R. Oksanen, S. Paldanius, M. Linnavuo, J. Lindström, E. Segerholm, L. Pohjola, H. Finne-Soveri. Implementation and development of a process of movement detector installed in the floors of an old age home: A new era for technology-oriented support for nurses in old age homes. Gerontechnology 2010;9(2):238; doi:10.4017/gt.2010.09.02.262.00 **Purpose** Developing gerontechnological solutions for old age homes is often a collision between different cultures: of those who invent and those who care. The needs of the users are not seen clearly by those who produce the technology and neither are the available options, seen clearly by end-users. **Method** ELSI Safety Floor (ESF) is an intelligent monitoring system, installed in the floors in old age homes to prevent falls and to improve self empowerment of the residents. ESF was invented by Helsinki University of Technology, provided by MariMils Ltd, and further improved by InnoKusti gerontechnology programme staff, in collaboration with MariMils Ltd and ward. ESF consists of a sensor foil with electronic units which can be installed under any floor material. The foil is connected to software tracking the movement and position of residents in the rooms, allowing proactive reaction to close calls and quick measures if accidents happen. The system is based on capacitive measurement, which can pinpoint changes caused by the presence of an individual in a low-intensity electric field[1]. In the six month pilot programme, ESF was installed into two double rooms and text message alarms were delivered to two mobile phones used by nursing staff. **Results & Discussion** The piloted user-interface for setting personalized alarms was found problematic. It was engineer-oriented, phone-centric, inflexible and presented an information over-load to the user. This distracted nurses rather than help them to organize the work and assure patient safety. Changes to user interface were made according to feedback collected and revised by a technology-oriented support nurse. Both the pilot (2 rooms) and the main building (48 rooms) were tested by a four-phase-testing programme to reveal problems in installation and the technology itself, and to find out how ESF could work as a tool for nursing. Testing was done by project workers in every installed room (48) during one week per ward. The preliminary results[2] for 16 rooms after adjustments showed a mean of 79% sensitivity and 100% specificity for falls. Threshold values were determined by a technology-oriented support nurse, i.e., how many false alarms nurses would tolerate in order to find out an ideal sensitivity for falls. The training programme was created and executed unit by unit. Alarm settings were set to meet the individual needs of the residents and to avoid information over-load due to multiple simultaneous alarms. Nurses gave feed-back about technology's functions/malfunctions. User experience meetings were held regularly in collaboration with nursing leaders and engineers. A technology-oriented support nurse was needed to show usability problems to engineers, to test ESF thresholds for alarms, and to create a feasible proposal for end-user solution. User satisfaction survey (QUEST 2.0) results will be reported at the congress. ESF is now operating well and in everyday use 24h a day in all three wards. In the living-lab environment, a technology-oriented support nurse is needed to work as a two-way interpreter between very different cultures, professions and needs. The post-implementation phase includes proper maintenance due to turnover of the residents and workers.

References

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