Profession and was the driving force behind the ICT Law reform process in Sri Lanka. He was one of the first to specialize in ICT Law, with a Masters Degree (LLM) in IT & Communications Law from the University of London. He has extensive ICT law practice & policy experience in several countries, with internationally known legal expertise in Electronic Commerce, Information Security, Cyber Crime, Intellectual Property Rights & Software licensing, Privacy, Payment systems, e-Banking, Internet governance and drafting / negotiating complex IT Systems Contracts. Since 1997 he played a lead strategic role in drafting several ICT related legislation and in doing so brought his extensive International experience into the process. He played the lead role in drafting the Electronic Transactions Act No. 19 of 2006 and the Computer Crimes Act No. 24 of 2007. Jayantha was in the delegation which drafted the UN Electronic Communications Convention (2005), through UNCITRAL Working Group IV

He is currently the Program Director & Legal Advisor at the ICT Agency of Sri Lanka (ICTA – [www.icta.lk](http://www.icta.lk)). He was instrumental in doing the legal blueprint to establish ICTA and also helped the establishment of Sri Lanka CERT. Jayantha also Co-chairs the National Certification Authority Task force. In the Internet Governance arena he was the first Sri Lankan to be elected as Vice Chair of the ICANN's Government Advisory Committee (GAC). Until recently he served in the 21 member ICANN global Internet Registry Services Technical Evaluation Panel. He is the Chairman of the Board of Directors of LK Domain Registry (.LK)

Jayantha is both a Chevening Scholar and an Eisenhower Fellow.

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## **Dr Kosala Randeniya MBBS, COBIT/F**



Kosala Randeniya is a Medical Officer in the Ministry of Health currently reading for his MSc in Biomedical Informatics at the PGIM. His special interests are public health informatics with emphasis on e-governance, epidemiology and human medical geology.

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### **COBIT 5 and its applications in the Sri Lankan context**

Information has become the currency in twenty first century. From the time information is created to the movement that it is destroyed, technology places a significant role. Governance and management of this strategic asset is a priority of enterprises of all sizes, whether commercial, non for profit or public sector.

COBIT 5 provides a comprehensive framework that assist enterprises in achieving their objectives for the governance and management of enterprise IT. It helps enterprises to create optimal value from IT by maintaining a balance between realising benefits and optimising risk levels and resource use.

IT in health is a double edged sword, as it needs to consider business process and human factors at the same time. The Sri Lankan health domain is not an exception.

The successful application of COBIT 5 in the Sri Lankan Health domain will enable IT related projects to be governed and managed in a more productive manner by holistic approach, improving cost effectiveness, aligning with other internal process, mitigating risks, and improving patient satisfactions.

## **Dr Roshan Hewapathirana MBBS, MSc (IT), MIEEE, SCMAD**

### **Open Source Governance in the Health Sector**

Open source governance has been defined as the way an organization controls the use of open source software within their products and services, supply chains and business management activities, and the associated business and legal processes. Open source governance is part of the broader concept of IT governance. For many organizations, the acquisition of open source software has been largely uncontrolled and health is not an exception. Software developers, suppliers and implementers have enjoyed the freedom

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of searching the abundance of open source code available on the Internet and used it without a formal acquisition process. Currently open source codes have occupied substantive portion of deployed code without proper awareness of the nature of the codes being used or the scope of its license. Among other things, failing to establish procedures to ensure open source governance and compliance with open source licenses may lead to software ownership and intellectual property issues.

## **Dr Prasad Ranatunga MBBS, MSc (Biomedical Informatics)**

### **Internet Use Monitoring and Filtering in a Government Hospital**

Use of Internet is increasingly becoming a necessary part of the day to day functions of hospitals and other healthcare related institutions in Sri Lanka with the use of solutions such as Drug Management System of MSD, HRMIS, HealthNet and eIMMR and for communication. Providing Internet facilities to institutions widely spread across the country is not a problem to be concerned with due to wide availability of wired and wireless Internet connectivity in the country. In Provincial General Hospital, Kurunegala, about 100 computers in various units are connected to the Internet by a hospital wide local area network, connecting all wards and units. This has created a unique situation in which all the computers have connectivity to the Internet without any regulation. Initially it was found that the internet usage quickly overwhelmed the networks capacity and hampered the Internet service needed for legitimate uses.

