Panel Discussion 4

Information and Communication Technology (ICT) in Patient Safety

Chair: Hiroshi Takeda

Graduate School of Health Care Sciences, Jikei Institute, Japan

Chair Information:

Currently Professor Emeritus at Osaka University and the President at Graduate School of Health Care Sciences, Jikei Institute that has the first and only one master course for patient safety management in Japan. He has engaged in medical informatics as professor (1998-2010) at Osaka University, where his team has developed a totally paperless hospital information system in 2010. He has also worked in patient safety as the Director of Healthcare Quality Management of Osaka University Hospital (2001-2008) and the President of Healthcare Quality Management Association of Japanese National University Hospitals (2002-2008). His career in the International Medical Informatics Association (IMIA) is SPC co-chair of MEDINFO2001, Vice President (2004-2010) ,IMIA Liaison to IFIP (2007-) WG chair (Patient Safety Informatics). In the government, he was Senior Specialist for Scientific Affairs, the Ministry of Education, Science and Culture of Japan (1983-1985).

Chair: Edward Kelley

Director, Service Delivery and Safety, WHO-HQ

Chair Information:

Dr Edward Kelley is Director of the Department of Service Delivery and Safety at the World Health Organization. In this role, he leads WHO's efforts to strengthen the safety, quality and people-centredness of health services globally towards achieving universal health coverage. He manages WHO's work in a wide range of programmes, including patient safety, health services integration and regulation, quality systems and resilience, traditional, complementary and integrative medicine, emergency and essential surgery, transplantation, hospital management, blood and transfusion safety, as well as WHO-wide initiatives of primary care, quality measurement, palliative care, digital health and genomics. Dr Kelley also led the Infection Prevention and Safety and the Health Systems Recovery teams during WHO's Ebola response effort.

Formerly, Dr Kelley coordinated both strategic management and external relations and business development for the World Alliance for Patient Safety, with responsibility for administration of the department and teams working in health care-associated infection, technology, capacity-building, reporting and learning and patient and family empowerment. Following the two very successful WHO Global Patient Safety Challenges on improving hand hygiene ("Clean Care is Safer Care") and surgical safety ("Safe Surgery Saves Lives"), Dr Kelley is currently leading a new WHO Challenge to improve medication safety ("Medication without Harm"), all of which have had significant impact on raising awareness of and improving patient safety across the world.

Prior to joining WHO, Dr Kelley was Director of the first United States National Healthcare Reports for the US Department of Health and Human Services in the Agency for Healthcare Research and Quality (AHRQ). Dr Kelley also directed the 28-country Health Care Quality Improvement (HCQI) Project for the Organisation for Economic Co-operation and Development (OECD). Before this, Dr Kelley served as Senior Researcher and Quality Assurance Advisor in the Operations Research Division for the USAID-sponsored Quality Assurance Project (QAP) and Partnerships for Health Reform Project Plus (PHRPlus). In these capacities, he worked for ten years in West and North Africa and also Latin America, directing research on the management of childhood illness in Niger.

Dr Kelley's other experience includes being a Manager for the Advisory Board Company, a large health care consulting firm based in Washington, DC. And while at AHRQ, Dr Kelley also served as an Associate Professor at Johns Hopkins School of Public Health, where he was involved in courses and research in health systems management and health systems statistics. Dr Kelley's research and project work has produced numerous publications in the areas of health systems performance measurement and improvement, value for money in health care, cost and quality interactions and the clinical areas of paediatric infectious disease, respiratory illness, cardiac care and cancer survival. Dr Kelley is also a Commission member of The Lancet Global Commission on High Quality Health Systems in the SDG Era and other major global initiatives for global health security, quality improvement, and health system strengthening.

Dr Kelley's research primarily focuses on patient safety, quality and the organization of health services, metrics and measurement in health services, as well as health systems improvement approaches and policies.

Donald M. Berwick

Institute for Healthcare Improvement, U.S.A.

