4th International Conference on

Medical Informatics & Telehealth

October 6-7, 2016 London, UK

Scientific Tracks & Abstracts

Day 1




Medical Informatics 2016

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INTEGRATING INFORMATICS AND TECHNOLOGY IN NURSING RESIDENCY PROGRAM

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With the rapid implementation of EHRs and health information technologies (HITs) in hospitals, it's important that entry-to-practice nurses acquire HIT competency to provide patient-centered care, collaborate with interdisciplinary teams, and improve care quality. The most recent Nursing Residency Program (NRP) accreditation standards from the Commission on Collegiate Nursing Education (CCNE) add informatics and technology in the NRP to expand resident's knowledge and skills acquired in their prelicensure programs to analyze and implement best practices in effective use of information technology to safely manage patient care. A recent survey result of 86 senior student nurses conducted to understand the gap between academic settings and real-world practice of using HITs indicated 5 challenges of utilizing HITs in practice: a) technical issues (58%), b) patient privacy concerns (51%), c) human errors (34%), d) less time for patient care (26%), and e) communication between disciplines (15%). Using the CCNE NRP standards and the survey results, an online learning module was created to assist nurse residents in learning applicable HITs in their practice. Six learning objectives include: a) understand health/clinical information systems in hospitals, b) use effective electronic communication for team-based care delivery, c) evaluate information resources for evidence-based practice, d) apply health information technology in care quality improvement and error reduction, e) comply with policies and confidentiality laws when using social media, f) exercise safety, security, and emergency backup plan in HITs. In addition to the lecture, gamified simulation activities and required self-assessment quizzes are integrated to help nurse residents achieving the identified learning objectives.

Biography

Yuh-Fong Hong is an assistant professor of the School of Nursing at the University of Texas Health Science Center at Houston. Hong's expertise includes health care quality improvement using health information technology (HIT) and applied health informatics. He leads the integration of applied informatics in nursing programs. Hong is selected to serve on the interprofessional education program team to facilitate collaboration on the EHR usage at the university level. Hong presents his teaching and research findings at national and international professional conferences.

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CASE-BASED BLENDED E-LEARNING SCENARIOS – ADEQUATE FOR COMPETENCE DEVELOPMENT OR MORE?

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Learning, competence development and research processes in medicine need several strategies to facilitate new diagnostic and therapeutic ways. The optimal collaboration between creative design thinking and biomedical informatics provides innovation for the individual patient and for a medical school or society. Fast processes in observing and understanding are needed to generate ideas for the development and testing prototypes: First, declarative knowledge has to be acquired and collected in basic medical sciences, knowledge that is in fact available and can be accessed on the conscious and preconscious level in long-term memory. Second, associative learning describes the formation of neuronal connections between a neutral stimulus and a second. This conditioning is an important form of learning and discovering and founded in neural associations. Third, polythematic-crosslinking thinking is needed as ability to link information (thoughts, symbols, images, scenes) in a meaningful way. These steps are a typical intellectual ability of gifted learners and researchers, creative enough that they succeed to combine previously seemingly unrelated areas to each other and drive innovation. Utilizing the flexibilities of an e-learning platform, a case based blended learning (CBBL) framework consisting of A) case based textbook material, B) online e-CBL with question driven learning scenarios and C) simulated patient (SP) contact seminars was developed and implemented in multiple medical fields. Satisfaction with this kind of learning lead to formation of innovative learning and publication groups that began to develop critical reflection on curricular development, patient-centered clinical reasoning processes and research questions – both in students and teachers.

Biography

Henriette Loeffler-Stastka has completed her MD at the age of 24 years from Medical University Vienna, is a Psychiatrist and Psychotherapist/Psychoanalysis and Associate Professor of Psychoanalysis and Psychotherapy and the Medical University Vienna. She is the deputy director of the postgraduate unit of the teaching center, developed medical curricula, including a case-based e-Learning program and different postgraduate programs. She is Head of the Advanced University Course for Psychotherapy Research. She has published more than 110 papers in reputed journals and has been serving as a editorial board member of repute.