The need for restricting access to Internet arose to overcome these problems. Standards were defined to ensure employees used the Internet in a safe and responsible manner and complied with values and policies of the Provincial General Hospital, Kurunegala and the Government of Democratic Socialist Republic of Sri Lanka at the same time having access to web sites and Internet services legitimately needed for their work. An encompassing policy was developed to implement these standards. The policy would apply to all end user initiated communications between network of the Provincial General Hospital, Kurunegala and the Internet, including web browsing, instant messaging, file transfer, file sharing, and other standard and proprietary protocols.

A proxy server was setup using open source software which enabled to monitor, log and filter all the Internet access attempts. Those site visits that were deemed to be restricted according to the policy would be blocked accordingly. The Internet use is periodically monitored & blocked sites may be unblocked on user request accordingly.

Internet use has reduced immensely following the implementation of the policy and filtering of traffic using the proxy server and disruption to internet services legitimately is almost non-existent.

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## 8 OCTOBER 2014: PLENARY LECTURE 4: MAIN HALL

### Jyotsna Chikersal



Jyotsna Chikersal is the Regional Advisor for Health Situation and Trend Assessment (HST) for the WHO's South East Asia Region based in New Delhi, India. She leads WHO's technical advice to member countries in the region on strengthening Health Information Systems, Civil registration and Vital Statistics, Health Statistics and eHealth as key pillars to strengthen Health Systems. She has over 15 years of experience in building strategic collaborations with development partners and academic institutions to promote technical cooperation as well as capacity building in the area of HST. In recent years, unit's work has also focused on the use of information and communication technologies (ICTs) in improving quality health services, accelerating universal health coverage, monitoring results, and improving information and accountability for better health outcomes. She has also been spearheading work in the region towards the direction of implementing Open Source Tools, District Health Information System, Electronic Medical Records and Health Data Standards. Ms Chikersal has also been taking forward the coordination of the activities under the Commission on Information and Accountability for Women's and Children's(COIA) health in SEAR countries, and monitoring of international health goals such as MDGs.

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**World Health Organization's Regional eHealth Strategy**

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## **8 OCTOBER 2014: PARALLEL SYMPOSIUM 10: MAIN HALL**

**Dr Deepal Wijesooriya MBBS, MSc (Biomedical Informatics), MBA  
(Health Care Services), Dip Psych**

### **Capturing Attention and Converting Leads: SLMA website and eMail List**

The SLMA is the oldest professional medical association in Asia and Australasia, with a proud history dating back to 1887.

SLMA is mainly a professional organization which looks after the medical profession; though it has a public responsibility to create awareness about best health practices and current issues related to the health sector.

The SLMA was challenged to find a cost-effective and efficient method to maintain communication to all its stakeholders. Most doctors are computer literate and have sound knowledge about new technologies like the Internet, web services, email, etc. So the SLMA decided to strengthen its online visibility by converting the existing website to an interactive modern web 2.0 site. The new site was integrated with social media like Facebook, Twitter, YouTube, and LinkedIn. The SLMA newsletter which was in paper form was also digitalised and made available through the web.

This new web site becomes a good marketing tool and increased SLMA's credentials. It also helped the SLMA to increase its marketability, for the first time there was an increased number of companies walking into SLMA office offering to sponsor SLMA.

The SLMA website has become a day to day information dissemination centre to the entire profession. To facilitate this, the site was coupled with an email list. It helped us to get more visibility to SLMA activities and increased the number of participants for events.

