

Managing Ergonomics in the Workplace

Managing Ergonomic Risk Factors in
Nursing Homes

Challenges



- The nursing home industry is one of America's fastest growing industries.
- In 2000, approximately 1.9 million direct care workers provided care to 15 million Americans in approximately 21,000 long-term care settings.

Challenges



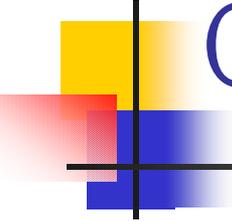
- Total number of Americans in need of long-term care is expected to rise from 15 million in 2000 to 27 million in 2050.
- The Bureau of Labor Statistics estimates by 2010, industry employment will rise to an estimated 2.7 million workers. This is an increase of roughly 45%.

Challenges

- Long-term care workers face strenuous physical demands and one of the highest rates of injury and illnesses among industries.
- In Minnesota the nursing home TCIR is 10.5 injuries per 100 full-time workers, for private sector sites, and 17.7 for public sector sites.

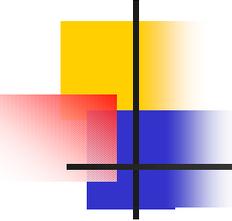


Overall industry average TCIR is 5.5 – MN rate



Challenges

- As a result, there is an on-going need to convince nursing homes of the importance of safety management, in recognizing and controlling risk factors associated with resident handling tasks.



Training Objectives

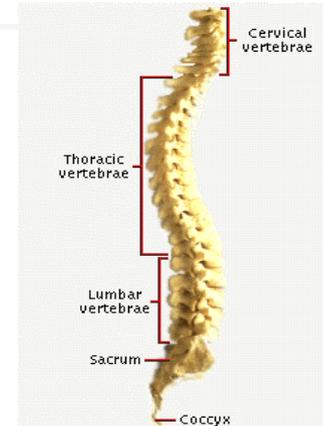
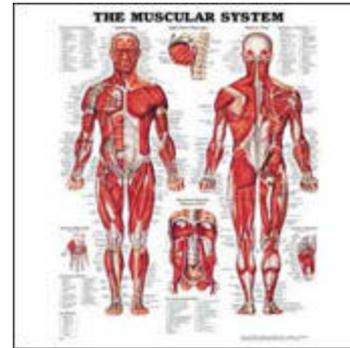
- Review elements of an effective approach to managing ergonomic hazards in LTC
- Provide cost data and success stories
- Encourage class participation
- Determine additional needs of the group

Defining Key Terms

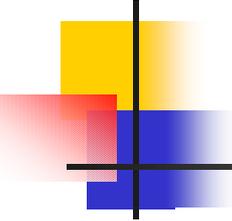
■ Ergonomics:

- the art and science of designing a work station and work tasks to fit the capabilities of the workers
- The science of fitting workplace conditions and job demands to the capabilities of the work force, through proper job placement and on-going education & training

- Musculo-skeletal Disorder (MSD):
 - injuries to the muscles, tendons, ligaments, joints, cartilage, spinal column

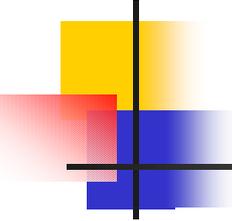


- not due to a sudden event but generally the result of chronic exposure to risk factors
- persistent signs & symptoms of discomfort
- WMSD – work-related MSD
 - made worse & longer-lasting by work conditions



Key Management Elements

- Management Acknowledgement / Commitment
- Employee Involvement
- Hazard Identification
- Hazard Control
- Injury Reporting / Case Management
- Training & education
- Review Effectiveness of Management System
- On-going Evaluation and Planning



Management Acknowledges the Problem

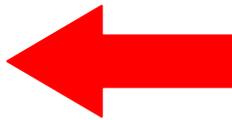
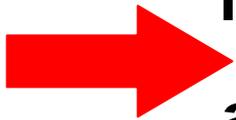
- HIGH RATES OF INJURY AMONG NURSING STAFF – PARTICULARLY NA/R's

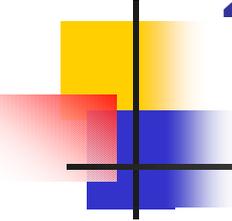
2003 US Rates

Private Sector (BLS)

All Injuries and Illnesses per 100 FTE

	<u>total</u>	<u>DART</u>
nursing and care	10.1	6.3
logging	6.4	4.4
drywall and insulation	7.4	4.3
roofing contractors	8.7	5.6
animal slaughter	10.3	6.8

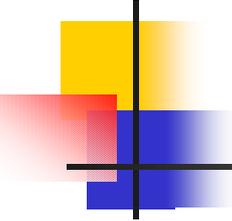




2003 US Cases

Private Sector (BLS)

	<u>all cases</u>	<u>WMSD</u>
all health care	14.3%	19.1%

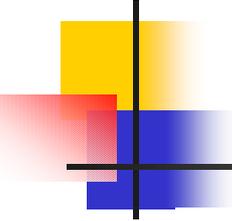


2003 Minnesota Rates (BLS)

All Injuries and Illnesses per 100 FTE

	<u>total</u>	<u>DART</u>
nursing (private)	10.5	7.5
nursing (public)	17.7	11.8
all private industry	5.5	2.8

