A Drop of Prevention:
The Ripple Effects of Clinical Workstation Design

Humanscale ®

The healthcare industry is one of the last industries to go digital, and they are moving fast. Organizations not only want to make patient care safer and easier, but they want to achieve compliance in time to receive federal reimbursement. This mad dash results in a workstation design with little-to-no workflow consideration.

Now more than ever, caregivers are required to use computers for the same amount of time as the average office worker, in addition to fulfilling patient care responsibilities. Recent studies show that physicians use computers for an average of 5.1 hours per shift, while nurses report using computers for an average of 5.8 hours per shift[i].

As caregivers adapt to this new landscape, workarounds, distractions and errors are reportedly increasing, as are the number of healthcare workers with discomfort and injuries.

It is crucial to understand the interaction between technology placement and the delivery of care. Without sufficient workstation planning, negative effects can ripple throughout the healthcare system.
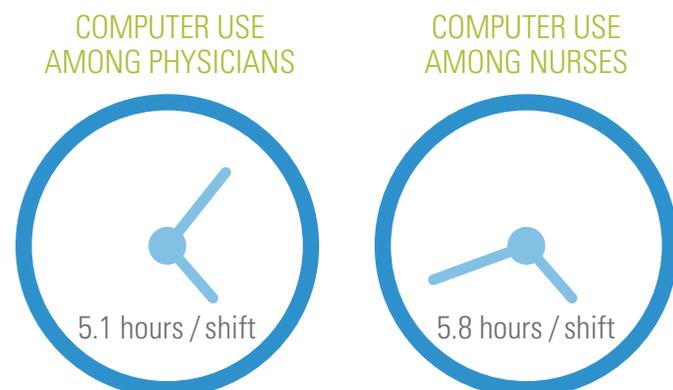
In this white paper, we explore some of the recent challenges that have arisen in this rapidly transforming industry. We also outline actionable steps from an ergonomic design perspective that can improve the comfort of caregivers, enhance the patient experience and benefit the organization as a whole.

CAREGIVER CHALLENGES:

Hastily integrating new technology into workstations can lead to caregiver discomfort and injury—which can directly affect performance.

Risk

Recent research shows that caregivers are on computers for an average of only four minutes at a time. In fact, 85% of computer interactions were found to be less than five minutes in length[ii]. This means caregivers are likely to walk up to and use computers over 100 unique times per day. These short exposures to awkward postures are cumulative, and they present the same ergonomic risks faced by the traditional office worker, compounded by the pushing, pulling and lifting movements that are part of a caregiver's job.

Discomfort

As a result of increased computer usage, caregivers are reporting higher levels of discomfort and injury. One study found that 90% of nurses reported neck discomfort while doing all tasks[iii]. Another survey estimated that nearly 49% of nurses report discomfort in some area, specifically when working on a computer[iv]. Among nurses reporting discomfort in the upper extremities, 60% of those cases have symptoms consistent with carpal tunnel syndrome—which is known to be associated with poor workstation design[v].

COMPUTER USE
AMONG PHYSICIANS

COMPUTER USE
AMONG NURSES

5.1 hours / shift

5.8 hours / shift

Performance

Increased discomfort stemming from poor workstation design can directly affect caregiver performance. Of nurses who experience discomfort at work, 42% report that they are less engaged with patients, 32% report that they are distracted during patient care and 12% report that their discomfort negatively impacts patient care [vi].

Poor space design can also present obstacles, as 44% of doctors and 48% of nurses report that room layout somewhat or definitely hinders their interaction with patients [vii]. In a recent survey, 42% of nurses reported that lack of space is a barrier to bringing the computer to the bedside, and 39% said that placement of fixed equipment prevents bedside charting [viii].

TAKE ACTION:

Talk to caregivers, and explore ergonomic tools that can transform their workstation into a high-performing, comfortable space.
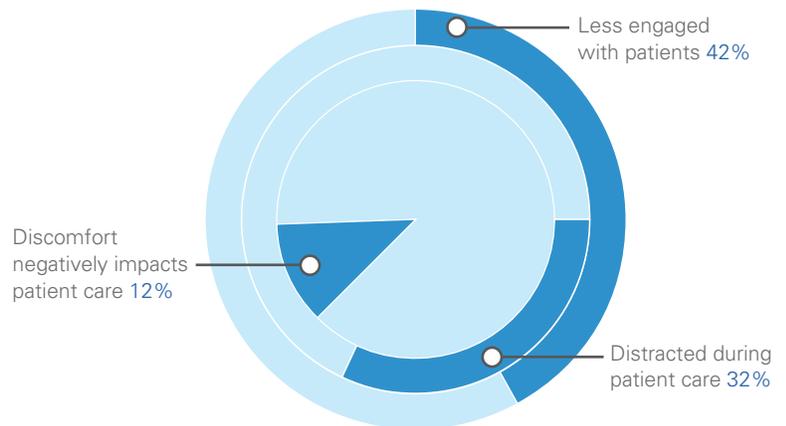
Input

