

### Human Factors Expert Speaks Out

*Patricia Patterson recently interviewed George Demiris, associate professor and director of clinical informatics and patient-centered technologies at the University of Washington. Demiris is chair of the human factors special interest group of the American Telemedicine Association and the lead convener of the technology and aging group of the Gerontological Society of America. Demiris had these thoughts to share about home use devices:*



On the importance of training in the home environment:

Often, sophisticated telecare systems are handed to homecare patients and their families to capture weight, blood pressure, blood oxygen etc. They are expected to fill out questionnaires and report on well-being. Depending on one's previous experience with technology and potential functional limitations, the use of such technologies can be challenging.

In these instances, end user training should include more than just providing a handbook to the families. People need to be trained to understand and operate the system, and this training needs to be customized and individualized because not all people have the same training needs.

As we plan for training, we need to keep in mind that users have diverse physical, cognitive, and sensory abilities and different attitudes towards use of home-based technologies and willingness to learn. For example, often software and hardware designers fail to include the elderly users in their testing or the development of

their user manuals, yet older adults may often be the primary end users of the final product.

On integrating technology into the home environment:

Manufacturers tend to think of end users' acceptance as a simple parameter (often captured with a one-item questionnaire, e.g., "are you willing to use this?"). However, more complex factors affect what we refer to as the "obtrusiveness" of a homecare IT system. Obtrusiveness is the degree to which such a system may be prominently undesirable, and it captures several underlying constructs such as perceptions of privacy, self-image, the physical space, interference with daily routines, etc.

As we implement systems in people's homes and train patients and families in their use, we have to be aware that this is a very different context than a work environment where a new system may be introduced into employees' workflow. The field of human factors or usability engineering provides us with tools, instruments, and theoretical frameworks to understand the end user's experience and also to maximize the positive aspects of that experience.

On the importance of continuous quality improvement practices:

New systems introduced in people's homes need to be tested extensively, and all feedback about the system's features, training, or labeling needs to be formally captured and incorporated into the design of a new iteration or version of that system.

**See *Human Factors in Labeling and Training for Homecare Technology*, by Patricia A. Patterson, p. 33, in *Home Healthcare Horizons*, 2010.**