2003 Minnesota Cases (Workers' Compensation)

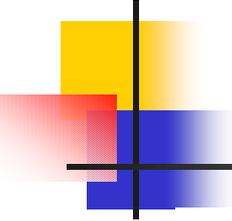


percent of all indemnity cases in the nursing
home industry classified as WMSD :

58 percent

Minnesota Cases

(Workers' Compensation)



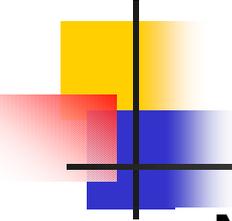
Estimated total cost (wages and medical)
for WMSD indemnity cases closed in 2004
in the nursing home industry:

\$20,000 per case

No wonder nurses are injured!

- In an 8-hour shift, the cumulative weight that nurses lift is equal to an average of 1.8 tons per day



- 
-
- Nursing is ranked 2nd after industrial work for physical workload intensity
 - Nurses have approximately 30% more days off due to back pain as a percentage of all causes compared with 8% for the general population

Force exerted on low back

- Spinal compression -

- 2-person hook – 858-1477 lbs.
- 1-person hook – 2026 lbs.
- 2-person gait belt – 1034+ lbs.
- 1-person gait belt ~ 1030 lbs.
- 1-person hug lift – 1424 lbs.

safe limit – 764 lbs.

Safe Patient Handling Conference presentations – Audrey Nelson, Ph.D., RN,
FAAN, Patient Safety Center of Inquiry, VAMC, Tampa, FL

William Marras, Ph.D., CPE, Institute of Ergonomics, OSU

Force exerted on low back

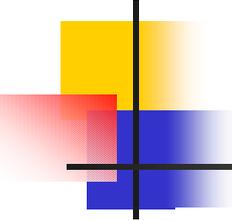
- Spinal compression -

- 2-person commode to chair ~ 1120 lbs.
- 1-person commode to chair ~ 1500 lbs.
- 2-person wheel chair to bed ~ 1050 lbs.
- 1-person wheel chair to bed ~ 1440 lbs.

- safe limit – 764 lbs.

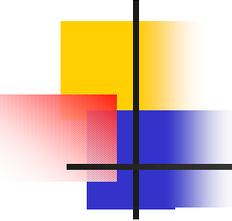
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High-risk work environment contributes to:

- high rate of injuries
- higher turnover / rates of absenteeism
- reduced employee morale
- negative affect on the level of care provided
 - familiarity between resident and nurse
 - greater chance of injury to resident during a difficult lift/transfer
 - resident dignity



Management understands the \$\$\$ benefits...

Cost of lift / transfer / reposition aides

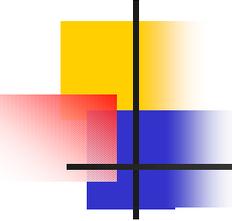
VS.

Cost of worker's comp. / medical / lost time / re-training / administrative...

Wyandot Nursing Home

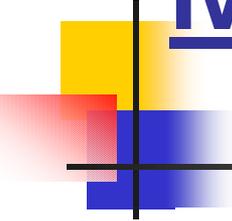
- reduced work comp. claims by 97%
- zero transfer injuries
- \$55,000 payroll savings due to less turnover, OT, & absenteeism (2001)
- \$116,000 investment vs. \$400,000 annual return



