

1029 INITIAL CALIBRATION AND CLINICAL VERIFICATION OF A CAR-DRIVING SIMULATOR, A FEASIBILITY STUDY

¹Jens M Lauritsen, ^{1,2}Morten Hansen. ¹Accident Analysis Group, Department of Orthopaedic Surgery, Odense University Hospital, Institute of Clinical Medicine University of Southern Denmark; ²The Maersk McKinney Møller Institute, University of Southern Denmark

10.1136/injuryprev-2016-042156.1029

Background A recent review in Orthopaedics (Goodwin *et al*, 2013) claims that 'Few guidelines are available to assist orthopaedic surgeons in advising patients about when to return to driving after orthopaedic surgery.' A systematic review of interventions to evaluate fitness to drive in relation to chronic diseases (Marino *et al*, 2012) concludes similarly that 'It seems necessary to develop tests with proven validity for identifying high-risk drivers so that physicians can provide guidance to their patients in chronic conditions, and also to medical advisory boards working with licensing offices'. The literature on using car driving simulators is large from a basic research point of view, but at the application level for clinical use very little has been published. A major problem is the occurrence of simulator driving sickness, which hinders clinical application.

Methods Phase 1: Based on existing driving simulator software (Oktal) a lengthy simulator sequence was applied in the laboratory setting. The virtual scenario included driving from one town to another via highways with obstructions and animals passing at random. The complete trip was about 10–15 minutes depending on speed. Phase 2: Development of short test passages for dedicated situations (disturbances, annoying other trafficants, right turn with bicycle passing, gps directional guidance).

Results Phase 1: Test persons and researchers developed simulator driving sickness due to poor frame rate in complicated situations (<20 khz). Phase 2: Short (3–5 minute) sequences are scheduled for development based on actual accident statistics and demands from driving tests. Results will be presented from these.

Conclusions Unfortunately the attempt to apply a pre-developed scenario from the software vendor has proven problematic to an extent that patient involvement is not feasible. Routine usage of driver simulators in the clinical setting demands further applicability testing and specific evaluation.

1030 CENTRE FOR CHILD INJURY PREVENTION STUDIES: CASE STUDY OF NATIONAL SCIENCE FOUNDATION COOPERATIVE RESEARCH FUNDING

¹Flaura Winston, ¹Kristy Arbogast, ¹Eve Weiss, ²John Bolte. ¹The Children's Hospital of Philadelphia and University of Pennsylvania, USA; ²The Ohio State University, USA

10.1136/injuryprev-2016-042156.1030

Issue Injury research underfunding and limited translation of findings limits development of new technological solutions.

Description of solution The US National Science Foundation (NSF) developed industry-university-government cooperative research centres (I/UCRCs) to provide a mechanism for filling gaps in pre-commercial research and development (R&D). This presentation describes the 10-year experience of the Centre for Child Injury Prevention Studies, a NSF I/UCRC.

Results Since 2005, each CChIPS sponsoring company or agency contributed an average of \$50,000 annually and provided strategic direction. A NSF evaluator provided oversight. In 2014, sponsor fees from 22 organisations totaled \$850,000, up from \$300,000 in 2005. Over 10 years, more than 100 CChIPS studies

were funded; findings translated into new products, regulations, policies and programs; and students trained in injury science.

Conclusions An industry/government/university cooperative research centre model provides a robust and sustainable mechanism for filling gaps in the scientific foundation for injury research.

1031 ASSESSING THE IMPLICATIONS OF PERVASIVE SOLUTIONS TO ASSIST RISK PREVENTION: THE CASE OF HOME HEALTH MONITORING

¹Nilmini Wickramasinghe, ¹Peter Haddad, ²Jonathon Schaffer. ¹Epworth Healthcare and Deakin University, Australia; ²Cleveland Clinic, USA

10.1136/injuryprev-2016-042156.1031

Background The advancing age of the baby boomer, coupled with increased life spans, has led to a significant increase in the number of senior citizens in many countries. Providing care for this population in the acute care setting is only one aspect of the total care package that needs to be addressed. For those having been in the acute care setting for either medical treatment or following procedural based therapies, the discharge to home often provides an opportunity to continue the post acute care monitoring to ensure that complications or readmissions do not occur. Monitoring care and providing guidance and medical management at home will offer patients, families, facilities and providers with the opportunity to ensure recovery and return to a healthy steady state. To explore this issue further, the following examines the possibilities for monitoring post-operative clinical functions in the context of total knee and/or total hip arthroplasty, by proposing a conceptual model that can then guide a randomised clinical trial to test the presented hypotheses and model.

Methods In this research a qualitative approach using an exemplar data site as a single exploratory case study is adopted to explore main components, barriers, issues and requirement to design and develop a home monitoring technology in senior citizens to detect post-operative complications and risk factors in the case of Hip & Knee replacements.

Results Initial analysis has identified the following risk factors that need to be monitored at home: depression, hypertension, post-operative hyperglycemia, infection, instability, loss-of-Motion, BMI (body Mass Index). Further, analysis of the study population between 2004 to 2012 depicted that during this time 4645 patients (60+) had hip replacements while 4790 had knee replacements operations.

Conclusions The implications of this study are far reaching both from the stand point of quality of life and care as well as from an economic stand point.

1032 ESTABLISH BIG DATA IN SMART PHONE IN TAIWAN—IMPLICATIONS FOR INJURY PREVENTION

¹Tsung-Hsueh (Robert) Lu, ²Pei-Hsuen Han. ¹National Cheng Kung University, Taiwan; ²Department of Health, Tainan City Government, Taiwan

10.1136/injuryprev-2016-042156.1032

Background As indicated by McKinsey report (2011), health care has lagged behind other industries in developing big data partially due to the difficulty in integrating health-related datasets. The National Health Insurance plan was launched in 1995 and covered almost all citizen in Taiwan. The National Health Insurance

Administration, the single government payer, initiated My Health Bank program in 2014. The program is similar to Blue Button in US Medicare, in which each citizen can download personal medical claims data to personal computer.

