Trinity Health

Safe Patient Movement and Mobility
The Trinity Health Journey

MHCSA Membership Meeting
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Trinity Health Overview

"We, Trinity Health, serve together in the spirit of the Gospel as a compassionate and transforming healing presence

PEOPLE-CENTERED CARE

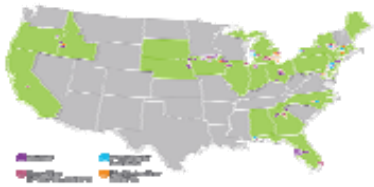
ENGAGED COLLEAGUES

OPERATIONAL EXCELLENCE
Strategic Focus #2: We will build an enterprise that uses our strengths

PHYSICIANS & CLINICIANS
All Strategic Focus Areas: We will collaborate with physicians

LEADERSHIP NATIONALLY

EFFECTIVE STEWARDSHIP
Strategic Focus #3: We will steward resources effectively to enable



93 Hospitals in 22 states
22 Clinically Integrated Networks
109 Continuing Care Locations
$17.6 billion Revenue
$1.1 billion Community Benefit Ministry
131K Colleagues
7.5K Employed Physicians and Clinicians
25.6K Affiliated Physicians

Patient Movement Injuries- The Statistics

Consequences of manual patient handling[3]

Increased costs: medical expenses, disability compensation, litigation

For the worker: chronic pain and functional disability, absenteeism, turnover, may be less productive, less attentive, more susceptible to additional injury, and more likely to affect health and safety of others.

For the patient:[4] falls, skin tears, joint dislocations, fractures, pain

$20B Back injuries alone represent direct and indirect costs of $20 billion per year in the healthcare sector.[3]

62% of surveyed nurses report that they have suffered a "disabling musculoskeletal disorder."[5]

8 in 10 surveyed nurses indicated that they work with musculoskeletal pain frequently.[5]

56% of surveyed nurses experienced musculoskeletal pain caused or made worse by the job.[5]

Safe Patient Handling- The Research

Many of the musculoskeletal (MSD) injuries occurring during the manual lifting, transferring, and repositioning of patients are preventable. (Waters)

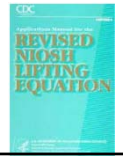
- Research has shown that mechanical lifting equipment, when incorporated into a Safe Patient Handling & Mobility (SPHM) Program, can significantly reduce MSD injuries among health care workers.

Safe Patient Handling- The NIOSH Lifting Equation

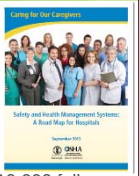
Application of the NIOSH Lifting Equation

The NIOSH lifting equation which is an ergonomic formula for assessing limits under a set of conditions was ***not*** intended to be applied to the lifting of humans. Despite this disclaimer Dr. Waters and others have used the equation to develop a **Maximum** Recommended Weight Limit (RWL) for the manual lifting of patients. The RWL is 35 lbs. when the task is performed under ideal circumstances (e.g. patient is not combative; lift is smooth and slow; lifting close to the body/between shoulder and knees/using neutral body postures; and "geometry" of the lift not subject to change). Given the fact that these conditions rarely exist, Dr. Waters and others have concluded that many patient handling lifting tasks are unacceptable.

Note: The lifting equation does not apply to pushing and pulling tasks.



Safe Patient Handling- OSHA Programs



Inpatient Healthcare settings continue to have some of the highest rates of injury and illness among all industries.