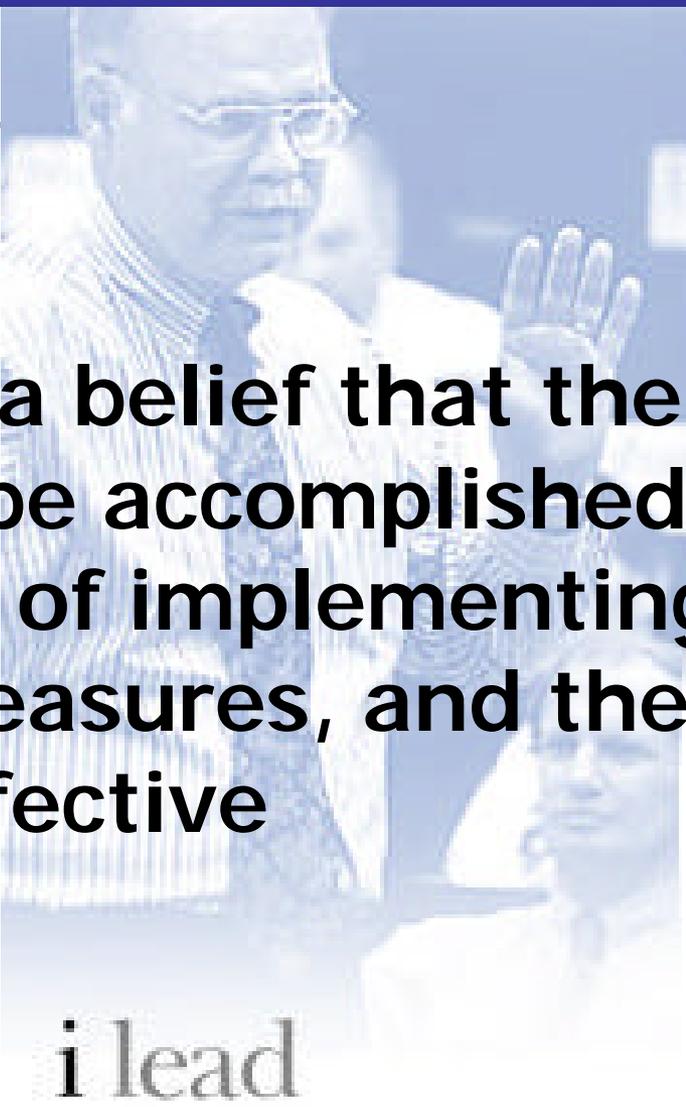


Success Story...

- Overall philosophy of “teamwork”.
- Reduced worker’s compensation premiums.

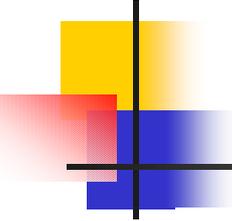


Management Commitment



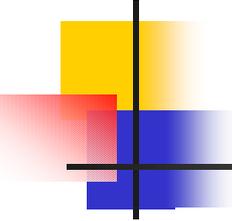
There needs to be a belief that the S&H efforts can be accomplished, staff are capable of implementing the necessary measures, and the efforts will be effective

i lead



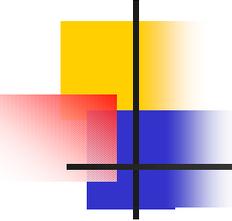
Safe resident handling becomes a high priority...

- Safe Resident Handling initiative:
 - value employees as much as residents
 - use of lift, transfer & repositioning aides becomes the norm
 - 2-person transfers and proper body mechanics will not prevent injuries



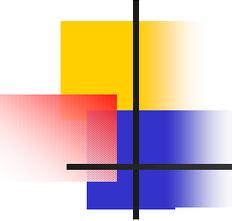
Action Plan

- What tasks need to be accomplished to reach the desired goal
 - assign task responsibilities
 - establish time-lines for completion
 - track progress



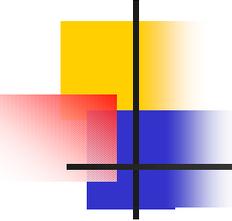
Change the Work Culture

- Change the “old” way of thinking and doing
 - value employees as much as residents
- Establish accountability
 - mid-managers & supervisors responsible for injuries, lost-time, & worker compensation losses
 - promote work practices that prevent injuries

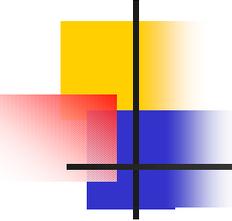


Change the Work Culture

- Accountability most effective when a work environment is provided that encourages and allows for adherence to “best” practices
 - facility, equipment, and training resources provided
- Supervisory staff insist on compliance with established “safe-resident-handling” practices
- Employees accept the new way of performing the work

- 
- Management stresses the importance of an educational triangle between staff, patient and family.





Employee Involvement

- The process must allow for employee participation
 - change is more readily accepted when you have a say in and are aware of the decisions being made

Employee Involvement

- Staff that do the work can help to identify the injury risks

Injury risks: (specific to...)

- resident
- room/facility
- equipment



Employee Involvement

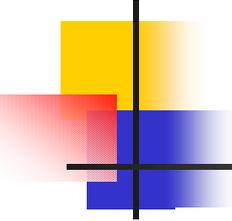
- hazard identification, prevention, & control
- change analysis
 - Equipment
 - Work policies
 - Facility / resident room
- safety committee
 - safe resident handling task group



Employee Involvement

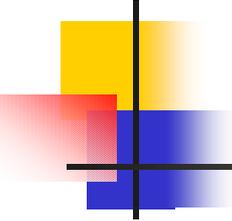
- training co-workers
- feedback on training effectiveness
- safety / ergonomics program planning & effectiveness evaluation





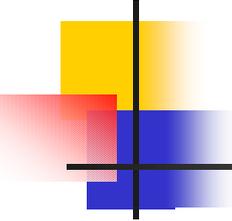
Success Story...

- Active involvement by CNAs in resident lift/transfer assessment.
- Hand's on orientation and training for lift-assist equipment.



