

Quick Connect Spinal Immobilisation System

Provider Handout

May, 1992
Reprint March, 2005

Ministry of Health and Long-Term Care
Emergency Health Services Branch

Quick Connect Spinal Immobilisation System – Provider Handout

Table of Contents

Introduction:.....	5
Definitions:	5
Parts Explanation:	6
Application Procedure:	7
Tips on Application Procedures.....	9
Example of System Assembly Positions.....	10

Introduction:

The QC system utilizes anchoring pins and “clasp” straps to secure the patient to a spinal board. It is an immobilization method which is intended to provide rapid and safe immobilization for patients requiring spinal precautions, e.g. #1: suspected head/spinal injury; e.g. #2: patients requiring use of the QC system to assist in conveyance or positioning.

It is anticipated that use of the system will facilitate safe immobilization of patients during adverse weather conditions, e.g. cold ambient temperature, rain, low light levels, etc.

The system has been field tested in many services within EHS. It has received positive evaluations from EMAs, Base Hospital Program Directors and Emergency Physicians.

The Instructional Goal of the session is: On successful completion of the training session, EMAs will be able to demonstrate correct spinal immobilization of the "patient" within four minutes.

Definitions:

Primary attendant:	designated EMA 1
Second attendant:	designated EMA 2
Safety strap:	a strap consisting of two pieces, each with a clasp and either a tang or receptacle buckle component.
Quick Connect Spinal Board:	Ministry of Health issue.
“Secure”:	patient is secure such that no significant movement occurs during normal lifting and positioning, e.g. during lifting/transfer to a #30 cot, or board rotation to facilitate airway maintenance
B.A.P.	Buckle Assembly Point (B.A.P.) is the location at which the male (tang) and receptacle portions of the strap are connected. This point can be predicted by starting the strap assembly procedure with the receptacle part of the strap. The receptacle part of the strap has a fixed length.

Parts Explanation:

The QC system has several features which make it attractive for pre-hospital use.

1. **Board Design:** The board is covered in a “Phenalic” finish which is impervious to body fluids and which allows for rapid and effective clean up using house-hold cleaners and/or-bleach.

There is a “shock absorber” located around the perimeter of the board to help protect the board from “contact” damage.

The Retroreflective stripe located on the board aids in identifying the board in low light situation.

2. **Anchoring Pins:** The incorporation of fourteen integral anchoring pins within the spinal board allows for effective immobilization of a variety of patient body sizes.

The pins allow x-ray penetration of the board.

Each of the pins can support approximately 400lbs of weight.

3. **Strap Design:** Four safety straps are provided with each board. The straps have “clasps” on one end which are fitted to an anchoring pin as selected by the operator.

On the other end of the strap is either a “tang” or “receptacle” (automotive style) buckle.

The straps can support several times the board’s breaking point when properly assembled. The maximum weight the board can support is approximately 400 lbs.

The Quick Connect straps are similar to the straps that are used with the Quick Connect Scoop Stretcher. The simplicity of strap assembly should promote skill retention by the operator.

Application Procedure:

(Whenever possible, utilize a "third person" as another attendant during patient movement activity i.e. log-rolling, to help maintain spinal alignment.)

Part 1: Head and Neck Immobilization

- i. EMA 2: applies gentle manual cervical stabilization
- ii. EMA 1: applies appropriate size cervical collar

Part 2: Patient Positioning

- iii. EMA 2: maintains head/cervical immobilization
- iv. EMA 1: positions the spinal board along side the patient.
- v. EMA 1: keeping the patients head/neck and back straight, smoothly rolls patient towards EMA 1 by lifting on the patients' hip and shoulder.
- vi. EMA 1: quickly visually examines the patients back for injury.
- vii. EMA 1: slides the spinal board to a location partially under the patient
- viii. EMA's: smoothly lower the patient back down onto the board
- ix. EMA's: position the patient in the centre of the board, keeping the patient's head/neck and back straight

Part 3: Applying Safety Straps

- x. EMA 1: connect clasp of a safety strap to an anchoring pin over the patients' shoulder. Connect clasp of the other end of the safety strap to an anchoring pin along side the patients' hip. Repeat procedure for other side so that a cross-strap (X) pattern is formed across the chest.
- xi. EMA 1: ensure (if not already assembled) that the tang end of safety strap buckles are inserted and locked into the receptacle part of the buckles. Snug up the straps so that the patient upper body is securely immobilized.