- Musculoskeletal incidence rate (2013) for hospitals (NAICS 622)- 69.0 per 10,000 full-time workers (2x greater than private industry)
- National Emphasis Program- Nursing and Residential Care Facilities (CPL-03-00-106) FY2012-2015
- Inspection Guidance for Inpatient Healthcare Settings (June 2015)
- OSHA's Worker Safety in Hospitals-Safety and Health Topics [MSD Self-Assessment Checklist, OSHA Road Map for Effective Safety and Health Management Systems in Hospitals, Safe Patient Handling Programs: Effectiveness and Cost Savings]

Safe Patient Handling- OSHA Program Elements

- MSD Assessment
- Management Support
- Policy/Program Development
- Facility & Patient Needs Assessment
- Facilitating Change
- Safe Patient Handling Equipment
- Education & Training
- Program Evaluation

Safe Patient Handling- Guidelines

- ANA Position (2008)- In order to establish a safe environment of care for nurses and patients, the American Nurses Association (ANA) supports actions and policies that result in the elimination of manual patient handling.
- AOHP Position Statement on Patient Handling (2004)- AOHP believes that manual patient handling is unsafe for the caregiver and patient. Such handling is also directly responsible for disabling back injuries and musculoskeletal disorders in nurses and other direct care providers.
- NIOSH Position- Even under ideal conditions, the weight of any adult far exceeds the lifting capacity of most caregivers, 90% of whom are female.

Safe Patient Movement and Mobility- "The Trinity Health Journey"

Laying the Foundation

- Establishing a patient movement equipment culture
- Unified coding and implementation of a system wide electronic incident reporting system (UAIR) [THEIR-Trinity Health Employee Incident Reporting] and uniform and defined coding (2010)
- Patient Movement Definition (2008)
- Established two ***Mandatory*** Safety Standards (2008):
  - No manual lifting of patients/residents/clients from the floor
  - No manual patient/resident/client movement requiring a force greater than 35 lbs.

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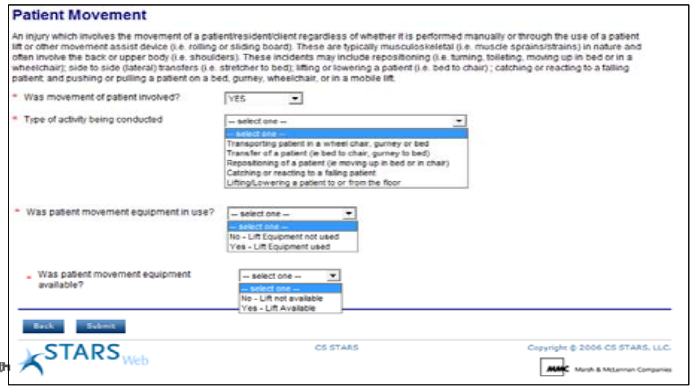
Trinity Health Employee Incident Reporting System



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Safe Patient Movement and Mobility

Laying the Foundation (Continued)

- Selection of preferred vendors through Supply Chain Management for movement equipment focusing primarily on powered patient movement equipment [ceiling lifts and mobile lifts]
- Provided and managed several projects through an internal grant program (TAL aka Venzke Grants)
  - Sent approximately 60 Employee Health Nurses, Nurse Managers and CNOs to the Annual Safe Patient Movement Conference.
  - Purchased, distributed and provided training for push/pull meters.
  - Ministry Projects- Early reporting and management of MSDs; implementation of a patient movement SIM lab and piloting of various lifting and movement equipment.

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Safe Patient Movement and Mobility

Laying the Foundation (Continued)

- Premium Discount Program (20% Premium Surcharge): Accountability Model based on program elements and outcomes.
  - Safe Patient Movement process- Documentation of program, procedures, algorithms, forms
  - Loss Control plans based on loss trending and analysis and accident investigation findings
  - Post-Incident Investigation- Monitoring of turn-around time and quality of investigation and corrective measures
  - Powered Equipment Inventory
  - Monitoring/trending of lift equipment usage leading to the underlying causes of non-use and improvement strategies.

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Safe Patient Movement- Pushing/Pulling Forces

- **Problem:** "Our nurses do not understand what 35 lb. of pushing and pulling force is so how do they know when to ask for help or use movement assist equipment."
- **Opportunity:**
  - Measure qualitative/quantitative forces for the most common patient movement pushing and pulling tasks. How many of these exceed the 35 lb. force requirement?
  - Every nurse needs to know what 35 lbs. of pushing and pulling force feels like (e.g. new employee orientation, "Safety Fairs", post-accident investigation).