Labor/Management Safety Committee

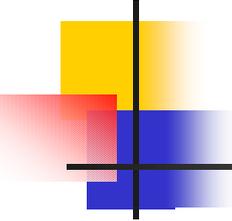
- Help determine and initiate actions towards implementing safe resident handling methods
- Make decisions that affect how work will be done



Labor/Management Safety Committee

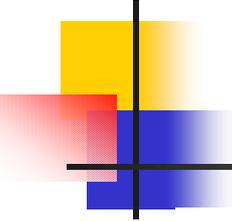
- establish roles / responsibilities
- facilitator
- ground-rules
- agenda
- minutes

-- facilitator training --



Responsibilities

- Hazard identification & control:
 - injury / w.c. reporting
 - accident / incident investigation
 - QA
 - safe patient handling (ergonomics)
 - until issues are resolved
- staff education/training
- review proposed recommendations / changes
- policy development
- accident/injury investigation review
- effectiveness review



Other Responsibilities

- Coordinate field-testing of proposed lift, transfer, & repositioning aides
- obtain employee feedback on proposed changes
- methods to promote safe resident handling initiative
- track progress of efforts
 - staff perception
 - injury & worker comp. data

Hazard Identification

- Need to know specifically how the work is done vs. how it should be done:
 - lifts/transfers
 - repositioning tasks
 - other ADL's...
 - physical hazards

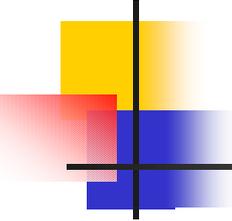




Identify & prioritize high-risk tasks:

- Injury / illness data review
 - 300 log
 - 1st aid / nurse's log
 - incidence rates
 - worker compensation case
 - 1st reports of injury
 - accident / incident reports
 - observations

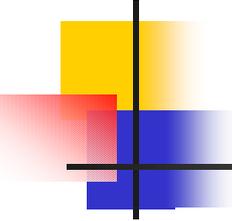




Identify & prioritize high-risk tasks:

- Surveys
 - “Prioritizing High Risk Patient Handling Tasks”
 - facility-developed staff survey
- Direct feedback

-- focus on the current resident & staff needs --



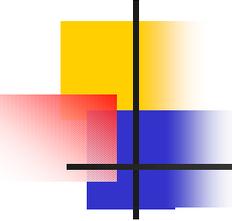
Other Factors

- Why would staff not follow care plan requirements
 - equipment availability
 - equipment maintenance
 - perceived lack of time
 - acceptance of safe resident handling methods
 - accountability to follow “safe handling” practices
 - ...other facility issues

Job-task Analysis

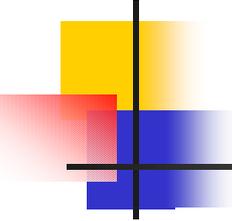
- Analyze tasks to identify the risk factors so that control measures can be considered





On-going Resident Assessments

- Ability to provide assistance
- Ability to bear weight
- Upper extremity strength
- Height / weight
- Ability to cooperate
- Medical conditions / physician's orders



On-going Resident Assessments

- Care staff know what's "normal"
- They must report changes promptly
- Assessments done as frequently as needed
- Communicate changes to all shifts

Hazard Control Options



Feasible engineering controls:

- equipment
- work environment

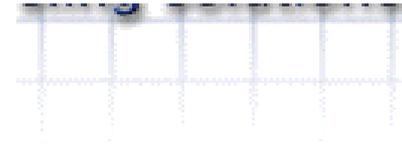
Feasible engineering controls

Lateral transfer aides



Feasible engineering controls

Lift assist



Feasible engineering controls

Adjustable
beds/chair



Feasible engineering controls

Bathing / toileting



Feasible engineering controls



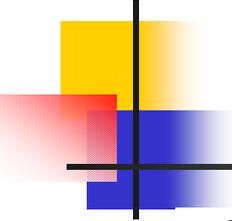
transport



turning/repositioning



bathing



Equipment Selection

Considerations when choosing equipment and suppliers: (from OSHA guide)

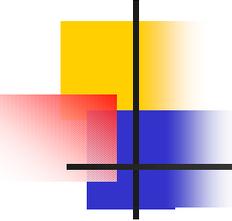
- technical service available
- parts availability
- storage requirements
- battery life / charging
- lift base height & width / adjustability
- requirements for operation
- sling types / sizes
- versatility.....

Resource Allocation

- Adequate replacement batteries
- Sling sizes, types, number
- Quantity/type of lift aides



Repositioning aides



Safe Weight Limit

- Consider 30 lb. weight restriction for lifting
 - to coincide with NIOSH RWL

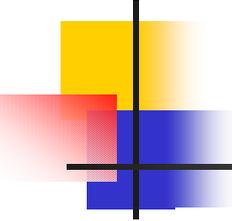
Aw Gwah Ching had staff lift a known weight to help them establish when a lift exceeded a prescribed limit



Equipment Selection

- Establish a team (safety committee / task group)
- Identify the products that could be used to accomplish tasks
- Review product literature
www.patientsafetycenter.com
- Observe product in use





Selecting Equipment for Further Evaluation

- Best choice based on preliminary observations
- Most popular based on sales information
- Upper & lower functionality extremes
- Products that provide an innovative approach

Field Evaluation



- Allow staff to field-test equipment – provide adequate time for testing
 - compare responses with those not using the device
- Provide caregivers appropriate training on use of the equipment
- Compile data based on caregiver and patient comments
- **Negotiate \$** - include a guarantee that use of the product will reduce injury occurrences