TAKE GREAT CARE THAT THE PATIENTS' BREATHING IS NOT RESTRICTED BY THE SAFETY STRAPS. DO NOT OVERTIGHTEN.

- xii. EMA 1: connect clasp of a safety strap to an anchoring pin beside the patients' waist or hips. Connect clasp of the other end of the safety strap to an anchoring pin directly across and on the other side of the board (horizontal strap).

Repeat procedure to place a second horizontal strap across the patient's lower leg area (use the "indented" anchoring pins whenever possible).

- xiii. EMA 1: ensure tang end of safety strap buckles are inserted and locked into the receptacle part of the buckles. Snug up the straps so that the patient is securely immobilised.

Part 4: Head/neck Immobilisation

- xiv. EMA 1: places a rolled towel on each side of the patient's head. Secures the towels and the patient's head in place by attaching tape or a roll bandage across the patient's forehead and under the spinal board.

- xv. EMAs: (For Training Purposes Only to check securement): lift patient from the ground to waist height and then lower back to the ground.

General Considerations

- xvi. EMAs: all lifting procedures are to be verbalised/communicated to each other and the patient prior to commencement. Movements are to be smooth and coordinated.
- xvii. EMA 1: EMAs should select the B.A.P. with consideration of the patient's build and injuries. Padding is to be placed under any contact areas that could cause discomfort to the patient, e.g. buckles.

Note: The system can be adapted for use with small sized patients e.g. the elderly or children by placing a rolled blanket along each side of the patient once he/she has been centred on the board. The padding should take up any slack in the strapping and thereby prevent significant patient movement.

Generally a figure-of-eight bandage is required around the patients' feet, to help keep the legs "in line".

Various patient injuries and call circumstances may require adapting the strapping system; however, patients should always be "secured".

Tips on Application Procedures

Immobilisation:

A roll of tape can be applied over the upper portion of the cervical collar if more securement is required. Take care not to position the tape over the patient's chin (it may create an airway hazard by keeping the patient's mouth closed) and not to occlude the opening of the collar. Be prepared to manage the patient's airway if vomiting occurs.

Remember that a cervical collar alone does not provide adequate cervical immobilisation. Maintain manual stabilisation of the patient's head/neck until the full body is secured.

Always handle the clasps and buckles carefully to avoid inadvertent contact with rescuers or patients. A useful maxim is "ALWAYS TRY TO HAVE TWO HANDS ON THE STRAPS".

When snugging up the securement straps, grasping the strap on each side of the buckle will make the "action" smoother. Use additional straps if circumstances require additional securement.

If the buckle assembly is causing discomfort, the Buckle Assembly Point (B.A.P.) can be located along side the patient's hip by attaching the receptacle buckle and strap along side the patient's hip.

When securing a pregnant patient, position straps above or below the uterus; if the patient has a large and protuberant abdomen, straps may need to be positioned across the mid-abdomen or in the region of the umbilicus if the patient seems unbalanced or inadequately secured with straps above/below the uterus.

Take care to avoid sudden movements in order to reduce excessive abdominal pressure, and possible injury related to the straps.

Body Positioning:

Use of the scoop stretcher can often avoid a log-roll.

Try to position the patient's head/neck in neutral alignment. However if repositioning meets with marked resistance or precipitates pain, immobilise in the position found.

If the patient presents prone or semi-prone and:

1. is having difficulty breathing or apneic, reposition the patient immediately to provide airway and ventilatory care;
2. Presents with profuse bleeding from the mouth or nose, position the patient prone or semi-prone to facilitate drainage and reduce the risk of aspiration.

Do not apply padding if it will aggravate injuries i.e. misalign the spine.

Cot positioning:

Try to bring the cot as close to the patient as possible to minimise the distance the patient is carried.