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Pushing and Pulling- Ergonomic Considerations

- Coupling: Quality, width and coupling height above floor
- Repetition (e.g. 1 push/pull every 30 minutes)
- Distance: Feet traveled
- Distance from body (reaching)
- Type of Force (initial, sustained)
- Individual Capacity
  - Anthropometric Factors (height, size, limb length)
  - Muscle Strength
  - Tissue Strength
- Is there a vertical component?

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Snook and Liberty Mutual Psychophysical Limits

	Distance (ft.)	1 push/pull every 30 minutes*				1 push/pull once per 8 hours			
		Force (Initial)		Force (Sustained)		Force (Initial)		Force (Sustained)	
Coupling at shoulder level mm (in) Male 1440 (56.7) Female 1350 (53.2)		Push	Pull	Push	Pull	Push	Pull	Push	Pull
	7	55	55	37.4	35.2	59.4	57.2	46.2	44
	25	50.6	48.4	28.6	30.8	52.8	52.8	35.2	39.6
	50	44	41.8	24.2	26.4	46.2	44	28.6	33
	100	41.8	39.6	19.8	22	46.2	44	26.4	30.8
	150	41.8	39.6	17.6	19.8	46.2	44	24.2	26.4
	200	37.4	35.2	13.2	15.4	41.8	37.4	19.8	22
	Distance (ft.)	1 push/pull every 30 minutes*				1 push/pull once per 8 hours			
		Force (Initial)		Force (Sustained)		Force (Initial)		Force (Sustained)	
Coupling at elbow level mm (in) Male 950 (37.4) Female 890 (35.0)		Push	Pull	Push	Pull	Push	Pull	Push	Pull
	7	55	57.2	35.2	35.2	59.4	59.4	41.8	41.8
	25	50.6	50.6	28.6	30.8	55	55	37.4	37.4
	50	44	44	24.2	26.4	46.2	46.2	30.8	30.8
	100	41.8	41.8	22	22	46.2	46.2	28.6	28.6
	150	41.8	41.8	19.8	19.8	46.2	46.2	26.4	26.4
	200	37.4	37.4	15.4	15.4	41.8	41.8	19.8	19.8
	Distance (ft.)	1 push/pull every 30 minutes*				1 push/pull once per 8 hours			
		Force (Initial)		Force (Sustained)		Force (Initial)		Force (Sustained)	
Coupling at knee level mm (in) Male 640 (25.2) Female 570 (22.4)		Push	Pull	Push	Pull	Push	Pull	Push	Pull
	7	44	59.4	30.8	30.8	46.2	61.6	37.4	39.6
	25	44	52.8	26.4	28.6	46.2	57.2	33	35.2
	50	37.4	46.2	22	24.2	39.6	48.4	28.6	28.6
	100	35.2	44	19.8	19.8	39.6	48.4	26.4	26.4
	150	35.2	44	17.6	17.6	39.6	48.4	24.2	24.2
	200	35.2	39.6	13.2	13.2	35.2	44	17.6	19.8

Push/pull forces have been developed based upon the strength design goals acceptable to at least 75% of the exposed population.

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Pushing and Pulling Forces

"Remember that pushing and pulling is fun"

- **Q**: Define the goal of the measurement: What information needs to be collected and how will it be used?

  A: Qualitative and quantitative forces and what influences that force will be used to determine program, equipment and education needs.
- **Q:** Who will collect the measurements and what equipment will be used?

  A: One person at each facility will be identified to take the measurement. The equipment used must be portable, durable, and easy to use and interpret. Grant money was used to pay for the equipment and training.

