Promoting safe lifting practices in the prevention of low back pain

George Byrns, MPH, Ph.D., CIH
Associate Professor
Department of Health Sciences
Illinois State University
Goal: promote the use of mechanical lifts; not backs for patient transfers
Risk Factors in Low Back Pain (LBP)

Preliminary research design & methods

- Cross-sectional studies
  - RNs at two local acute care hospitals &
  - All nursing personnel in two nursing homes
- Data collection: self-administered questionnaire
LBP Prevalence

- Ever had LBP 83.6%
- Any report of LBP last year: 70.0%
- Case definition: LBP not due to sports or non-occ. causes that limited movement or interfered with work at home or on the job: 36.2%
P-values* for LBP risk factors

- More years worked as a nurse (p = 0.037)
- Low co-worker support (p = 0.046)
- Perceived high physical demand (p = 0.008)
- More combined lifting (p = 0.006)

* All results were based on t-tests with various degrees of freedom
LBP as a cumulative trauma disorder

- Only about 15% LBP is linked to a single traumatic event
- LBP prevalence increased with more years of service ($p=0.037$)
  - 15.4 yr with LBP ($sd = 9.5$)
  - 11.4 yr without LBP ($sd = 9.3$)
  - linear trend ($p=0.016$)
Change in case status from yr 1 to 2

- 20 RNs with LBP in yr 1 became asymptomatic (negative change)
- 4 RNs from yr 1 developed LBP (positive change)
- 81 RNs did not change their case status
Comparison of 1st & 2nd Surveys

- Prevalence of LBP in female RNs
  - 36.2% in initial survey (38/105)
  - 10.5% in follow-up (9/86)

- Follow-up 105 RNs
  - 50% (13/26*) of RNs lost to follow-up (LFT) had LBP
  - Chi square = 6.9, p-value = 0.008
  - OR = 3.2 (CL 1.3-7.8)

* 1 of the 27 LTF omitted information on LBP status
Healthy Worker Survivor Bias

- Less experienced workers leave the job due to LBP & more experienced stay.
- The loss of susceptible individuals gives the appearance of an improvement in prevalence.
LBP incidence & years of experience

- New cases of LBP had less experience: ANOVA ($p=0.041$)
  - New cases 3.9 yr
  - No change 12.4 yr
  - Became asymptomatic 16.6 yr

- Those with more experience may have learned how to avoid LBP
Age & LBP

Age effects
- Youngest workers have the highest incidence
- More senior workers have highest prevalence & cost

Prior LBP an important risk for future LBP
(p=0.028, OR = 5.7, 95%CI = 1.2 to 26.6)
What are perceived causes LBP?

- Most believe that both nurse actions (89.6%) & work conditions (83.0%) contribute to LBP
- Most important cause:
  - 55.9% said nurse actions
  - 44.1% said work conditions
- Why do we care?
Opinions about safety equipment

- Do RNs believe that lifting equipment can help?
- Those who blamed an unsafe job environment for LBP had a more positive opinion about the effectiveness of safety equipment.
  - $\beta = 0.20$ (S.E. =0.08), Wald = 6.0, p-value = 0.01
Availability of mechanical lifting devices

- According to nursing management at both hospitals, lifting devices were available to all nurses who required them and
- Nurses were encouraged to use these lifts
**Mechanical lift use patterns**

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
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<tbody>
<tr>
<td>Used lift</td>
<td>13/115 (11.3%)</td>
<td>9/87 (10.3%)</td>
</tr>
<tr>
<td>Lift not available</td>
<td>92/120 (76.7%)</td>
<td>75/87 (86.2%)</td>
</tr>
<tr>
<td>No time to use</td>
<td>22/115 (19.1%)</td>
<td>17/76 (22.4%)</td>
</tr>
<tr>
<td>Not trained</td>
<td>20/115 (17.4%)</td>
<td>32/83 (38.6%)</td>
</tr>
<tr>
<td>Patients weight</td>
<td>15/119 (12.6%)*</td>
<td>38/71 (53.5%)</td>
</tr>
<tr>
<td>exceeds capacity</td>
<td></td>
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</tbody>
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*Individuals giving this response were more likely to have LBP (OR = 3.5)*
The organizational climate

- The presence of a pro-active “safety climate” is recognized as an important predictor of higher job satisfaction.
Safety climate is the complex sum of an organization’s mission, characteristics, policies, and the thoughts & actions of its individual members which establish & support safety as an overriding priority.
Perceptions of safety climate

- Top management must support a pro-active safety climate, but
- To be effective, this pro-active safety climate must be perceived as a priority by all workers
LBP Intervention Model

No lift policy → Physical workload

Physical workload → Attitudes

Attitudes → LBP

LBP → No lift policy
LBP Prevention & Control

- Little can be done to affect increasing age, but we can create a climate where pain is not considered part of the job.
- We can protect less experienced staff from getting LBP in the first place.
How will a policy help?

- Nurses & CNAs fear criticism for taking the time to use safety equipment.
- A policy will counter this misperception since it demonstrates management’s commitment to safety.
- Once staff starts asking for equipment, management will be encouraged to provide it.
What are obstacles & limitations?

- Storage space is limited.
  - Not a problem in new construction
  - Ceiling mounted lifts may be a partial solution

- Dignity is compromised.
  - Studies have show that when the use of the lift is fully explained, patient & residents prefer it.
Patient muscles will atrophy!

- Patients & nursing home residents with limited ability to ambulate may use a sit to stand lift.
- This will aid in rehabilitation!

Liko Golva
Future needs

- Changes to the AIA document, *Guidelines for Design and Construction of Hospital and Health Care Facilities*
  - All new construction must include ceiling mounted lifts in areas where patient lifting is likely
  - Storage space for mobile lifts should be provided

- Closer collaboration between OHNs & IHs in preventing healthcare hazards
For more information on patient lifting visit the websites:

- VA’s Patient Safety Center
  www.patientsafetycenter.com

- NIOSH’s Safe Lifting and Movement of Nursing Home Residents
  www.cdc.gov/niosh/docs/2006-117