HCTG Newsletter

Volume 30, Issue 1 May 2020



COVID-19 Human Factors Contributions Shanqing "SQ" Yin, KK Women's & Children's Hospital

Nobody expected that within just 2 weeks, the situation went from establishing <u>enhanced precautions</u> at the HFES Health Care Symposium, to <u>cancelling</u> the symposium, to having the World Health Organization declare the COVID-19 a full-blown pandemic, to global lock-downs and travel bans.

This pretty much sums up what healthcare systems around the world are dealing with right now as they try to keep a dynamic, unpredictable disruption under control. Against this backdrop, HFES recently hosted a panel of experts at a Townhall Webinar to discuss human factors roles and considerations in an outbreak such as COVID-19.

Moderated by Dr. Anthony Andre, Dr. Eric Bergman, and Dr. Joseph Keebler, the panelists included Dr. Terry Fairbanks (MedStar Health System), Dr. Ayse Gurses (Johns Hopkins Medicine, Armstrong Institute Center for Health Care Human Factors), Dr. SQ Yin (KK Women's & Children's Hospital), Dr. Hugo Sax (University Hospital of Zurich), and Dr. Shawna Perry (University of Florida Health Science Center Jacksonville, Department of Emergency Medicine).

These international experts helped to frame some of the healthcare issues using a human factors lens, and identified areas in which the human factors community can contribute. A core challenge lies in communication. (continued on page 2)



Message from the Chair

Despite the recent challenges, our technical group has a lot to look forward to. First, our discipline is more relevant than ever. Healthcare Human Factors pracitioners and researchers are at the forefront of the response to the ongoing pandemic (see articles in this newsletter and statements released by HFES).

Second, the first ever virtual healthcare symposium is happening this month. It's never been more convenient to access a wealth of knowledge in our field.

Third, our team is planning a great and inclusive program for the annual meeting and are actively implementing several new initiatives to better serve our diverse membership. This includes new awards for students, transitional members, and practitioners; student and early career mentorship events; new business meeting format; webinars; and much more!

We look forward to hearing from you on how we can serve this community better! Stay safe!

Farzan Sasangohar sasangohar@tamu.edu Huge health systems have to relay time-sensitive information and directives across different sites, through various ranks, and yet ensure the last guy at the end of the line clearly receives and understands the message. Information changes quickly and differs between various authorities and governing bodies.

Different individuals may possess different mental models of the disease, how it is transmitted, and appropriate measures to be taken. At best these confusions are inconvenient and frustrating. At worst they can even be harmful and deadly.

Research has shown us where the hazards may lie, and how we can improve. In low-probability-high-impact events such as an emerging infectious disease outbreak, safety protocols may be outdated, or based on imperfect assumptions. Workflows for outbreak management may not reveal failure points until when they actually occur, and process designs could do with more human factors involvement and simulation. Human factors research has revealed factors that influence the efficacy of environmental cleaning in patient rooms. Newer Personal Protective

Equipment (PPE) has received design inputs to improve donning and doffing safety. CDC Guidelines has been influenced by human factors frameworks.

Human factors pracitioners involved in the front-lines share how human factors have already begun making a difference. During Code Blue situations in isolation units, clinicians help one another to don PPE, a necessary but tedious process prone to costly harm when steps are missed. Various doctors and nurses cannot be differentiated when dressed in the same isolation gowns, N95 masks, and goggles. Masked mouths result in muffled voices. Human factors practitioners are looking into quick and operationally easy ways to help team members identify one another, such as identity stickers stuck on top of isolation gowns.



Recently implemented safety equipment such as safety goggles pose new risks, along with spontaneous process improvisations to accommodate these new tools. In trying to help solve problems on the fly, these practitioners dabble in the same trade-offs that front-line clinicians face.

As human error is being recognized as the glaring loophole to viral outbreak responses, there exist many different ways for human factor professionals to contribute. A disruption that is this huge and ever-changing will test the resilience of any healthcare institution trying to deliver care. Physicians are constantly making decisions under

uncertainty and evolving details. Team dynamics and situation awareness are further compounded by stricter infection prevention interventions. The usability of safety equipment as well as the ease to comply with protocol continue to plague healthcare workers, now exacerbated by COVID-19. All these, and more, are topics which many human factors professionals of various specialties might already be familiar with.

