2006/2007

Progress Report

ACCE Healthcare Technology Foundation
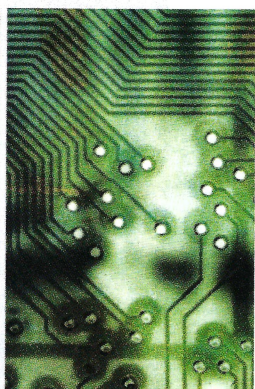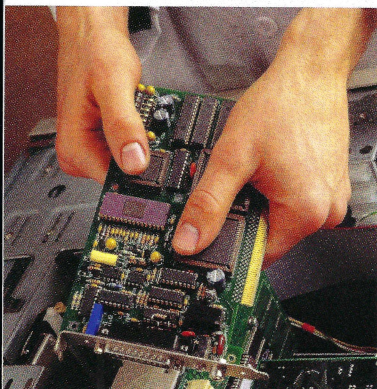
www.acce-htf.org

mission:

Improve healthcare delivery by promoting the development and application of safe and effective healthcare technologies through public awareness and global advancement of clinical engineering research, education, practice and related activities.

vision:

Founded in October 2002, the ACCE Healthcare Technology Foundation (www.acce-htf.org), was incorporated exclusively for charitable, educational and scientific purposes. It is committed to improving healthcare delivery by promoting public awareness of and the development and application of safe and effective healthcare technologies through the global advancement of clinical engineering research, education, practice and other related activities.

The creation of the Healthcare Technology Foundation filled a critical void in the development of clinical engineering professionals. At the same time, it met an important need for public safety information about healthcare technologies.

In its fifth year, the Foundation achieved significant milestones, most notably the creation and dissemination of a white paper on the Impact of Clinical Alarms on Patient Safety *and bilingual brochures for patients and their families entitled* Can I Bring My Own Medical Device with Me to the Hospital? *We certified 28 clinical engineers, raising our total to 147. We established the Marvin Shepherd Patient Safety Award. And we also made strides in developing our organizational structure, establishing clear administrative accountabilities, creating a new executive board and updating the foundation bylaws.*

The work we are doing is vital to all of us – both as professionals and as healthcare consumers. Our outreach to the nursing profession, caregivers and potential patients will translate into better-educated consumers and safer, more integrated healthcare technologies. And while much of our focus is on technologies for in-hospital stays, we are also committed to addressing the education needs of technologies that are used in homes and other care settings.

The importance of our mission is evidenced in the strong financial support we've received, from not only every member of the Foundation board but from the American College of Clinical Engineering. Perhaps our biggest success can be seen in the foundation's growing relationships with the healthcare industry. Large and small corporations have responded kindly to our requests for support and, in many cases, have committed to funding specific initiatives. The establishment of the Clinical Engineering Leadership Excellence Award is just one example, garnering sponsors such as GE, Massimo, Nellcor, Emergin and Medtronic.

This is only the beginning. We plan to launch a number of new initiatives this next year. But we need your help to make that possible. It is our sincere hope that every practicing clinical engineering professional will make a contribution toward our shared success, either financially or through gifts of time and talent. In addition, we need to enlist support from academia, provider organizations, medical technology vendors, insurance companies and the public.

Won't you please join us in this important cause?

Wayne Morse

Wayne Morse MSBME MBA CCE
President • 2006-2008

Public Awareness

The goal of our public awareness initiative is to develop informational resources for the design community, hospital-based clinical engineers, physicians, nurses and other clinical care providers and the public. Each informational resource will address a specific topic that has patient safety implications and will be targeted to one or more of these audiences. By providing the information in a form that is easily understood, we can help the target audiences take steps to reduce the risk of injury related to a specific patient safety concern.

Public Awareness activities include:

- Development of educational materials that address the benefits and appropriate use of health care technologies in patient care

- Development of a public awareness campaign to promote increased understanding of patient safety issues and how individuals can assume a role as an active participant to reduce safety risks

- Development of educational resources addressing various health care technologies and describing how the technologies can assist individuals to maintain a safe and healthy lifestyle

- Developing a public access web site to direct health care consumers, providers, and suppliers to organizations and resources that provide information on the processes that are recognized

as recommended practices and to assure effective selection, use and maintenance of health care technologies

- Promoting safety in the use of health care technologies through cooperative efforts with other groups and organizations with similar missions.

The most recent informational resources developed address use of personal electrical equipment during a hospital stay and the current state of performance of clinical alarms. Additional topics of interest include safety issues related to devices for the elderly, strategies to reduce the risk of oxygen enriched fires in home care, expansion of the web resource links in the AHTF website and safety during home care.

