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

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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 litterature 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 occurence 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

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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

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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 athroplasty, 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

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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