



News from the Health Care Technical Group

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**HCTG WEBSITE**  
<http://hctg.hfes.org>



**52nd Annual  
Meeting**  
New York Marriott  
Marquis Times  
Square,  
September 22-26,  
2008

## **Message from the Chair**

*F. Jacob Seagull, PhD*

It is an exciting time to be involved with human factors and ergonomics (HF/E) in the field of healthcare. The landscape of medical human factors vastly changed in the nine years since the Institute of Medicine's now-famous report, "To Err is Human." Where once there were few medical arenas that employed human factors and ergonomics concepts, we now enjoy a more pervasive presence and awareness in a number of segments of healthcare.

Mainstream healthcare workers are increasingly employing a range of HF/E tools to understand their surroundings. The Joint Commission and AHRQ emphasize the principles of human factors in areas ranging from communication and teamwork, to root cause analysis to technology design. At the same time, surgery is taking advantage of simulation and anesthesia is giving it renewed attention. Accreditation boards (e.g. the ACGME) are now mandating that simulation and competency-based training be a requirement for certain types of training programs. There are official programs for accreditation from American College of Surgeons for education centers, as well as endorsement by the American Society of Anesthesiologists (ASA) for simulation programs. We have a great opportunity as active participants to use our field's considerable expertise in aviation simulation and training to ensure the success of these endeavors.

We also face a number of challenges. As concepts of human factors become more familiar, we need to continuously educate healthcare professionals to appreciate the complexity of the domain of HF/E, and collaborate

with them to use the tools and techniques properly. We, in turn, must appreciate the complexity of the healthcare domain. Furthermore, we need to provide value to the healthcare industry, refining existing HF/E tools to be tailored to healthcare environments.

We can see that opportunity abounds. The broad spectrum of human factors and ergonomics activities project deep into the healthcare community. Medicine is embracing technology to improve care, providing consumer-operated devices for treatment and monitoring, marketing products to the aging population, using the internet for medical information, to name a few. All of these activities involve well established non-medical domains in human factors. Our TG needs to make the human-factors community aware of the opportunity and value present within the healthcare community. I encourage all members to spread the word to other healthcare professionals who may not know of HFES, as well as HF professionals from other specialties who may be interested in the range of fascinating work being done within the medical domain.

The HealthcareTG has grown, and will continue to grow. This past year, the Annual Meeting in Baltimore's program in Healthcare was second only to the Cognitive Engineering and Decision Making TG in terms of sessions: The HCTG's technical program featured 36 papers in 8 sessions, two posters, one demonstration, two joint sessions with the Macroergonomics TG, and a special, jointly-sponsored half-day session presenting a mock trial litigating a case involving a death caused by an automatic external defibrillator.

We look forward to similar success at the 52nd Annual Meeting in New York.

On a final note, I would also like to extend a warm thank-you to Caroline Cao for leadership over the past 2 years as TG chair, and as program chair the two years previous. Caroline's leadership has strengthened the already solid foundation in the TG. Welcome, also, to our new officers: Ayse Gurses as Program Chair; Michelle Rogers as Newsletter Editor; Stephanie Guerlain as ListServ Moderator/Manager; and Sandra Garrett, Webmaster.

I hope to see you all in New York at the Annual Meeting!

Jake

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F. Jacob Seagull  
Chair, Healthcare Technical Group  
Human Factors and Ergonomics Society

## REFLECTIONS

*What I Saw at the Annual Conference*  
By Dan Welch,

On Wednesday evening during the Annual Conference in Baltimore, Maryland, I was enjoying an excellent meal at Fleming's Steakhouse, when an older couple came from deeper in the restaurant to the front door. The gentleman was having a great deal of difficulty walking, and when the woman went behind a partition I expected her to return with a wheelchair.

She returned with a Segway™. The gentleman turned a key and got on, the maitre d held the front door open, and the couple walked and motored out. I left my steak and went after them.

I approached the couple, introduced myself as a human factors engineer, and explained why I was in town. I asked if I could do a telephone interview about his use of the Segway™ and we exchanged cards.

The gentleman, it turns out, was Dr. Jack Childers, a retired Johns Hopkins orthopedic surgeon, and I interviewed him for about an hour two weeks later. Dr. Childers developed Parkinson's disease about twelve years ago and began to require mobility assistance five years later. When the Segway™ was unveiled in late 2001, Dr. Childers bought one of the first.

Two weeks after meeting Dr. Childers I was at the Maryland Renaissance Festival. In the distance I saw an older gentleman moving gracefully through the crowd – on a Segway™. His name was Bob Storm, a retired educator, and he has a heart condition which limits his ability to walk any distance. He has had his Segway™ for a number of years.

On November 4th, there was an op-ed piece in The Washington Post by Ellen O'Ryon entitled "Me and My Segway Against the World." Ms. O'Ryon is a 48-year old high school teacher who suffers from hereditary spastic paraparesis, a neurodegenerative disorder which causes weakness and stiffness in the leg muscles. She got her Segway™ two years ago – on eBay®. As we finished our conversation, she gave me the name of another person who had contacted her after the Post article appeared.

He was Bruce Dickson, a DC lawyer who also suffered from spastic paraparesis. Mr. Dickson has used his Segway™ for about 5 years. He purchased his from Amazon.com®.

What these four people have in common is a disability which limits their ability to walk but not to stand, and a device which significantly enhances both their mobility and their quality of life.

