

Side rail design

Ergonomic bed side rail design provides accessible grab points to facilitate mobility and safe bed egress for both the patient and the caregiver. Additionally, providing well-designed siderails as a means to allow patients to use their hands and arms in the process of standing will further facilitate the standing task, improving safety and increasing independence.

Further consideration of proper upper limb motion strategies and positioning during patient rise, particularly when considering the deficits of the person, may present a realistic and viable strategy to enhance mobility practices. ProCuity can provide the multiple siderail grip point options for patient ingress or egress:



For patient ingress, with ProCuity's siderails in the intermediate position, the caregiver can line up a patient's hips with the middle of the bed, **keeping the patient in a centered position** to help reduce additional boosting to position patient in bed.

For patient egress, ProCuity's **intermediate side rail position** also allows for patients to pivot their hips directly from the bed frame and **access two sturdy grip points**.

If balance is a greater issue than strength, consider the push – pull aspect of a **vertically positioned side rail** as this can **assist with balance** issues more than strength¹³.

References

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Increasing mobility

Ergonomic design
of ProCuity™

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As research increasingly supports the critical need for mobilizing hospitalized patients, the demand on caregivers to assist patients with movement and mobility also increases¹. As typical of the hospital setting, patients often depend on their caregivers for mobility needs, and these physical demands consequently place risk on both the patient and nurse. This document discusses the **features and technology of ProCuity** to help increase **patient mobility from an ergonomic perspective**.

Two distinct actions must be considered when attempting to facilitate bed egress:

Supine to sit | Sit to Stand

Supine to sit

The first action of the bed egress task involves the supine to sit and rotate action². This bodily movement requires trunk flexion and rotation to position the body to assume the subsequent standing posture. Based on the hospitalized patient’s condition, trunk strength, coordination, and balance all may be compromised, impairing the patient’s ability to perform the supine to sit action and altering their movement patterns³. Once one of the trunk of the body is elevated from a supine position, the patient will have easy access to ergonomically design siderails.



Assistance with this first phase of supine-to-sit can be achieved with the adjustment capabilities of the bed frame, in which the head of the bed can be elevated. **65 degrees of head of bed elevation is recommended.**

This encourages the patient to use their **upper limbs to aid in the completion** of the rise to a sitting position, as well as the **rotation of the trunk when pivoting their legs** over the edge of the bed and onto the floor.

Sit to Stand

The second action of bed egress requires standing from a seated position on the side of the bed. Studies conducted on the sit to stand motion have indicated that the optimum seat height to **facilitate the standing process is slightly above knee height, with feet placed flat and firmly on the floor⁴⁻⁵. This height allows for a desirable knee angle, slightly above 90 degrees**, as it provides good positioning for effective muscle use⁶⁻⁷. Additional studies have provided specific recommendations about optimum heights of hospital bed surfaces to facilitate standing⁸⁻¹¹. These recommendations indicate an average **target height of 21.3 inches for men and 19.49 inches for women.**



21.3 inches for men and 19.49 inches for women

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To encourage mobility, it is important for a bed frame to easily achieve the aforementioned proper height. The patient assist button located on both siderails helps to put patients in an optimal position to leave the bed - **a position designed to meet the specifications of the average population.** This is an important feature to use for patients struggling with mobility, or when the bed has been placed in low height.