Utilization of Big Data for the Measurement of Safety

Abstract:

Modern health care information technology, especially including the maturation of electronic health records, is creating new opportunities to monitor patient safety and risks in real time, with rapid reporting, and at far lower cost than previously. For example, an important patient safety measurement method is the "IHI Global Trigger Tool" (GTT), developed in the past decade by faculty at the Institute for Healthcare Improvement (IHI), which has been shown in multiple studies to be a highly sensitive way to detect patient harm. As initially created, the Global Trigger Tool requires intensive and costly record reviews and the time of experts. It will soon be feasible to automate the GTT in an electronic medical record environment, offering a rapid and inexpensive metric of system safety.

However, measurement, alone, will not assure improvement. Whether or not the use of large data sets to assess safety will actually contribute to safety improvements depends far more on managerial and cultural beliefs and behaviors than on the technology, itself. If rapid assessment of harm and hazards is used primarily for external surveillance, external accountability, rewards, punishments, league-tables, and blame, then one would predict, not safety improvement, but costly forms of fear, self-justification, and data manipulation among the workforce. On the other hand, if such information is made available and used locally for learning, exchange, growth, and development, valuing local curiosity and avoiding blame, then favorable dynamics can emerge to support the continual improvement of patient safety.

Keywords:

Electronic medical records, IHI Global Trigger Tool, measurement of safety, culture of safety

Speaker Information:

Donald M. Berwick, MD, MPP, FRCP, KBE, is President Emeritus and Senior Fellow at the Institute for Healthcare Improvement (IHI), an organization that Dr. Berwick co-founded and led as President and CEO for 18 years. He is one of the nation's leading authorities on health care quality and improvement. In July, 2010, President Obama appointed Dr. Berwick to the position of Administrator of the Centers for Medicare and Medicaid Services (CMS), which he held until December, 2011. A pediatrician by background, Dr. Berwick has served as Clinical Professor of Pediatrics and Health Care Policy at the Harvard Medical School, Professor of Health Policy and Management at the Harvard School of Public Health, and as a member of the staffs of Boston's Children's Hospital Medical Center, Massachusetts General Hospital, and the Brigham and Women's Hospital. He has also served as vice chair of the U.S. Preventive Services Task Force, the first "Independent Member" of the Board of Trustees of the American Hospital Association, and chair of the National Advisory Council of the Agency for Healthcare Research and Quality. He is an elected member of the American Philosophical Society and of the National Academy of Medicine (formerly the Institute of Medicine). Dr. Berwick served two terms on the IOM's governing Council and was a member of the IOM's Global Health Board. He served on President Clinton's Advisory Commission on Consumer Protection and Quality in the Healthcare Industry. He is a recipient of numerous awards, including the 1999 Joint Commission's Ernest Amory Codman Award, the 2002 American Hospital Association's Award of Honor, the 2006 John M. Eisenberg Patient Safety and Quality Award for Individual Achievement from the National Quality Forum and the Joint Commission on Accreditation of Healthcare Organizations, the 2007 William B. Graham Prize for Health Services Research, the 2007 Heinz Award for Public Policy from the Heinz Family Foundation, the 2012 Gustav O. Lienhard Award from the IOM, and the 2013 Nathan Davis Award from the American Medical Association. In 2005, he was appointed "Honorary Knight Commander of the British Empire" by Queen Elizabeth II, the highest honor awarded by the UK to non-British subjects, in recognition of his work with the British National Health Service. Dr. Berwick is the author or co-author of over 160 scientific articles and six books. He also serves now as Lecturer in the Department of Health Care Policy at Harvard Medical School.

Johanna Westbrook

Centre for Health Systems and Safety Research, Macquarie University, Director, Australia

Evaluating the Effects of Health Information Technology

Abstract:

The landscape of health care organisations worldwide is changing with the rapid and widespread investment in, and adoption of, information and communication technologies (ICT). Information systems are often promoted as making work safer and more efficient. As the demands on health care resources continue there is an increasing impetus to understand, and to be able to demonstrate, the benefits and challenges ICT provides to the many stakeholders in the health system.

This presentation will report on several multi-method studies which have sought to quantify the effects of electronic health record systems in hospitals on errors, test ordering patterns, health professional work patterns and costs. The research has also investigated unexpected consequences of electronic systems and the introduction of new types of errors. The results have implications for organisations implementing health IT in terms of designing monitoring mechanisms which allow systems to be continually improved, and to be able to quantify how investments in health IT can translate into measurable improvements for patients and health professionals.

