



Maryland EMS News

Vol. 25, No. 2 For All Emergency Medical Care Providers December 1998

Rapid Sequence Intubation in Maryland

Where Are We Starting? Where Are We Going?

This issue of the *Maryland EMS Newsletter* contains much information about the pilot project for rapid sequence intubation (RSI) that is currently being undertaken by the Maryland State Police (MSP) Aviation Division. I would like to describe the process by which MSP received approval to begin this important project, and to discuss the potential implications for other paramedic programs in Maryland.

For those not familiar with the procedure, RSI refers to using a neuromuscular blocking drug to temporarily paralyze a patient in order to allow placement of an endotracheal tube. MSP has maintained a high level of concern about the inability to intubate severely head-injured patients with clenched jaws. This problem became apparent when the division completed the transition from Aviation Trauma Technician certification to full National Registry EMT-Paramedic in 1989, and was the reason that the MSP strongly supported adding the EMT-P optional skill of nasotracheal intubation in 1993. In fact, the Aviation Division now performs more nasal intubations than oral intubations each year.

Last year a several-month analysis was performed of the airway management and outcomes of all severely head-injured patients cared for by the MSP in calendar year 1996. Forty-three of 45 patients with relaxed jaws were successfully intubated orally. There were no esophageal intuba-

tions. Nasal intubation was successfully utilized in an additional 65 patients, but there were many others who were not candidates for the nasal approach. The analysis revealed that there were approximately 150 patients that might have benefited from receiving RSI. Outcome evaluation showed that 80-85% of patients in this group either died or were discharged to extended care facilities.

The possible benefits of RSI are not limited only to patients with severe head injury, and not all patients with severe head injury are transported by helicopter. If an EMS jurisdiction feels that it has significant numbers of patients that would benefit from the local implementation of an RSI program, then it should consider undertaking an analysis of its own patient experience. This should be done in conjunction with the jurisdiction's medical director, and should seek to identify how many patients might benefit from RSI and what their current outcomes are. This could be done in either a retrospective or prospective fashion. Both MIEMSS and the MSP Aviation Division are willing to share more details of the above analysis and answer any questions. Please have your medical director contact the office of the State EMS Medical Director if your jurisdiction would like further information.

◆ *Richard L. Alcorta, MD, FACEP*
State EMS Medical Director

Team Approach Required for Success

A pilot program for prehospital rapid sequence intubation (RSI) is being initiated in Maryland. Primarily targeting patients with severe head injury, this procedure will be utilized by the Maryland State Police (MSP) Aviation Division with the strong assistance of on-scene EMS personnel. RSI involves administering a neuromuscular blocking drug to a patient to provide temporary paralysis for the purpose of placing an endotracheal tube. Unlike most other prehospital medical procedures, RSI requires three caregivers working together to be successful: one person to open the cervical collar and stabilize the neck, one person to maintain cricoid pressure, and one person to push meds and intubate. The following questions and answers provide more details about this exciting program.

Q. What patients are candidates for RSI?

A. Patients who have a Glasgow Coma Score of ≤ 8 , cannot tolerate a laryngoscope, and have failing respiration (respiratory rate ≤ 8 or ≥ 35 , or oxygen saturation $\leq 90\%$ on non-rebreather face mask).

Q. What's a quick way to check if the GCS is ≤ 8 ?

A. Check if the patient will either open his/her eyes or say words in response to stimulus. If the patient can, then the GCS is > 8 .

(Continued on page 2)

Team Approach Required for RSI

(Continued from page 1)

Q. How will this affect my decisions about when to request a helicopter?

A. The RSI pilot program should not affect when you decide to request air transport. Your decision to request a helicopter should continue to be driven by patient need for rapid transport.

Q. How will my patient management change from what I am currently doing while waiting for the helicopter to arrive?

A. There should be little change from what you currently do. Make sure that you have made the incoming flight paramedic aware of the patient's decreased GCS and potential need for airway intervention so that the appropriate equipment can be carried from the aircraft. You will still focus on keeping a clear airway, optimizing ventilation, and maintaining circulation. There will be a new importance to having a functioning IV, as this will be required for RSI medication administration. If you have a patient you

think may be an RSI candidate, you may wish to refrain from taping the head blocks in place until after the helicopter arrives (since the front of the cervical collar would need to be opened for the procedure).

Q. Will there be any special equipment needs?

A. The flight paramedic will carry any necessary special equipment from the aircraft (see RSI checklist below). It would be helpful to have the patient on an ECG monitor and pulse oximeter, with suction and BVM ready, but you are already doing this when the circumstances allow.

Q. How might I be asked to help during an RSI procedure?

A. One caregiver will be needed to remove the headblocks, open the front of the cervical collar, and maintain cervical immobilization. A second caregiver will be required to apply cricoid pressure (Sellick's maneuver) (see information on page 3).

Q. How is RSI being phased-in with the flight paramedics?

A. The RSI pilot program is broken down into four protocols:

1. Succinylcholine to intubate a patient who is breathing
2. Combitube
3. Cricothyroidotomy
4. Versed and Norcuron for intubated patients bucking ventilation

All flight paramedics are utilizing the Combitube, Cricothyroidotomy, and Ventilatory Difficulty protocols. Eighteen of the flight paramedics (distributed across all eight Med-Evac sections) are starting with the Succinylcholine protocol, with plans to phase-in subsequent groups of the remaining medics as operational logistics are evaluated and confirmed to be effective.

