POSITION STATEMENT

Utilization of Electronic Communication and Sensing Technologies to Address Health Care Needs of Persons with Physical Impairment

Adopted by the IEEE-USA
Board of Directors, 19 September 2012

IEEE-USA believes efficient use of electronic communication and sensing technology can help address the health care needs of persons with physical impairment regardless of its etiology. While some progress has occurred since publication of the IEEE-USA Disability position paper of 20 November 2009, much work still remains. Appropriate adoption of existing and emerging technology can improve the efficiency and quality of health care delivery, restrain cost increases and, perhaps most importantly, improve the quality of life for this population.

The Americans with Disabilities Household Economic Studies from 2010\(^1\), and published in 2012, estimated 54 million Americans are living with a disability. Whether these disabilities are related to disease or natural ageing, they present unique challenges to effective non-institutional management of their conditions in our distributed, diverse fragmented health care delivery system and to maximize the quality of their life by providing accessibility, security, independence and job opportunity.

The federal government should provide incentives to encourage physicians, other health care professionals and patient caregivers to receive training in utilizing information, communication remote sensing, and assistive technologies to facilitate treatment of persons with physical impairments. These incentives should include financial inducements, educational grants and regulatory changes. IEEE-USA recommends that all health care stakeholders work together to accomplish the following:

- Health information technologies utilizing enhanced communication capabilities should be incorporated into patient care.
• Remote sensing and adopting home-based, self-care management, and long-term support and services programs, should be utilized to promote efficient and effective patient management.
• Communication standards should be adopted to facilitate effective communication and information sharing, by converging technologies and devices.

Achieving these goals will require actions by both the public and the private sector. Specifically, IEEE-USA recommends:

• Revising Medicare reimbursement/payments to promote communication aids that allow those receiving home health and their care givers, and homecare support services to be able to connect via IT communication with health care providers and other support service providers
• Continuing legislative and regulatory support of adopting of electronic accessibility standards addressing the needs of the physically impaired
• Supporting legislation to establish National Advanced Medical Directive guidelines promoting patient autonomy
• Supporting funding for research and clinical trials to document which specific home-health care and assistive technologies and processes are most beneficial and cost-effective in improving outcomes that lower health care cost, and improve quality of life and health outcomes
• Improving resources and training for caregivers
• Establishing national medical liability guidelines and protections for caregivers and providers utilizing home-health care assistive technologies
• Promoting adoption of personal (consumer) electronic health records for use by persons with physical impairments, their caregivers, and others to enhance health information exchange between the home-health setting and health care professionals -- thus motivating individuals to become more active in their own health management
• Establishing standards to promote and encourage information interchange between Electronic Medical Records and Personal Health Records
• Promoting access and dissemination to the individual and their caregivers of condition specific information from credible knowledge sources, such as National Institutes of Health, National Library of Medicine, Centers for Disease Control and Prevention, and the Agency for Healthcare Research and Quality, based on the individual’s Personal Health Record
• Facilitating adopting of convergent technologies, such as tablet devices and cell phones for home health monitoring by removing legislative and administrative barriers
• Implementing policies and procedures that facilitate adoption and effectiveness of current existing legislation, e.g., The American Disabilities Act.
IEEE-USA recommends the following to improve accessibility and usability of personal health information:

- Adopting personal health records that are able to mitigate accessibility issues by the use of assistive technologies (e.g., text magnification, text-to-speech/speech-to-text conversion, alternative user interfaces, and adopting a consumer terminology thesaurus)
- Home health telecommunication hardware devices that allow alternative user interfaces, including special-purpose keyboards and voice recognition technology
- Increasing physician and other health care professional electronic communication interchange with patients and their caregivers, with utilization of disease-appropriate modalities
- Establishing provisions to meet the special needs of ethnic, racial and foreign-language minorities, through tailored informational services

This statement was developed by the IEEE-USA Medical Technology Policy Committee and represents the considered judgment of a group of U.S. IEEE members with expertise in the subject field. IEEE-USA advances the public good and promotes the careers and public policy interests of more than 200,000 engineers, scientists, and allied professionals who are U.S. members of IEEE. The positions taken by IEEE-USA do not necessarily reflect the views of IEEE or its other organizational units.

**BACKGROUND**

Considerable attention has been focused on health care provider adoption of electronic medical records. We applaud the efforts of the Federal Government to foster adoption of Electronic Medical Records (EMR) by creating standards, promoting credentialing with oversight, and for promoting financial incentives. Little attention however has been directed toward utilization of Personal Health Records (PHR) and health information by the patient, especially the 54 million Americans with disability. Medical information needs of persons with physical impairments and their care providers include: access to Electronic Health Records (EHR) to both obtain and disseminate health information; automated access/distribution of quality patient condition specific health information; and interactive, time-appropriate communication mechanisms between health care stakeholders and their patients and their caregivers in a distributed, fragmented home health care environments.

Research funding for clinical trials will provide data on which promising technologies offer the best return on investment measured by health outcomes and quality of life indicators and provide guidance on prioritizing when and which technologies to adopt. Mechanisms for security and privacy of patient specific health information will need to be blended with public health needs and research guidelines.

Providing home health care services to persons with disabilities offers the potential for significant savings. The use of remote monitoring technology can detect changes in medical condition that, if unaddressed, could lead to hospitalization or nursing home

Persons with disabilities and their caregivers frequently encounter many obstacles and difficulties in obtaining transportation to their health care provider’s office. The Rehabilitation Engineering and Assistive Technology Society of North America believes that accessible technologies, including those for accessing medical records, are fundamental for improving the health and well-being of people with disabilities. RENSA is committed to improving access and inclusion in all areas of assistive technology and rehabilitation and have issued application specific position papers regarding issues such as Pediatric Power; Seat Elevating Devices; Tilt Recline, and Elevating Leg rests for Wheelchairs; Wheelchair Standing Devices; Wheelchairs Used as Seats in Motor Vehicles; and Ultra light Manual Wheelchairs to facilitate ambulation needs of persons with disabilities. Adoption of these position papers will promote better ambulation of persons with disabilities, however, they may still be severely restricted from office visits and routine monitoring of disease specific indicators. Providing electronic communication and remote sensing assistive technologies can minimize these difficulties.

1 http://www.census.gov/prod/2012pubs/p70-131.pdf