

HUMAN-SYSTEMS INTEGRATION

AT THE NATIONAL RESEARCH COUNCIL
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WORKSHOP HIGHLIGHTS

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THE ROLE OF HUMAN FACTORS IN HOME HEALTH CARE: WORKSHOP SUMMARY

Workshop Highlights

For many reasons, including costs and the preferences of care recipients, health care is increasingly occurring in residential settings. As a result, health care is provided in a range of environments among a variety of people who use a broad selection of medical devices, information technologies, and care practices. This diversity adds to the challenges of ensuring safe, effective, and quality health care. Developing a human factors approach can accommodate the diversity as well as the strengths and limitations of humans and their interactions with systems in providing health care in the home.

The Agency for Healthcare Research and Quality asked the Board on Human-Systems Integration of the National Research Council to investigate the role of human factors in home health care. In response, the multidisciplinary Committee on the Role of Human Factors in Home Healthcare was formed to identify barriers and obstacles to providing health care in the home, useful human factors strategies, and gaps in current knowledge. As part of its efforts, the committee planned and conducted a workshop.

The workshop, held October 1-2, 2009, in Washington, DC, brought together a group of human factors and other experts to consider a diverse range of behavioral and human factors issues associated with the increasing migration of medical devices, technologies, and care practices into the home. Discussion was organized around a series of background papers that were commissioned for the workshop. Nine presentations, given in three half-day sessions, summarized the main conclusions of the background papers. The first session covered the people who receive and provide home health care. The second session looked at the tools and technologies involved in the delivery of home health care, and the third session focused on the physical and social environments in which home health care occurs.



PEOPLE

Major topics included the diversity of the care recipient population, challenges in the assessment of the efficacy of home health care, and the use of human factors tools in improving home health care. Neil Charness of Florida State University outlined ways to apply human factors knowledge and methods to the challenge of establishing a good match between home health care recipients and the care they receive.

People who provide health care in the home were differentiated as formal caregivers, those who received compensation for their services, and informal caregivers, often family members and typically unpaid. Paula Milone-Nuzzo of Pennsylvania State University and Carolyn Humphrey of C.H. Humphrey Associates discussed formal caregivers and the human factors challenges associated with their work. Some of the issues they raised include training and support needs, working conditions, and communication and coordination among caregivers and between caregivers and families. Richard Schulz of the University of Pittsburgh described

informal caregivers and the human factors issues related to their roles and tasks, their diversity, their lack of health care training and knowledge, and the often difficult conditions in which they provide care.

TOOLS AND TECHNOLOGIES

Designers of medical devices and information technologies are often naïve about their use in home health care by diverse populations. They need high-quality information and guidance to understand user capabilities relative to the task demands of the technologies they are developing. Colin Drury of the University of Buffalo described the use of analytic tools, such as task analysis, to support the design and application of care in the home. He stressed the need to match tasks to those who must perform them, based on rigorous analyses.

Molly Follette Story of Human Spectrum Design talked about the medical devices and equipment used in home health care, with special emphasis on the difficulties of taking devices designed for use in medical facilities into the home. She provided a taxonomy of devices and a list of design considerations based on the principles of universal design.

George Demiris of Washington State University discussed the evolving use of information technology and opportunities for home monitoring and communication of physical indicators to care providers. He reviewed the growing use of the web for a variety of health care functions and raised issues involving privacy and policy considerations.

ENVIRONMENTS

The workshop addressed multiple environments that bear on the quality of health care provided in the home. Jon Sanford of the Georgia Institute of Technology discussed issues related to the physical environment of the home, including accessibility, usability, and safety. He reviewed issues involving home modifications and the practical and policy-related barriers to innovations in home design.

Steven Albert of the University of Pittsburgh covered social, cultural, and community environments and their effects on home health care. He described issues related to the attitudes of cultures and individuals toward health and health care, the importance of community support, and ways in which human factors methods could be used to understand these factors and thus improve care in the home.

Peter Boling of Virginia Commonwealth University Medical Center discussed policy issues relevant to home health care, including financial and regulatory environments and medical practice models. He described issues involving reimbursement for care and the narrowness of professional disciplines that isolates them and prevents coordination of care. He provided a taxonomy of health care needs that could be used to aid in policy making and the design of medical practices.

REPORT

The report, *The Role of Human Factors in Home Health Care: Workshop Summary*, which more fully discusses the proceedings of the workshop and includes copies of background papers that informed the discussion, is available from the National Academies Press, 500 Fifth Street NW, Washington, DC 20001; (800) 624-6242; www.nap.edu; or via the Board on Human-Systems Integration at www.national-academies.org/bohsi.

Additional Information . . .

This document was prepared by the Board on Human-Systems Integration based on the workshop summary *The Role of Human Factors in Home Health Care: Workshop Summary* (National Academies Press, 2010). The workshop was sponsored by the U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality. The responsibility for the published workshop summary rests with the workshop rapporteur and the institution. The workshop and background papers prepared for it were a primary source of input for the Committee on the Role of Human Factors in Home Health-care in the production of its final report. That report, *Health Care Comes Home: The Human Factors*, was released in July 2011 and is also available from the National Academies Press.

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