

Maine EMS Trauma Advisory Committee
Consensus Statement and Clinical Advice for Trauma Management

**SPINAL INJURY PRECAUTIONS IN THE CONTEXT OF
MAJOR TRAUMA**

PART I: Key Concepts

- A. “Clearing” the spine in major trauma is not a responsibility – much less a priority – of the transferring hospital.
- B. In the acute phase of treatment, there is no proven or predictable benefit of confirming a spinal injury over merely suspecting one.
- C. Management of patients with suspected spinal injury must focus on proper immobilization, stabilization of the ABC’s, and expedient transfer. The benefit versus pain and other deleterious effects of continued immobilization of the patient to a spinal immobilization device in the ED and through transfer to a Regional Trauma Center should be carefully considered.
- D. Proper spinal immobilization must not delay or preclude efforts to treat or resuscitate an unstable trauma patient.

PLEASE REMEMBER:

Transfers or consultations related to significant spinal injuries (unstable or with neurologic deficits) – *regardless of age, comorbidities, or intended destination* – should be directed to the attending trauma surgeon at your regional trauma center. The trauma surgeon will recommend or facilitate subsequent actions or consultations as needed.

PART II: Annotations and Rationale

- A. *“Clearing” the spine in major trauma is not a responsibility – much less a priority – of the transferring hospital.*

Nowhere in contemporary literature is there any expressed expectation of clearing the cervical spine in the acute phase of treatment. Indeed, experience has shown such efforts to be a common cause of unnecessary delay, expense, and irradiation for Maine’s severely-injured.

- B. *In the acute phase of treatment, there is no proven or predictable benefit of confirming a spinal injury over merely suspecting one.*

It is the general practice of mature trauma systems to simply assume the existence of spinal injury when treating victims of major trauma. This encourages caregivers to immobilize the patient and move on to other elements of diagnosis and treatment.

It may be instructive that even in cases where spinal injuries are identified early, the recommended immediate treatment is simply prudent immobilization, pending hours or days of stabilization and further evaluation¹. Patients with *known* spinal injuries are often admitted to the regional trauma center (RTC) with orders for a rigid collar and restricted to bed rest with log-roll only. Urgent intervention is required only for patients with certain incomplete cord lesions – and in the proven absence of other major injuries.

- C. *Management of patients with suspected spinal injury must focus on proper immobilization, stabilization of the ABC’s, and expedient transfer.*

All hospitals must appropriately screen minor trauma cases for potential spine injury via careful history-taking, diagnostic imaging, and/or careful clinical examination; however, for cases otherwise requiring transfer to an RTC, efforts to “clear the spine” do not justify delays to that end.

True spine clearance is likely to require late-generation CT, and/or (however rarely) MRI. Provided that the patient is properly immobilized for transport, deferring these exams to the RTC may dramatically reduce the time to transfer without adding significant risk. Efforts to evaluate the spine at the local hospital are low-yield and often redundant to future studies necessary at the RTC.

The value of spinal immobilization in patient transport in general, and particularly after the patient is delivered to the ED and/or in transit from one ED to a specialty center is debated. Factors of benefit versus pain and other deleterious effects of continued immobilization of the patient to a spinal immobilization device in the ED and through transfer to a Regional Trauma Center should be carefully considered.^{3,4}

If immobilization is continued, proper padding of the spinal immobilization device for the length of time the patient will be confined to the device is important.

- D. *Proper spinal immobilization must not delay or preclude efforts to treat or resuscitate an unstable trauma patient.*

A common expressed objective of cervical spine clearance at the local hospital is to enable advanced airway techniques (e.g., conventional endotracheal intubation). This is a false justification on multiple counts. First, as suggested previously, it is difficult to rule out an unstable spine without dedication of sophisticated resources and significant time. Furthermore, there is no evidence that intubation of a patient with suspected spinal injury imparts any significant risk, provided that the spine is immobilized during the effort². Indeed, if the underlying assumption is correct (that spine-injured patients are disqualified from intubation), then CT risks becoming a disincentive for proper airway control. Such would be a serious error in medical management.

Part III: References

¹ Kerwin AJ, et al. The effect of early surgical treatment of traumatic spine injuries on patient mortality. *J Trauma*. 2007 Dec;63(6):1308-13.

² Patterson H. Emergency department intubation of trauma patients with undiagnosed cervical spine injury. *Emerg Med J*. 2004 May;21(3):302-5.

³Hauswald M, Ong G, Tandberg D, Omar Z. Out-of-hospital spinal immobilization: its effect on neurologic injury. *Acad Emerg Med*. 1998; 5: 214–219.

⁴Vickery D. The use of the spinal board after the pre-hospital phase of trauma management. *Emerg Med J*. 2001; 18: 51–54.