D.R. PHILLIPS (Convener). Technology and aging in the Asia-Pacific region. Gerontechnology 2010;9(2):160; doi:10.4017/gt.2010.09.02.097.00 **Participants**: *P. TSANG (HONG KONG), J. SOAR (AUSTRALIA), Z. BIEN (KOREA),* and *J.S-L. NG (SINGAPORE)* **ISSUE** The symposium looks at application of user-oriented technology and especially the smart home concept in community settings in Asia-Pacific countries. Many Asia-Pacific countries are experiencing considerable demographic aging and are attempting to address the needs of older people who may often be without much family support. **CONTENT** Discussion of a telemedicine monitoring system in Hong Kong. Smart home technologies are considered in three other places in the region, Australia, Korea and Singapore. The applications of various types of smart technologies are presented, as well as the factors influencing uptake and policy implications. **STRUCTURE** Philip Tsang will discuss a project aimed at reducing elderly diabetes patients' hospital admissions rates, with the team's experience in designing and testing a Tele Diabetes Monitoring and Management System. This helps doctors monitor and diagnose the state of diabetes by monitoring patients' glucose levels, with data stored remotely at elderly home care facilities. Looking at smart home technology, Jeffrey Soar reports early findings of the research program of the Queensland Smart Home Initiative, an Australian research consortium that promotes the adoption of assistive and smart home technologies for independent living and home care. Initial findings indicate that there are many adverse events that technology could assist with such as falls, memory loss, medication problems and social isolation. Much innovative technology is available but levels of adoption remain low and there is some way to go before health departments are ready to move focus and resources towards prevention, assistive technology and community care. Zenn Bien briefly reviews trends in assistive robotics, human robot interaction and the need for human-friendly system design. The team adopted Computational Intelligence, also known as Soft Computing Techniques, effective for mimicking human behaviour and transplanting soft knowledge to machines. Living spaces with a class of human-friendly service robotic systems can be realized and the independence of residents can be facilitated by means of Computational Intelligence methods. For the independent living of older persons and people with disabilities, robotic service can become an important alternative to human care in ageing societies such as Korea. Jamie Ng will look at attitudes of Singaporeans to smart homes. A survey was conducted at the first Silver Industry Conference and Exhibition where a futuristic Smart Home was presented to the public. The survey focused on the understanding of older adults, youth and working adults of Smart Homes, as well as their perceptions towards the technologies presented. **CONCLUSION** Telemedicine and smart homes may be one approach to enhancing the well-being of older people and reducing hospitalization and institutionalization.
Keywords: smart homes, human-friendly approach, telemedicine, Asia-Pacific
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P. TSANG. Tele ageing care: A case study of tele diabetes monitoring and management system (TDMMS). Gerontechnology 2010;9(2):160-161; doi:10.4017/gt.2010.09.02.098.00 **Purpose** Telemedicine is the delivery of medicine from a distance. Monitoring a patient at home using known devices and transferring the information to a caregiver is a fast-growing, emerging ser-

vice. **Method** Telemedicine may be as simple as two health professionals discussing a case over the telephone, or as complex as using satellite technology and video-conferencing equipment to conduct a real-time consultation between medical specialists in two different places. Telemedicine is practiced on the basis of two concepts: real time (synchronous) and store-and-forward (asynchronous). Real time telemedicine could be as simple as a telephone call or as complex as robotic surgery. It requires the presence of both parties at the same time and a communications link between them that allows a real-time interaction to take place. Videoconferencing equipment is one of the most common forms of technologies used in synchronous telemedicine. Store-and-forward telemedicine involves acquiring medical information and then transmitting this data to a doctor or medical specialist at a convenient time for assessment offline. It does not require the presence of both parties at the same time. Of course, a tele health care system can have both synchronous and asynchronous components. A new way of practicing telemedicine - better known as Primary Remote Diagnostic Visits in which devices examine a patient- is emerging whereby a connected doctor residing in another location virtually examines the patient and treats him or her. **Results & Discussion** This new hybrid technology and the principle of practicing medicine, holds great promise for solving major health care delivery problems. Advances in electronics, Internet technology and changes in medical care delivery have enhanced the ability to develop effective hybrid telemedicine application systems for diabetes control and management. Measures of effectiveness for technology systems rely on identified requirements for system quality in real time and store-and--forward. Aimed at reducing elderly diabetes patients' hospital admissions rate, this study presents our experience in designing and testing a new telemedicine system, referred as Tele Diabetes Monitoring and Management System, TDMMS. TDMMS, funded by Johnson & Johnson, helps doctors monitor and diagnose the state of the diabetes by monitoring the diabetes patients' glucose level and have the relevant data stored remotely at elderly home care facilities. This paper should be of interest to medical system developers, security experts, as well as medical practitioners.

