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Ergonomics and the Digital Healthcare Facility

Reducing work-related stress from
computerization in healthcare

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The change to EMR and HITECH has prompted increased interest from clinicians who now have to adapt their workspace to the new digital world. Repetitive strain injuries are starting to manifest. Fitting new computer technology into workspaces that were never designed for them in order to reduce injury exposure has proven difficult. This paper explores how advances in office ergonomics can assist the healthcare profession cope with and manage this work area change.

Today's hospitals and nursing homes are very complex workplaces with many elements at play, including a 24/7 staff, patients, numerous medical tools, technologies, and products in use, the work culture, and of course, quality standards and regulations that must be upheld for the safety of all staff and patients. In addition to these inherent elements, health care organizations today are dealing with the same economic concerns as other industries, turnover and staff shortages, and the ongoing demand to keep up with and implement technological advances.

The Transition to a Digital Workplace

One area in particular where technology is transforming hospitals and nursing homes, especially regarding the staff interface, is the transition from paper-based patient information to digital. This shift to digital involves everything from patient records to prescriptions and insurance information.

While benefits of the digital transition include streamlining the input and storage of vital patient information, a downside is that the staff now spends a great deal of time in front of a computer. This increased computer use by a 24/7 staff, and the associated aches, pains, and eyestrain, highlight the need to implement workstations – computer, chair, lighting – that can accommodate a wide range of users. Think about the challenges here: one chair, one keyboard, a monitor, likely at a fixed height, and a set lighting scheme that must “fit” users of different heights, shapes and gender.

Ergonomic Challenges of 24/7 Health Care

Unfortunately, for many nurses and hospital staff, furniture standards and workstation designs in health care have not keep pace with increased computer use nor do they consider the many different sizes and needs of staff, forcing many workers to deal with workstations that lack the adjustability needed to fit their varying needs. The prevalence of ergonomics interventions to address work-related injury in health care still lags behind other industries due largely to a focus on other major issues that health care facilities must address, and that compete for dwindling financial and personnel resources: chronic shortage of nurses, reimbursement challenges, increasing malpractice costs, an aging workforce (the average nurse age is 46.8), job turnover, overtime and shift work issues (Cannon, 2009). The result is an increase in work-related musculoskeletal disorders such as carpal tunnel syndrome, backaches and injuries, and head, neck, back and eyestrain. These aches and injuries among staff add an additional, unnecessary challenge to an already complex 24/7 work environment.

Beyond Back Injury

Recent data from the National Institute of Occupational Safety & Health (NIOSH) shows that back injuries alone account for nearly 50 percent of all workers compensation claims for health care workers. This high proportion of back injuries, of course, is due largely to nursing staff performing patient handling tasks (Lahiri, et al., 2005).

For obvious reasons, ergonomics issues related to lifting and moving patients receives a great deal of attention today from safety and health professionals and insurance providers, as it should. The good news is that ergonomics challenges arising from nurse and staff interaction with poorly designed computer workstations in administrative areas, medical records, transcription, laboratories, pharmacy and patient care units is getting some much-needed attention as well.

24/7 Health care: A Slow, Painful Shift to an Ergonomic Workplace

Despite a growing awareness of work-related injury, NIOSH data reveals that a high percentage of US health care facilities are struggling to address the high incidence of injuries among health care worker population. And, sadly, many health care employers continue to accept work injury claims as a part of doing business, an attitude which actually decreases employee morale and staff and patient safety, and increases costs of doing business. In fact, a major insurance provider estimates that for every dollar spent on a workplace injury, employers will spend another \$3 to \$5 on associated costs. What's worse is that in most cases, injuries resulting from poor workstation design are completely avoidable.

How Can Ergonomics Help?

