	Cincinnati FireDepartment Fire Training Supplement DRILL BOOK	SECTION #5 Tools and Equipment
Date: February 2019	**McGrath MAC** **EMS Video Laryngoscope (VL)**	**Total Pages: 1**
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TOPIC # 14: McGrath MAC EMS Video Laryngoscope (VL)

Overview and Key Features

- Video Laryngoscope improves visualization of key anatomic structures compared to direct laryngoscopy
- Furthermore, it enable providers to see parts of the anatomy that are hidden to the naked, effectively "seeing further around the corner"
- The McGrath-MAC EMS can be used as a **direct** or **indirect** laryngoscope with a stylet to facilitate quicker adoption of technique and quicker tube placement.

VL Laryngoscope Blade Sizes

Sizes available are pediatric to large adult patients

- Size 1(neonate <8 weeks).
- Mac 2: Pediatric Infant, for pediatric patients older than eight weeks or at least 4.5 kg
- Mac 3: Adult
- Mac 4: Large Adult

How to Use the McGrath Mac EMS for Video Laryngoscope

Power

- The handle is supplied with one proprietary 3.6V Lithium Battery (non-rechargeable)in situ. It is embedded in the side of the handle
- A new non-rechargeable battery provides up to 250 minutes of operating time under normal operating conditions
- Battery minutes remaining are displayed on-screen. The battery icon begins flashing when reaches five minutes – change battery:
- Remove the small plastic tab from a new battery before use
- If the device won't be used for more than one month, remove battery before storing

Steps for Use

1. If possible, position the patient in the optimal position for direct laryngoscopy.
2. Look into the mouth, insert the blade into the right side of the mouth.
3. Move the device to the central position while sweeping the toungue to the left.
4. Advance the tip of the McGrath MAC blade into the vallecular
5. Visualize the epiglottis on the screen, Lift the anatomy forward and upwards to expose a direct and indirect view of the glottis. When the device is in the optimal position the glottis should be viewed in the central upper section of the screen.
6. Advance the tube gently and atraumatically through the vocal chords. Tube placement can be performed either by looking directly in the mouth, indirectly on the side or a combination of both
    a. Indirectly visualize tube placement through the vocal chords. In optimal tube placement technique, E.T. tube will enter from right hand side of the display.
7. Screen view can be used to confirm correct insertion dept of the endotracheal tube.

***** If a direct pathway for the tube was not created by sweeping the tongu or aliging the airway axis, a stylet or a bougie may need to be used *****

Difficult Airways

Very few patients have anatomically extreme airways. However, they represent a difficult category of patient in whom airway management is particularly challenging.

Mac X Blade

- Due to its extreme angulation, the **X blade does not facilitate a direct view and a stylet is required**!
- The X blade™ has additional markings to guide training in the modified technique for ETI:
- DepthGuide™ enables provider to know how far blade is inserted into mouth
- Highly distinctive yellow ET Contact Zone™ reminds provider to roll styletted ET tube along underside of blade

The insertion technique of the Mac X Blade, differs to that of the MAC blade

1. Load the E.T. tube onto a stylet* and form to the curvature of the X blade™
   ****Clinical experience has shown that intubation without any introducer, or with a bougie, will not facilitate optimal tube placement.**
2. Where possible, elevate the patient's head into the sniffing" position for optimal access
3. Using a mid-line approach, roll the blade into the mouth. Ensuring the anterior side of the blade maintains contact with the tongue, advance the blade until the epiglottis is seen on the top of the screen.
4. Place the tip of the X blade™ into the vallecula
5. Using minimal force, rock the device back towards the user to lift the epiglottis and obtain an indirect view of the glottis
6. When the device is in the optimal position the glottis will be views in the central upper section of the screen. It is important not to advance the blade too deep in order to maintain maximum space to facilitate the E.T. tube placement.
7. The DepthGuide™ numeric markings on the posterior side of the blade may be used as an indication of the depth of the blade insertion. Reference to these numbers can be useful during training to avoid inserting the blade too far.
8. Insert the E.T. tube at the right side corner of the mouth. Advance in a rolling movement following the curvature of the blade, ensuring it maintains contact with the section of the blade labeled E.T. CONTACTZONE™.
9. When using optimal technique, the E.T. tube should enter the screen on the right hand side; advance the tube until the tip is in front of the vocal cords
10. Holding the stylet secure, slide the tube off the stylet and through the cords, ensuring the stylet does not pass through the cords. Once the tube has passed through the cords, remove the stylet completely. The screen view can be used to confirm the correct insertion depth of the endotracheal tube.

Out of hospital confirmation of correct ET tube placement

- Visualization of tube passing through cords
- EtCO2 waveform
- Bilateral breath sounds (auscultation via a stethoscope)
- Rise of the chest with each ventilation
- Fogging of the ET tube
- Absence of gastric distention

Decontamination

It is important to decontaminate the handle and battery after each patient use. Refer to the operators Manual for a detailed explanation of cleaning.

- Decontamination must be done via cleaning wipes provided by central stores or similar product.

DO NOT IMMERSIE IN ANY SOLUTION, WIPE CLEAN ONLY!

- Dispose of the laryngoscope blades, single use only.

Troubleshooting

- No Image shown on screen when switched on
    - Replace Battery Unit

- Poor picture quality (image displayed on screen is blurred or fuzzy
    - Remove blade and check that image is clear. If necessary, wipe camera at end of Camera Stick with clan, soft wipe. If that does not solve the issue then replace blade with a new one. **Poor picture product can be caused by excessive mucus or emesis from patient. Ample suction to airway prior to and during use will help achieve first pass intubation success.**