

MEETING ABSTRACTS

A T2 Translational Science Modified Delphi Study: Spinal Motion Restriction in a Resource-Scarce Environment

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Background/Introduction: Emerging evidence is guiding changes in prehospital management of potential spinal injuries. The majority of settings related to current recommendations are in resource-rich environments. Whereas there is a lack of guidance on the provision of spinal motion restriction (SMR) in resource-scarce environments (RSE).

Objectives: What is appropriate SMR in RSE?

Method/Description: The first round of this Modified Delphi (mD) study was a structured focus group. The result of the focus group discussion of open-ended questions produced ten statements that were added to ten statements derived from Fischer (2018) to create the 20 mD statements presented to the experts.

Experts rated their agreement with each statement on a scale from one to seven. Consensus amongst experts was defined as SD ≤ 1.0. Statements that were in agreement reaching

	Statements Attaining Consensus	Mean	SD	Consensus Round	Expert n
1	The risk of aspiration and soft tissue pressure injuries has to be considered when utilizing SMR in a RSE with prolonged waiting and transportation times. (1)	6.6	0.8	2	16
2	Protocols should be developed for patients that receive SMR in RSE to be attentive to the risk of aspiration and soft tissue injury. (1)	6.5	0.9	1	19
3	Protocols should be developed at alternate medical posts, casualty collection sites and definitive care to reassess the patient in SMR for prompt removal of the SMR when appropriate. (F)	6.4	0.5	2	16
4	Movement of the patient with SMR from one surface to another requires teamwork and attention to maintaining the SMR. (F)	6.4	0.9	1	19
5	Spinal motion restriction (SMR) should replace spinal immobilization (SI) as the process to minimize unwanted movement of a potentially injured spine. (F)	6.2	0.8	1	19
6	The resources for SMR for extrication in an unstable environment may require utilization of unconventional materials to not jeopardize rescuers and the patient. (1)	6.2	0.8	2	16
7	There is no place for "defensive SMR" in a RSE specifically when the patient has no obvious spinal injury and meets Canadian C-spine and NEXUS rules. (1)	6.1	0.8	2	16
8	Distracting injuries or lack of reliable physical examination in a RSE should not be the sole reasons to perform SMR. (F)	5.9	0.8	2	16
9	Limiting cervical spine movement is the critical goal of SMR in a RSE using available resources in concert with maintenance of head, neck and torso alignment. (F)	5.8	1.0	2	16
10	Simplified SMR utilizing available resources in a RSE can be explained just-in-time to expedite extrication and transportation to appropriate next level care. (1)	5.6	0.8	1	19
11	SMR should be utilized when prior spinal injury, central or peripheral nervous system or other abnormalities cannot be determined with adaptation of the SMR. (F)	4.9	1.0	2	16
(1) Derived from the modified Delphi Focus Group (C-spine) Cervical Spine (NEXUS) National Emergency X-Radiography Utilization Study (F) Derived from Fischer (RSE) Resource Scarce Environments (SMR) Spinal Motion Restriction					

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Table 1.

consensus were included in the final report. Those not reaching consensus advanced to the next mD round.

For these subsequent rounds, experts were shown the mean response and their own response for each of the remaining statements and asked to reconsider their rating. As above, those that did not reach consensus advanced to the next round until consensus was reached for each statement.

Results/Outcomes: Twenty-two experts completed the first mD round, 19 completed the second mD round, and 16 completed the third mD round. Eleven statements reached consensus (Table 1). Nine statements did not reach consensus (Table 2).

Conclusion: Experts reached consensus offering 11 statements to be incorporated into the creation of SMR clinical guidelines in RSE.

Tables and Figures (optional)

Statements Not Attaining Consensus	
#	
1	Validated clinical decision rules such as the Canadian C-spine and NEXUS should be incorporated into the decision to utilize SMR in RSE. (1)
2	There is no role for SMR in penetrating, non-blast (gunshot, stab) trauma. (F)
3	Rapid extrication and transport to appropriate next level care to "Stop the bleeding" takes priority over adherence to a lengthy SMR process. (1)
4	Triage, scene treatment and transportation of a patient with suspected spinal injury in an RSE has to be balanced with competing available resources and potential subsequent care of other patients involved. (1)
5	After extrication in an RSE, SMR elements can be removed for comfort of that patient while maintaining SMR with expected prolonged transportation to utilize these elements for other patients. (1)
6	Minimal documentation of time in SMR should accompany the patient from the scene to definitive care. (1)
7	First responders in a RSE can develop reasonable SMR strategies with inexpensive readily available materials. (1)
8	There is no evidence supporting a high risk/incidence of non-contiguous multi-level spinal injury in children. (F)
9	Appropriate utilization of available resources in a RSE that approximates a cervical collar, if the correct cervical collar is not available should be applied to a child if any: (F) a. Complaint of neck pain b. Torticollis or Cervical Spasm c. Neurologic Deficit, new or of unknown duration d. Altered Mental Status for age e. High-energy motor vehicle (2 or 4 wheel) crash, diving or major torso injury
(1) Derived from Fisher (F) Others derived from the modified Delphi Focus Group (RSE) Resource Scarce Environments (SMR) Spinal Motion Restriction	

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Table 2.

References (optional)

1. Fischer PE, Perina DG, Delbridge TR, et al. Spinal Motion Restriction in the Trauma Patient – A Joint Position Statement. *Prehospital Emergency Care*. 2018;22(6):659-661.

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