The SLMA website and its leads generation is a good way to find out how online visibility affects the growth of an organization. The SLMA website had more than 500,000 visits during the past 12 month.

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## **Dr Rikaz Sheriff MBBS, PG Cert Med Ed, MSc (Biomedical Informatics)**



Rikaz Sheriff is the Medical Officer of Health Informatics at the Provincial Director of Health Services, Western Province. He plays facilitation and leadership roles in the use of ICT in the healthcare sector and in managing health information in the province. He also has 7 year's experience as the Chief Medical Officer at Western Hospital where he leads the business development unit with responsibility for marketing strategy, brand management, advertising, and consumer promotions. Rikaz is a life member of the Sri Lanka Medical Association and the Health Informatics Society of Sri Lanka and council member of the Forum of Sri Lankan Medical Educationists. He was also a visiting lecturer to the Post Graduate Institute of Medicine and the Institute of Personnel Management.

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### **Interacting with Professionals and Public via Social Platforms**

The use of social media as a platform for interaction between medical professionals as well as the public is not a new phenomenon. Interactions between professionals and public have been discussed and trialled with varying degrees of success. The overall impression from these studies is one of cautious optimism with the benefits of faster and more efficient communication having to be weighed against privacy and confidentiality issues.

The Sri Lanka Medical Association from 2012 to 2014 began the use of social media as a platform for communications with the Sri Lankan medical professionals and the public. Initially the objectives of the SLMA corporate plan (2009 – 2012) were analyzed to justify the use of these platforms. Social media was seen as fulfilling objectives 3, 5, 7 & 8 in “promoting professionalism, good medical practice and provide opportunities for continuous learning among doctors and indeed these online initiatives do this to an extent” and being able to “educate and tie in with the public and allied professionals respectively”.

The SLMA created a social presence on multiple social platforms like Facebook, YouTube, Twitter, Twitter SMS and LinkedIn. All forms of medical news and events were hosted on a website and using link tracking software the demographic and behavior patterns were analyzed. Overall the social platforms have garnered over 13,000 followers with the information reaching over 1,000,000 views. The spread of age groups among all media indicates a spread of digital natives & immigrants.

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The SLMA's venture into the online forum has been by all counts a resounding success and indeed a wake-up call to all medical societies wanting to educate and reach a modern, digital medical community. The SLMA plans to expand these ventures through online Continuous Professional Development (CPD), video conferencing for its valuable membership in the near future.

## **Dr Prasad Ranatunga MBBS, MSc (Biomedical Informatics)**

### **Publishing Online: The SLMA Online Library**

Knowledge is being generated at an immense pace with the advancements of science. But the dissemination of this knowledge effectively to the relevant professionals and the general public is a growing problem face by those who generate knowledge and those who seek them. Professional bodies whose aim is to uplift the profession by dissemination of knowledge deal with this dilemma by publishing publications. The publications alone create the problem of their dissemination effectively to the pertinent parties.

Sri Lanka Medical Association (SLMA) being the oldest national medical association in Asia and Australasia thrives to fulfill its objective of dissemination of knowledge through its frequent newsletters and other publications. This printed matter were being made available at the SLMA library or sent via mail as necessary. These traditional forms of dissemination of publications were found to be too limiting and inefficient.

The SLMA decided to host its publications in an online library in 2012 with its foray into the digital arena. All the publications were made available as digital copies in the online library in addition to them being available in printed format. This made the publications available to a wider audience, when & where they are required.

The selected platform used was Issuu.com, which is a free digital publishing platform is with requires minimal intervention required prior to publishing online. The reader statistics indicate that this library achieved its 100,000<sup>th</sup> impression in mere 1 year 4 months being online and reached 240,000 impressions as at 2014 September, about 950 days being online.

