Aims

To ensure appropriate and effective use of the vacuum mattress

Application

EMRS team members
SAS paramedics

Background

EMRS have four vacuum mattresses, including one bariatric size. The team always carry a vacuum mattress and it is used due to it being portable and sufficiently wide to provide optimum immobilisation. It also has the advantage of an outer cover which can be removed and washed.

All patients must be transferred on a vacuum mattress as per packaging SOP especially those with actual or potential spinal injuries. The mattress eases patient transfers and acts as an effective thermal insulator.

It should be noted that wooden spinal boards are designed as extrication rescue boards only and not for patient transfer. Transfer of patients on spinal boards leads to pain, unnecessary imaging and pressure sore development

Vacuum mattresses are prone to partial inflation during transfer, therefore you should ensure that the valve is at the head end of the patient to facilitate easy access for suctioning in flight.
Use of the vacuum mattress

The mattress can be evacuated using an electrical suction device: either wall mounted in the hospital or the portable kind used by the SAS. The hand pump supplied with the mattress can also be used but its carriage is not normally required as there is usually ready access to an electrical suction device during retrievals.

When using an electrical suction device the adaptor must be inserted into the valve.

Adaptor removed.
Valve acts one way only—allowing suction
Allows suction with hand pump.
Depressing metal valve allows air into the mattress

Adaptor inserted into valve
Valve acts as two way valve.
Allows use of electrical suction device.
Must remove adaptor after suctioning or mattress will inflate

1. Unroll mattress on a flat surface, green side up.
2. Ensure beads are evenly distributed throughout the mattress.
3. Evacuate the mattress to form a rigid flat board.
4. Ensure that the valve is at the head end of the patient.
5. Logroll patient on to the mattress and then slide patient laterally into the centre.
6. Let air into the mattress until it becomes malleable.
7. Wrap the mattress around the patient including the sides of the head.
8. Join up the restraining straps.
9. Ensure that access to venous and arterial lines is possible before evacuation.
10. Evacuate the mattress.
11. Re-tension the restraining straps.

Be aware beads above the patient’s head can cause axial compression of the cervical spine during evacuation. If this occurs re-inflate the mattress and move beads to the sides of the mattress before evacuating again.
Post mission cleaning of vacuum mattress

After each use, the vacuum mattress should be cleaned with alcohol wipes and allowed to dry prior to packaging for next use. The outer bag should be securely tagged.

After use

It is essential to let air into the mattress before attempting to package into the bag and make sure the vacmat is completely floppy. The vacmat should then be ROLLED from the valveless end to ensure even distribution of the beads, putting less strain on the fabric material inside that contains the beads. Not only is it easier to pack the vacmat in the bag but this also makes it easier to use next time around as it will need less evening out.

Monthly cleaning of vacuum mattress

- Remove vacuum mattress from tagged bag.
- Vacuum mattress cover is unzipped and removed from beaded mattress.
- Vacuum mattress cover can be washed in a 30 degrees wash cycle in the Scottish Ambulance Service washing machine using normal washing powder located beside the washing machine.
- On completion of wash cycle the vacuum mattress requires to undergo an additional spin cycle.
- Spread vacuum mattress cover to dry in EMRS portacabin (or outside weather permitting)
- Replace outer cover over beaded mattress and package as post mission check. Remember to secure the zip with a cable tie.