The faster you are able to promote change, the more lives you will protect.

<u>Shanqing "SQ" Yin</u> is an Assistant Director of Human Factors and Systems Design at KK Women's & Children's Hospital in Singapore.



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Technical Group INFO

HUMAN FACTORS AND ERGONOMICS SOCIETY HEALTH CARE TECHNICAL GROUP

HCTG Website
HCTG Twitter
HCTG LinkedIn
HCTG E-mail

2019 - 2021 HCTG Officers

CHAIR Farzan Sasangohar CHAIR-ELECT Nicole Werner PROGRAM CHAIR Renaldo Blocker PROGRAM CHAIR Shiiina Liu SECRETARY / TREASURER Abigail Wooldridge WEBMASTER / **NEWSLETTER EDITOR** Vickie Nguyen SOCIAL MEDIA LIAISON Siddarth (Sid) Ponnala STUDENT PAPER AWARD CHAIR **David Nevens** AWARD CO-CHAIR Yuval Bitan

AWARD CO-CHAIR

Ariun Rao



We were very much looking forward to welcoming everyone to the 2020 International Symposium on Human Factors and Ergonomics in Health Care on March 8 - 11, 2020 in Toronto before the realities of COVID-19 forced the leadership's decision to cancel; however, we have adapted and are planning an outstanding online symposium!

Our new Virtual Health Care Symposium will convene May 18 - 21, 2020 using a leading technology platform designed exactly for this type of activity (no, not another Zoom meeting!).

Registration is open! The nominal registration fees may be viewed **here**. Or, visit https://www.hcs2020.org/.

Our outstanding program remains packed with the education and applied science techniques for which this symposium is known.

As a reminder, all those who registered to attend the in-person symposium in Toronto are automatically registered for the online activity.

2020 Virtual Health **Care Symposium**

If you registered for a workshop, you are still registered for that workshop. Those who instead requested to receive a full refund have been accommodated.

Please help raise awareness in our community and beyond about this online symposium. General registration is open!

We know that your attendance will provide you an excellent continuing education activity full of cutting-edge research, practice, and guidance at the forefront of HF / E and healthcare representing a diverse mix of researchers, practitioners, regulators, engineers, designers, and program managers from around the world!



We really look forward to our online symposium in May and hope you do too.

Joseph Keebler, Symposium Chair

Anthony Andre, Symposium Co-Chair

Susan Hallbeck, HFES President





Closing Plenary Session

Help, Now I'm The User! **Human Factors In Healthcare**

A Conversation Between Don Norman And Joe Cafazzo

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Message from the HCTG Program Chairs

We are excited to announce that we received 78 submissions for the HFES 64th International Annual Meeting!

There were a total of 7 discussion panels, 15 posters, and 56 lectures submitted covering a wide range of emerging topics in Healthcare Human Factors. As usual, we have had great participation from HCTG members who volunteered to review these submissions. Thank you to the 55 reviewers who allowed us to have a rigorous and detailed peer-review process.

Unfortunately, the HFES encountered some technical challenges with the new electronic system (i.e., CadmiumCD) that delayed proposal assignments — implementing new systems can sometimes be a laborious process. However, we are thrilled to announce the manuscripts are currently under review.

While we have not yet finalized the submission categories, we do anticipate the categories to include emerging topics around wearable sensors, patient-centered design and evaluation, decision support tools, and process modeling.

In light of the recent pandemic, we are hoping to enhance our program this year by offering an opportunity for our HCTG community, especially the clinical practitioners, to submit short abstracts to our Late-Breaking Works (LBWs) track. We hope to provide more details on LBWs in the coming weeks.

If you have questions, comments, or concerns, please contact Dr. Renaldo Blocker and Dr. Shijing Liu.