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ATLAS-BASED SEGMENTATION OF TEMPORAL BONE ANATOMY

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Surgical approaches, such as mastectomy and cochlear implantation, are the primary treatment for a wide range of hearing and balance disorders. We have developed a surgical simulator that includes volume visualization, haptic modeling and psychomterics to help train clinicians complex temporal bone surgical techniques. X-ray computed tomography (CT) images are used in the surgical simulator and manual segmentation of landmark regions for the simulator is laborious and requires an expert reviewer. Therefore, we have implemented an atlas-based approach to automatically segment 15 critical structures in X-ray CT images of 43 cadaver specimens (22 left, 21 right). First, a rigid-body registration is performed using the whole temporal bone. Then a second rigid-body registration is performed using a smaller region-of-interest (ROI) that includes the otic capsule, ossicles, facial nerve and chorda tympani. The structure of the bone within this ROI is highly conserved between subjects and temporal bone structures can be directly identified using the reference atlas. To automatically segment surface structures of the temporal bone, such as the signed, tegmen, internal and external auditory canal, we perform a multi-resolution B-spline deformable registration using a Gaussian-smoothed whole bone image. Visual inspection of our atlas-based segmentation approach indicates that it is highly consistent with manual segmentation performed by expert reviewers and can be performed in a matter of minutes as opposed to hours for manual segmentation. Accurate automated segmentation of temporal bone anatomy allows us to further develop the training simulator for use in pre-surgical planning using clinically obtained CT images of patients.

Biography

Kim Powell completed her Ph.D at the Ohio State University in 1992. She is an assistant research professor in the Department of Biomedical Informatics at OSU and the director of Small Animal Imaging for the University. Powell is an imaging scientist who has extensive research experience in microscopy, small animal, clinical imaging and image analysis. She has published more than 50 papers in reputed journals.

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TEACH ONE, DO ONE, SEE ONE: APP DESIGN FOR MEDICAL STUDENTS

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The ubiquity and diversity of apps in everyday life have crossed thresholds that make them expected conveniences in almost all environments including healthcare. Sensors that gather health and behavioral information relevant to the overall aim of personalizing treatment are pervasive and cheap. Much data can now be gathered, but the devil still stubbornly resides in the details of developing algorithms that convert data into actionable information worthy of informing decisions related to health maintenance or improvement, illness prevention and treatment. At the same time, the aspiring app developer must ensure the targeted consumer or patient need is linked to a market compelling enough to attract investment of resources sufficient to create and develop a sustainable business around the app. The lure of digital health can outweigh lack of experience with coding, information technology development and technology assessment resulting in students dropping out of medical school before even starting with a residency program. This presentation describes an approach to immersing students in an experientially-focused elective that teaches a focused approach to need articulation, guides medical students to do customer discovery and development interviews and requires the students to create a wireframe mockup of their app that allows customers and partners to see a prototype. Students who complete the elective have a more realistic sense of how this sphere of health informatics operates and are better equipped to make informed choices that will determine the future trajectory of their careers.

Biography

George Tolomiczenko is an experienced clinician, researcher, teacher and administrator helps him in his Administrative Director role to guide and run the Health, Technology and Engineering program at USC (HTE@USC). After an interdisciplinary which undergraduate degree at Caltech, he trained in Clinical Psychology at Boston University, Public Health at Harvard University and Business Administration at the University of Toronto. He is now focused on developing USC's interdisciplinary collaborative strengths applied to medical device and process innovation. He teaches courses designed to form and train teams linking engineering and medicine to create innovative technology and start-up companies.

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TOWARDS THE DESIGN OF A TRUSTED STORAGE PLATFORM FOR EFFECTIVE BIG DATA MANAGEMENT IN HEALTHCARE SYSTEMS

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Apache Hadoop has the potential to offer powerful and cost effective solutions to big data analytics in health care systems; however, sensitive data stored within an HDFS infrastructure have equal potential to be an attractive target for exfiltration, corruption, unauthorized access, and modification. Pairing Apache Hadoop distribute file storage with hardware based Trusted Computing mechanisms based on TCG standards has the potential to alleviate risk of data compromise and maintain information compliance of federal and/or state governmental standards. With the growing use of Hadoop to tackle big data analytics involving sensitive health care data, an HDFS cluster could be a target for data exfiltration, corruption or modification. By implementing open, standards based Trusted Computing Technology at the infrastructure and application levels; a novel and robust security posture and protection is presented to address the issue. A discussion of the motivation for research on this topic, a threat model and evaluation of a targeted Advanced Persistent Threat against HDFS is presented and a set of common security concerns within HDFS is addressed through infrastructure and software involving integrity validation and data-at-rest encryption. To accomplish these goals, technology from the Trusted Computing Group, such as the pervasively available Trusted Platform Module is used. In addition, a discussion of design considerations in building an encryption framework for Hadoop in a trustworthy manner is presented along with a description of performance and security results of experiments, creating an encryption scheme for Hadoop utilizing hardware key protections and AES-NI for encryption acceleration (based on data obtained from a real world large scale (> 400 beds) healthcare system). This work includes an evaluation of the recently implemented crypto framework for Hadoop and independent test of the performance claims of AES-NI is regarding mitigating encryption performance overhead.

