

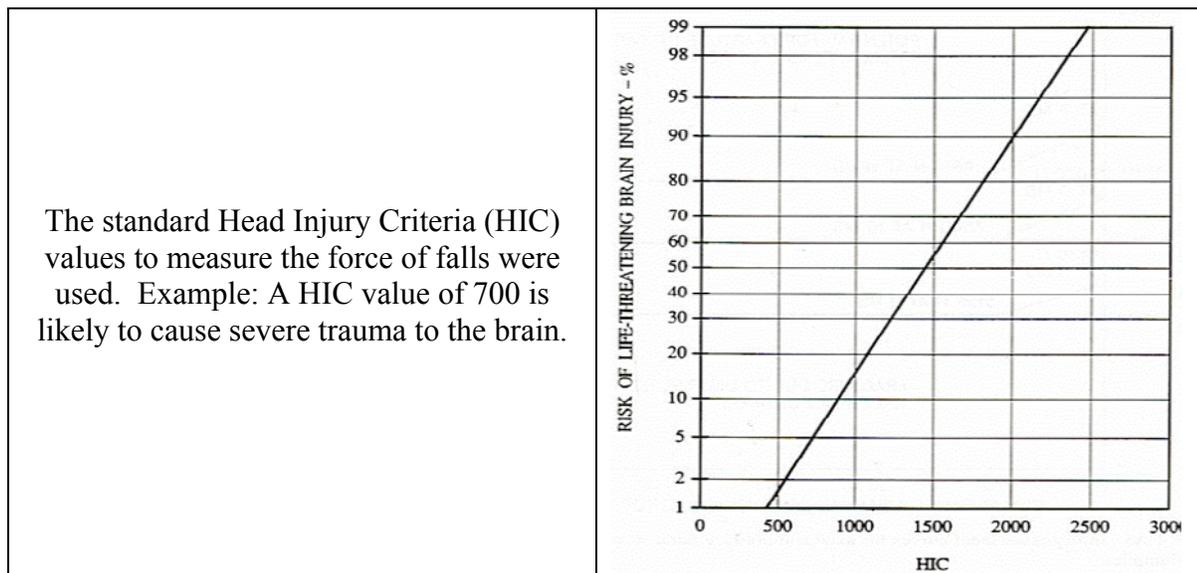
Biomechanical Evaluation of Bedside Mats (and helmets) for Fall Injury Prevention

Selected excerpts from research presented by John Lloyd, PhD, CPE, and Brian Schulz, PhD, at the "Transforming Fall Prevention Practices" Conference, Clearwater, FL, April 2008

Method:

Using a crash-test dummy and computer simulated biometrics to introduce a wide range of movement, positioning, force and cushioning variables, the effectiveness of the SmartCells bedside fall protection mat technology was measured.

144 different trials were completed, employing variable bed heights (13-39 inches), a variety of impact surfaces, and head-first and feet-first fall directions.



Conclusions / Results:

NO Flooring Protection

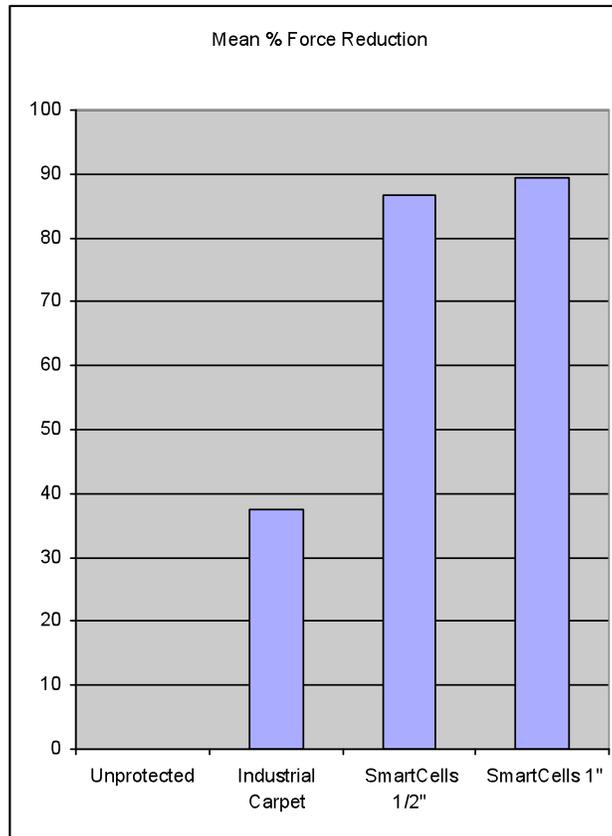
1. A feet-first fall from a bed (most likely scenario) with NO floor protection has an approximate 25% likelihood of causing severe brain damage.
2. A feet-first fall from a bed with bed rails, and NO floor protection has an approximate 40% likelihood of causing severe brain damage.

WITH Flooring Protection

1. A feet-first fall from a bed (most likely scenario) WITH floor protection has a less than 1% likelihood of causing severe brain damage.
2. A feet-first fall from a bed with bed rails, WITH floor protection has a less than 1% likelihood of causing severe brain damage.

Using mechanical devices to measure energy dampening properties of materials, SmartCells was shown to likely protect from injury with a significant Mean % of force reduction.

Flooring Surface	Mean % of Force Reduction
Unprotected	0
Industrial Carpet	37.46
SmartCells ½"	86.71
SmartCells 1"	89.34



Recommendations:

1. Discontinue the use of bedrails because of the increase of serious risk of injury by increasing the height of falls over bedrails, and because they can entrap patients.
2. Use height adjusted beds to lower potential impact acceleration and forces.
3. Use a floor mat, and extend in length and width (cushioned flooring).

Other factors to consider in cushioned floor materials:

1. Infection Control / ability to be cleaned
2. Stability when walking / standing on surface
3. Slip / trip potential
4. Weight – if mat is to be moved