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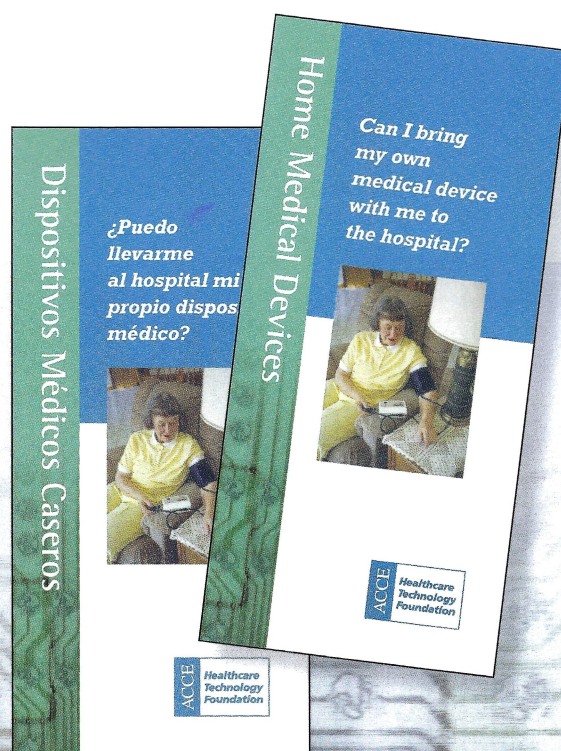
Collaboration With ECRI Institute

An important part of the ACCE Healthcare Technology Foundation's mission is to collaborate with like-minded organizations. For over forty years, ECRI Institute has been dedicated to bringing the discipline of applied scientific research to discover which medical procedures, devices, drugs and processes are best. Its overall mission is to help healthcare organizations improve patient care. A significant portion of its efforts have been related to the promotion of safe and effective use of healthcare technology. ECRI Institute has been pleased to further its mission through a variety of collaborative efforts with the ACCE Healthcare Technology Foundation. One of ECRI Institute's Senior executives is a member of AHTF's Board. ECRI Institute staff participated on the AHTF clinical alarms project and wrote a portion of the AHTF white paper on clinical alarms. ECRI Institute provides administrative support to AHTF and participates in a variety of other AHTF initiatives, including serving as AHTF's representative to the Healthcare Technology Certification Commission (HTCC).

The Marvin Shepherd Patient Safety Award

Marvin Shepherd, well-known as a safety expert in our industry, has established this important award in order to advance patient safety through design, use, support, education and management of health care technologies. The goal is to annually identify the best qualified recipient(s) for their contributions to the advancement of patient safety. Individuals selected can be inventor, incident investigator, author, educator, technology manager or anyone who has promoted the safe use of technology in health care. The ACCE Advocacy Committee promotes the award and nominates candidates. The AHTF makes the final selection. The award, which consists of a plaque and monetary reward, will be presented by AHTF during the annual meeting of the American College of Clinical Engineering (ACCE).

During the past few years, individuals joined Mr. Shepherd in supporting this program through contributions and participation in the program activities. Please consider lending your support to perpetuate this program. Your contribution can have an impact on patient safety everywhere.

Certification:

The Healthcare Technology Certification Commission (HTCC) and the U.S. Board of Examiners for Certification in Clinical Engineering are in their fifth year and have tested candidates for the past four years. The total number of certified individuals is 147. They are posted on the AHTF website.

The HTCC certified eight individuals in 2006. The written exam and oral exams continue to be offered on a regular basis.

The U.S. Board of Examiners for Certification in Clinical Engineering continues to manage the program and develop additional test questions with the help of Professional Testing Corporation (PTC). PTC is the professional organization that administers the test process.

Twenty five applicants applied to take the exam in November 2006. Seventeen took the exam and twelve passed. The remainder were either determined to not be eligible, or deferred their exam. These individuals are in the process of taking the oral portion of the exam.

Clinical Engineering Leadership Excellence Award Program

Since the initial evolution of the Clinical Engineering Profession, there has been a need to define and promote an expanded leadership model that encourages collaboration, involvement and action. The Clinical Engineering Leadership Excellence (CE^2) Award was created to answer that need.

This evaluation and recognition program promotes excellence in clinical engineering leadership by acknowledging best practices in the management and advancement of healthcare technology in hospitals, outpatient facilities, and at home. Every year, the program identifies clinical engineering professionals who demonstrate leadership excellence, then recognizes these professionals through CE^2 awards.