Biography

Subrata Acharya received her Ph.D. in Computer Science from the University of Pittsburgh, 2008 & M.S. in Computer Engineering from Texas A&M University, College Station, 2004. She has published over 50 peer-reviewed book chapters, peer-reviewed papers at international conferences and in journals in the area of computer and information security. Acharya has obtained significant extramural funding to support her scholarship efforts, including $450K as PI and $230K as co-PI. of particular note is Acharya's US patent 7966655 B2, awarded in 2011 with Wang Ge and Greenberg for Method and apparatus for optimizing a firewall. Acharya has also developed new courses in the area of health care informatics. She has mentored various students who have appeared as co-authors on her papers, and has supervised numerous undergraduate research projects, masters' graduate projects, and doctoral dissertation studies.

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PATIENT AND PHYSICIAN PERSPECTIVES ON NUTRITIONAL MONITORING USING A SMARTPHONE APPLICATION FOR CANCER OUTPATIENTS

Jeroen S. de Bruin[a], **Christian Schuh**[a], **Eva Luger**[ab] and **Karin Schindler**[c]
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[b]Special Institute for Preventive Cardiology and Nutrition (SIPCAN), Austria
[c]Vienna General Hospital, Austria

In recent years, the number of mobile health (mHealth) applications available have increased dramatically. These applications register data related to a person's mental and/or physical state, e.g. for disease self-management, cessation of unhealthy habits, and promotion of healthy behaviour. Given the increased use of such applications, a potentially huge amount of personal health information (PHI) is generated. Besides self-management of health, PHI from mHealth applications could also help to improve the quality of healthcare delivery. In this study, we evaluate a system that integrates PHI from a nutritional monitoring mHealth application for cancer outpatients with data gathered in clinical routine, for the use in a clinical decision support system (CDSS) for nutritional triage. In a clinical pilot study, we recruited 25 oncology outpatients to use a forementioned mHealth application. Data recorded from this application were forwarded to a data repository of the Medical University of Vienna, where they were processed by the CDSS. The results could be accessed directly from the Vienna General Hospital information system. Afterwards, a qualitative questionnaire was taken among patients and medical experts involved with the system. Among patients (N=25), 91% found the application useful as a remote tool for detecting cancer-related malnutrition, and about 75% indicated it should be institutionalized. Among clinicians (N=5), the CDSS was perceived a useful, and enabled them to initiate nutritional interventions sooner. However, its usefulness was limited still as regular nutrition monitoring is not a compulsive part of the overall care workflow.

Biography

Jeroen S. de Bruin is graduated from Leiden University, The Netherlands, as a PhD in biomedical informatics, with specialties including medical data mining and ontologies. Later on he started his post-graduation at Leiden University Medical Center with the subject workflow optimization in proteomics. In 2011, he started working at the Medical University of Vienna, where he has continued his research into clinical decision support systems and mobile health, thereby focusing on infection control in the intensive care setting.

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EMR-ENABLED IMPROVED CLINICAL, COST AND SATISFACTION OUTCOMES FOR BEDSIDE CAREGIVERS

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Background: The acquisition and use of electronic medical records (EMRs) has grown remarkably. Of yet statistically valid verification of beneficial clinical, cost and efficiency outcomes is rare or absent. The vacuum seems largest for bedside caregivers, mainly the hour-to-hour vigilant Nurses with critical roles in patient outcomes. Healthcare needs EMRs that favourably impact bedside clinicians.

Methodology/Process: Five healthcare organizations rigorously undertook six projects to improve Nursing impacts through EMR programmable and adaptable solutions. Nurse, physican and IT-professional teams defined crucial Nurse-related documentation impratives that contributed to internal-EMR computations for vigilance, alerting and protection. The IT-proffesional then programmed/adapted the EMR to better value and incorporate Nursing decimation, better alert beside Nurses for key activates, and enable improved physician actions on Nurse-provided documentation.