Keywords:

Electronic medication management, medication errors, health care evaluation, IT safety, electronic decision support systems, clinical workflow

Speaker Information:

Professor Johanna Westbrook, is Director of the Centre for Health Systems and Safety Research, Australian Institute of Health Innovation, Macquarie University. She is internationally recognised for her research evaluating the effects of information and communication technology (ICT) in health care.

Johanna has led important research in the development and application of approaches to evaluate ICT, including new tools and methods which have been adopted internationally. She has contributed to theoretical models regarding the design of complex multi-method ICT evaluations. Her research has led to significant advances in our understanding of how clinical information systems deliver (or fail to deliver) expected benefits and supported translation of this evidence into policy, practice, and IT system changes. Johanna has over 390 publications and been awarded > $45M in research grants.

Johanna is an elected International Fellow of the American College of Medical Informatics, Fellow of the Australasian College of Health Informatics, and an Associate Editor of the Journal of the American Medical Informatics Association. In 2014 she was named Australian ICT professional of the year by the Australian Information Industry Association. In 2016 she was appointed by the Federal Minister for Health to the Board of the Australian Digital Health Agency. She is Chair of the Deeble Institute Advisory Board, Australian Healthcare and Hospitals Association. The Institute has a major focus on driving evidence-based health policy.

Hideo Kusuoka

National Hospital Organization, Japan

Incidents in Patient Safety caused by Hospital Information System

Abstract:

Hospital Information System (HIS) including Ordering System and Electronic Medical Record promotes patient safety through the increase in transparency of medical process and the simultaneous handling of patient data among medical team. However, HIS also causes incidents in medical process due to bags in HIS, misuse of HIS, wrong management of HIS, and so on. The Japan Council for Quality Health Care (JQ) was established in 1995 to improve both quality and safety in health care. JQ's Hospital Accreditation has been officially approved by the International Society for Quality in Health Care. The Section of IT and Equipment in the Council for Patient Safety Promotion (PSP) of the accredited hospitals was set in 2003, and studied the incidents relating HIS until 2015. The Section collected incidents assumed to be caused by HIS from the member hospitals of PSP every year, analyzed them with HIS vendors, and categorized them based on three viewpoints, i.e., scene of trouble, origin of trouble, and system. The categorized cases were published in PSP Journal several times, and contributed to educate hospital staffs engaged in the management of HIS. The Section also presented "the Quality Index to evaluate patient safety relating with HIS" as the measure of good practice of HIS relating patient safety. The Section also presented the Check List arranged from the viewpoint of patient safety using in constructing HIS in a hospital. It is important to consider the role of HIS in patient safety.

Keywords:

Hospital Information System (HIS),
patient safety
Japan Council for Quality Health Care

Speaker Information:

Hideo Kusuoka, MD, PhD graduated from Osaka University Medical School in 1975, and received the Doctor of Engineering (1985) and PhD in Medical Sciences (1987) from Osaka University. He was appointed as Assistant Professor of Electrical Engineering in Osaka University, Assistant Professor of Medicine in the Johns Hopkins University, Associate Professor of Nuclear Medicine in Osaka University Medical School, and Director of Institute for Clinical Study, Vice Director, and General Director of Osaka National Hospital. He is currently the President of National Hospital Organization since 2016. He is also serving as the member of Art of Medicine Council, Social Security Council, and Health Science Council of Ministry of Health, Welfare and Labor in Japan, and Science Council of Japan. His specialty is clinical cardiology, medical informatics, regulatory science, and medical engineering.

Sanjeeva Kumar

Additional Secretary (Health), Ministry of Health & Family Welfare, India

Information & Communication Technology (ICT) & Patient Safety: Indian Experience

Abstract:

Plurality of the Health systems and their ownership in the country make designing an inclusive patient safety policy framework and its implementation a challenging task.

National Patient Safety Implementation Framework is on verge of finalisation. Key features of the framework are operationalisation of Patient Safety Steering Committees, defining minimum standards and indicators for the patient safety, IT enabled reporting mechanism, strengthening of infection control & waste management practices and promoting research.

For improving quality of the services, the country has ISQua accredited quality standards for public health facilities. Various dimensions of patient safety have been built into the system and are getting measured.

Minimum standards for Healthcare facilities have also been defined under the Clinical Establishment Act also.

