

Introduction

There is a significant push towards the implementation and utilization of electronic medical records (EMR) in health care. This requires Certified Registered Nurse Anesthetists (CRNAs) to employ integrated computer workstations and anesthesia information management systems (AIMS) into their daily practice.¹ Increased computer use is associated with a proliferation of neuro/musculoskeletal disorders and repetitive use injuries in office-based work environments.² These complications lead to a rise in workers' compensation insurance claims, lost work time, and reduced productivity and efficiency.³

Objective

The objective of this study was to determine if deficiencies in ergonomic conditions of operating room (OR) AIMS computer workstations contribute to neuro/musculoskeletal and repetitive use injuries for CRNAs. It was hypothesized that substandard ergonomic conditions would be identified in OR AIMS workstations throughout Michigan and would correlate to an increase in musculoskeletal and repetitive use injuries in CRNAs.

Methodology

An online Qualtrics survey was sent to members of the Michigan Association of Nurse Anesthetists (MANA). The survey was used to gather information on the current ergonomic conditions CRNAs face in their primary place of work. Survey questions focused on the ergonomic conditions associated with the chair, computer monitor, keyboard, and mouse. Additional questions examined neuromuscular and musculoskeletal discomfort or injuries perceived by CRNAs to be a result of their current ergonomic conditions. Questions also assessed the potential consequences of these injuries including seeking medical treatment, missed time from work, and workers' compensation insurance claims.

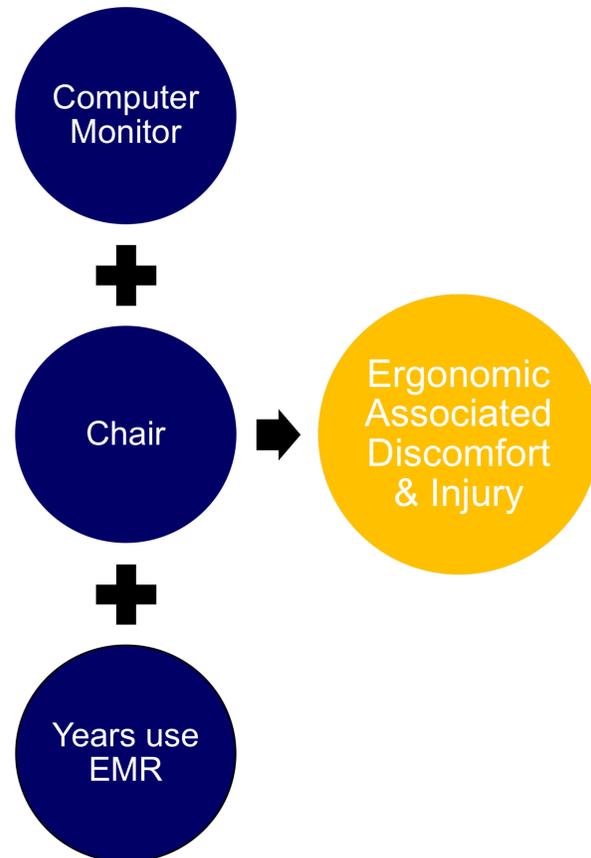


Figure 1. Factors Contributing to Ergonomic-related Neuro/musculoskeletal Discomfort and Injury



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Results

Survey responses to individual questions regarding computer monitor, chair, mouse, and keyboard were computed into mean aggregates. Statistical tests were performed running these ergonomic aggregates against the four survey questions inquiring about neuro/musculoskeletal-related discomfort or injury, medical treatment, missed work, and workers' compensation insurance claims. The ergonomic aggregates were also tested against the four discomfort and injury survey questions and summarized into one mean "health aggregate". Based on statistical analysis, the computer monitor, chair, and the number of years using EMRs as part of the AIMS computer workstation are most related to neuro/muscular ergonomic discomfort and injuries in CRNAs.

Conclusion

When retrofitting AIMS to anesthesia workstations, the focus should be on providing ergonomic computer monitors and chairs in order to reduce neuro/musculoskeletal discomfort and injury. Anesthesia providers should also receive adequate ergonomics training. Additional sources of ergonomic injury include many patient care activities that CRNAs perform on a daily basis, such as lifting and bending. Future research may focus on implementing ergonomic training programs for CRNAs and performing cost-benefit analysis of installing equipment to correct computer workstation ergonomics and its effect on neuro/musculoskeletal discomfort and injuries.

References

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