

# The Responder

“Progress Saves Lives...”

Edition 57 | June 2023

## From the Editor's Desk

Greetings all and a warm welcome to the June 2023 edition of The Responder.

I cannot believe June is just around the corner. This year is flying by in a blur. I hope you are all coping with loadshedding? The truth is, is anyone really coping with loadshedding? Our lives seem to revolve around the loadshedding schedule. Right? What are we doing for dinner tonight? I don't know, we're loadshedding. Braai? Yep, let's braai and so on it goes. The butcher must really love me at the moment. What a crazy time to me living in SA.

One of our major missions over the past many years, has been to bring the manufacturing of our products back to South Africa. We believe that South Africa, and of course, Be Safe Paramedical, has huge potential to become a significant player on both our local and international markets through manufacturing. There are so many pros to manufacturing locally. Firstly, we need people to do the work, so it creates employment opportunities. Secondly, it contributes much needed money to our rather fragile economy. Finally, it showcases our capabilities to the world. The latest device we have been working on, is our head immobiliser. Our production facility will be based at our Cape Town Factory in Steenberg. We are only just a short time away from going into production. We are really excited at the prospect of offering them to other medical device distributors in South Africa, as well as to our end-user clientele, and at extremely competitive pricing. If you are as passionate about supporting local manufacturing as we are, you will want to drop us a mail at [info@be-safe.co.za](mailto:info@be-safe.co.za) to find out just how competitive our pricing will be. Keep an eye on our social media pages for the official launch soon.



In this edition's article, I will be doing an overview of Needle Cricothyroidotomy and Jet Insufflation using our CritiPack® Needle Cricothyroidotomy Kit. I hope you enjoy the refresher. If you have anything to add or query, feel free to drop me a line at [responder@be-safe.co.za](mailto:responder@be-safe.co.za). If there is something you would like me to write about in a future article, likewise, feel free to drop me an email. I am always interested in hearing new ideas

Well, now that I have said all that, let me finish off by saying that as always, we have some great specials lined up for you in this edition of The Responder. Remember, they are while stocks last or only until the date indicated below the product.

Happy reading!

Yours in Healthcare

*Gavin Sutton*

Editor – The Responder

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## Health Focus

### Needle Cricothyroidotomy – Using the CritiJet Jey Insufflation Device

Airway management and effective oxygenation is a priority in the resuscitation of the critically ill or injured patient. In general, airway management can be achieved by either basic or advanced airway techniques. Basic airway manoeuvres are widely taught and are as simple as performing a head-tilt-chin-lift or jaw-thrust to relieve obstruction by the tongue.

Advanced airway manoeuvres require a higher level of skill and training and include endotracheal intubation and laryngeal mask airway insertion.

The ‘can’t intubate, can’t ventilate’ situation is a nightmare for all emergency care providers. Needle Cricothyroidotomy is one of several emergency airway management techniques that, although not regularly performed, may buy valuable time until a definitive airway can be achieved. It is a short-term solution which provides oxygenation and not ventilation.

Needle cricothyroidotomy involves puncturing the cricothyroid membrane with an over-the-needle IV cannula and providing jet insufflation by means of a specialised device attached to a high flow oxygen source.

In this edition of The Responder, we will be discussing the indications, technique and equipment required for performing needle cricothyroidotomy in the field.

#### **Indications for needle cricothyroidotomy**

- Inability to maintain a patient’s airway with non-invasive standard airway procedures
- Can’t intubate and can’t ventilate
- Unable to secure airway with additional airway adjuncts e.g. laryngeal mask airway (LMA)
- Severe facial trauma
- Extensive midfacial trauma
- Laryngeal oedema from airway burns
- Laryngeal foreign body that cannot be removed by manual techniques

#### **Contraindications for needle cricothyroidotomy**

- Laryngeal injury where there is known damage to the cricoid cartilage (laryngeal fracture)
- Rupture of the trachea
- There are no contraindications in the ‘can’t intubate, can’t ventilate’ scenario. However, it may be extremely difficult to perform needle cricothyroidotomy when the anatomy is distorted due to injury or disease and the landmarks cannot be readily identified.



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## Landmarks

As the name implies, the cricothyroid membrane is bound superiorly by the thyroid cartilage and inferiorly by the cricoid cartilage.

The main anatomical landmarks from head to feet are the hyoid cartilage, thyroid cartilage, cricothyroid membrane, cricoid cartilage and tracheal rings.

Defining a slightly more expanded set of anatomical landmarks becomes important especially when dealing with the younger patient where the laryngeal prominence may not be well developed. As such it is difficult to palpate the thyroid cartilage. In this case a better technique is to follow the tracheal rings upward to locate the prominence of the cricoid cartilage followed by the indentation of the cricothyroid membrane.

## Equipment

The equipment required to effectively perform needle cricothyroidotomy and jet insufflation are:

- A 14 – 16G over-the-needle IV cannula (14G for adults and 16G for the paediatric patient)
- Disinfecting swabs
- 10-20ml syringe
- CriteJet Jet Insufflation device.
- Oxygen tubing
- Oxygen source with regulator that can deliver up to 50 psi pressure
- Plastic tape for securing IV cannula in place
- Surgical gloves



## Preparation

- Remove the flash chamber cap at the rear of the 14G IV cannula
- Attach the 14G IV cannula to the syringe with plunger depressed
- Attach your jet insufflation device to your oxygen tubing
- Attach your oxygen tubing to the outlet on your oxygen regulator

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## Technique



Position patient supine with head slightly extended (provided there is no suspicion of cervical spine injury)

Locate the cricothyroid membrane by palpating the thyroid cartilage (superiorly) and cricoid cartilage (inferiorly). I like to use three fingers. Index finger on the thyroid cartilage, middle finger on the cricothyroid membrane and ring finger on the cricoid cartilage with non-dominant hand.