It provides statistical tools to analyse reader patterns which helps in improving the delivery of these content more efficiently. The analysis of reader statistics proves some interesting patterns, which would have not been possible through other traditional means of publications. Guidelines gather more reads and accumulate a steady count of reads over time while, newsletters have high spike of reads initially which tapers down with time. When SLMA Newsletters are concerned, most read page in average, is the inner cover page, while least read page is the back cover.

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In conclusion, online libraries such as [issuu.com](http://issuu.com) are an essential asset in the age of online knowledge sharing as seen by its use by SLMA, which should be adopted by any professional body which aims to disseminate knowledge in a more readily accessible form.

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## 8 OCTOBER 2014: PARALLEL SYMPOSIUM 11: HALL A

### Dr Saranga Jayawardena MBBS, MSc (Medical Administration)



Saranga Jayawardena is a Registrar in Medical Administration. She has been the Medical Superintendent at District Base Hospitals in Deniyaya and Elpitiya and the Deputy Regional Director of Health Services in Kalutara District. She is a member of AeHIN. Her special interests are Electronic Health Systems.

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#### **Computer Literacy Among Health Care Workers in District Base Hospitals in Kalutara District**

Information and Communication Technology (ICT) has tremendously taken over the health profession with the introduction of novel technologies every day. The concept of an e-hospital is now getting popular in Sri Lanka. To get the maximum output from this e-hospital concept however, it is vital to have a computer literate health care worker force.

The general objective of this study was to assess the computer literacy among health care workers in District Base Hospitals Panadura and Horana.

A total of 385 healthcare workers were selected. They included 88 Specialists/Medical Officers (MOs), 177 Nursing Officers (NOs), 30 Paramedical Staff and 91 Attendants/Labourers. A self-administered questionnaire was used to assess their computer literacy.

Results showed that the majority 95.1% of MOs, 66.3% of NOs and 87% of Paramedics can use a computer on their own but only 24.3% of attendants can use a computer. More than 60% of MOs can perform hardware functions. But their use of excel spread sheet was low (47.6%). The most difficult software function to perform (35.4%) was to install a software programme. The majority, i.e. 67.1% of MOs, 69.6% of Paramedics and 80% of attendants did not have any formal training on computers but 42% of NOs had a formal training. 85.4% of MOs, 70% Paramedic and 46.2% NOs owned a computer, but less than half of them had internet connection and an e-mail address of their own. The majority of them used Internet to watch films. Using ICT for educational purposes was low. There was a significant difference between gender in the use of Internet and

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specially the use of e-mail ( $P < 0.01$ ) and the use of ICT ( $P < 0.01$ ) with males using more. More males were computer literate than females in all categories of staff.

In conclusion this study shows that more than two third of Medical officers, Paramedics and Nurses were computer literate. Only about one third of attendants were computer literate. Majority of them have a positive attitude towards use of computers at their working place. However, the use of ICT was low. This emphasizes the need for computer knowledge development among healthcare staff in order to have a good functioning e-hospital.

**Project Team:** Dr Saranga Jayawardena, Dr UI Rathnayake

### **Dr Sanath Thubellage MBBS, MSc (Biomedical Informatics)**



Sanath Thubellage is the Medical Officer (Health Information) at the Medical Research Institute, Colombo. His special interests include using 'Open Source Resources' for different activities to improve efficiency and customer satisfaction.

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#### **Automation of the Medical Library at Medical Research Using an Open Source Library Information and Management System**

*Purpose* – The purpose of this paper is to describe the need of an automated system for the library, the selection process and criteria that led to the implementation of the Koha 3.14 library management system (LMS) at the Medical Library of Medical Research Institute, Colombo 08, Sri Lanka.

*Design/methodology/approach* – The paper is a report based on internal documentation & experience.

1. Analysis of the need of an automated systems
2. Search for available software in the internet
3. Analysis of them and compare
4. Formulating the criteria to fulfill
5. Selecting a suitable product for implementation
6. User feedback after an year's time

*Findings* – Koha 3.14 was selected because the GNU license (open source) was

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considered more future –focused than other open source as well as proprietary products, and more room for customization to meet the future needs of the library service and the available immense community support.