Findings/Impacts:
Safety and Medication Errors
Pharmacy data and Nurse surveys corroborated (all $p<0.01$):
• 83.2% of Nurses rated 4 or 5 (1-5 scale) – 38.5% higher versus vbaseline - for improved safety, clinical management, documentation, communication and "the 5 rigthts"
• 71.7% reduced medication administration errors.
• 83.6% decreased Falls with injuries
• 69.2% fewer acquired level 3&4 pressure ulcers
Nurse Efficiency & Efficacy
• 44-minute decrease in documentation time away from patients
• 21-minute decrease in overall documentation time
• 29.3% increased patient-direct time, shifting from 35% patient-direct to 52%

Conclusion: Programming and adapting the EMR for sensitivity for Nursing needs substantively and significantly improved Nursing efficiency and efficacy. Such adaptability through in-house teams maximizes role importance and recognized criticality. When Nurses win, everyone wins.

Biography

In 2016, Steve Shaha was introduced internationally as "premier healthcare outcomes researcher globally in breadth and depth." With 35+ years of studies, teaching, speaking and advisory work, Steve has addressed the needs of a long list of recognized organizations on four continents, including 11 foreign governments. He has 250+ conference presentations, 125+ peer-reviewed publications, three invited chapters internationally in 2015, and four books. Steve is a full Professor with 4 graduate degrees and has taught or lectured at 30+ universities in 6 countries, among them Harvard, Cambridge (UK), the King's College, UCLA, Columbia and Cornell.

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Day 2




Medical Informatics 2016

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MAKING DIGITAL HEALTH WORK BETTER

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Health systems all over the world are struggling to meet up with medical services being demanded by their citizens and are facing crippling rising health care costs. An effective adoption and utilisation of digital health technologies is one of the strategies being implemented to mitigate these national and organisational problems. The aim is to offer strategies about how governments, companies, start-ups and regulators can work together to make digital health economy serve the needs of patients, citizens, health professionals, hospitals and payers. National governments, hospitals and clinics (Implementers) have invested into and implemented various digital health technologies. On the other hand, multinationals, companies, start-ups and entrepreneurs (Developers) have started new businesses offering shining new gadgets, apps and services. This creates a dichotomy. The implements are focussed on health system efficiency, cost-minimisation and enhancing the quality of care that patients receive. Whilst, the Developers preferred the personalisation of healthcare; whereby they invent and sell devices and apps to citizens and consumers to promote wellbeing and wellness. The progress so far is encouraging, but impact on patient outcomes and evidence of cost-effectiveness haven't materialised yet. And the markets for consumer-centric digital health technologies have yet to grow as expected. Strategies are how to align the interests of the implementers with the developers. To propose a system of partnership where innovation, adoption and utilisation are fostered in a mutually beneficial manner.

Biography

Sina Iluyemi is qualified as a Dental Surgeon and a Masters in Public Health (Dental) from Queen Mary's University of London and a PhD in Health Informatics (eHealth Innovation & Policy) from University of Portsmouth. He has a Diploma in Dental Public Health from the Royal College of Surgeons England. His specialties include eHealth, mHealth, telemedicine , digtal health, health policy, innovation and strategy. Presently, he is the Founder and Lead Consultant at HEALTHTRONICS Consulting based in London, UK.

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ONLINE TRAINING TO SUPPORT NURSES ACCOMPANYING PEOPLE LIVING WITH HIV WITH MEDICATION ADHERENCE

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[b]University of Montreal, Canada
[c]St. Francis Hospital, Canada

A virtual nursing intervention (VIH-TAVIETM) was evaluated both quantitatively and qualitatively (Côté et al., 2015a, b) to empower people living with HIV (PLHIV) to help them in managing their antiretroviral therapy (ART). Despite the impact of such approach in supporting ART intake among patients, few studies address educational strategies targeting nurses to support their practices regarding medication adherence. This underlines the importance of the present study, which aims to develop and implement an online training program targeting nurses who support PLHIV in their ART taking. The goal of this presentation is to describe the developmental stages of this online training as well as preliminary results, which pertain to the content of the e-learning initiative. A qualitative design will be used throughout the research process. Data collected through various methods (e.g. dialogue and open discussions, semi-structured interviews, focus group) among nurses who care for PLHIV in Quebec is ongoing. The developmental evaluation approach is being conducted to facilitate innovation development in a complex environment (Patton, 2011, 2016). The content of the online training will include: the elements of nursing practice that can be fostered by educational strategies, useful tools to guide practice, as well as knowledge adapted from VIH-TAVIETM. A working committee composed of different nurse profiles (e.g management, education, clinical, research) supports the development phase of the online training. It is hoped that the online training will broaden the nurses repertoire of interventions and knowledge. Ultimately, a revamped care offer could have positive repercussions on the health of patients.