The critical first step in creating work environments that elicit a high standard of care is to get input from caregivers who use these tools and spaces. Only 11.1% of nurses report involvement in the design of the clinical workplace, and only 3.2% of nurses report involvement in the design of their computer workstation [ix].
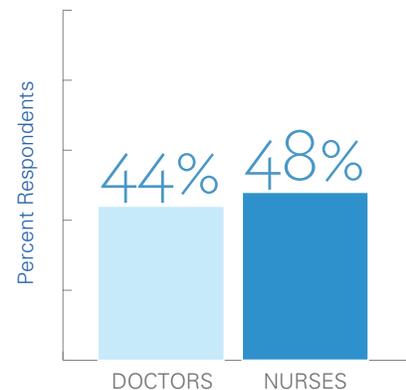
Adjustability

In the same study that found that a nurse's average interaction with a computer is four minutes in length, nurses only adjusted carts during 15% of uses. Exposure time to these workstations and likelihood of adjustment is linked. A 2011 study by Humanscale Consulting found that providing automatic adjustability features to make the fit easier and quicker is the key to caregiver comfort and safety [x].

Adjustable tools also benefit patients. A feature as simple as an articulating monitor arm helps to support positive interactions for both the caregiver and the patient. The ability of a caregiver or patient to rearrange the position of the monitor changes the dynamic of patient encounters, and engages patients in their own care [xi].

NURSES WHO EXPERIENCE DISCOMFORT AT WORK

Less engaged with patients 42%

Discomfort negatively impacts patient care 12%

Distracted during patient care 32%

ROOM LAYOUT HINDERS INTERACTION WITH PATIENTS

Percent Respondents

44% DOCTORS

48% NURSES

NURSE INVOLVEMENT IN DESIGN OF CLINICAL WORKPLACE

11.1%

NURSE INVOLVEMENT IN DESIGN OF CLINICAL COMPUTER WORKSTATION

3.2%

PATIENT CHALLENGES:

Patient satisfaction is crucial and is easily affected by the way a space is designed as well as caregiver behavior.

Satisfaction

A large percentage of an organization's Medicare reimbursement is tied to patient-reported satisfaction scores on the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, a data collection method for measuring patients' perceptions of their hospital experience. Patient satisfaction can be affected by something as simple as whether the provider sits or stands at the bedside, or whether the computer is inside or outside the room.

Interaction

In one study, patients rated the perceived empathy of their caregivers during interactions and results showed that empathy scores were correlated with eye contact. Minimal eye contact signified little empathy from caregivers [xii].

Visibility

The ability to see the computer screen has also been shown to impact the patient experience. In situations where the patient did not have access to the screen, collaboration and satisfaction were rated lower [xiii].

TAKE ACTION:

Understand the triangle of care, and choose equipment with customizable features to facilitate better experiences.

Adaptable Features

The multitude of options available for point-of-care workstations—such as articulating arms, compactable sections, cable management and slim hardware—all maximize usable floor space and facilitate a better overall experience between patient and caregiver.

Triangle of Care

The triangle of care is the physical mapping created between the caregiver, patient, and computer. This arrangement gives the caregiver comfortable access to the computer, enhances eye contact with the patient and provides the patient with visual access to the screen when needed.

Patient

Caregiver

Technology
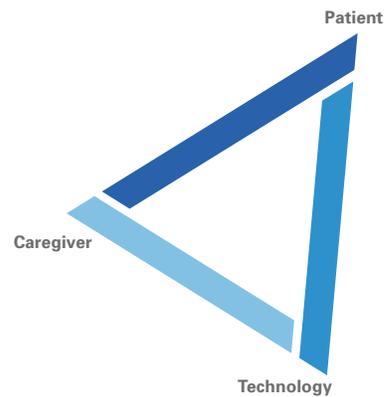
Patient satisfaction with their overall visit rose by 12% after the computer was placed inside as opposed to outside their room, as did satisfaction with the explanation of care, which rose by 19% [xiv].