Keywords: telemedicine, primary remote diagnostic visits, diabetes monitoring; ageing
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J. SOAR. *Smart home and assistive technology developments in Australia. Gerontechnology 2010;9(2):161;* doi:10.4017/gt.2010.09.02.099.00 **Purpose** This paper reports on early findings of the research program of the Queensland Smart Home Initiative, an Australian industry-government research consortium that promotes the adoption of assistive and smart home technologies for independent living and home care. **Method** The QSHI was established in 2004. It has received generous support from the Queensland government and industry and has attracted federal, state and industry research grants. It has developed a research program that includes: the development and evaluation of demonstrator smart homes; hospital avoidance and connected communities for care; connectivity for information sharing in rural communities; policy and strategy for assistive technology. **Results & Discussion** Results indicate that there is high incidence of adverse events that technology would assist with such as falls, memory loss, medication problems, social isolation and others. Although there is a plethora of innovative technology available, the level of adoption remains low, so there is a need for quality research data on the benefits of assistive technologies so as to assist governments, care funders and providers in developing policy. This policy should deploy resources to encourage adoption and realization of benefits with an appropriate strategy. There is some way to go before health departments are ready to shift focus and resources towards prevention, assistive technology and community care, since there are significant structural barriers to the integration that would be required for a better continuity of care across care settings. The health system remains strongly dominated by the hospital sector and, despite encouraging pilots and projects aimed to better coordinate care, a significant shift in focus is some way off.

Keywords: smart homes, assistive technology, ageing, independent living
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Z.Z. Bien. Human-friendly system approach in a robotic smart home for older persons. Gerontechnology 2010;9(2):162; doi:10.4017/gt.2010.09.02.100.00 **Purpose** Human robot interaction (HRI) takes place in various forms when service robotic systems in a residential environment are in session. If the service should be provided, in particular for weak persons, including older people and people with disabilities, the total system operation should be human-friendly. **Method** As a means of realizing the human-friendly approach for older people in a smart home, we have adopted an intelligent method known as Computational Intelligence, also known as Soft Computing Techniques, that is an effective method for mimicking human behaviour and transplanting soft knowledge to machine. The experiments were undertaken in a special setting, the 'Intelligent Sweet Home' in the Human-friendly Welfare Robotics Research Center at KAIST, Daejeon, south of Seoul. **Results & Discussion** This research found that living spaces with a class of human-friendly service robotic systems is effectively realized and independence of the residents can be facilitated by means of Computational Intelligence methods. More specifically, the research suggests that, for independent living of older persons and people with a disability, this robotic service becomes an important alternative for human care in many ageing societies. Along with a brief review of the current trends in assistive robotics, we discuss the importance and difficulties of the human-friendly system design concept. Finally, we report our experiences of utilizing various Computational Intelligence techniques in realizing a human-friendly assistive robotic environment in which a number of interaction-interfaces, including some controlled by facial expression and hand gestures, are successfully implemented in a living-room setting.
Keywords: smart homes, assistive technology, human friendly, human-robot interaction
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J.S-L Ng. Needs and attitudes of older adults and their families in Singapore towards smart homes. Gerontechnology 2010;9(2):162; doi:10.4017/gt.2010.09.02.101.00 **Purpose** Today in Singapore the median age is 36 years which, by 2050, will be 54. Older adults in Singapore (as in many Asian societies) are traditionally supported by their families. This demographic shift has increased the burden on families. Although smart homes have the potential to improve the quality of life of older adults and potentially help them live more independently, little is known about Singaporean's attitudes towards the use of these technologies in their homes. In the past 3 years, our team at A*STAR Singapore has been investigating the needs and attitudes of Singaporeans towards Smart Homes. **Method** A survey was conducted at the first Silver Industry Conference and Exhibition (SICEX 2008), where a futuristic Smart Home was presented to the public in Singapore. The survey focused on older adults', youth's and working adults' understanding of smart homes, as well as their perception towards the showcased technologies. Over 500 surveys were handed out of which 364 were completed and returned. A Smart Home Lab, STARhome, was also set up at Fusionopolis. More than 60 contextual interviews with older adults, their working children and grandchildren were conducted at our STARhome as well as their homes to understand their technology use and expectations of future homes. **Results & Discussion** We will present some of our findings and provide an overview on the needs and attitudes of older adults and their families in Singapore towards smart homes.
Keywords: smart homes, attitudes, Singapore
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