



Serving 8 counties of western New York

ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE,
GENESEE, NIAGARA, ORLEANS, WYOMING

To: All Western New York Emergency Department Staff

From: Brian M. Walters, DO, FACEP, FAAEM
WREMAC Chairman

Date: October 20, 2015

Re: EMS use of Long Spine Boards

The New York State Bureau of Emergency Medical Services (BEMS) will be implementing a new protocol regarding care of prehospital patients with potential spine injuries. Historically, any patient that had the potential for having a cervical, thoracic or lumbar spine injury mandated the EMS provider to transport the patient on a Long Spine Board. After careful consideration and an extensive review of the literature we have come to the conclusion that excellent spine care can be accomplished WITHOUT transporting a patient on a Long Spine board.

Other than historical dogma and institutional EMS culture we can find no evidence-based reason to continue to use the Long Spine board as it currently exists in practice today. The evidence that does exist regarding the Long Spine Board is overwhelmingly negative.

The following are a brief summary of the known detrimental effects of the Long Spine board:

- The Long Spine board has been shown to **induce respiratory compromise**. (1, 2,3)
- The Long Spine board has been demonstrated to **cause tissue ischemia/pressure sores**. (4, 5, 6,7,8)
- The Long Spine board **causes pain**. (9, 10, 11)
- The Long Spine board can **cause increases in unnecessary radiologic exposure**. (12, 13)
- Immobilization **increased mortality or had no benefit** in multiple studies on penetrating trauma patients. (14,15,16,17,18,19)
- Immobilization in pediatric trauma patients markedly increased admission rates and cervical radiography rates. (13)

The new New York State EMS protocol is in keeping with position statements from the American Academy of Neurological Surgeons as well as the National Association of EMS Physicians (NAEMSP) and the American College of Surgeons Committee on Trauma (ACS-COT) joint position paper on prehospital immobilization published in 2013. (20, 21). The protocol change was approved by the New York State Emergency Medical Advisory Committee (SEMAC).

The biggest change to current practice will be the ability of EMS providers to apply a cervical collar WITHOUT transporting a patient on a Long Spine Board. The use of a long board will continue as a patient packaging and transfer device, but this protocol change acknowledges that the long spine board is just one of many ways to safely minimize spine movement.

We have attached a copy of the new protocol. We believe that the key impact for Emergency Departments (ED) will be how patients are transferred from the EMS cot to the ED bed. This will ideally be accomplished by the use of a slide board. This should mirror established practices of moving the patient within the hospital.

We appreciate your partnership in working for the best possible outcomes for trauma patients in Western New York. We will be actively monitoring the implementation of these new procedures and would be particularly interested in outcome information to share with our prehospital providers and for our internal quality assurance/quality improvement processes. If you have any concerns about this or any other EMS protocol system please do not hesitate to contact the WREMAC.

Respectfully,

A handwritten signature in cursive script that reads "Brian M. Walters DO".

Brian M. Walters, DO, FACEP, FAAEM
WREMAC Chairman



Serving 8 counties of western New York

ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE,
GENESEE, NIAGARA, ORLEANS, WYOMING

ADAPTED WITH PERMISSION FROM:

Jacobsen, R et al. "EMS Use of Long Spine Boards." Letter to Emergency Department Staff. 16 Feb. 2014. MS. Johnson County, Kansas.

REFERENCES

1. Bauer D, Kowalski R. Effect of Spinal Immobilization Devices on Pulmonary Function in the Healthy, Nonsmoking Man. *Ann Emerg Med.* 1988;17:915-8.
2. Walsh M, et al. Lung Function Compromised by Spinal Immobilization. *Ann Emerg Med.* 1990;19:615-6.
3. Totten VY, Sugarman DB. Respiratory effects of spinal immobilization. *Prehosp Emerg Care.* 1999 Oct-Dec;3(4):347-52.
4. Linares HA, Mawson AR, Suarez E, Biundo JJ. Association between pressure sores and immobilization in the immediate post-injury period. *Orthopedics.* 1987;10:571-3. Sheerin 2007.
5. Cordell WH, Hollingsworth JC, Olinger ML, Stroman SJ, Nelson DR. Pain and tissue-interface pressures during spine-board immobilization. *Ann Emerg Med.* 1995;26:31-36.
6. Berg G, Nyberg S, Harrison P, Baumchen J, Gurs E, Hennes E. Near-infrared spectroscopy measurement of sacral tissue oxygen saturation in healthy volunteers immobilized on rigid spine boards. *Prehosp Emerg Care.* 2010;14:419-24.
7. Sheerin F, de Frein R. The Occipital and Sacral Pressures Experienced By Healthy Volunteers Under Spinal Immobilization: A Trial of Three Surfaces. *J Emerg Nurs.* 2007 Oct;33(5):447-50.
8. Walton R, et al. Padded vs. Unpadded Spine Board for Cervical Spine Immobilization. *Acad Emerg Med.* 1995 Aug;2(8):725-8.
9. Barney RN, et al. Pain Associated With Immobilization On Rigid Spine Boards. *Ann Emerg Med.* 1989;18:918.
10. Lerner EB, et al. The Effects of Neutral Positioning With and Without Padding on Spinal Immobilization of Healthy Subjects. *Prehosp Emerg Care.* 1998;2:112-6.
11. Chan D, et al. The Effect of Spinal Immobilization On Healthy Volunteers. *Ann Emerg Med.* 1989;19:615-6.
12. March J, Ausband S, Brown L. Changes in physical examination caused by use of spinal immobilization. *Prehosp Emerg Care.* 2002;6:421-4
13. Leonard J, Mao J Jaffe D. Potential adverse effects of spinal immobilization in children. *Prehosp Emerg Care* 2012;16:513-518.
14. Cornwell EE 3rd, Thoracolumbar immobilization for trauma patients with torso gunshot wounds: is it necessary? *Arch Surg.* 2001 Mar;136(3):324-7.
15. Haut E, et al. Spine Immobilization in Penetrating Trauma: More Harm Than Good? *J Trauma.* 2010 Jan;68(1).
16. Rhee P, et al. Cervical spine injury is highly dependent on the mechanism of injury following blunt and penetrating assault. *J Trauma.* 2006;61:1166-1170

17. Vanderlan WB, Tew BE, McSwain NE. Increased risk of death with cervical spine immobilization in penetrating cervical trauma. *Injury*. 2009;40:880-883.
18. Kaups KL, Davis JW. Patients with gunshot wounds to the head do not require cervical spine immobilization and evaluation. *J Trauma*. 1998;44:865-867.
19. Dubose, et al. The Role of Routine Spinal Imaging and Immobilization in Asymptomatic Patients After Gun Shot Wounds. *Injury*. 2009;40:860-3.
20. Theodore N et al. 2013. Transportation of Patients with Acute Traumatic Cervical Spine Injury; *Journal of Neurosurgery*: 72:22-34, 2013.
21. National Association of EMS Physicians and American College of Surgeons Committee on Trauma. Position Statement: EMS Spinal Precautions and the Use of the Long Backboard. *Prehosp Emerg Care*. 2013;17:392-3.