

DoD Ergonomics Working Group NEWS



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CHPPM Ergonomics Program Patient Handling Study

Goals

- Assess patient handling demands based on patient dependency level and type of ward at a major military medical facility.
- Apply the study results to the findings of the Veterans' Administration Patient Handling Equipment Study and use the information as a basis for DoD patient handling demand models and equipment recommendations.

Phase 1—Assessment

Objective

Describe patient handling demands based on patient and nursing staff populations, transfer characteristics, and staff physical exertion occurring at Walter Reed Army Medical Center's inpatient units during a 24-hour period in November 2001.

Study Population

- 300 volunteer nurses with a mean age of 35.
- 65% female.
- Nearly 50% military and younger than their civilian co-workers.
- 60% experienced neck and shoulder discomfort in the past 12 months with a median number of 5 days lost for neck and shoulder injuries.
- 63% experienced upper and lower back discomfort in the past 12 months with a median number of 5.5 days lost for upper/lower back injuries.

Background

Nursing is a High Risk Occupation

- Second only to heavy industry, such as coal mining.
- 12% nurses leave the profession each year due to chronic/acute back injuries and pain.
- Over 52% nurses complain of chronic back pain lasting more than 14 days within the past 6 months.

Why is Nursing High Risk?

- High volume of lifting patients leads to fatigue, muscle strain and injury.
- The patient is asymmetric, bulky, and can't be held close to the body.
- Many transfers are horizontal, rather than vertical, so the safe lifting "rules" do not apply.

Pre-Disposing Factors

- There are no handles.
- Patient handling tasks are unpredictable.
- The amount of assistance a patient can offer at any point in time varies.

What We Know So Far

- Most injuries are cumulative in nature.
- Patient care space deficits increase risk by forcing the nurse into awkward positions.
- Many nursing tasks far exceed the NIOSH lifting guidelines.
- There is no "safe" way to perform these tasks.

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Study Process

- Nursing staff completed a demographic survey and baseline body diagram at the start of shift.
- Nursing staff completed one coupon for each patient transfer performed throughout the day.
- Research staff were stationed on each ward for the entire study to provide confidentiality and answer any nursing staff questions.
- The CHPPM ergonomist performed linear regression analysis to develop prediction equations and determine the relationships of significant variables for physical exertion and total time spent per transfer.

Study Findings

- More than 50% of all lateral transfers, including repositioning and bed to bed, required moderate or greater physical exertion.
- Less than 20% of all other transfer types combined required moderate or greater physical exertion.
- 64% of lateral transfers required greater than 13 minutes to perform, while only 10.7% of all other transfers required greater than 13 minutes.
- Repositioning and bed transfers were more than twice as frequent as the second most often performed transfer.

Results

- The best predictor of physical exertion was the combination of patient weight, type of transfer, patient dependency, and type of shift.
- The best predictor of total time spent on transfer was the combination of gender, type of transfer, and number of staff.

Bad News: Lateral transfers required the most physical exertion and were being performed most often.

Good News: Equipment purchases for lateral transfers are relatively inexpensive.

Phase 2—Intervention

Phase 2 is continuing at Walter Reed. CHPPM Ergonomics Program staff are completing data analysis and developing a technical paper and recommendations for intervention that will include:

- Nursing supervisor training.
- Back injury resource nurse assignment and training.
- Nurse/assistant training.
- Equipment solutions.
- Follow-up surveys.

If you have questions about this study, or would like more information, contact Ms. Kelsey McCoskey, U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM), at kelsey.mccoskey@apg.amedd.army.mil