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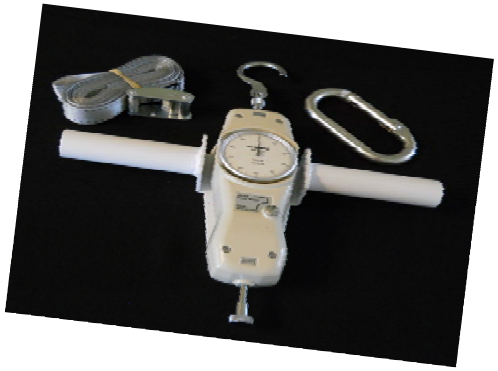
Push/Pull Meter and Accessories

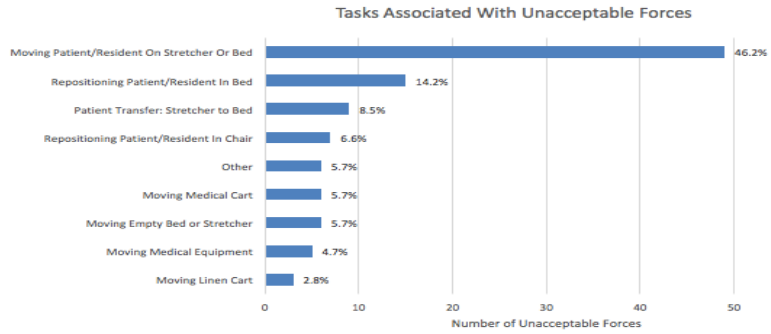
- Mechanical Force Gauge (Accuracy of ±0.3%)
- Several adapters came with the meter
- Added a mounted handle, strap and clip
- Added a carrying case

Note: Training developed by both Trinity Health and Humantech was provided to each associate assigned to take measurements.



Data Summary and Analysis

- **Hundreds of measurements were recorded. Approximately 31% were above the 35 lb. force requirement**.
- Many of the tasks exceeding the 35 lbs. could be modified to achieve the force requirement (e.g. addition of a second HCP, reduction in friction through the use of a slide sheet or sliding board, using gravity by using equipment features, or using slower, smoother coordination of the task).
- For carts and beds, rolling on carpeting added up to 3-5 lbs. of additional force.
- Given the established psychophysical limits, measurements taken and what we know about caregiver pushing/pulling tasks, 35 lbs. still seems to be a good requirement for a single caregiver (two handed operation).



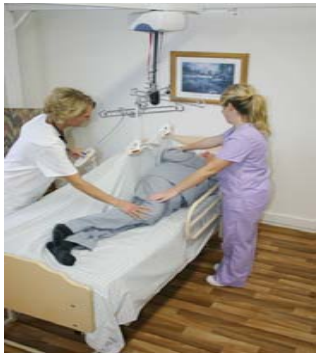
Lateral Transfer and Repositioning Equipment

Air-Powered Transfer Device

Friction Reducing Slide

One way slide

Lateral Transfers and Repositioning



Hovermatt Single Use
Air Transfer and Sling System

What do we know & what have we learned?

- Manual patient handling can easily exceed the muscle strength and tissue tolerance limits for caregivers.
- Safe patient handling and movement using technology (ceiling lifts) **is effective in preventing musculoskeletal disorders (MSDs).**
- There is **no safe way to manually lift a fully dependent patient**, even with two caregivers.
- Reliance on body mechanics alone is **not safe** and **does not prevent MSDs** [However, neutral body posture needs to be practiced even if lift equipment is being used.]
- Care must be taken to avoid transferring risk from compression loading to shear loading.
- There is not one “Best Practice.” There are many “Best Practices.”

Opportunities for Future Research & Consideration

- The Cultural Framework (HRO, Just Culture, Change Management)
- Leadership: Commitment and Accountability
- **Compatibility** of equipment in the planning process
- SPM Competency Training for Physical Therapist and Nurses required to manage SPM programs
- The role of ergonomists and human factors in the design of facilities and equipment
- **Engagement and motivation of nursing staff**
- **Integrative** and **collaborative** approach toward every element of SPHM program
- Standardization of sling design
- Durable vs. single-use slings/devices