



ROTEC

SAFE PATIENT HANDLING STARTS AT THE BED

| How Modern Med-Surg Design Reduces
Falls, Injuries and Caregiver Strain



Patient handling continues to be one of the most common sources of injury in healthcare environments. Manual lifting, repositioning, and patient movement are consistently identified as leading contributors to musculoskeletal disorders among caregivers, often resulting in injuries that require days away from work.¹

Across healthcare settings, overexertion related to patient handling resulted in one-third of all nonfatal occupational injuries, contributing to lost workdays and staffing strain.² Nursing assistants experience particularly high rates of musculoskeletal injury, exceeding the all-industry average and reflecting the physical demands of routine bedside care.³

Hospitals invest significant effort in safe patient handling programs, staff training, and lift equipment. Even with these measures in place, many safety risks emerge during

everyday care activities because choices made long before care is delivered significantly impact patient outcomes and workflow efficiency. Safe patient handling begins not with training manuals, but with the equipment used during every bedside interaction.

The choice of hospital bed exemplifies this principle in practice. Bed height, stability, rail behavior, and movement characteristics influence whether routine tasks can be carried out smoothly or require additional effort to manage. Patient safety is also at stake.

Supporting Safe Movement in Everyday Care

Providing care often means helping patients move safely through moments that can feel uncertain or physically challenging. Some patients need more assistance to reposition, transfer, or stand, whether due to size, limited mobility, or clinical condition. In these moments, the physical demands on caregivers increase, along with the risk of strain or injury.

Musculoskeletal pain affects a substantial proportion of hospital nurses, with more than half reporting pain within a one-year period and over one-third indicating that pain interfered with their ability to work.⁴ Injuries most often develop through repeated, routine care activities rather than isolated incidents.



When patients need more physical assistance, caregiver injuries rise.

Falls add another layer of complexity, particularly for patients who need additional support to move safely. Studies examining inpatient falls indicate that patients classified as obese account for a disproportionate share of fall events in hospital settings.⁵ When falls occur, recovery is often more difficult, and hospital stays may be extended, increasing both clinical risk and emotional stress for patients and their families.



WHAT HOSPITAL BED FEATURES IMPACT PATIENT SAFETY?

- **Height from frame to ground**
- **Stability of the frame**
- **Strength and reliability of the bed rail**

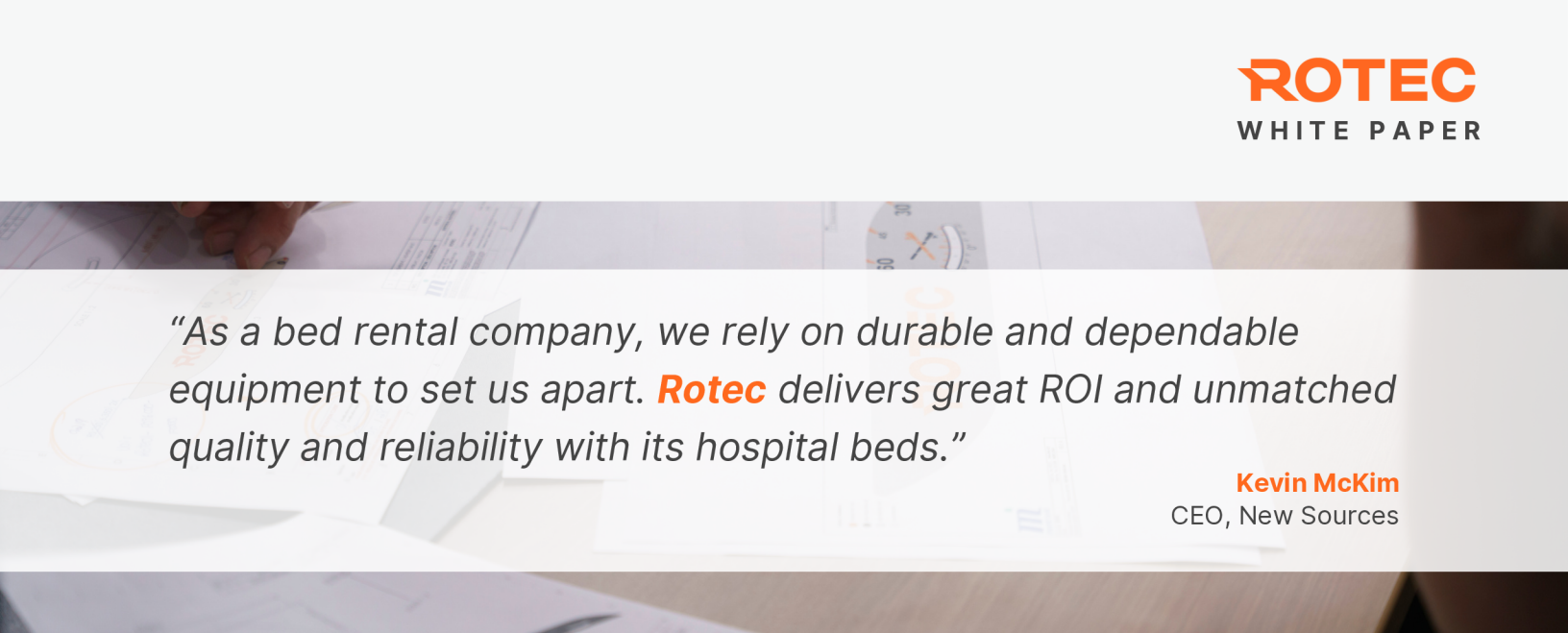
Extended hospital stays carry real consequences. Each additional inpatient day adds significant cost and may not be reimbursed when associated with preventable events.⁶ When recovery is delayed, patients may require additional support to resume movement and daily activities safely.

