

Reduced Musculoskeletal Disorder Risk by 30%



Trinity Health was formed in 2013 by the merging of two national Catholic health systems: Trinity Health and Catholic Health East. Today, it is one of the largest Catholic health care delivery systems in the nation serving communities in 21 states, with 90 hospitals and 120 continuing care locations.

Like many health care institutions, there was a concern at Trinity Health about patient handling and its impact on employee health and safety. According to NIOSH, "The single greatest risk factor for overexertion injuries in health care workers is the manual lifting, moving and repositioning of patients, residents, or clients."

"Nurses deal with forces most industries won't tolerate," says Teresa Fisk, non-clinical loss control director at Trinity Health. So, how do you design a safer environment when you can't change the cause of the problem (excessive forces)? This question launched Trinity's training program two years ago.

Fisk and the risk management team took the 35-pound recommended weight limit established by NIOSH and applied it as a recommended force level for pushing and pulling tasks. Fisk stated "Our nurses told us they struggle with knowing what 35 pounds feel like when pushing, pulling, and repositioning patients laterally. It was apparent that we needed to train them on force limits. We also needed to empower them to use safe patient movement equipment or to ask for help when handling forces greater than 35 pounds."

Training nurses, physical therapists and safety personnel to recognize force limits was the first step in reducing injury rates. Next, the following force measurement procedures were established:

1. Select a simple, easy to use and read force gauge for each site.
2. Designate and train one individual at each site to take the measurements.

3. Measure both qualitative and quantitative pushing and pulling forces of the most common patient movement tasks.
4. Identify and/or modify the tasks requiring forces of 35 pounds or more.

Each site received what Trinity called "a little red bag" stocked with the tools needed to take measurements. "We wanted each site to have the same tools. Since we're measuring movements with high forces, the meter had to have good handles to prevent it from slipping from someone's hands. We found a device that did not require batteries or factory calibration and hired a vendor to mount a handle on each side. Included with the force gauge was a clip to secure the meter to a transfer sheet, a measuring tape, and other coupling attachments," explained Fisk.

After the care staff professionals were trained on how to recognize and measure pushing and pulling forces, they were required to measure at least ten tasks, take three readings of each task, and then enter the data into a standardized data collection form.

The tasks posing the highest risk were measured first. Of the thousands of measurements taken, 30 percent yielded forces greater than 35 pounds. "We discovered that many tasks could be modified to achieve the force requirement. In fact, half of the 30 percent could get below 35 pounds with a simple modification. Less than 10 percent of the tasks analyzed needed a significant change or redesign," says Fisk.

Fisk sought the help of VelocityEHS to analyze the measurements of the top 30 percent. The tasks generating the most force were identified and a prioritized improvement list was established.



The top tasks associated with the highest forces:

- Moving a patient to a stretcher or bed (46.2%)
- Repositioning a patient in bed (14.2%)
- Transferring a patient, for example from a stretcher to a bed (8.5%)
- Repositioning a patient in a chair (6.6%)

Lifting, pulling, and pushing tasks with unacceptable forces:

- Pulling tasks (59.4%)
- Pushing tasks (36.8%)
- Lifting tasks (3.8%)

Hand height ranges associated with unacceptable forces:

- 38 - 49 inches (53.8%)
- 24 - 37 inches (40.6 %)
- 50 - 62 inches (4.7%)
- Less than 24 inches (0.9%)

The results also reminded the team of basic patient handling concepts. “No matter the task, force is higher if the wheels (on carts or beds) are working against you or if the handle height is not adjustable. When tasks are done quickly, the force increases significantly. We see more accidents when people are in a hurry or when using jerky movements,” Fisk continued.

Approximately 100 nurses and care staff professionals were trained during the first rollout. This training continues at safety fairs and internal department meetings. Fisk concludes “This program taught people what excessive forces feel like. It empowered our nurses to employ safer handling techniques and to use assistive devices when needed. Our next frontier is to fine-tune the analysis so we can either eliminate or change the tasks that have forces that greatly exceed 35 lbs.”

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