Methods We developed ViMyHB smart phone app. Vi means visualisation and vitalization the content of My Health Bank. We will push customised personal relevant messages and reminds through ViMyHB app. If the users of ViMyHB app are satisfied with the information we provided, we will urge the user of to further provide other personal health related data to us, such as vital signs from wearable device or activities record in smart phone. We will value-added analyses these data and provide better information for better health promotion. In the third stage, we will develop some applications for injury prevention.

1033 REDUCING SECONDARY INJURY OF FARMERS WITH DISABILITIES WHEN USING TRACTORS: TECHNOLOGY

Rebecca Brightwell. University of Georgia, USA

10.1136/injuryprev-2016-042156.1033

Background Farmers are very resilient and resourceful. After experiencing an injury that limits their mobility, they will often fabricate an adaptation that will enable them to return to farming. A review of homemade and commercial assistive technology products will be shown. The discussion will include the pros and cons of the different solutions in relation to re-injury and secondary injury.

Methods Through a project that assists farmers with disabilities and chronic health conditions, we have aided over 150 individuals to date with worksite accommodations and modifications. Once a farmer enters the program, a worksite assessment is completed that analyses tasks necessary to perform their job. After reviewing how the tasks are currently being performed, recommendations are made for safer and more effective alternatives that often involve adaptive equipment.

Results Farmers, when faced with disabilities and chronic health conditions, are very resourceful and will find creative ways to complete their tasks. However, many of these solutions may not be the safest alternative and often commercial solutions are more effective. The majority of the farmers in the project were unaware of technologies available to them. Implementation of the recommended solutions indicated a reduction of re-injury and the occurrence of secondary injuries.

Conclusions Farmers with disabilities and service professionals need to be aware of the various assistive technologies available. By using proper adaptive equipment and implementing worksite modifications, farmers can safely do many of the tasks they did before their illness or injury.

Other Topics

Post Wed 3.13

1034 LEVEL OF DISABILITY AMONG ADULT INJURY PATIENTS IN KENYA

¹Abdulgafoor M. Bachani, ¹Yuen Wai Hung, ²Stephanie Aketch, ²Ryan Duly, ¹Kent A. Stevens, ¹Adnan A. Hyder. ¹Johns Hopkins International Injury Research Unit, Johns Hopkins University Bloomberg School of Public Health, USA; ²Handicap International, Kenya

10.1136/injuryprev-2016-042156.1034

Background Low- and middle-income countries have a disproportionately high burden of injuries. However, the short and long-term consequences of injuries on individuals remain largely unknown. While studies have found injuries among the top three causes of death among the urban poor in Kenya, little is known about the aftermath of injury among survivors in this largely young population.

Methods The Health, Economic and Long-term Social Impact of Injuries (HEALS) Study is currently being conducted in Kenya. Adult patients at least 18 years old who are hospitalised due to injury for one day or more in Kenyatta National Hospital are recruited to the longitudinal study. Baseline interview is conducted in the hospital, and follow-up interviews, at 1, 2, 4, and 12 month after hospital discharge, are completed via phone. Baseline interview includes questions about the injury that resulted in hospitalisation, associated costs and support received. Disability is measured using WHO Disability Assessment Schedule-II (WHODAS-II) at baseline and each subsequent follow-up interview.

Results Preliminary findings of the 320 respondents who completed the baseline interview show that majority (92.8%) reported having no difficulty on all 6 domains of functioning prior to their injury (mean: 0.23, SD: 1.19). At 1 month after hospital discharge, only 4.9% respondents (n = 247) reported having no difficulty in all domains of functioning (mean: 14.39, SD: 15.97). Exploratory factor analysis will be conducted to determine if the disability measure correlate with latent general disability in this population. Distribution of the disability score will be examined by severity of injury and types of injury.

Conclusions Preliminary findings suggest high level of disability at one month after hospital discharge. Data on subsequent follow-ups will strengthen the findings on short- and long-term burden of injuries in Kenya.

1035 EVALUATION OF A RISK SCREENING TOOL FOR COMPENSATION SYSTEM RECOVERY MANAGEMENT

^{1,2}Maatje Scheepers-Joynt, ¹Dianne Sheppard, ³Meaghan O'Donnell, ¹Sharon Newnam. ¹Monash Injury Research Institute, Monash University, Australia; ²School of Health Sciences, Monash South Africa; ³Australian Centre for Posttraumatic Mental Health, Melbourne University, Australia

10.1136/injuryprev-2016-042156.1035

Background Transport accidents result in Mental Health, pain and return-to-work (RTW) difficulties. To screen for risk of future poor outcomes assists early identification and effective recovery management for compensation systems that provide compensation for health care services post-accident. The purpose of this study was to evaluate the measurement properties of a predictive risk screening tool known as the Client Conversational Tool-Revised (CCT-R) within the recovery branch of the Transport Accident Commission (TAC), Victoria, Australia.

Methods De-identified data from 630 TAC clients who claimed compensation between April 2012 and October 2014 was analysed. Claims and payments data of later health service use was linked with associated CCT-R 'risk scores' for mental health, pain and RTW. Chronbach's alpha and Guttman Split-Half reliability analysis was used to evaluate internal consistency. Validity was assessed with analysis of receiver operating characteristic curves to estimate the area under the curve (AUC) for each CCT-R domain.

Results The mental health domain performed adequately with good reliability (Chronbach α = 0.841) and reasonable validity