Example of System Assembly Positions

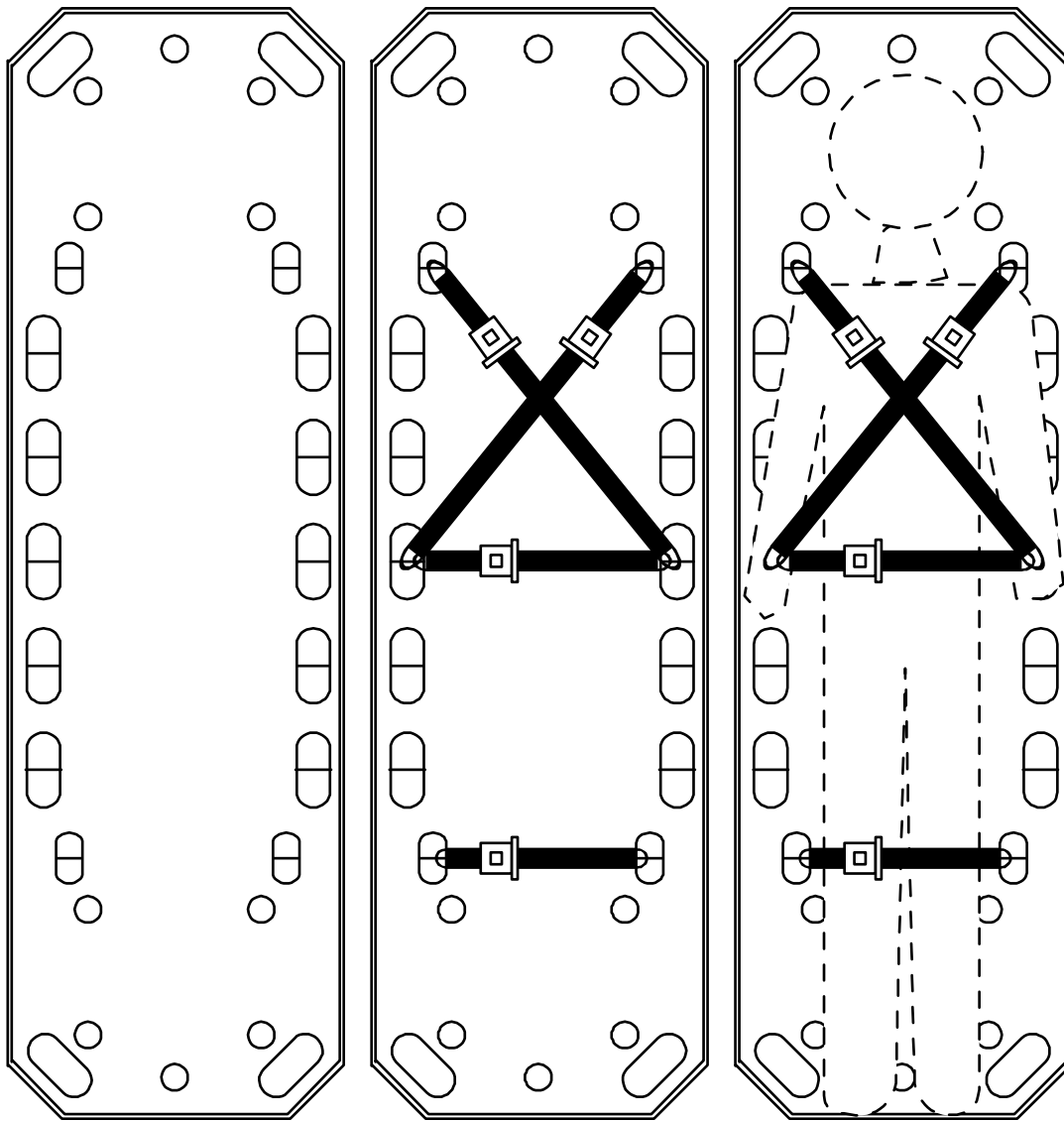


Illustration of Board

Illustration of Straps

Illustration of
Straps on Patient

Major Steps:

1. Assess Patient/Cervical collar
2. Position Board
3. Roll Patient
4. Check Back
5. Slide Board under Patient
6. Lower Patient on Board
7. Centre Patient on Board
8. Apply upper Straps
9. Apply lower Straps
10. Complete Head Immobilisation

**Strap positioning depends on patient size/injuries
(Cervical collar and head padding not shown)**