



# Replacing Restraints with Electronic Sensing Reduces Resident Falls and Enhances Patient Dignity

*Sally Denton, BSN, RNC*

**R**esident safety is a vital care issue in nursing homes. The challenge to protect residents from falling, which can cause injury, has increased since the late 1980s when regulations mandated reduction in use of controversial restraints to keep residents from standing up out of beds and wheelchairs.

Historically, physical restraints were used to try to keep residents safe in healthcare facilities. In recent years, however, the healthcare community has recognized that doing so can be dangerous.

Bed rails have proved particularly onerous. Between 1985 and 1999, for example, 371 incidents of individuals caught, trapped, entangled, or strangled in beds with rails were reported to the US Food and Drug Administration (FDA).<sup>1</sup> Of those incidents, 228 people died, 87 had nonfatal injuries, and 56 were not injured, because staff intervened. Most were frail, elderly, or confused. The potential for falling increases with the age of the patient.<sup>2</sup>

The nursing home industry has

made great strides in reducing the use of bed rails, a process with which many hospitals still are dealing.

## **Success Story**

St. Joseph's Care Center in Spokane, Washington, has a goal to reduce/eliminate the use of bedside rails, which are classified as a restraint. St. Joseph's is a skilled nursing and rehabilitative facility established in 1935 by the Sisters of Providence. It has a staff of 220 and provides skilled nursing and rehabilitation for those recovering from an illness or accident during the period between hospital and home. It also offers long-term care for disabled individuals and the elderly who need full-time support and assistance.

St. Joseph's policy is not to admit a resident unless the individual has been out of restraints for at least 48 hours. This policy increases the chances that the resident can be managed using acceptable facility interventions.

Instead of using restraints, staff members conduct a successful falls reduction program that employs electronic sensing to monitor residents identified as being at risk of falling. The system alerts nurses if a resident is about to stand up out of a bed or wheelchair.

Upon check in of a resident, staff members conduct a comprehensive assessment to measure cognitive condition and risk factors. Included in the evaluation are items, such as sensory and perceptual capacity, mood and behavior, mobility, continence, medications, range of motion, and history of falls, among others. The results dictate the need for monitoring the resident to reduce the risk of falling.

The first monitoring system that was used at St. Joseph's between 1998 and 2000 consisted of a battery-powered alarm box attached to a bed or a wheelchair. A string-like wire, inserted into the box, was clipped to the patient's clothing. If a resident leaned away from the box, the wire pulled out of the box, which then sounded a shrill alarm to alert staff that the resident was in a position that might result in a fall.

While initially promising, the system was far from foolproof in the long run. Among the problems encountered, residents resisted having the wire clipped to their clothing. Staff observed that many residents felt there was a stigma on them by being attached to a monitor by a wire that was visible to others. Many residents at St. Joseph's are able to be in wheelchairs in various areas of the center, and the wire made them self-conscious when they were among other residents.

As a result, residents would circumvent the system—often in innovative

ways. Aside from simply disconnecting it, some actually removed their top garment to which the wire was clipped so they could stand up, or they would learn to maneuver their bodies to get their feet on the floor without moving the upper torso enough to detach the cord.

In some cases, if a nurse forgot to switch on the battery box, it failed to sound an alarm if the wire was detached. Even with the alarm active, nurses often could not reach the resident quickly enough after being alerted, because the resident already was in a standing position out of the bed or chair.

### Unobtrusive Monitoring

In early 2000, staff began to search for a better monitoring alternative. Quality of life and dignity of the resident is foremost in St. Joseph's operating philosophy. Staff sought to eliminate the attached wire and have a system that was continually active and would sound an alert actually before the patient's foot touched the floor to give staff adequate time to respond.

After testing several alternatives, St. Joseph's installed in September 2000 the Bed-Check® monitoring system (Bed-Check Corporation, Tulsa, Oklahoma). Products by Bed-Check Corporation have shown to reduce falls by more than 50 percent.<sup>3</sup>

The system includes the following components:

- A disposable, thin, heat-sealed, pressure-sensitive strip, which a staff person positions under the bed sheet or on a wheelchair cushion. It senses movement by the occupant and transmits a signal if the weight of the person is removed from the mat.
- The strip is plugged into a control unit that can trigger an audible alarm and/or transmit a call to a nursing station. The unit is AC powered and is programmable for alarm sound or music, intensity, and delay time. It also can be programmed with patient identification and provide a record of the previous 24 alarms with computer output.

St. Joseph's currently uses 50 units, including 10 that are stationary units plugged into walls adjacent to beds and 40 portable units. The portable units can be interchangeably affixed to either a bed or a wheelchair with Velcro®, which provides greater flexibility and reduces the quantity of units required in a facility, such as St. Joseph's, where patients are more mobile.

### Reducing Falls

Cathy Mindemann, RNC, Nurse

Manager, who has been at St. Joseph's for eight years, describes the issue succinctly in staff training sessions saying, "Regardless of any perception caregivers may have that fall occurrences can be totally eliminated, that won't happen. There always will be an aberration. But we have decreased falls and injuries significantly in the last three years since installing the Bed-Check system."

The challenge is to manage the risk and reduce the incidents.<sup>4</sup>

With the previous system, people actually injured themselves in the struggle to detach from it. Such incidents no longer occur, because residents ignore their monitors. The fact that the system is self activating eliminated the prior problem of alarms not being turned on. Most residents do not have the physical ability to deactivate the system. In fact, because the sensor is unobtrusive, coupled with orientation and education, patients feel comfortable with it.

### Education

Carol Belton, RNC, is St. Joseph's Education Manager. She oversees formal training of staff, which includes an instruction video provided by Bed-Check, as well as hands-on demonstrations on proper installation of the sensing strip and control unit.

Staff members are required to explain the system to each resident and family members during the admission process as well as on a quarterly basis as part of St. Joseph's quality assurance program.

When the system was first applied, educating staff on the transition to the alert system was easy because staff had been accustomed to working a monitoring system. They readily accepted the new concept when the benefits were explained.

### Favorable Cost

Initially, staff members were concerned about costs, including the upfront investment in the system and the costs for replacing the disposable sensing strips. However, based on three years of operation, St. Joseph's has not gone over budget. In fact, the facility has realized cost efficiencies by eliminating the maintenance on the prior units and reducing patient injuries.

Perhaps even more significant is the fact that the nursing staff trusts the system, and residents are comfortable with it, which meets the goal to reduce incidents while ensuring dignity for residents.

### References

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Sally Denton, BSN, RNC, is the President/Administrator of St. Joseph Care Center in Spokane, Washington. Her nursing experience includes six years as the past Director of Nurses at St. Joseph's and greater than 20 years of nursing experience in acute and home care. She may be contacted by e-mail at [dentons@shmc.org](mailto:dentons@shmc.org)

