

# **Ergonomics and Musculoskeletal Injuries in the Operating Room**

**Teresa Golden, RN, BSN**

Stanford Hospital & Clinics

## **Purpose**

The purpose of this project was to investigate the causes and types of injuries in an effort to reduce the exposure and improve techniques to reduce injuries to operating room nurses related to equipment and supplies.

## **Background**

Prior to April, 2005, supplies were delivered to the OR using a system that was time-consuming, labor-intensive, and wasted supplies. OR nurses created lists of supplies that were needed for specific types of cases and were provided to a supply company so that these supplies could be packaged together and placed in boxes called "Case in a Box." However, complex cases require many supplies resulting in large and heavy boxes. These heavy boxes had the potential to cause repetitive stress injuries in the OR nurse. Additionally, other concerns have been identified with ergonomics and nursing such as the increasing age of the OR nurse, increased incidence of occupational injury, sick time pay out, workman's compensation, and poor retention of skilled nurse with occupational injury exposure.

## **Methods**

The literature was searched for information related to ergonomics, back and other injuries in OR nurses, non-health care occupational injuries (e.g., USPS), government regulations (e.g., OSHA), healthcare regulatory agencies (e.g. Assn for the Advancement of Medical Instrumentation-AAMI) and professional organizations (e.g., AORN). I measured and weighed the "Case in a Box" and surveyed the OR nursing staff regarding injuries and fatigue; reporting injuries to Occupational Health; self-care activities; and ergonomic resources. An ergonomic educational presentation regarding common injury patterns, cumulative trauma disorders, demonstration of proper ergonomics, design strategies, and ergonomic resources was presented to the OR staff.

## **Results**

The measurement and weight of two of the heaviest boxes, Adult Open Heart and Total Knee Replacement, were recorded as follows: Adult Open Heart measured 30" x 17 ¾" x 17 ½" and weighed 31.1 pounds. The Total Knee Replacement measured 23" x 17 ¾" x 17 ½" and weighed 31.2 pounds. Analysis of the OR nursing survey is still being done. However, preliminary results revealed OR nurses experienced back, neck, and upper extremity discomfort that was not reported to OHS and experienced fatigue. OHS received incident reports related to Carrying Equipment (n=4), Lifting Items (n=26), and Moving Equipment (n=9) from 1/1/2000 to 3/9/2007. The ergonomics class was well-attended by approximately 45 OR staff on 9/10/2007.

## **Conclusion**

Continued work needs to be done to improve the ergonomic safety of the environment for OR staff. Additional studies in the OR regarding ergonomics and preventing injuries should be conducted. Nurse leaders should identify and adopt best practices and national standards regarding safe weight and size limits, and instrument and supply handling. Lastly, SHC employees can work with product vendors to improve the delivery system and ergonomics in the OR.