When physicians sat at the bedside, they were perceived by patients as listening for almost 500% longer, a key dimension on the HCAHPS survey. Comments were also 95% positive when physicians sat bedside, while only 61% were positive when the physician stood [xv].

Another benefit to creating better caregiver access to the patient is that charting at the point of care, as opposed to an outside station, was shown to reduce the amount of information nurses had to remember, lessening the likelihood of a memory error while charting [xvi].

Ergonomically correct workstation lighting is often overlooked, but it can also improve caregiver accuracy. The most salient study results show that pharmacists who used task lighting for increased contrast when dispensing medication had a 10% decrease in dispensing errors [xvii].

ORGANIZATIONAL CHALLENGES:

Over time, inefficient and uncomfortable workstations can lead to negative impacts on talent retention and budget.

Injuries

Injured nurses contribute to about one quarter of all workers' compensation claims in the U.S. and approximately one third of total workers' compensation costs [xviii]. These costs are often paid for by self-insured healthcare organizations.

Turnover

Caregiver discomfort, fatigue and injuries are shown to have an impact on job satisfaction, with 33% of nurses reporting that they plan to leave their job in the next year due to the physical demands. Approximately 12% of

nurses leave the profession every year because of back pain, alone [xix].

TAKE ACTION:

An ergonomics program and proper staff training can empower workers and strengthen the blueprint for change management.

Ergonomics Program

When surveyed, 28% of nurses reported that instating a dedicated ergonomics team, one that ensures equipment is ergonomically supportive for the staff, is the solution to overcoming discomfort [xx].

The team of ergonomics experts should be capable of supporting and accommodating a diverse team of caregivers when planning design, layout and mounting options for caregiver and point-of-care workstations.

A strong ergonomic strategy embraced by both the administration and organization as a whole will help to prevent discomfort, injury and workflow inefficiencies, which will lead to exponential returns.

Training

When surveyed about the challenges they face today, 66% of nurses report insufficient training on point-of-care computing solutions as one of the biggest [xxi]. An effective change management solution would include this type of training so nurses could learn how to make adjustments and how to use the equipment comfortably.

CONCLUSION

The healthcare industry is evolving, so the way we look at workflows and spaces must also evolve. Taking a proactive, ergonomic approach to workstation design and the integration of new technology will reduce inefficiencies, obstacles, caregiver discomfort and related financial costs, all while increasing patient satisfaction. The benefits of prevention will ripple throughout organizations that act early and will lay a strong foundation for additional changes to come.

i Alan Hedge & Tamara James, "Ergonomic Issues of Computer Use in a Major Healthcare System," Advances in Human Aspects of Healthcare, Jul 2012: 259 -268.

ii Humanscale Consulting Research Study 2011

iii Hedge & James 2012

iv GMI Research Survey, 2014, How Digital Healthcare Helps and Hurts Nurses.

v Nielsen and Trinkoff. "Applying Ergonomics to Nurse Computer Workstations." Computers, Informatics, Nursing. 2003. U21 (3), 150 – 157.

vi GMI Research 2014

vii Hedge & James 2012

viii GMI Research 2014

ix Hedge & James 2012

x Humanscale Consulting Research Study 2011

xi Ventres et al. "Physicians, Patients, and the Electronic Health Record: An Ethnographic Analysis." Ann Fam Med 2006;4:124-131.

xii Enid Montague et al., "Nonverbal Interpersonal Interactions in Clinic Encounters and Patient Perceptions of Empathy," Journal of Participatory Medicine, 2013 Aug 14; 5:e33.

xiii Julka Almquist et al., "Consultation room design and the clinical encounter: The space and interaction randomized trial," HERD, 2009; 3(1), 41-78.

xiv Hsu, John et al. "Health Information Technology and Physician-Patient Interactions: Impact of Computers on Communication During Outpatient Primary Care Visits." Journal of the American Medical Informatics Association : JAMIA 12.4 (2005): 474–480.

xv Kelli Swayden et al., "Effect of sitting vs. standing on perception of provider time at bedside: A pilot study," Patient Education and Counseling, 2012;86, 166–171.

xvi Shachak et al. 2008. "Primary Care Physicians' Use of an Electronic Medical Record System: A Cognitive Task Analysis." J Gen Intern Med 24(3):341–8

xvii Grasha AF. Psychosocial factors, workload, and risk of medication errors. US Pharm. 2002;27:HS32–HS52.

xviii American Nursing Association data 2011

xix Stubbs & Owen 1989.

xx GMI Research 2014

xxi GMI Research 2014