Renaldo Blocker <u>Program Chair</u>



Shijing Liu Program Chair-Elect





Follow us on Twitter <u>@HFESHealthTG</u> and use the #HFHCTG

Join us on LinkedIn

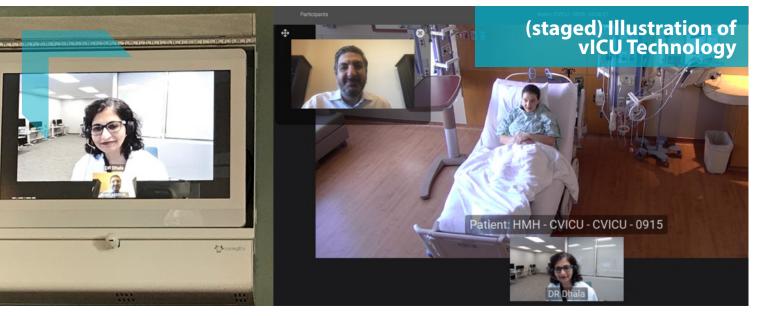
Share content with us: HCTG Content Form

The HCTG is committed to sharing the successes of all our members and facilitating productive collaborations to move the science and application of Human Factors forward.

While we have all current members on the HCTG Community, we currently have a wider network of 750+ members on LinkedIn. We are always looking for content to share via our LinkedIn page, Twitter, and monthly newsletter.



Siddarth (Sid) Ponnala Social Media Liaison



An evidence-based approach called ABCDEF Bundle (Assess, prevent and manage pain, **B**oth Spontaneous Awakening Trials (SAT) and Spontaneous Breathing Trials (SBT), **C**hoice of Analgesia and Sedation, **D**elirium assessment, prevention, and management, **E**arly mobility and exercise, and **F**amily involvement and support) has provided significant clinical improvement to ICU survivors. During the current COVID-19 pandemic, the F, or family component

of the Bundle, emerged as a pleasant and unexpected part of the COVID-19 patients' treatment protocol. Houston Methodist Hospital had recently launched its Virtual ICU (vICU) to provide critical care staff support during the COVID-19 surge.

Necessitated by the highly infectious nature of the coronavirus, the separation of the COVID-19 patients from their families threatened to wreak havoc on the physical and emotional wellbeing of our patients, compounding the respiratory distress and possible specific organ dysfunction caused by the virus.

Forced to reject the heart-wrenching requests by family members to say good-bye to their loved ones, the critical care staff felt helpless until we hit upon a novel idea for a possible solution.

Practitioner's Corner

Atiya Dhala, Houston Methodist Hospital

This month, we learn how Houston Methodist effectively uses Virtual ICUs during the COVID-19 pandemic.

We initiated a protocol of connecting the families with the COVID-19 patients using a built-in component of vICU referred to as the Consultant Bridge, a high-definition video chat platform, using the pan, tilt and zoom cameras already installed in the ICU rooms, without the need to move any equipment in or out of the isolation room. Restrictions on visitors also applied to non-COVID patients, hence

the Consultant Bridge was used for all types of ICU patients.

The response from families was overwhelmingly positive. But most importantly, patients who had been suffering in isolation, suddenly felt emotionally and physically reassured, often leading directly to a positive outcome for the patient.



<u>Atiya Dhala, M.D.</u>, is the Director of vICU at Houston Methodist Hospital.

Our COVID-19 experience only reaffirms the conclusions of data-driven studies that place great emphasis on the role of human and emotional factors in treating ICU patients.



Article Spotlight

HFE can help prepare work systems to be robust and have adaptive capacity to withstand the uncertainty and fluidity during a pandemic....

Commentary

Overcoming COVID-19: What can human factors and ergonomics offer?

Ayse P Gurses^{1,2}, Megan M Tschudy³, Sharon McGrath-Morrow³, Amyna Husain³, Barry S Solomon³, Kylee A Gerohristodoulos⁴ and Julia M Kim^{2,3} Journal of Patient Safety and Risk Management 2020, Vol. 25(2) 49–54 © The Author(s) 2020 Article reuse guidelines: sagepub.com/journals-permissions' DOI: 10.1177/2516043520917764 journals.sagepub.com/home/cri

