Long Backboard Use for Spinal Motion Restriction

Clinical Significance Long backboards (LBB) continue to be applied for spinal motion restriction (SMR) in trauma patients despite a lack of substantiated benefits. Judicious use of the LBB necessitates that healthcare providers ensure the benefits of application outweigh the potential risks.

Populations Applies to the adult population.

Translation Into Practice:

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Recommended Clinical Practice

The LBB is an extrication tool, whose purpose is to facilitate transfer of a patient to a transport stretcher/cart and is not intended or appropriate for achieving SMR.[2,5,6,8–12] [Level A Recommendation]

Judicious application of the LBB for purposes other than extrication necessitates that healthcare providers ensure the benefits outweigh the potential risks.[3,5–8,10–12] [Level A Recommendation]

If an LBB is applied, patients should be removed as soon as it is safe and practicable. This reduces complications, minimizes negative events, and prevents adverse patient outcomes.[3,6–8,10–13] [Level A Recommendation]

It is recommended that individual healthcare facilities develop their own policies, procedures, and guidelines to determine who should remove patients from the LBB and the technique(s) used to do it.[6,8,10] [Level B Recommendation]

Patients being transferred to another facility who have received cervical spine clearance by an advanced practice healthcare provider or physician do not need to be reapplied to an LBB for transport or while awaiting transfer.[3,6–8,10–12] Level A Recommendation]

It is recommended that all trauma patients receive a spinal assessment whether or not an LBB is used;[3,4,6–10,12,13,16] spinal motion restriction (SMR) is not indicated in all trauma patients.[2–11,14,16] [Level A Recommendation]

Spinal motion restriction in penetrating trauma patients is associated with higher mortality, is unnecessary, potentially hazardous, and not recommended.[2–11] [Level A Recommendation]

Spinal motion restriction should be considered for patients in the following circumstances:[3–6,8–10]

- Blunt trauma and altered level of consciousness
- Spinal deformity, pain, or tenderness
- Focal neurological deficit
- High energy mechanism of injury together with:
  - Alcohol and/or drug intoxication
  - Distracting, painful injury or communication barrier [Level A Recommendation]

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Supporting Rationale:

Historically, the long backboard (LBB) was presumed to provide spinal immobilization and stabilization in trauma patients. In fact, prehospital management of trauma patients included application of the LBB as the standard of practice.[1–5] However, the benefits of LBBs have been widely questioned.[2–12] Despite this, it is estimated that millions of patients still receive spinal immobilization each year in the United States, most of whom show no evidence of spinal injuries.[7]

The use of the LBB to immobilize the spine continues despite the lack of supporting scientific evidence.[2–12] While the LBB is a useful extrication tool, its application is not without risks.[3,5–8,10–12] Long backboard use has been shown to cause and lead to the following:[7,8,11,14,15]

- Agitation and anxiety
- Altered physical examination
- Delay in treatment
- Increased cranial pressure
- Pain
- Pressure sores
- Respiratory compromise
- Unnecessary radiographs

Use of the LBB requires judicious consideration of the risks of further complications. Evidence has shown that removal as soon as practicable reduces the probability of complications, adverse outcomes, and negative events.[3,6–8,10–13]

Guidelines for LBB removal may vary depending on staffing, equipment, training, and education. It is recommended that individual healthcare facilities use multidisciplinary teams focusing on the best clinical evidence to develop their own policies, procedures, and guidelines specifying which individuals and what technique(s) would be most effective in safely removing patients from the LBB.[6,8,10]

It is advocated that qualified staff receive the appropriate education, training, and frequent competency evaluations to ensure safe practice and care.[6,8,10]

There is overwhelming support for the view that all trauma patients should receive a spinal assessment whether or not an LBB has been implemented. This is because SMR is not indicated in every trauma patient.[2–14,16] In fact, in penetrating trauma cases, SMR is associated with higher mortality and is universally not recommended.[2–11,16]

Injury prevention measures such as legislation, education, car safety, evidence-based treatment guidelines, and establishment of regional trauma centers, along with medical advances have contributed to increased life expectancies of patients with cervical spinal injuries (CSI) and spinal cord injuries (SCI).[16]

Appropriately applied SMR is acceptable for patients in the circumstances in the bulleted list above (blunt trauma and altered level of consciousness, etc.).[3,4,6–10,12,13,16] However, when clinical assessment for the presence of qualifying SMR injuries cannot be adequately performed, for example, because of communication barriers, it is acceptable to apply SMR in this patient population.[3,4,6–10,12,13,16]

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Key for Level of Evidence Recommendation

A	**Level A (High) Recommendation:**	Based on consistent and good quality of evidence; has relevance and applicability to emergency nursing practice.
B	**Level B (Moderate) Recommendation:**	There are some minor inconsistencies in quality evidence; has relevance and applicability to emergency nursing practice.
C	**Level C (Weak) Recommendation:**	There is limited or low-quality patient-oriented evidence; has relevance and applicability to emergency nursing practice.

NR	**Not Recommended:**	Based upon current evidence.
	I/E:	Insufficient evidence upon which to make a recommendation.
	N/E:	No evidence upon which to make a recommendation.

Disclaimer

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