



ROTEC

Enhancing Safe Patient Handling Outcomes with the VersaDrive Assist System

Safeguarding Patients and Caregivers by
Reducing Physical Strain During Transport



Safe Patient Handling Beyond Lifts and Transfers

Safe patient handling is a priority for healthcare leaders, but it remains a persistent challenge, especially for caregivers who move and transport patients throughout the day. From repositioning patients in bed to transporting them to the OR and other care areas, these routine tasks place significant physical demands on nurses and other frontline staff.

Hospitals often focus on lifting, repositioning, and transfers, but the routine demands of patient transport contributes greatly to caregiver strain. Over time, the repeated physical burden of moving bedridden patients can lead to overexertion, musculoskeletal (MSK) injuries, missed work, and added operational pressure on care teams.

Protecting caregivers is essential to safer, more consistent patient care. As hospitals look for new ways to reduce risk, bed mobility and equipment design have become increasingly important considerations. Motorized drive-assist systems for hospital beds can help reduce physical strain during transport, supporting safer movement and stronger handling workflows across bariatric and med-surg environments.

The Physical Toll of Safe Patient Handling

Caregiver injuries are an ongoing concern across healthcare settings, particularly where patient handling tasks place physical demands on nurses and other frontline staff.

According to the Bureau of Labor Statistics, registered nurses are injured on the job at a significantly higher rate than workers across all occupations; 51% of those injuries result in sprains, strains, or tears that require a median of seven days away from work for recovery.¹

Federal safety guidelines echo the broader concern. The CDC identifies overexertion as a major source of work-related musculoskeletal disorders (MSDs) in healthcare.² OSHA adds that nursing aides have the second-highest reported cases of MSDs; they further note that back injuries alone cost the healthcare industry an estimated \$20 billion each year.³

Combined, these risks make safe patient handling more than a workforce concern. Caregiver injuries increase operational strain, disrupt staffing, and make it harder for healthcare organizations to deliver consistent, safe patient care. Protecting caregivers is essential to improving overall patient handling outcomes.



Registered nurses are injured on-the-job more than any other industry - more than twice as often as construction workers⁶

51% of nursing injuries result in muscle strains, sprains, or tears¹

Handling Challenges Across Bariatric and Non-Bariatric Care

Safe patient handling challenges happen across hospital care settings. Hospitals need equipment that can support patients across a wide range of care needs, mobility limitations, and body sizes without placing undue strain on the staff who care for them.

The need for better equipment is especially visible with bariatric care. Caring for obese and bariatric patients can increase physical strain on staff, and contribute to MSK pain that interferes with their ability to work.⁴ Higher-capacity care frequently requires equipment that can do more without adding unnecessary burden to patient care. But these concerns aren't limited to bariatric care. Non-bariatric care also involves repeated patient movement and bed handling throughout the day, creating ongoing physical demands for nurses, aides, and other frontline staff.

For healthcare organizations eager to improve safe patient handling, an important step is supporting safer movement across the full range of patient care.



Ergonomic guidelines limit manual pushing and pulling force to 44 lbs/20 kg

Bed Mobility and Caregiver Safety

Lifting, repositioning, and transfers are often the focus of safe patient handling efforts, but bed movement is just as important. Caregivers are routinely tasked with pushing, steering, stopping, and maneuvering beds through corridors, around corners, and between care areas while maintaining control of both the bed and the patient in it.

Ergonomic guidance recognizes that pushing and pulling heavy equipment creates significant physical demands on healthcare workers; guidelines recommend limiting manual pushing and pulling force to no more than 44 lbs/20 kg.

Everyday strain increases when staff are moving occupied beds, navigating ramps, working in tight spaces, or transporting patients who need higher-capacity support.

Recent research found that motorized drive assistance, including electric drive wheels, reduced hand forces by 22%, spinal compression by 20%, and perceived exertion by 69% during hospital bed transport by nursing staff. Shoulder, neck, and lower-back muscle activity also decreased significantly, illustrating how drive-assisted transport can make bed mobility less strenuous for staff and support safer patient handling.⁵

Reducing Strain During Bed Transport with Rotec's VersaDrive System

With Rotec's VersaDrive system, available on the VersaTech Bariatric 1100 and VersaTech Med-Surg XL bed models, bed transport is easier and more controlled for caregivers.

Rotec offers the world's lowest-profile and lightest bariatric hospital bed on the market. Even when equipped with the optional VersaDrive system, it weighs 254 pounds less than the next-lightest drive-equipped bariatric bed.

As a motorized drive-assist system, VersaDrive reduces the manual effort required to move beds throughout the care environment, supporting smoother, simpler movement during everyday care.

Integrated sensors detect the caregiver's walking speed, intended direction, and whether the bed

needs to move forward or backward, allowing for more natural movement while reducing the force required to transport patients safely. This added support makes transports feel smoother and less physically demanding, especially when staff are moving occupied beds or navigating tight care spaces.

Automatic braking adds another layer of control by bringing the bed to a full stop when the footboard is released, instantly eliminating the effort needed to manually bring the patient and bed to a standstill.

Importantly, the VersaDrive system doesn't add bulk beneath VersaTech beds. It helps ensure Rotec beds maintain their signature low-profile builds, supporting safer, more efficient bed transport while reducing strain on caregivers during everyday movement across the care environment.



Drive-Assisted Mobility Across Care Settings

Motorized drive assistance, when combined with bed designs that reduce handling burden, is key to reducing caregiver injury risks. In bariatric care, a lighter bed like Rotec's VersaTech Bariatric 1100 is already easier to move, steer, and control. When paired with Rotec's patented VersaDrive system, meeting safe ergonomic standards while still supporting high-capacity patient needs becomes much easier.

Rotec's VersaTech Med-Surg XL model extends these benefits into broader hospital use. With its wider frame, 700 lb load capacity, low-profile build, and optional VersaDrive system, the bed helps facilities support patients of all sizes without adding unnecessary strain during routine bed movement.

With both models, the value to patients and caregivers is clear: drive-assisted mobility supports safer, more manageable movement with far less risk.

Driving Safe Patient Handling and Caregiver Safety

Safe patient outcomes are shaped by patient needs and the physical demands placed on the caregivers who support them every day. Reducing those physical demands is vital to delivering safer, more consistent, compassionate care.

In busy healthcare environments where safe handling remains a struggle, drive-assisted mobility systems can help improve outcomes for patients and caregivers alike. By making bed transport easier and more controlled across bariatric and med-surg settings, Rotec's VersaDrive system helps reduce caregiver strain while supporting safer patient movement.





About Rotec

With over 40 years of dedication to applying industry best practices in close collaboration with healthcare professionals, Rotec consistently meets the highest standards of care. We firmly believe that patients and their families deserve nothing but the best care, maximum comfort, autonomy, and dignity. We understand that nurses and caregivers rely on equipment that provides them with the confidence and security to deliver optimal well-being to their patients. Our patented innovations stand as a testament to our unwavering dedication and expertise.

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