Equally important it shares lessons learned and knowledge gained. By sharing best practices, we hope to enable improvement in processes, outcomes and relationships associated with clinical technology management and advancement.

The focus of the CE^2 Clinical Engineering Leadership Award is on the achievements of individuals at the institution activities level that go beyond that of routine operations of a quality Clinical Engineering (CE) department. The CE^2 Award targets institutional rather than national or international professional activities, although external leadership activities often accompany institutional leadership. The CE^2 Award also seeks individuals whose leadership is functional rather than merely being reflected by their position in the organization chart. Included in this category is impact on public benefits.

Therefore, the management of an efficient and effective Clinical Engineering department that fulfills the basic requirements of CE is assumed to be a prerequisite to the leadership qualities that the CE^2 Award seeks to recognize.

The CE^2 program functions through a panel of experts that are charged with the implementation and administration of assessment methodology, qualification requirements, scoring guidelines, and processing criteria of submitted applications.

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Clinical Alarms Management:

Clinical alarms management is a challenge. Alarms must warn caregivers of immediate or potential adverse patient conditions. They must be accurate, intuitive, and provide alerts which are readily interpreted and acted on by clinicians in an appropriate fashion. Clinical alarms and their shortcomings have been the topic of numerous studies and analysis in the literature. Today's alarm systems not only include bedside and central audible and visual alarms, but have expanded to personal assistant devices, wireless phones, pagers, nurse call, dashboards, tactile devices, and alarm prioritization systems. Despite advances in technology and patient care, adverse patient events continue to occur related to alarm system design and performance.

In 2006, AHTF completed several public forums and a survey on clinical alarm issues and priorities. The survey brought a response by 1,327 clinicians, engineers and healthcare managers. Of particular value is the response from nursing who represented the majority of the respondents to the survey.

Results of the initiative including the survey were published in a white paper, **Impact of Clinical Alarms on Patient Safety.** The paper was produced in hardcopy and in downloadable form on the AHTF website. The paper has been distributed at national and international meetings and to groups involved in clinical alarms.

Key observations from the project included:

- The number and complexity of alarm systems in critical care environments challenge human limits for recognition and action

- False alarms were consistently reported in the survey and forums as a major issue

- Alarms are a tool in assessing patient conditions but must be used in conjunction with direct clinical measurements and observations

- The IEC/ISO 60601-1-8 standards are viewed by many as a way to improve clinical alarm effectiveness

- The alarm problem is a systems issue and actions toward specific areas must consider their impact on the system

The medical device industry must focus on reduction of false alarms through improvement in the accuracy of parameter recognition, the use of smart alarms, and enhanced usability. Industry consensus on the IEC/ISO 60601-1-8 standards should be considered.

Future directions include additional articles in nursing, industry and clinical engineering publications; forums such as the March 2007 AHTF sponsored **Responding to Medical Devices Incidents** in Houston, TX, and continuation of communications at national meetings such as the 2007 National Patient Safety Foundation poster session, and via the Clinical Alarms website. Adverse event database queries will continue on an annual basis and a re-survey of constituents will take place in two years.

Impact Of Clinical Alarms On Patient Safety
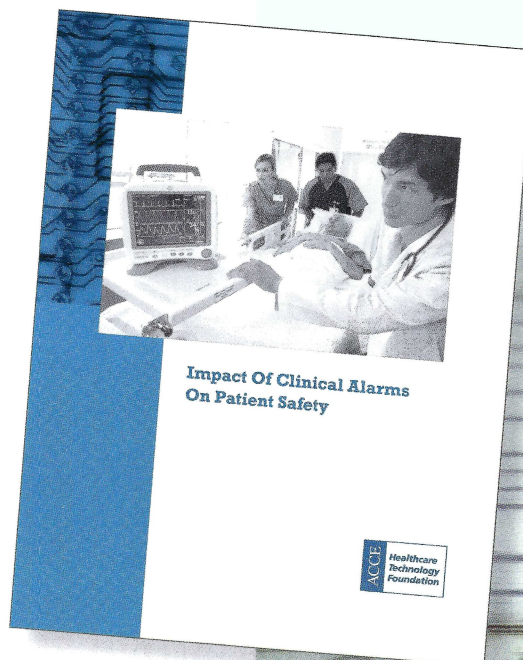
Please help us to take this important work forward.

Your contributions will enable us to improve healthcare efficiency and safety. Please mail your donation to ACCE Healthcare Technology Foundation, 5200 Butler Pike, Plymouth Meeting, PA 19462-1298. On behalf of the board we thank you for your generosity.

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Photos courtesy of Philips Medical Systems.