(\$)SAGE

Abstract

A novel coronavirus disease, named coronavirus disease 2019 or COVID-19, which sparked an outbreak in Wuhan, China in December 2019, is now a pandemic. The rapid spread of this disease from one to more than 155 regions worldwide in 2.5 months highlights the need for better preparation to manage a pandemic. In this commentary, we describe how Human Factors and Ergonomics (HFE) can contribute to the COVID-19 pandemic response. Specifically, we provide an example of how HFE methodologies informed workflow redesigns implemented as part of COVID-19 pandemic preparations in an academic pediatric ambulatory clinic. We then identify key mechanisms and areas where HFE can contribute to and improve the effectiveness of a pandemic response: Just-in-time (JIT) training development, adapting workflows and processes, restructuring teams and tasks, developing effective mechanisms and tools for communication, engaging patient and families to follow the recommended practices (e.g., social distancing, revised hospital visitation policies), identifying and mitigating barriers to implementation of plans, and learning from failures and successes to improve both the current and future pandemic responses. We recommend integrating HFE approaches and tools across health care systems, state health organizations, and the Centers for Disease Control and Prevention (CDC) as they confront this pandemic.

Access the article here!

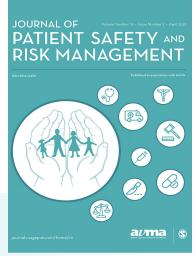


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HCTG Student Corner

Laura Farrell, UW-Madison

This month, we are excited to showcase the University of Wisconsin - Madison Student Chapter!

The Human Factors & Ergonomics Society, University of Wisconsin-Madison Chapter has gone above and beyond this year through their service and leadership efforts!

They have shown a genuine commitment to the HFES community through their tireless efforts. Throughout the year, they have run a number of Professional, Outreach, and Social events and projects. The team has hosted multiple guest speakers, started their own monthly newsletter with HF resources and job highlights, and began a "Method of the Month" workshop series.

The HFES UW-Madison Student Chapter have recruited at organization fairs, hosted game nights, created a diversity workshop, gone to a pumpkin patch, hosted their annual alumni dinner, started a collaborative "Brain bank" information source, and more!

They have focused on positive mental health initiatives for students and gratitude for others, including professors. They also started community projects to allow cross-lab collaboration and the development of project management skills, all while using our HF knowledge to improve their local community.

Through all of these events, their team has truly shown what "professional service" looks like and is excited to continue to make a difference in the enrichment of their local HF community as well as our national HF community.

To learn more about this student chapter:

Visit <a href="https://win.wisc.edu/organization/https://win.wisc.edu/orga

Follow them on Twitter: @HFESMadison

Join their Facebook Group

E-mail: hfes@win.wisc.edu

<u>Laura Farrell</u> is the HFES UW-Madison Student Chapter President and a PhD Candidate in Human Factors Engineering at UW-Madison.







May 2020 - HCTG Newsletter



The Health Care Technical Group (HCTG) is pleased to announce several scholarships to attend the HFES Annual Meeting for TG members.

To encourage and support its members to attend the annual meeting, HCTG will dedicate a total of \$3,000 for six scholarships to student members, members in transition, and practitioners (non-academic) in the healthcare industry.

To be eligible for the award, TG members must have an accepted paper or poster that will be presented at the annual meeting.

HCTG will reserve at least three of the awards for women members and at least two awards for international student members (not from North America).

The deadline to apply is July 15th, 2020.

We look forward to seeing you all in Chicago!



Award Co-Chair

Ariun Rao



Award Co-Chair

2019 HCTG Travel Awardees

Nadia Doutcheva, University of Wisconsin-Madison Samuel Bonet, Texas A&M University Nuphar Katzman, Ben Gurion University of the Negev Shubo Lyu, Pennsylvania State University



2019 HCTG Student Paper Award Recipients

1st Place: Rua Williams, University of Florida - Augmented Reality for Rehabilitative Therapy: Patient Experiences and Practitioner Perspectives 2nd Place: Megan Salwei, University of Wisconsin-Madison - Assessing Workflow of Emergency Physicians in the Use of Clinical Decision Support 3rd Place: Nuphar Katzman, Ben Gurion University of the Negev - Evaluation of Tactile Cues for SImulated Patients' Status Under High and Low Workload

HCTG Student Paper Award

This year we will continue our tradition of recognizing work led by our student members. We have received 38 submissions with a student first author and are currently planning the review for this year.

The process this year is similar to previous years. We will soon elicit participation from our TG members to review student papers. We ensure each paper is reviewed by a balanced panel of students, practitioners, and academicians.