Biography

Genevieve Rouleau has a Masters of Nursing Science from Faculty of Nursing, University de Montreal, Canada. She is now a doctoral candidate at Faculty of Nursing, University of Laval, under the supervision of Marie-Pierre Gagnon and Jose Cote. Her research interests are based on the development and evaluation of virtual nursing interventions as well as the effects of information and communication technologies on nursing care. She has been working at the at the Research Chair in Innovative Nursing Practices at the CRCHUM in Montreal city for more than nine years.

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PHOEBE - A FRAMEWORK OF FETAL AGE AND WEIGHT ESTIMATION

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[b]Vinh Long General Hospital, Vietnam

Fetal age and weight estimation plays the important role in pregnant treatments. There are many estimate formulas created by the combination of statistics and obstetrics. However, such formulas give an optimal estimation if and only if they are applied into specified community or ethnic group with characteristics of such ethnic group. This research proposes a framework that supports scientists to discover and create new formulas more appropriate to the community or region where scientists do their research. The discovery algorithm used in the framework is the core of the architecture of the framework. This algorithm is based on heuristic assumptions, which aims to produce a good estimate formula as fast as possible. Moreover, the framework gives facilities to scientists for exploiting useful information under pregnant statistical data.

Biography

Loc Nguyen is Director of Sunflower Soft Company, Vietnam from 2011. He holds Postdoctoral degree in Computer Science, certified by INSTICC in 2015. He serves as a reviewer and editor in many international journals and conferences since 2014. He is volunteer of Statistics Without Borders since 2015. He is granted as Mathematician by London Mathematical Society and awarded as Professor by International Journal of Applied Mathematics and Machine Learning from 2016. He has published 37 papers, including 6 ISI papers from 2009. He is the author of 2 scientific books from 2015 and creator of 5 science and technology products from 2004.

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Pei-Ying Chuang, J Health Med Informat 2016, 7:5 (Suppl)
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TRANSLATIONAL NEUROSCIENCE TRAJECTORY-BIG DATA WITH BENCH EVIDENCE AND CLINICAL OUTCOMES

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A wide-range of existing bench evidence and clinical outcome data has contributed to novel biological patterns and medical decisions in human health, disease and medicine. However, the lack of high-value phenotype vs. genetics interpretation between biological knowledge and clinical outcome still remains.

Purpose: To combine translational neuroscience studies with standardized-structure dataset and to establish significant brain-neuron protective knowledge with early medical intervention.

Method: 314 subjects enrolled in three prospective data sets were used. Clinical data were collected at neuro-trauma acute care units at two level-one trauma and stroke medical centers in the U.S. Inclusion criteria were basic characteristics, vital bedside and laboratory results, and neurological assessment tools (Glasgow Coma Scale, Glasgow Outcome Scale, and Disability Rankin Scale). Clinical diagnosis with cerebral hypoxia/ischemia was based on CT and MRI results. Bench evidence data were neuroglobin protein expression and neuroglobin genetic variation through peripheral blood and cerebro-spinal fluid during the first fourteen days after hospital admission.

Conclusion: Evidence-based medicine and personalized medicine were identified to provide a more effective health intervention approach and outcome prediction. Medical Bioinformatics technologies and main systematic concepts (biological mechanisms, physical condition, and functional outcomes) take into account the needs of the neurological survivors.

Future Direction: Health information technology systems and human genetics explore important advances in both basic science research and clinical care. A successful data analysis, trajectory will benefit robust clinical informatics systems and address the interaction of personalized genetic discoveries.

Biography

Pei-Ying Chuang earned her PhD and Postdoctoral Fellowship from the University of Pittsburgh. as a Research Fellow at the National Institutes of Health, her research contributed to an understanding of the neuroprotective biomarkers, neuro-immune responses and pathophysiological mechanisms in the brain. She has received research funding and recognition in a specific field of neuroscience. Chuang continues to use her experiences and abilities to pursue her research/academic strategies and explore a translational research from the bench evidence to bedside practice in neurological populations in both the critical care setting and long-term recovery. The Center for Stroke Disparities Solution of the Langone Medical Center at New York University/Columbia University/SUNY (2014) has selected Chuang in 2014 as a cohort-one Stroke Scholar.