Many industries outside of the health care arena have demonstrated the benefits of improved workstation design and ergonomic interventions, which includes reductions in the incidence and severity of work-related injuries, and improving productivity (Hendrick, 1996, 2003). In fact, positive returns on investment due to ergonomic implementations have been measured in almost every industry, with payback periods often less than a year (Ohio Bureau of Workers' Compensation [BWC], 2009). By integrating ergonomic workstation tools, providing user training, and implementing appropriate work environments designed to fit the health care worker's physical and cognitive abilities, it is possible to reduce injury rates and associated costs and positively impact other critical issues, such as job turnover, medical error, and patient safety (Goggins, et al., 2008).

Demonstrated ergonomic benefits for health care staff include:

- Increased staff and patient safety
- Increased staff productivity
- Improved work quality
- Increased staff satisfaction and retention

What are the Key Components of a 24/7 Ergonomic Workplace?

A 24/7 ergonomic workspace is designed to integrate these 5 key components: adjustable task chair, adjustable work surface, adjustable monitor arm, articulating keyboard/mouse support, and user-controlled task lighting. These components each work collectively, or as part of the whole. Individually, however, these components will likely be of limited value to the health care worker, regardless of their height or size.

For example, if a nurse station has the best ergonomic chair in the world, but the keyboard rests on top of the desk, they'll spend much of their shift leaning forward over their work surface. Because they are forced forward to reach their keyboard they do not take advantage of the back support or recline ability of their chair. Or, if the keyboard is on an articulating keyboard tray, but the monitor is placed in the back corner of the work surface, staff will still assume a hunched over position but for a different reason. In this case it's because they have to strain to see the monitor. Health care staff may have a couple of great ergonomic tools—chair and keyboard support—but unable to take advantage of either because their monitor isn't positioned correctly. The examples serve to illustrate that highly adjustable ergonomic tools can only support the health and comfort of 24/7 health care staff when used as part of the whole, the 24/7 ergonomic workstation.

Summary

Though the health care industry lags behind others in areas of ergonomic implementations, the positive impact of ergonomic tools, training and appropriate 24/7 workstation design have demonstrated significant reduction in injuries and associated costs, as well as increased morale, staff retention, productivity, and patient safety. While back injuries justifiably deserve a great deal of attention, so do work-related injuries associated with increased computer use by staff, and workstation design that lacks the adjustability required for a multi-user 24/7 workplace. The solution is found in an integration of ergonomic components designed to accommodate the wide range of body sizes and shapes that staff today's 24/7 health care facility.

Tools Available

ErgoTool by HumanTech is a self assessment for people using computer workstations. HumanTech is a leading ergonomics consulting organization. ErgoTool is gratis for single use, with no obligation and can be used multiple times, so you can reevaluate your workstation ergonomics after any changes. Go to:

www.alimed.com/alimed/Catalog/ErgoTool.aspx

References

Cannon, D. (2008) Addressing Ergonomics, Work Injury, and Return to Work in Health Care. *Ergobilities*. Dedham, MA: <http://ergobilities.com>.

Goggins, R.W., Spielholz, P., & Nothstein, G.L. (2008). Estimating the effectiveness of ergonomics interventions through case studies: Implications for predictive cost-benefit analysis. *Journal of Safety Research*, 39, 339-344.

- Hendrick, H.W. (1996). The ergonomics of economics is the economics of ergonomics. *Proceedings of the Human Factors and Ergonomics Society*, 40, 1-10.
- Hendrick, H.W. (2003). Determining the cost-benefits of ergonomics projects and factors that lead to their success. *Applied Ergonomics*, 34, 419-427.
- Lahiri, S., Markkanen, P., & Levenstein, C. (2005). The cost effectiveness of occupational health interventions: Preventing occupational back pain. *American Journal of Industrial Medicine*, 48, 515-529.
- Ohio Bureau of Workers' Compensation [BWC] (2009). Ergonomics best practices manuals. Columbus, Ohio: Accessed online July 16, 2009 from <http://www.ohiobwc.com/employer/programs/safety/ergonomics.asp>