The top three papers will be recognized during the HCTG business meeting at HFES 2020 and will receive monetary rewards. In addition, this year, we will ask the winners of the student paper competition to present their papers in a lightning session.





David Neyens Student Paper Award Chair



Wednesday, January 29, 2020

How Mindfulness and Biomechanics Affect Physical Pain

An examination on how Mindfulness Based Stress Reduction and Biomechanics affect physical pain.

Presenters:

Sue A. Ferguson, The Ohio State University, Department of Industrial and Systems Engineering

Christina M. Frederick, Embry-Riddle Aeronautical University, Human Factors and Behavioral Neurobiology Department

Valerie Rice, U.S. Army Research Laboratory - Medical Department Field Element, Ft. Sam Houston

Tuesday, February 4, 2020

The Role of Human Factors Engineering in Addressing Clinician Burnout

Two HFE leaders and members of the NASEM Committee that generated the NASEM Report introduced the problem of clinician burnout, summarized the Report's recommendations, and discussed implications for HFE professionals and researchers.

Presenters:

Pascale Carayon, University of Wisconsin-Madison, Wisconsin Institute for Healthcare Systems Engineering

Matthew B. Weinger, Vanderbilt University School of Medicine

Wednesday, March 11, 2020

HFES Town Hall Webinar: Facing the Coronavirus (COVID-19) - Human Factors Considerations

International experts helped to frame some of these healthcare issues using a human factors lens, and identified areas where the HF / E community could contribute.

Moderators:

Anthony Andre, Interface Analysis Associates

Eric Bergman, Fresenius Medical Care Joseph Keebler, Embry-Riddle Aeronautical University

Panelists:

Terry Fairbanks, MedStar Health System **Ayse Gurses**, Johns Hopkins Medicine, Armstrong Institute

Shanqing "SQ" Yin, KK Women's & Children's Hospital

Hugo Sax, University Hospital of Zurich Shawna Perry, UF Health Jacksonville, Department of Emergency Medicine

Wednesday, April 15, 2020

2020 Ergonomics Virtual Summit

Guidelines were presented for safe and healthy work, or school, from home.

Moderator:

Anthony Andre, Interface Analysis Associates

Wednesday, April 29, 2020

The MAGIC of Semantic IxD

Professor Rosenberg introduced Semantic Interaction Design, an innovative method that spans all the way from core conceptual models to the deployment of applied game theory techniques to create optimal experiences for users.

Presenter

Daniel Rosenberg, San Jose State University

Tuesday, May 12, 2020

OETG Webinar Series, Part 1: How

COVID-19 Is Changing Ergonomics

Practices and Considerations

In this Occupational Ergonomics miniwebinar series, our panelists will answer some of the pressing questions our field has to address in the wake of COVID-19.

Panelists:

Blake McGowan, Humantech

Julia Abate, The Ergonomics Center of North Carolina

Mark Benden, Texas A&M, SPH



May 2020 - HCTG Newsletter

HCTG Job Postings

<u>Senior Human Factors Engineer</u> Intuitive Surgical - Sunnyvale, CA

Posted: 04/29/20

<u>Human Factors Engineer</u>

Cognitive Medical Systems - San Diego, CA Posted: 04/24/20

<u>Operations and Systems Engineering Extreme</u> <u>Event Research (OSEEER) ECM Program</u> - NSF Posted: 04/23/20

PostDoc in UCD and Data Visulaization University of Waterloo - Waterloo, ON, Canada