Equipment Considerations for Bariatric Patients



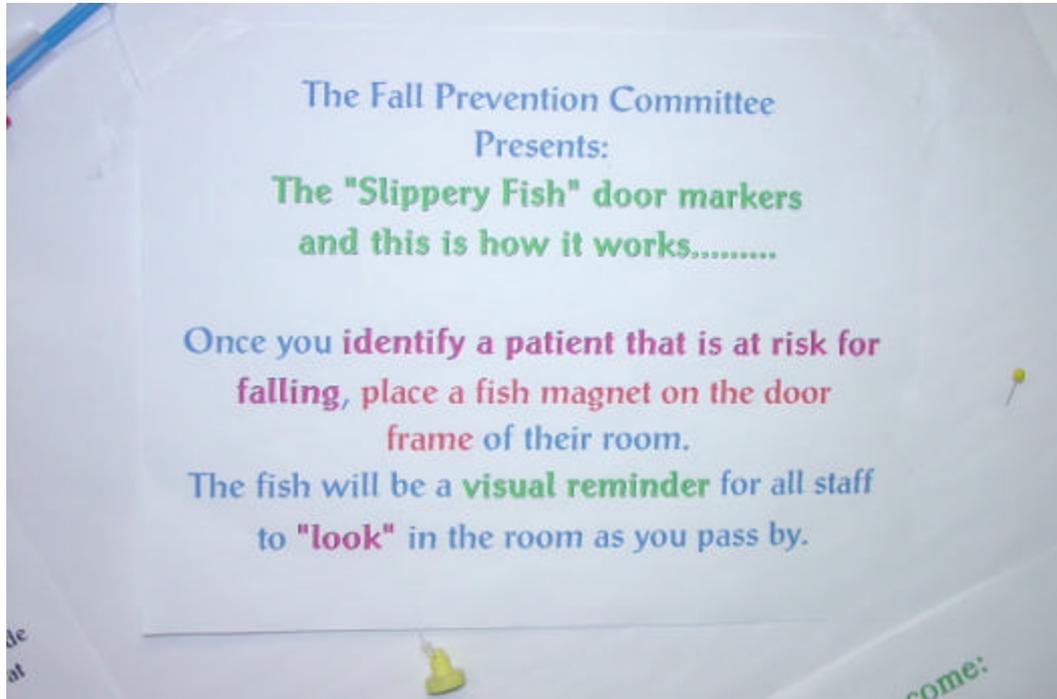
- BMI > 38 = possible need for specialized equipment

[www.kci1.com/body mass index calculator.html](http://www.kci1.com/body%20mass%20index%20calculator.html)