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INTERNET AND MHEALTH APPROACHES TO INTEGRATED BEHAVIORAL HEALTHCARE ASSESSMENT

Ronald R. O'Donnell[a]
[a]Arizona State University, USA

Increased prevalence of noncommunicable chronic disease (NCD) has led to a global crisis and calls for improved prevention and disease management initiatives. In the United States the Affordable Care Act (ACA) has led to primary care based health care transformation designed to improve NCD prevention and management. New models of primary care delivery, such as the Patient Centered Medical Home and Accountable Care Organization are examples. A key component of transformation is integrated behavioral health; primary care, team-based, coordinated treatment of medical, lifestyle (e.g., nutrition, physical activity) and behavioral conditions (e.g., depression, alcohol abuse) that underlie and are associated with poor NCD outcomes. This presentation will review two Internet-based approaches to assessment of integrated behavioral health services in primary care. First, results of the Provider Integration Profile (PIP), an Internet-based questionnaire designed to measure levels of integrated behavioral health in primary care, will be reviewed. Second, the design of a new Internet-based Health Risk Assessment (HRA), "My Health and Happiness Manager" (MHHM) will be reviewed. The MHHM is based on existing measures of health risk that are applicable in both Western and Asian populations. The presentation will include a survey of research on the relationship between level of primary care integration, health risk, and treatment clinical and cost outcomes.

Biography

Ronald O'Donnell is a clinical professor and Program Manager, International Programs, in the Arizona State University College of Health Solutions. He is president of SunCrane Health Solutions. O'Donnell is the founding director of the Doctor of Behavioral Health program and other educational initiatives focused on workforce training for integrated behavioral health. He is the Principle Investigator of the PCORI research grant on integrated care with Banner Health in Phoenix Arizona. O'Donnell has also lectured and provided training for physicians and other health professionals in China and Southeast Asia. He is an advocate of incorporating the Internet and mHealth behavior change resources into the practice of integrated behavioral health.

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DESIGN FOR SAFETY: EPIC PILLARS FOR GAMES IN HEALTHCARE

Lisette van Gemert-Pijnen[a]
[a]University of Twente, Netherlands

What makes technology now truly empathic? How to develop designs that matter?
We apply the EPIC for change model for persuasive and empathic designs. EPIC stands for:

- Engagement: Creating experience, flow using persuasive strategies and triggers in development, using positive psychology concepts;
- Personalization: How to personalize technologies to various user profiles and usage context (e.g. location, current activity)?
- Integration: How to create technologies that are implementable in practice and environments, and adaptable to people?
- Connectivity: How to develop social networks for self-organizing communities?
- Change: Refers to individuals, communities, and society; creating smart environments with persuasive technology for solving societal challenges.

This EPIC model grounds the design of persuasive technology for complex healthcare situations.
Case study: safety first, dilemmas in zoonotic outbreak management
Animal-human, or zoonotic, transmission of communicable diseases carries considerable economic and public health burdens that could increase exponentially as antimicrobial resistance grows worldwide and new zoonoses emerge. At least 60% of all human diseases and 75% of all emerging infectious diseases in the past six decades were caused by zoonotic pathogens. Currently professionals are not supported in dealing with zoonotic outbreaks or in prevention of outbreaks in high-risk environments. Therefore, we developed a game-based learning environment, eZoon, to: (1) support risk communication of professionals in decision making for infection control, and (2) to enhance their skills to communicate empathically with patients and the general public. eZoon is iteratively designed in co-creation with end-users and stakeholders create trust, engagement with personalized technology. The theoretical foundation for the design and implementation of eZoon rests solidly in the holistic CeHRes-Roadmap that integrates the EPIC concepts. Starting with a contextual inquiry, and value specification, functional requirements are documented using Volere templates. A working prototype of eZoon is currently being designed in co-creation with stakeholders and target group, following our EPIC design approach. To attune the information to different users, personas and use-case scenarios are developed based on the contextual inquiry results to serve as a linking pin in the design process, as well as to support the agile development process. Within the game, users will be asked what to do during an outbreak, what they think the implications of their decisions are, and how to communicate with patients / the general public to create awareness and to support self-care. While playing, a smart algorithm evaluates the players learning progress and provides real time feedback to stimulate both reflection-in-action while playing the game and reflection on-action after playing the game.

Biography

Lisette is director of Center eHealth& Wellbeing Research at the University of Twente and a full professor Persuasive Health Technology at University of Twente, adjunct professor at University of Waterloo (Canada) and senior researcher at University Medical Center Groningen.

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