Posted: 04/23/20

Anthropometry, HMI, & Training Team Leader Sarcos Robotics - Salt Lake City, UT

Posted: 04/22/20

<u>Senior Human Factors Researcher</u> Cerner Corporation - Kansas City, MO

Posted: 04/19/20

HFES Science Policy Fellowship
HFES Govt Rel Comm & Lewis-Burke Associates

Posted: 04/08/20

<u>PostDoc in Aging, Health, and Technology</u> UIUC - Champaign, IL

Posted: 04/08/20

<u>Director of UC San Diego Design Lab</u> UC San Diego - San Diego, CA

Posted: 04/04/20

Human Factors Consultant

Agilis Consulting Group Posted: 04/01/20

HFSS Laboratory, UIUC - Urbana, IL Posted: 04/01/20

PostDoc Research Associate in HF Engineering

Drexel University - Philadelphia, PA Posted: 03/21/20

<u>Assistant Teaching Professor</u> Penn State Erie - Erie, PA

Posted: 03/10/20

<u>Distinguished PostDoc Fellowship Program</u>

ARL, NAS - Washington, DC Posted: 03/01/20

<u>Human Factors Engineer II</u>

Fresenius Medical Care - Concord, CA

Posted: 03/01/20

<u>Human Factors Engineer</u> Phillips-Medisize - Hudson, WI

Posted: 03/01/20

PhD in HFE

SUNY-Binghamton - Binghamton, NY

Posted: 02/04/20

Adjunct Lecturer, Human Factors

Bentley University - Waltham, MA

Posted: 12/01/19

Research Faculty

UW Medicine WISH - Seattle, WA

Posted: 11/01/19

HCTG Website

For More Job Postings: **HFES Career Center**



AWARDS / NOMINATIONS

05/20: HFES Student Travel & Presenter Awards

05/31: <u>User-Centered Product Design Award</u>

06/05: HFE WOMAN Award Nominations

06/30: Dieter W. Jahns Student Practitioner

07/15: HCTG Scholarships - Notice Out Soon! 07/15: HFES Student Members With Honors

PAPERS / PROPOSALS / CHALLENGES

Rolling: Human Factors Special Initiative -Short Reviews on HF / E Contributions <u>& COVID-19</u>

05/15: ASTM Exo Tech Center of Excellence

05/25: ANSI / HFES 100 Standards Comments

05/31: <u>User-Centered Product Design Judge</u>

06/26: IEA 2021 Special Session

08/31: Special Issue - HF / ETheories, Methods, and Applications in Healthcare

10/30: Inclusive Design Challenge

CONFERENCES

05/18 - 21: 2020 HFES HCS - Virtual

05/19 - 21: 2020 AMIA Clinical Informatics - Virtual

06/01 - 03: AlHce EXP 2020 - Virtual

06/02: UX Healthcare Amsterdam - Virtual

07/06 - 10: DIS 2020 - Eindhoven, Netherlands

07/16 - 20: <u>AHFE 2020</u> - Virtual

07/29 - 08/01: CogSci 2020 - Virtual

08/06 - 09: <u>APA 2020</u> - DC

09/01 - 03: <u>UXPA 2020</u> - Baltimore 09/13 - 16: <u>AAO-HNSF 2020</u> - Boston

09/14 - 16: IDSA 2020 - Seattle

09/23 - 25: UX Healthcare - London, England

10/02 - 06: AAP 2020 - San Diego

10/02 - 07: <u>Anesthesiology 2020</u> - DC 10/03 - 04: <u>SIGDOC 2020</u> - Virtual

10/05 - 08: MobileHCI 2020 - Oldenburg, Germany

10/05 - 09: HFES 2020 - Chicago 10/17 - 21: CSCW / UIST 2020 - Virtual

10/26 - 29: <u>ACEP 2020</u> - Dallas

10/31 - 11/03: <u>IISE 2020</u> - New Orleans 11/14 - 18: <u>AMIA 2020</u> - Chicago



HF / E COVID-19 RESOURCES

- HF / E & COVID-19 Forum
- Consulting Bandwidth
- Overcoming Barriers to Helping in Health Care
- Congressional and Federal Agency Responses and Research Opportunities Regarding the COVID-19 Outbreak
- Government Actions and Opportunities as a Result of COVID-19
- CIEHF Guidance Designing and Manufacturing Ventilators for NHS
- **Ergonomics Summit**
- HF / E Contributions to COVID-19 Response
- Human Factors Transforming **HealthCare**

OTHER COVID-19 RESOURCES

- Naturalistic Decision Making Perspective on COVID-19
- NSF-CHOT COVID Response <u>Meeting</u>
- COVID-19 Materials
- **AMIA COVID-19 Resources**
- Health Tech Responds to COVID-19
- HIMSS COVID-19 Digital Think Tank
- Pandemic Data Room

MARCH VIRTUAL CONFERENCES

2020 AMIA Informatics Summit HIMSS 2020 Digital

JOIN THE HCTG!