- Bed width / length / capacity



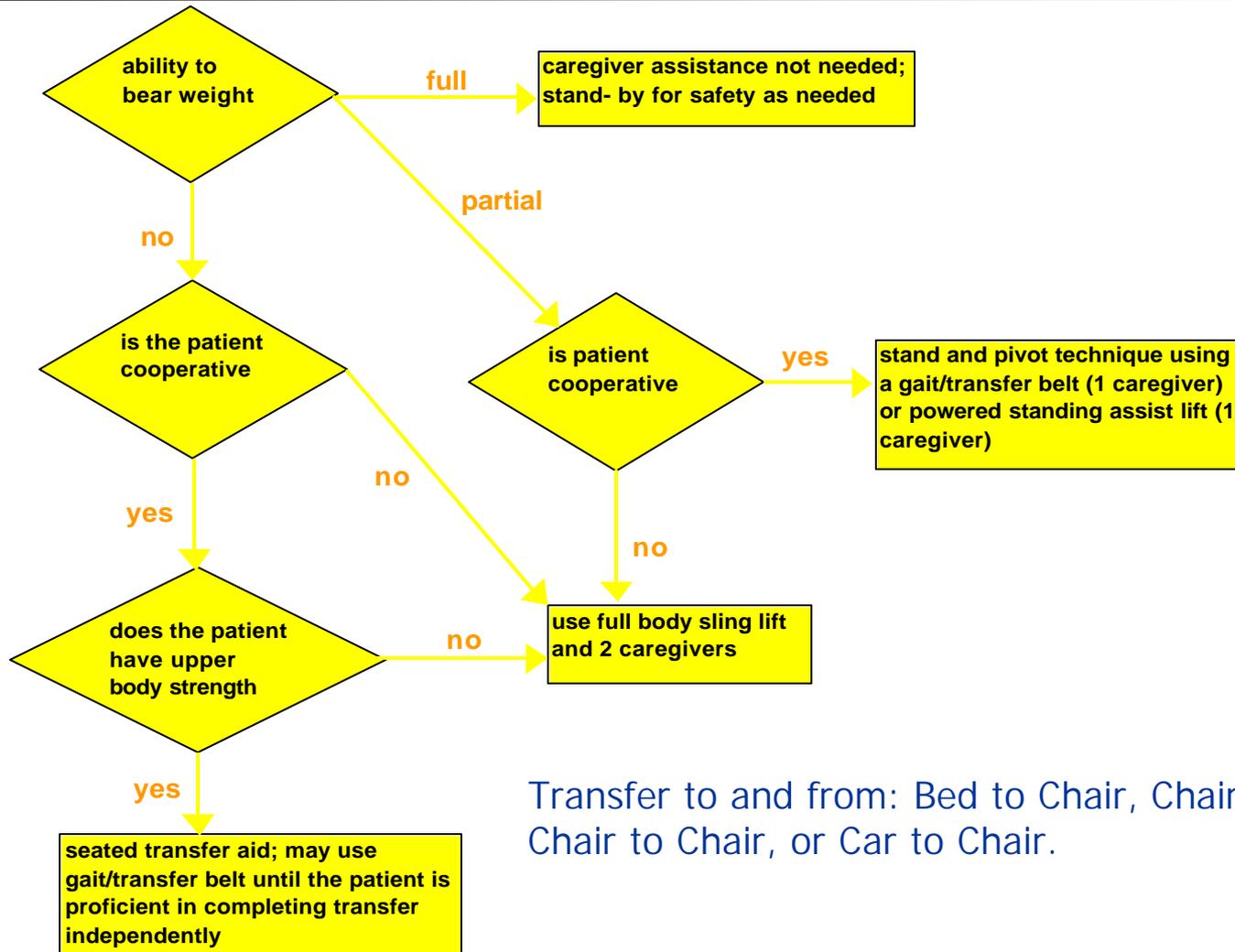
Administrative Solutions



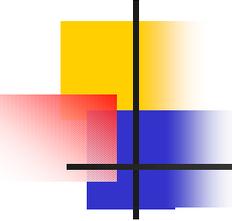
Work rules, policies, procedures:

- Patient handling grid
- Algorithms
- No lift policy
- Detailed care plans
 - accomodates all shifts
- staffing / scheduling

Assessment, Care Planning & Safe Patient Handling (example algorithm)



Transfer to and from: Bed to Chair, Chair to Toilet, Chair to Chair, or Car to Chair.



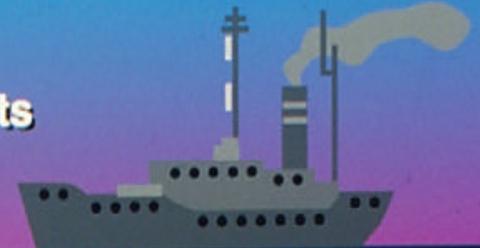
Remember the Cost Benefits

- Wyandot Nursing Home:
\$116,000 initial investment vs. \$400,000 annual
return-on-investment
- Average Cost per WMSD Work Comp. case
\$20,000
- NSC average cost of work injury (2002)
\$30,000 – 33,000

THE HIDDEN COSTS OF INJURIES

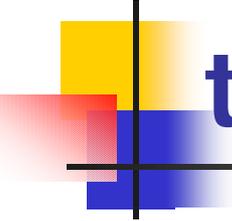
DIRECT COST

- Compensation Payments
- Medical Cost



INDIRECT AND HIDDEN COSTS OF INJURIES

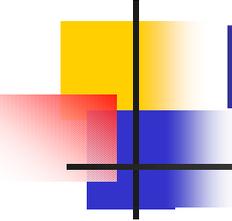
- Replacing Employees
- Investigation Time
- Supervision Time
- Training
- Staff Moral
- Possible Patient Injury
- Break-up Work Team
- Administrative Time
- Overtime Paid
- All Other Costs



You're Ready to Implement the Hazard Controls

- Based on:
 - injury-risk priority
 - current resident and staff needs
 - field-testing results

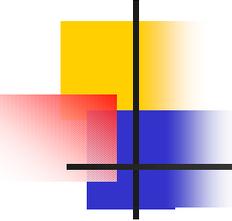
-- NOW ENSURE THE USE --



Hold Staff Accountable

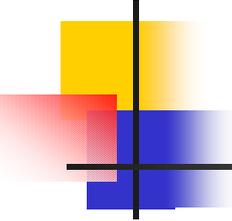
- Front-line supervisor (charge nurse) plays a key role:
 - recognize hazards
 - understand control methods
 - correct unsafe work practices
 - report & initiate correction of unsafe conditions
 - ensure compliance with medical restrictions
 - acknowledge safe work practice

-- Responsible for injuries in the department they supervise --



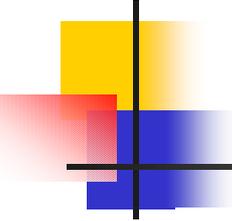
Hold Staff Accountable

- Accountability measures are most effective when a work environment is provided that allows & encourages workers to adhere to safe practices
 - if employees feel they can't apply best practices, constant disciplinary action will only create negativity towards implementing a safe resident handling process



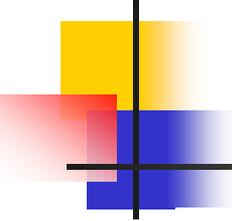
Accountability...

