

pHealth Conference 2008
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Title: “Sensors set to revolutionise pHealth”

Summary:

- Aging trend and chronic disease is increasing
- Global aging study and results
- Setting the scene - how technology is part of solution
- Remote patient monitoring and wireless sensor platforms that Intel is developing in conjunction with university partners

Abstract:

Aging trends/chronic disease increasing

The population in Europe is rapidly growing older and long-term conditions (LTCs) are becoming an increasingly important focus in healthcare. In addition, people's expectations about the quality and location of their healthcare are changing. As a result, healthcare organisations, governments and societies are being presented with unprecedented challenges. New technologies, designed with an explicit focus on the needs of older adults and their clinicians and care providers, can help to meet these challenges, easing the burden on strained health care systems and providing peace of mind and meaningful engagement for the elderly.

A key part of the change will be a more comprehensive use of assistive technologies including the provision of telehealth. This should enable people to have the support of integrated health and social care whilst remaining in their home. Sensor networks will therefore have an important role because this change in healthcare will affect every aspect of life, ranging from personal health, our home environment and wider environmental monitoring. Telehealth is already becoming a reality in the UK, with pilot projects led by primary care trusts (PCTs) and/or local authorities being rolled out across the regions. However, telehealth has not yet become the standard of care and many healthcare professionals and practice-based commissioners have not had direct experience of its use.

Global aging study & results

To support the goal of improving healthcare for an aging population, the Health Research and Innovation (HRI) group within Intel's Digital Health Group launched a multi-year project called the Global Aging Experience. The objective of the research project is to gain an understanding of the social and cultural differences in people's experiences of aging and health, compare best practice of elderly care, and to identify the types of technologies and services that could empower people to be more proactive in managing their health and wellness. Since data shows that Western European countries are experiencing the effects of this aging demographic shift most acutely, the research focused initially on seven European nations: Spain, France, Germany, Ireland, Italy, Sweden, and the UK. Intel utilised ethnographic research

techniques such as open-ended interviews, observations and multi-day visits to dozens of households.

This presentation proposes to share some of the key findings and explore in more detail the range of differences in elderly care services and people's experiences of aging and health. In doing so, Carlos will present several common themes that the study uncovered that help to determine what technology might be useful to an aging population as well as suggesting what the technology and healthcare industries need to do in order to best assist an aging population and those suffering from long-term conditions.

Setting the scene - how technology is part of solution

Intel has been working closely with European governments, healthcare professionals and, as the study above exemplifies, with patients themselves. As a result, Intel is positioned at the very forefront of telehealth planning. Telehealth technology is set to revolutionise personalised health as it offers a range of potential benefits to users, clinicians and those commissioning health and social care services:

- It can identify changes in the personal circumstances of the user through data collection and analysis. Changes can be presented to healthcare professionals for regular monitoring or alerts can be generated if the change exceeds pre-set limits.
- Telehealth equipment can support professionals in making risk and care assessments allowing clinicians to make the best use of their time. It does not replace the need for face-to-face contact but rather targets it more effectively.
- Telehealth equipment can support and promote independence among users leading to improvements in quality of life and the maintenance of self-esteem and dignity. It can help patients remain within their own homes.
- Telehealth can shorten the time between an event and the response to that event, potentially leading to earlier diagnosis of problems and/or proactive changes in a care plan, which might prevent or delay worsening health and possibly hospital admission.

Remote patient monitoring and wireless sensor platforms that Intel is developing in conjunction with university partners

Intel is continuing to build on this and work with their consortia to develop a sensed personal environment that can monitor and report on key health indicators, ranging from "behavioural biomarkers" specific to particular disease progression for home-based management of chronic illness (e.g. diabetes, Parkinson's disease, Alzheimer's disease) to more general indicators (breathing, movement) that can be tracked using wearable sensors in a home also fitted with sensors.

Here are some examples of local initiatives that Intel has undertaken with its UK university partners:

- **Swindon PCT**
Launched a two-year trial in mid-2007 of home monitoring for patients suffering from respiratory disease, managed by the PCT's community matron team. The hope is that the service will reduce the number of hospital visits and assist people with this long-term condition to lead more independent lives.

- **Surrey University and Surrey Hospices – Support for Palliative Care (SPACE)**
Palliative patients used a home monitoring device to answer questions about their condition such as blood pressure and level of pain, which was then fed back to clinicians and community nurses who were then able to decide whether a visit was needed. The scheme aimed to enhance the lives of people who have terminal cancer and enable them to remain at home for longer.
- **Sheffield South West PCT**
Began a pilot of three different telehealth devices in 2006 to enable case managers to put together a business case to buy telehealth equipment. The trial included deployment of home monitoring devices by specialist COPD nurses, rapid response nurses in intermediate care and use by community matrons and case management team. The project aimed to deliver a national care record for every single NHS patient, thus enabling information to be shared safely, securely and appropriately across the NHS.
- **Carlisle and District PCT**
Reduced hospital stays for some patients with chronic respiratory diseases from 10 days to 5.5 days by the use of home monitoring equipment.

Learn from Intel's extensive global research to find out more about the emerging ICT for pHealth that will soon become the norm for improving patients' quality of life.

Intel Company Overview:

Intel in Healthcare: Connecting People and Information Across the Continuum of Care

Intel's Digital health Group is working to deliver computing solutions that connect people and information in new and important ways to help increase patient care and safety, manager patient information, decrease costs and improve the efficiency of healthcare delivery. Intel is passionate about using innovative technologies to improve healthcare, enhance wellness, and extend independent living.

We envision solutions that empower clinicians to fulfil their passion, spending less time on paperwork and more time delivering higher-quality care. Breakthroughs that improve chronic disease management and accelerate the development of more personalised models of care. Advances that help individuals maintain their independence—and families maintain their peace of mind. We're collaborating with healthcare experts around the world to transform the healthcare experience across the continuum of care - from the hospital to the clinic to the home.