*Research limitations/implications* – The library is still in the early stages of the LIBIMS implementation. The Author expects that the Koha LIBIMS implementation will meet the library's needs will only be clear after at least one year of its use.

*Practical implications* – The conclusions drawn from this report relate to the concept of implementing an open source LIBMS. The author will present a detail report on the implementation with the recent outcome in a year's time.

*Originality/value* – MRI was the first to implement KOHA LIBIMS (the version 3.14) among the libraries under the Ministry of Health Sri Lanka. Experience and conclusions from this paper and practical experience might influence at the similar attempts at other libraries of interests as well.

### **Dr Gumindu Kulatunga MBBS, PG Cert Med Ed, Dip. Occupational Health, MSc (Biomedical Informatics)**



Gumindu Kulatunga is a Medical Officer (Health Information) and Chief Innovative Officer at the Health Education Bureau (HEB) which is the centre of excellence for health promotion and publicity of health related information in Sri Lanka. Currently he is the co-ordinator for Medical Education and Continuous Professional Development at the HEB and the “Suwasariya” health educational information resource centre. He is a member of AeHIN, a Council Member of the SLMA from 2013-2014 and member of the SLMA – Dialog Guru LMS development committee. He has been the course unit advisor and a lecturer to the computer appliances module in MSc on Medical Administration at the PGIM from 2013-2014. He has presented number of papers in conferences and has published articles in internationally recognized journals. His special interests include Public Health Informatics, Medical education informatics, eLearning/Learning management systems, Continuous Professional Development (CPD), mHealth, occupational health, health promotion and prevention.

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## **Suwasariya - The Way Forward in Electronic Health Education for All**

Instantaneous access to free medical advice or health information on disease details as well as disease prevention from qualified medical professionals or from a recognized institute is a vital factor in community health promotion. The Internet offers widespread access to health information, and the advantages of interactivity, information tailoring and anonymity. Any how the majority continue to rely on health professionals for information about diagnosis and treatment of disease. It is essential that government health sector must have official web site and a call centre providing health information to empower Sri Lankans for correct health decision making. Addressing this “Suwasariya /Health Net” was launched in 2011. It is an around the clock tri-lingual health information, guidance and advice service by the Health Education Bureau, Ministry of health. Sri Lankans in the country and abroad can access and seek help when, where and how they want it in the language of their choice.

This programme aims at web based health information through web articles {<http://www.suwasariya.gov.lk>} and an around the clock resource call centre (Hot line +94 710 107 107). The Public can discuss personal health problems, access to health information and access information about the health care services available via telephone, SMS, or email.

This project was made possible due to the continuous support of my colleague Dr Moditha Perera, my supervisor Dr Neelamani Hewageegana (Director, HEB), and other dedicated consultants/medical officers who answer the calls and as well as provided web articles, ICTA Sri Lanka for their technical support and Telecom Mobitel (Pvt) Ltd, Sri Lanka for maintaining the hot line of the HEB.

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## 8 OCTOBER 2014: PARALLEL SYMPOSIUM 12: HALL B

### **Dr Achala Jayathilleka MBBS, MPH, MSc (Biomedical Informatics), MBA, PhD**



Achala Jayathilleka is a Senior Lecturer in Biomedical Informatics at the Postgraduate Institute of Medicine, University of Colombo, Sri Lanka. Dr Jayathilleke graduated from Faculty of Medicine, Peradeniya, Sri Lanka in 2001 and completed his internship in 2003. In 2007, he obtained his Masters in Public Health, and in 2010, his PhD in Public Health from the University of Tokyo, Japan. Upon completion of his doctorate, he returned to Sri Lanka in 2010. He obtained an MBA from the University for Peradeniya in 2011, Postgraduate Diploma in Information Systems Management from University of Colombo in 2012, and a Masters in Biomedical Informatics from Postgraduate Institute of Medicine in 2013. Before joining the Postgraduate Institute of Medicine, he worked as a Lecturer in Public Health at Department of Public Health, Faculty of Medicine, University of Kelaniya, and as a Medical Officer of the Ministry of Health, Sri Lanka. He has conducted research in injury and violence prevention, and biomedical informatics. His work has been featured in several peer-reviewed journals, international conferences and media.