- Develop a policy, "You will use equipment or you won't work here."
- Policy can help eliminate false claims.
- Reduce incidence and severity of injuries.



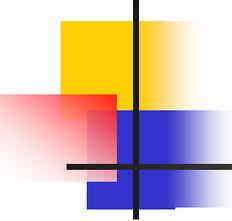
Eliminate Barriers for Equipment Use

- perceived time penalties
- can't find or too far away
- someone else is using
- hard to use / move
- batteries worn down
- lack of adequate equipment
- maintenance issues (i.e. hair in wheels)
- no emphasis on use



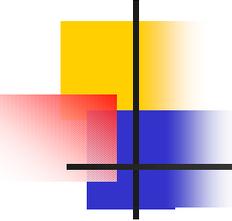
Eliminate Barriers for Equipment Use

- narrow doorways
- cluttered hallways
- cluttered rooms
- carpeting, thresholds, inclines
- won't go below bed
- slow beds / beds operate differently



Eliminate Barriers for Equipment Use

- perceived dignity issues
- fragile residents / skin issues
- resident resistance
- family member resistance
- storage
- confusion about use of devices, such as lateral transfer sheets
- lack of training



Companies where safety is effectively managed

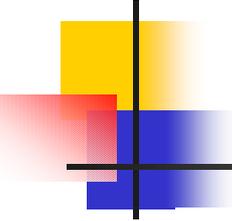
What do employees say is one of their safety responsibilities:

Our responsibility is to look after each other...

Success Story...



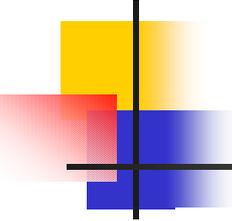
- “Peer pressure keeps level of care up. Care staff strive to do very well.
- Skin care is wonderful
- No back or transfer injuries in over three years...



Training / Education

Care staff:

- On-the-job training & orientation
- competency-based
- vendor assistance
- peer training (preceptors, care coaches...)



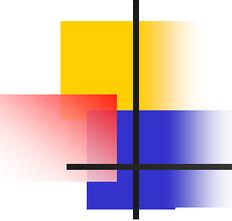
Training / Education

Care staff:

- Proper use of equipment
- Application of work policies/procedures
- Reporting WMSD

Ergonomics: (as related to Safe Resident Handling)

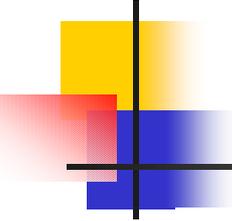
- Risk factors that trigger MSD
- Signs/symptoms of MSD
- Reducing MSD risk



Training / Education

Supervisory staff:

- Understand the work policies implemented
- Recognizing MSD risk factors
- Signs/symptoms of MSD
- Methods implemented to reduce MSD risk
- System for reporting MSD
- Disciplinary system
- Acknowledging / rewarding safe practices

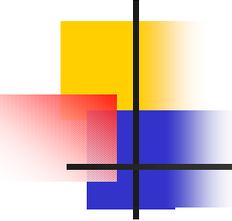


Training / Education

Management:

- General understanding of ergonomics and the risk factors associated with LTC
- An understanding that methods are available to reduce MSD risk

Remain informed of the facility's progress in reducing MSD risk



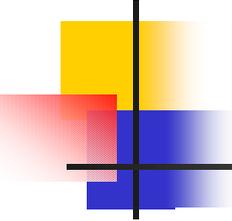
Follow-up on Training

- Observations of work practices
 - ✓ proper application/use of lift/transfer/repositioning aides
- Direct feedback from care staff
 - ✓ level of compliance with “safe resident handling” practices
- Injury data
 - ✓ identify factors that prevent compliance

Management of MSD

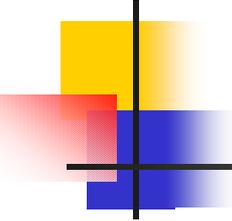
- prompt reporting
- investigate cause of injury
- follow prescribed restrictions
- assess physical job demands
- physician knowledge of diagnosis and treatment for MSD
 - case management service





Injury Investigation

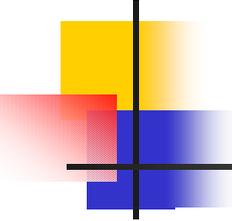
- What were the factors that contributed to the accident / injury or near miss
 - focus on safety management deficiencies that allowed the incident to occur
- What happened to threaten the resident or staff safety?
- What should have happened?
- What caused the discrepancy?
- What corrective actions will be taken?
- What is the follow-up plan and who will take responsibility for implementing corrective actions



Follow-up of Effectiveness

Are we getting the results we want?

- injury data (300 / 301 forms)
- worker compensation case data
- % compliance with SRH methods
- staff feed-back / perception of effectiveness
- quality of resident care



Positive Results...

CNA's say:

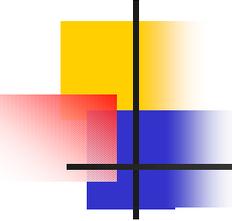
"I go home with less back aches and arm aches."

and

"The lifts have saved my back. I have a deteriorating disk. I wouldn't be working here anymore if we didn't have lifts."

and

"The lifts don't just help the CNA's, they help the residents too."