The country has also launched Pharmacovigilance Program (PvPI) and Adverse Drug Reactions (ADRs) are being reported regularly. The programme works in collaboration with the global ADR monitoring centre (WHO-UMC).

The country has been integrating IT platform for improving delivery of Health services and improving patient safety. Few such examples are National Health Portal, National Identification Number of Health Facilities, Integrated Health Information Platform, Electronic Health Record, Telemedicine & Tele-radiology, Mera-Aspataal patient feedback, CVDMS, etc.

'Gunak' an Android based app. has been developed for Quality Assessment of Health Facilities.

Discussions & consultations with stakeholders are in progress on creating National e- Health Authority.

Presently issues pertaining to Patient safety are reported through different electronic platform. After operationalisation of National Patient Safety Implementation Framework, there would be unified reporting.

Speaker Information:

Mr. Sanjeeva Kumar belongs to Indian Administrative Service and is currently posted as Additional Secretary & DG (NACO & RNTCP) in the Ministry of Health & Family Welfare. Joining the service in 1986, he has a career spanning more than 30 years in the Central Government and the States. He started his career as a Sub Divisional Officer and subsequently held the post of Deputy Commissioner in 3 districts of Assam for more than 7 years. He has served in Ministries of Finance and Defence and also as Chief Vigilance Officer of ONGC at the Centre. Mr. Kumar has rich and varied experience of working in different Departments such as Home, Finance, Labour, Environment & Forests, Health & Family Welfare and Irrigation in the State Governments of Assam and Meghalaya in leadership position.

He is a post-graduate in Development Studies from the Institute of Social Studies (ISS), Erasmus University, The Hague, Netherlands and also an alumnus of Jawaharlal Nehru University and Delhi University.

Kazue Nakajima

Osaka University Hospital, Japan

Nurturing Resilience in Complex Adaptive Systems for Patient Safety and Quality Improvement with the Support of Information and Communication Technology

Abstract:

The conventional approach to patient safety (Safety-I) aims to analyze and prevent failures. A new approach based on resilience engineering (Safety-II) seeks to synthesize resilient health care systems in which things go well in changing environments with multiple perturbations and constraints.

Biological systems function resiliently, exhibiting adaptive, autonomous, and decentralized behavior in constantly changing environments. When dynamic structures of a system (process) change through non-linear interactions among its parts, a new function emerges allowing the whole system to adapt. Thus, interactions and interconnectivity among parts or subsystems are key to resilience.

Health care systems must sustain their functions in a VUCA (volatile, uncertain, complex, and ambiguous) world. The main function of these systems is to support dynamic and diverse patient journeys while providing quality and safety care. When the "three Cs" are carefully implemented, information and communication technology nurtures resilience overall by changing interactions and interconnectivity within health care systems.

The first C is common databases in which electronic patient records, operational data, videos, incident reports, and other data are integrated to enable just-in-time information delivery for patient care, as well as data analytics for proactive safety and quality management. The second C is common platforms, which are designed to facilitate autonomous and decentralized interactions (e.g., peer-to-peer networks connecting patients with the same illness). The third C is common language, which is used to integrate community care comprising different care settings. In summary, a synthetic approach to quality and safety in complex adaptive systems should explored by looking at systems broadly.

Keywords:

patient safety, quality improvement, safety-I, safety-II, information and communication technology, resilience engineering, systems' resilience, complex adaptive system, dynamics, interactions, interconnectivity, non-linearity, autonomy, decentralization, synthesis

Speaker Information:

Kazue Nakajima, MD, MSc, PhD is Director and Professor of the Department of Clinical Quality Management, Osaka University Hospital, Japan. After becoming a pharmacist and then an internist, she studied health policy and management as a Fulbright scholar at the Harvard School of Public Health, completed an internship at the Harvard Risk Management Foundation, and then worked for 20 years on patient safety and quality improvement. Her department has served as secretariat for the Patient Safety Alliance of 45 national university hospitals and as organizer of annual patient safety seminars for all university hospitals in Japan. Dr. Nakajima has presented at national and international conferences in health care and other industries on more than 600 occasions. She has also educated medical, dental, pharmaceutical, and other healthcare students at different universities. She has been awarded competitive research grants and several prizes for safety-related activities, including a hospital-wide patient engagement program.