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### **Injury Surveillance: DHIS2 Beyond Public Health**

According to the World Health Organization, injuries are among the leading causes of death and disability in the world; Sri Lanka is no exception. Traumatic injuries are the leading cause of hospitalization in Sri Lanka for the last couple of decades.

The efforts in the developed world have proven that injuries are preventable with effective interventions, just like any other non-communicable disease. Injury research using good quality data is a must to design effective preventive measures. The major drawback for the injury prevention activities in Sri Lanka is the lack of complete, accurate and timely data. Sri Lankan Public Health professionals have been severely handicapped in the field of injury prevention due to lack of injury data.

To overcome this problem, in 2006 Ministry of Health launched a pilot injury

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surveillance system in few selected hospitals. It was piloted for several months and discontinued due to several deficiencies. The software application was built using proprietary technologies that could lead to increased costs and associated dependencies with vendors. The system was unable to comply with the changing data needs of injury epidemiologists without a major retooling.

DHIS2 is mainly used by public health professionals for monitoring programs. We customized DHIS2 for injury surveillance in Sri Lanka and tested with test data to assess its feasibility. Our testing showed that DHIS2 can be successfully used for injury surveillance in Sri Lanka. Though some functionalities required for injury surveillance were not available in DHIS2, it is possible to develop Apps to overcome that issue.

### **Dr Kapila Jayarathne MBBS, DCH, MSc, MD**



Kapila Jayaratne graduated and specialized in public health from University of Colombo and had post-doctoral training at University of Melbourne. Following working in both clinical and preventive sectors at peripheral and national level, currently he works as a National Program Manager at Family Health Bureau, Ministry of Health. As the nodal person for maternal and child morbidity and mortality surveillance in Sri Lanka, Kapila conducts maternal death reviews, implemented feto-infant surveillance system and launched the pilot project on birth defects surveillance.

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### **Implementing Birth Defects Surveillance in Industrially-Developing Settings: Experience in Sri Lanka**

**Objectives:** To integrate birth defects surveillance (BDS) in the existing healthcare delivery system

**Methods:** We conducted an in-depth analysis of healthcare system (both preventive & curative sector) based on all sources available (documents / reports / internet search / databases) to identify entry points and opportunities to integrate BDS. With the identification of key stakeholders, we implemented a birth defects surveillance system.

**Results & Discussion:** Sri Lanka reports a relatively low maternal mortality ratio (37.7 per 100000 live births) and infant mortality rate (9.7 per 1000 live births). Birth defects contribute 18.1% to infant deaths reported from hospitals (2012). A survey revealed a

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1.8% prevalence of congenital defects at birth (2011). Other data sources: indoor morbidity mortality register; hospital deliveries (99%) and neonatal examinations (100%) recorded in newborn formats; peri-natal death audits in hospitals discuss all birth defects-related deaths (Coverage 98%); field infant death investigation -report through a quarterly return to national level; There are many opportunities available for capture of birth defects, at different points in life course (pregnancy - antenatal care (99%), post-partum care (73%). Since each household is designated to a Public Health Midwife, she can capture them at household level.

Many countries in the region have no systematic BDS mechanism. Sri Lanka took several steps in initiating BDS. A focal point was identified at the Ministry of Health to coordinate birth defects prevention & control activities. BDS was entrusted to national program manager for child morbidity & mortality surveillance. A national birth defects prevention & control action plan was formulated and a national BDS mechanism was developed. Birth defects surveillance was implemented in the Southern province on pilot basis with an objective to scale up country-wide in coming years. An online web-based data system was also introduced to receive real-time data and reports.