Injury Trend Analysis

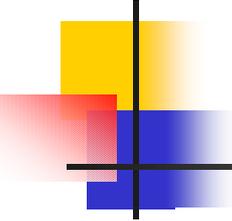
Calculations

TICR: (total injury case rate)

$$\frac{\text{total \# of injuries / area / year} \times 200,000 \text{ hrs. worked / 100 FTEE}}{\text{number of hours worked / area / year}}$$

Severity Rate:

$$\frac{\text{\# of WC lost days / area / year} \times 200,000 \text{ hrs worked / 100 FTEE}}{\text{number of hours worked / area / year}}$$



Cost Analysis Calculations

Cost Rate:

$$\frac{\text{\$ spent} / \text{area} / \text{year} \times 200,000 \text{ hrs. worked} / 100 \text{ FTEE}}{\text{number of hrs. worked} / \text{area} / \text{year}}$$

CCR: (Compensation case rate)

$$\frac{\text{\# of WC cases} / \text{area} / \text{year} \times 200,000 \text{ hrs. worked} / 100 \text{ FTEE}}{\text{number of hours worked} / \text{area} / \text{year}}$$

Costs / Benefits



Average cost of a disabling injury (NSC)

- \$ 30,000 - 33,000

Average worker comp. claim cost - \$20,000 (in MN)

Ergonomic interventions can reduce WMSD injuries up to 90% or more



Planning and Evaluation

Establish program goals

- based on current vs. past performance
- What activities will help accomplish the goals

(action plan to accomplish objectives)



Periodically review program effectiveness

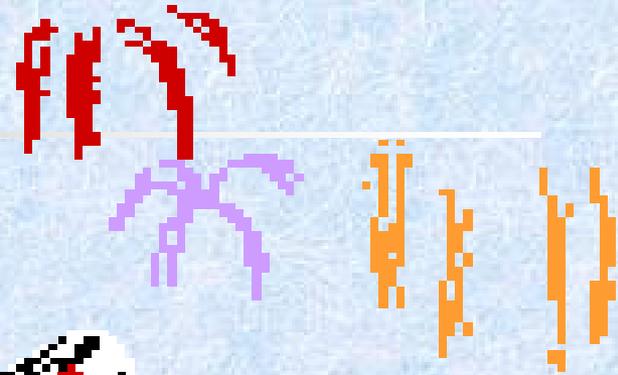
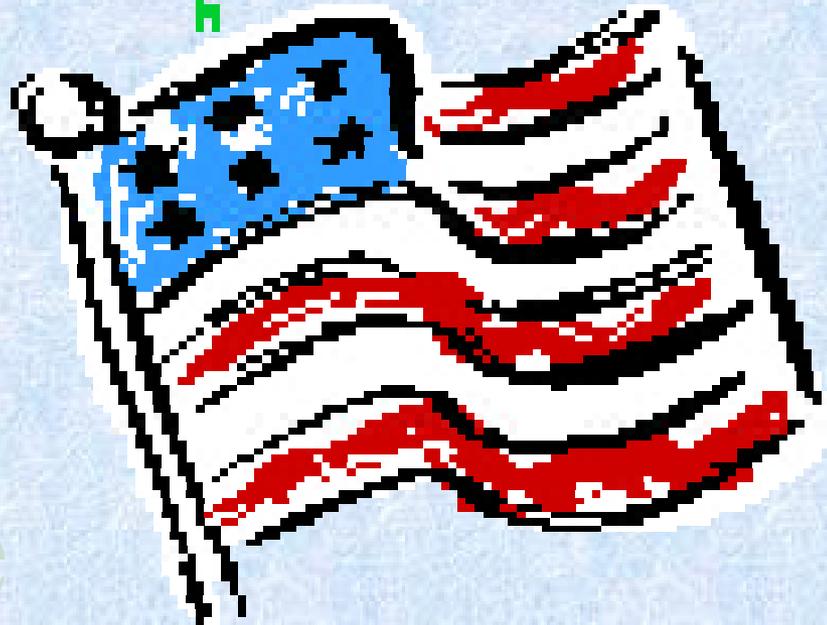
- Incidence rates
- MSD pain/discomfort
- Job satisfaction
- absenteeism
- adherence to policies
- cost benefits

References



- www.osha.gov
 - Nursing Home Guidelines
 - Safety and Health Program Management Guidelines
 - Nursing Home e-tool
- www.patientsafetycenter.com
- <http://home.earthlink.net/~nolifting/>
- MIOSHA – Reducing Risk in Long-term Care Facilities: Successful Implementation of No-Lift Policies
- Safety Management, Dan Peterson
- Safe Patient Handling Conference presentations
W. S. Marras, Ph.D., CPE; Audrey Nelson, Ph.D., RN, FAAN; Jay Bunke, Mayo Clinic
- Kodak's Ergonomic Design for People at Work

The End!



applause
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