If you are a little jittery about locating the landmarks prior to puncturing the cricothyroid membrane, you could consider making a dot on the planned puncture site with a surgical marker.



Disinfect the area thoroughly with your swabs. Don't be shy here. Use 3 to 4 swabs if required to clean the area as thoroughly as possible.

With your non-dominant hand, stabilise the thyroid cartilage. Try and pull the skin taut. This makes for far easier puncturing of the cricothyroid membrane. Take the IV cannula with attached syringe, aim it slightly towards the patient's feet (at about 30o) and puncture the cricothyroid membrane while drawing back on the syringe plunger. You should feel a reduction in resistance as you enter the cricothyroid membrane and air will be pulled back into the syringe. Carefully advance the needle a further 5mm or thereabouts.



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Stop, aim the IV needle towards the patient's feet, hold the stylet still and slide the cannula into the cricothyroid membrane. Be careful not to kink the cannula as you slide it in. Stabilise the IV cannula with non-dominant hand and withdraw the stylet.



Attach the IV cannula to the jet insufflation device. Turn up the oxygen regular flow rate to 10 - 15l/min and jet insufflate the lungs by closing the thumb port for 1 second (inspiratory) and opening for 4 seconds (expiratory). Check for surgical



emphysema in the area around the larynx.



Using plastic tape, secure the IV cannula in place by means of goal-post strapping.

Continue providing jet insufflation at a ratio of 1 to 4. Monitor the patient closely for signs of lung hyperinflation and barotrauma. Adjust expiratory ratio as required.

## ***Complications associated with needle cricothyroidotomy***

- Subcutaneous or mediastinal emphysema
- Needle displacement or kinking causing respiratory obstruction
- Embolus, from insufflation into a vessel
- Haemorrhage
- Oesophageal or mediastinal puncture
- Pneumothorax
- Vocal cord injury
- Infection



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The CritiPack® Procedure Pack range developed by Be Safe Paramedical, makes it extremely easy for you to quickly perform all pre-hospital emergency care procedures. Included in our range, is the Needle Cricothyroidotomy kit used in this article. They have become hugely popular with Emergency Services across Africa, as they guarantee that you will always have access to the correct equipment needed to perform a particular procedure in a rush. Effective preparation is key to performing a skill successfully. If you would like to find out more on what our CritiPack® offers, please feel to drop us a mail on [info@be-safe.co.za](mailto:info@be-safe.co.za)

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## Specials

### CritiPack® Needle Cricothyroidotomy/Thoracostomy Kit

Product Code: REF:CRITI.P.NC



R70.00 Inclusive of Vat each

Offer valid until 30 June 2023 or while stocks last

[Buy Now](#)

### CritiCare® CritiBand MkII Trauma Bandage

Product Code: B.CRIT.H.100



R105.00 Inclusive of Vat each

Offer valid until 30 June 2023 or while stocks last

[Buy Now](#)

### CritiCare® Chest Decompression Needle (14g x 8.2cm)

Product Code: NDL.DC.14G.I



R195.00 Inclusive of Vat each

Offer valid until 30 June 2023 or while stocks last

[Buy Now](#)

### CritiCare® CritiSeal Chest Wound Seal

Product Code: CRITI.SEAL



R145.00 Inclusive of Vat each

Offer valid until 30 June 2023 or while stocks last

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## C2 Pulse Oximeter

Product Code: PO.F.C2



R200.00 Inclusive of Vat each

Offer valid until 30 June 2023 or while stocks last

[Buy Now](#)

## CritiCare® TraumaPAC EMS Jump Bag

Product Code: REF:BAG.TP.CC.R



R1 495.00 Inclusive of Vat each

Offer valid until 30 June 2023 or while stocks last

[Buy Now](#)

## CritiCare® ResponderPAC EMS Jump Bag

Product Code: REF:BAG.RP.CC



R1 150.00 Inclusive of Vat each

Offer valid until 30 June 2023 or while stocks last

[Buy Now](#)

## CritiCare® RapidPAC EMS Jump Bag

Product Code: REF:BAG.RAPIDPAC.CC



R780.00 Inclusive of Vat each

Offer valid until 30 June 2023 or while stocks last

[Buy Now](#)



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## CritiCare® PelviGrip Pelvic Binder Kit

Product Code: REF:PEL.C.CC



R1 550.00 Inclusive of Vat per Set

Offer valid until 30 June 2023 or while stocks last

[Buy Now](#)

## Jumper® FR-202 Infrared Thermometer

Product Code: THERM.INF.JPD.FR202



R230.00 Inclusive of Vat each

Offer valid until 30 June 2023 or while stocks last

[Buy Now](#)

## CritiCare® Rechargeable LED Torch

Product Code: REF:BAG.SP.MN.CC.BLK



R210.00 Inclusive of Vat each

Offer valid until 30 June 2023 or while stocks last

[Buy Now](#)

## CritiCare® 3L Oxygen Cylinder Bag

Product Code: REF:BAG.O2.CC



R98.00 Inclusive of Vat each

Offer valid until 30 June 2023 or while stocks last

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