**Conclusions:** With the available service delivery system, Sri Lanka can easily integrate BDS as an effective measure to pick birth defects. The availability of a web-based data system strengthened the surveillance system.

### **Dr Manodya Rajapaksa MBBS, MSc (Biomedical Informatics)**



Manodya Rajapaksa is the Medical Officer (Health Information) in the Puttlam District. Her professional Interests are using public health informatics to design health information systems for gathering, sharing, analysing health data and using health related data effectively and efficiently for service delivery and decision making.

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### **Development of a Management Information System for National Feto-Infant Mortality Surveillance System of Sri Lanka**

The objective of this study was to develop a web- based management information system for the National Feto – Infant Mortality Surveillance System of Sri Lanka to improve data quality and coverage.

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To achieve the objectives of the study, system analysis was done following user interviews and system observations. With the data generated from the requirement gathering, recommended steps of software development were adhered to develop online Feto-Infant Mortality e-Registry. All feto infant death notifications, infant death investigations from both field and hospitals and perinatal death reports from specialized units are compared and evaluated at quarterly district review meetings. Using the quarterly reports, annual national feto infant death reports are created and they are aggregated to generate Feto-Infant Mortality e-registry.

The system was piloted and evaluation done with feedback gathered from different users of the system.

**Dr Deepal Wijesooriya MBBS, MSc (Biomedical Informatics), MBA  
(Health Care Services), Dip Psych**

### **The National Non Communicable Disease Surveillance System**

The Non Communicable Diseases (NCD) Unit is the Focal Point in the Ministry of Health responsible for evaluating, planning and implementing programmes for the prevention of NCDs in Sri Lanka. They deliver their services island wide through the coordinating officer nominated to each district referred to as Medical Officer-NCD (MO-NCD).

MO-NCD coordinates all the NCD activities at periphery and collects aggregated data related to NCD risk factor of patients they have screened using Form 1239 and manually consolidates the data to produce Form1240 and Form1241 for reporting. The NCD data management, so far was done, using a manual paper based system with all the inherent defects of a manual system. So the NCD unit need accurate, timely reporting with proper authentication for effective and efficient management.

So the new Data Collection and Analysis Software for the NCD Unit was designed and programme to overcome the weakness of a manual system and fulfill the requirements of NCD unit. This system is a customization of DHIS2 open source software. It is a web based system and can be accessed at any time at anyplace by users.

The system is inbuilt with data analysis software. It has an auditing system for timelines, accuracy and reliability. Data can be visualized as tables, graphs, GIS maps. etc.

The system was successfully piloted in the Kurunegala District with all the blessings

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from MO-NCDs to Director, NCD. It is planning to launch the system island wide within this year. The success of the system depends on the provision of adequate infrastructure facilities, proper training, and motivation of higher officials.

**Project Team:** Dr Kosala Randeniya, Dr Roshan Hewapathirana, Dr Deepal Wijesooriya, Dr Arjuna Wijekoon.

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**8 OCTOBER 2014: PLENARY SYMPOSIUM ON THE NATIONAL  
NUTRITION MONITORING AND SURVEILLANCE SYSTEM: MAIN HALL**

**Dr Lalith Chandradasa**



Lalith Chandradasa is the National Coordinator, National Nutrition Secretariat, President's Office

**Introduction to the Multi Sectoral Plan**

**Dr Roshan Hewapathirana**



Roshan Hewapathirana leads the team developing the software platform for gathering nutrition data from the field.

**Gathering Real Time Data Related to Nutrition Indicators  
at PHM Level**

**Dr Indika Jagoda**



Indika Jagoda leads the software development effort that will connect the information system to various levels of government for necessary action.

**The Proposed Monitoring and Evaluation System for  
Nutrition for the Multi Sectoral Plan at  
Divisional/National Level**

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## **ORGANIZING COMMITTEE**

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