Across care scenarios, the goal remains consistent: support safe movement while protecting the people providing care. Equipment that reduces the need for lifting, bracing, or constant adjustment helps caregivers stay steady, present, and focused on the patients in front of them.

How Bed Design Affects Safety in Real Clinical Use

Research and industry guidance point to several bed characteristics that influence fall risk and caregiver strain.

Maintaining beds in their lowest position has been shown to reduce fall-related injuries in acute care settings significantly.⁷ Ultra-low bed heights allow patients to place their feet firmly on the floor before standing, supporting safer sit-to-stand transfers. When falls occur, shorter distances to the floor help limit injury severity.



*“As a bed rental company, we rely on durable and dependable equipment to set us apart. **Rotec** delivers great ROI and unmatched quality and reliability with its hospital beds.”*

Kevin McKim
CEO, New Sources

Stability plays an equally important role. Beds must behave consistently under both standard and higher-capacity loads during repositioning, transfers, and transport. Equipment that flexes, shifts, or responds unpredictably forces caregivers to adjust their bodies and movements in real time, increasing physical strain and the likelihood of injury.

Side rail performance also shapes safety. Rails that engage smoothly and reliably support patient stability without interfering with care activities. Controls that are clear and easy to reach allow caregivers to adjust bed position while maintaining visual contact with the patient, supporting safer movement and greater confidence during care.

Bed behavior during routine use influences not only outcomes, but how secure and manageable care feels from moment to moment.

Safer Bed Design in Everyday Med-Surg Care

Rotec's VersaTech Med-Surg beds safeguard patient and caregiver safety through engineering choices focused on stability, predictability, and ease of use in everyday clinical environments.

Rotec's Med-Surg beds feature ultra-low profiles that reach just 8" from the floor at the lowest height, supporting safer transfers by allowing patients to plant their feet firmly on the ground before standing. Caregivers can lower the bed to establish stability, then raise it gradually to assist the patient into a standing position. If falls do occur, reduced deck height limits injury severity, with shorter fall distances than many competing designs.

Designed with Med-Surg in mind, Rotec's rugged rigid frame construction supports consistent performance under both standard and higher-capacity loads. Predictable behavior during repositioning and in-bed movement reduces the need for caregivers to lift, brace, or stabilize patients manually, helping to limit cumulative strain over the course of a shift.

Ease of use supports consistency across care teams. Intuitive controls and predictable motion shorten training time and promote uniform use across shifts. Optional motorized drive assistance further reduces physical effort during transport while preserving the same low profile and under-bed clearance.

Beds that perform reliably during everyday use empower caregivers to focus on patients rather than equipment.

Moving Beyond Initial Deployment

Hospital beds remain in constant use across shifts, patient populations, and care scenarios. Decisions made at the time of selection continue to shape safety outcomes long after installation.

Equipment that holds up under demanding conditions is more likely to behave the same way every day, supporting safer handling practices and reducing avoidable risk over time. Rotec's thoughtful bed construction delivers over 10 years of reliable, patient-centric performance, even under the most challenging conditions.

A Design Philosophy Rooted in Care and Reliability

Safe patient handling is shaped by thousands of small moments that happen every day at the bedside. As patient acuity increases and caregiver injury rates remain high, equipment reliability becomes a frontline safety issue. Falls, caregiver injuries, and extended hospital stays are closely tied to how safely patients can move during routine care.

Evidence consistently links lower bed heights, structural stability, and predictable motion to reduce fall risk and lower caregiver strain. Equipment designed around these principles supports safer mobility for patients and allows caregivers to do their work with greater confidence and less physical stress.

Rotec's approach to bed design is grounded in thoughtful engineering, build quality, and long-term performance under demanding conditions. Every design decision for our VersaTech Med-Surg and bariatric beds was made to support consistent, predictable behavior in real clinical use.

With an unwavering focus on reliability and durability, Rotec builds equipment caregivers can trust to support safe patient handling, day after day, across shifts, patients, and care environments.

When evaluating equipment for safe patient handling, hospitals should consider whether it:



Performs consistently across patient sizes and acuity levels



Reduces physical strain during routine repositioning and transport



Maintains stability and predictable motion over years of use



Supports fall prevention and early mobility efforts without adding complexity



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 optimum well-being to their patients. Our patented innovations stand as a testament to our unwavering dedication and expertise.

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Sources

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