

# Ergonomic Evaluation Acute Care Nursing Health Center

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# Most Injury Inducing Tasks

(Owen & Garg, 1990)

1. **Chair / toilet transfers**
2. **Bed / chair transfers**
3. **Bathtub / chair transfers**
4. **Chairlift / chair transfers**
5. Weighing the patient
6. **Lifting the patient up to headboard**
7. **Repositioning patient in bed side to side**
8. **Repositioning in chair**
9. Changing an absorbent pad
10. Making the bed with the patient in it
11. Undressing the patient
12. Tying supports
13. Feeding a bed ridden patient
14. Making the bed with the patient not in it



# Acute Care Unit

- 26 patients - all ages and conditions
- 6 patients per nurse
- Average length of patient stay is 3-5 days
- Majority of patients are there for a “tune-up”
- 25% of day spent doing charting and documentation

Staff consists of:

- Charge nurses
- Registered Nurses
- Licensed Nurse Practitioners
- Certified Nurse Assistants

Training

- Most of training is in school not in the workplace
- Orientation course for lifting techniques
- Yearly updates
- Post-injury counseling and training



# A Typical Nurse's Day

## 3 Different work shifts:

- 8 hour day shifts ie. 7am to 3:30 pm
- 12 hour day night shifts ie. 7am to 7pm
- 12 hour evening shifts ie. 7pm to 7am

## Daily Schedule

First 2 hours: Arrive and begin patient care, rounds with doctors

1 hour: Charting/computer work

2 hours: Second round of medication, x-rays etc

1 hour: Charting/computer work

2 hours: Rounds/patient care

# Most Common Injuries

## TOTAL Health Facility Statistics:

Total Number of Cases with days away from work:	<b>22</b>
Total Number of Days away from work:	<b>489</b>
Total Number of Cases resulting in job transfers:	<b>5</b>
Other cases:	<b>11</b>
Total number of injuries:	<b>38</b>

# Most Common Injuries

CNA's are responsible for bulk of physical activity and most often injured

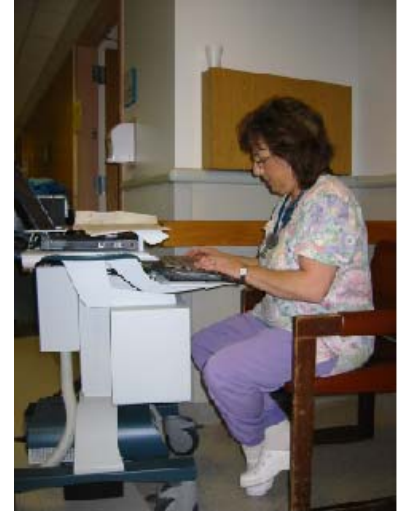
Injuries in 2002 by job title:

RN- Bedside---	<i>Hand injury</i>	—————>	transfer
	<i>Left arm strain</i>	—————>	missed <b>1 day</b>
	<i>Left hamstring</i>	—————>	transfer
	<i>Lower back/sciatic pain</i>	—————>	missed <b>1 day</b>
Nurse Assistants---	<i>Left shoulder pain</i>	—————>	transfer
	<i>Back injury</i>	—————>	missed <b>2 days</b>
Radiology Nurse---	<i>Fall onto knees</i>	—————>	missed days
LPN (meds nurse)---	<i>Low back pain</i>	—————>	missed days

*Acute nursing care had much fewer injuries than other FLH units.*

## Tasks we looked at:

- **Sitting and standing at computer workstation**
- Pushing medication cart
- Transferring patients to chairs
- **Changing IV bags**
- Using lift equipment
- Pushing wheelchairs
- Transferring patients to and from beds
- **Sliding patients to headboard**
- Carrying trays and assistance with eating
- Help with dressing
- Transferring patients on stretchers



# Standing at computer workstation

REBA evaluation:

Trunk: 1

Neck: 2

Legs: 1

Upper Arms: 1

Lower Arms: 2

Wrist: 2

A: 1

B: 2

Load/Force Coupling: 0

C: 1

Activity: 1

REBA: 2

Action Level: 1- Action may be necessary





# Sliding patient to headboard

REBA evaluation:

Trunk: 3

Neck: 1

Legs: 2

Upper Arms: 2

Lower Arms: 2

Wrist: 2

Force: 3

A: 7

Coupling: 3

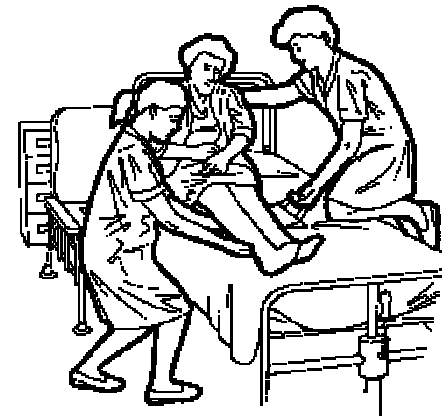
B: 6

C: 9

Activity: 1

REBA: 10

Action Level: 3- Necessary to take action soon



# Changing IV Bag

REBA evaluation:

Trunk: 2

Neck: 2

Legs: 1

Upper Arms: 5

Lower Arms: 2

Wrist: 1

Force: 0

A: 3

Coupling: 3

B: 10

C: 8

Activity: 1

REBA: 9

Action Level: 3- Necessary to take action soon



Must do multiple times a day for every patient

# Computer Workstations

- Workstation design is sufficient
- Change to downward sloping keyboards
- Offer training in proper and safe computer use
- A great amount of force is needed to adjust height - change to an easier grip and reduce resistance



# Sliding patient to headboard

Options:

- “Conveyer belt” sheet that cycles around the bed by pressing a button or using a crank
- Install handles on existing sheets
- Use same system but step to head of bed instead of swinging body
- Hold person and lift to headboard instead of using the sheet and person

Most important change  
is to have a better grip



# Changing IV Bag

Options:

- Have a chair-like foot pump to raise and lower the height of the IV bag
- Install an up and down button for adjusting height

The current stands are height adjustable, but it takes too long and requires too much effort. A simpler, easier system would encourage proper use and reduce injuries.



# A few more suggestions...

- Emphasize importance of properly using equipment
- Mechanical changes are easy but staff behaviors must be changed in order to really reduce the number and severity of injuries
- Offer more, mandatory training
- Create a reward system for attending training sessions and using techniques learned
- Have random evaluations of techniques

In general, the current situation is acceptable. The low staff to patient ratio and higher level of physical and mental functioning of the patients makes the tasks less strenuous.