

## Consensus Statement: Pelvic Binders December 2015

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### **Evidence considered in reaching the consensus statement:**

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## Further Readings:

1. Knops SP, Schep NW, Spoor CW, van Riel MP, Spanjersberg WR, Kleinrensink GJ, et al. Comparison of three different pelvic circumferential compression devices: a biomechanical cadaver study. *J Bone Joint Surg Am.* 2011 Feb 2;93(3):230-40.
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## BACKGROUND:

- Unstable pelvic fractures are associated with high morbidity and mortality. The incidence of these fractures is more common in high-energy injuries, generally the result of motor vehicle collisions and high-level falls. Hemodynamic instability due to haemorrhage from an unstable pelvic fracture and associated intra-abdominal injuries creates the need for immediate interventions.
- Pelvic circumferential compression devices such as a simple bed sheet or commercially made binder do provide effective early stabilization of high pelvic trauma (1, 2). Reduction in length of hospital stay, reduction in need for continued transfusions and reduced mortality have been reported when a pelvic binder has been placed early in patients with hemodynamic instability(3). Binding the pelvis reduces the sheering of vessels during transport, aids in tamponading the bleeding, reducing pain, and reducing the pelvic volume (2,4) .
- One study demonstrated statistically significant improvement in reducing the approximation of the symphyseal diastasis through use of a commercially made pelvic binder instead of a plain sheet (5). The American College of Surgeons, ATLS® advocates initial management for major pelvic fractures is the application of a pelvic binder to decrease bleeding (6). Three studies concluded that pelvic binders provide an effective means of early stabilization and a bridge to definitive management for high pelvic trauma (3,7,9).
- Complications such as skin breakdown have been noted with lengthy application (3,8). Only one retrospective study concluded there was no reduction in haemorrhage or mortality with early use of pelvic binders.(10)The majority confirm that pelvic binders are effective in reducing pelvic volume, stabilizing pelvic fractures in patients with major trauma to the pelvis, and an intervention that is well accepted.(1,2,3,4,7,9).
- Respecting the geographical nature of New Brunswick and the mandate of the NB Trauma Program to support high quality care to trauma patients, a literature review was initially performed in June 2011 and more recently, in May 2015, for new studies related to pelvic binder stabilization. Consultation with orthopaedic surgeons in New Brunswick who complete definitive repair of complex pelvic fractures was also completed.

## **CONSENSUS STATEMENTS:**

- Ambulance New Brunswick should equip and train all paramedics in the use of a commercially available pelvic binder that allows safe, rapid application by two care providers in the prehospital setting.
- Ambulance New Brunswick procedures for paramedics should direct use of the pelvic binder for all patients with an unstable pelvis.
- Use of the Kendrick Extrication Device (KED) for stabilization of pelvic fractures is not recommended.
- All New Brunswick trauma centres (Levels I – V) that do not have the capacity for immediate application of an external fixator for unstable pelvic fractures should have immediate access to a pelvic binder, together with staff trained in its use, to achieve rapid pelvic ring stability within the Emergency Department setting.
- The pelvic binder should be considered in the immediate resuscitation phase of care for all patients with an unstable pelvis within the Emergency Department, if not already applied by ANB paramedics.
- If already in place on arrival in the Emergency Department, the pelvic binder should not be removed for the purposes of reassessing pelvic stability. Temporary removal of the pelvic binder is only warranted to ensure adequate external bleeding control from wounds under the binder.
- Circumferential compression provided by pelvic binders should be released every 12 hours to check skin integrity and provide wound care as required.

## **Special patient populations:**

- For paediatric/small adult patients, Velcro-style commercially available pelvic stabilization devices can be cut to length during application, or can be folded inwards to provide the necessary midline gap.
- For paediatric/small adult patients less than 23 kg (50lb), use of a sheet instead of commercial devices is recommended.
- For obese patients, two commercially available pelvic stabilization devices can be joined together

## **GRADE Level of Evidence:**

- Level B: Recommendation
- Generally, clinicians should follow the recommendations but should remain alert to new information and sensitive to patient preferences

## **Implementation plan:**

- Approval by the Provincial EMS Medical Advisory Committee (October 2015)
- Approval by the NB Trauma Program Advisory Committee (December 2015)
- Assurance that all EDs have acquired commercial pelvic binder device (Fall 2015)
- Preparation and delivery of supporting education for all Emergency Departments (Winter 2015)
- Preparation of supporting education and associated procedure change(s) for ANB (Winter 2015)
- Acquisition and placement of pelvic binders in all ambulances (Spring 2016)