They all agree that the Segway™ is extremely easy to learn (minutes to mastery) intuitive to use, more maneuverable than a motorized wheelchair, nearly maintenance free, easy to transport and prepare for use, and highly reliable. But the most important advantage of Segway™ use is that there is still an unspoken stigma attached to being in a wheelchair. When you're in a wheelchair you're disabled. People avoid looking at you and are uncomfortable when talking to you. But on a Segway™ you're "cool." People actually approach you and want to talk to you about your wheels. The fact that you're handicapped doesn't even arise.

Another important consideration is that standing on a Segway™ raises your eye height. Rather than looking up at everyone, you look at them at eye level. Being at waist level and having to look up all the time has actually resulted in cervical pain for some wheelchair users, which is eliminated with Segway™ use.

Three users reported having fallen from their Segways™ -- one when trying to go over his son's bicycle ramp! Only one reported wearing a helmet. The two users still professionally active use their Segways™ continually while at work. All together they have used their Segways™ in Europe, New Zealand, the Washington Metro (subway), Amtrak, airports, shopping malls, theatres, schools, offices, to commute to work, and to walk a daughter-  
bride down the aisle!

There are problems, however. The Food and Drug Administration does not recognize the Segway™ as a medical device or as a handicapped assistance device – as such, it is not covered by the Americans With Disabilities Act (ADA). They are generally not allowed to be used on federal property (though users report mixed results at the Smithsonian). Disneyworld will give you a wheelchair at the gate but not let you use a Segway™. Shipping one on an airplane depends on which type of battery you have; NiMh batteries are sealed and permitted, lithium batteries are not.

But the obstacles to Segway™ use by the handicapped appear to be regulatory rather than physical. The users indicated that only very uneven or frozen ground would prevent them from using the Segway™, and that it can go many places where a wheelchair can not. Modern accessibility features mandated by the ADA eliminate most problems in moving around manmade environments, while standing at above normal eye-height makes movement with people much easier than being in a wheelchair.

The use of the Segway™ as a disabled mobility aid is an emergent use of technology to fill a niche human need. Its effectiveness is demonstrated in the response of users to “What are the major advantages of Segway™ use?” – “I’m no longer handicapped.” “I can do anything anybody else can do.” “I can be an independent traveler.”

This is an obvious application area for human factors engineering/ergonomics. The Healthcare Technical Group, as well as the larger Society, should undertake the study of the issues involved and investigate the appropriateness of including the Segway™ as a disabled mobility aid under the ADA. I would be happy to work with others interested in the topic area and invite correspondence.

And that's what I saw at the Annual Conference.



Mr. Bruce Dickson escorts his daughter down the aisle on his Segway™

## HCTG OFFICERS

### Chair

*Jacob Seagull, PhD*  
University of Maryland  
[jseagull@smail.umaryland.edu](mailto:jseagull@smail.umaryland.edu)

### Program Chair

*Ayse P Gurses, PhD.*  
University of Minnesota  
[gurse001@umn.edu](mailto:gurse001@umn.edu)

### ListServ Moderator/Manager

*Stephanie Guerlain, PhD*  
University of Virginia  
[guerlain@virginia.edu](mailto:guerlain@virginia.edu)

### Webmaster

*Sandra Garrett, PhD.*  
Clemson University  
[garrett@clemsun.edu](mailto:garrett@clemsun.edu)

### Newsletter Editor

*Michelle L. Rogers, PhD.*  
Department of Veterans Affairs  
[Michelle.Rogers@va.gov](mailto:Michelle.Rogers@va.gov)

## UPCOMING CONFERENCES & COURSES

### June 16-20, 2008

#### ***Usability Professionals' Association***

Tutorials, workshops, Experienced Practitioners program and the special E-government program on Monday and Tuesday, then two and a half days packed with presentations, Idea Markets, and opportunities to network with other user experience professionals.

*More information:*

<http://www.usabilityprofessionals.org/conference/2008/index.htm>

### July 28 - August 8, 2008

#### ***University of Michigan's Human Factors Short Course***

This two-week continuing education course concerns the design of systems, products, and services to make them easier, safer, and more effective for human use. It emphasizes principles and concepts, and profiles examples of applications.

*More information:*

<http://www.umich.edu/~driving/shortcourse/>

### August 18-22, 2008

#### ***2008 SEIPS Human Factors Engineering and Patient Safety Short Course***

This 5 day course in two parts for professionals presents nationally recognized speakers discussing a variety of Human Factors Engineering and Patient Safety topics including:

- Human Factors Engineering
- Design of the Physical Environment
- Sociotechnical Systems and Macroergonomics
- Technology Implementation
- Cognitive Ergonomics
- Job Design
- Work Flow and Task Analysis
- Usability of HIT
- Impact of HIT on Patient Care Processes

- Human Factors of Implementing HIT
- and more....

*More information:*

<http://www2.fpm.wisc.edu/seips/Courses/courses/home.html>

### October 1 - 3, 2008

#### ***Applying Human Factors in Health Care: Leveraging Multidisciplinary Approaches to Improve Patient Safety***

The aim of the third annual Applying Human Factors in Health Care conference is the application of human factors principles in specific care settings including the operating room, the emergency room, and the inpatient/outpatient setting.

*More information:*

<http://www.mayo.edu/cme/oct2008.html>

### November 8-12, 2008

#### ***AMIA Annual Symposium***

The Symposium is the world's most comprehensive annual conference on biomedical and health informatics, with recent and upcoming examples including biomedical and health informatics education, the role of informatics in quality improvement in health care, and informatics in public health.

*More information:*

<http://www.amia.org/meetings/f08/index.asp>

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**THIS IS A PUBLICATION OF THE  
HEALTH CARE TECHNICAL GROUP  
OF THE HUMAN FACTORS &  
ERGONOMICS SOCIETY.**

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