◆ Douglas J. Floccare, MD, MPH, FACEP
State Aeromedical Director

RSI Checklist

Evaluate Patient

- Primary survey
- Meets indications
- No contraindications
- Evaluate for difficult intubation
- Perform focused RSI neuro exam

Prepare Equipment

- Suction
- Propaq (pulse ox, capnography, ECG)
- Meds, Combitube, cric kit
- BVM, airway kit

Prepare Patient

- Oxygenate
- IV, IV fluids
- Midazolam 0.05mg/kg (2-5mg) if indicated
- Lidocaine 1 mg/kg
- Manual c-spine/Open front of c-collar

Relax Patient

- Apply cricoid pressure
- Succinylcholine 1 mg/kg

Intubate

- Place ET
- Verify
- Secure

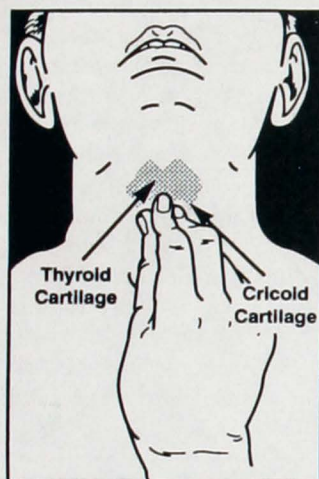
Airway Rescue

- If can't intubate, ventilate, reattempt ET, and go on to Combitube Protocol if unsuccessful
- If can't ventilate, place Combitube
- If can't ventilate with Combitube, perform surgical cricothyroidotomy

Sellick's Maneuver (Cricoid Pressure)

Q. What is Sellick's maneuver?

A. Sellick's maneuver is the process of applying pressure on the cricoid ring in an effort to hold the esophagus closed and prevent regurgitation of gastric contents. It may also be used during simple bag-valve-mask ventilation to prevent the stomach from filling with air.



Finger Position for Sellick's Maneuver

Q. How is cricoid pressure applied?

A. With the patient in the supine position, place your index finger in the notch at the top of the sternum (sternal notch). Slide your finger up the trachea until you feel the first prominent bump. This is the cricoid ring (or cricoid cartilage). Place your thumb, index finger, and middle finger on the top of the cricoid ring and push firmly downward. (See diagram.)

Q. How hard should I push?

A. The amount of pressure should be about the same as placing your thumb, index finger, and middle finger on the bridge of your nose and pushing until it begins to feel uncomfortable.

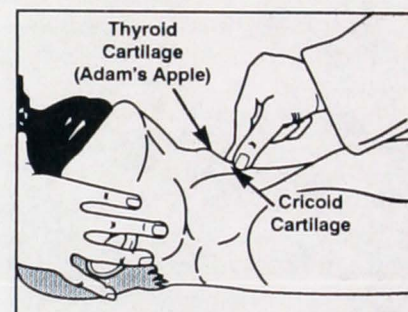
Q. What is the most common mistake made when applying cricoid pressure?

A. The most common error is to go too high and push down on the "Adams Apple," which is actually the

thyroid cartilage (see diagram). Pushing on the thyroid cartilage does not hold the esophagus closed, and can actually tilt the vocal cords downwards and make visualization more difficult.

Q. Is there anything unique about applying cricoid pressure (Sellick's maneuver) during rapid sequence intubation?

A. Yes. When succinylcholine is administered, all of the muscles relax and it is very easy for gastric contents to come up the esophagus. Therefore, when performing RSI, cricoid pressure is applied as the succinylcholine is administered, and is not released until proper endotracheal tube position is confirmed with cuff inflated.



What Is the Combitube?

Q. What is the Combitube?

A. The Combitube is a dual lumen airway device that is blindly inserted. It has a distal balloon, which normally occludes the esophagus, and a proximal pharyngeal balloon which blocks air from escaping out of the mouth or nose. (See diagram.) It may rest in either an esophageal or tracheal position with effective ventilation.

Q. For what situations is the Combitube intended?

A. The Combitube can be used when there is an inability to place an endotracheal tube in a patient who has no gag reflex. The patient must be taller than four feet, and have no known esophageal disease or ingestion of caustic substances.

Q. Why is the Combitube being used as part of the RSI pilot program?

A. The Combitube offers a good alternative airway if the situation

occurs in which a patient has been paralyzed but then cannot be intubated. It has been shown to be effective in several patients with mandible fractures in which effective ventilation could not be maintained with a bag-valve-mask device. It is expected that in many instances the Combitube will prevent a need to proceed to cricothyroidotomy.

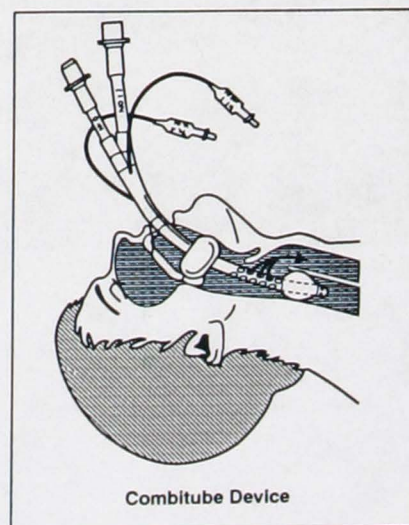
Q. What type of monitoring can be used with the Combitube?

A. The Combitube can be monitored in the same manner as an endotracheal tube. End tidal CO₂ can be monitored by capnometry, capnography, and colorimetric device. Exhaled tidal volume can be measured by electronic spirometry.

Q. How should the Combitube be utilized after arrival at the hospital?

A. If the Combitube is positioned in the trachea it can be utilized the same

as an endotracheal tube. If the Combitube is in the esophageal position and there is a desire to place an endotracheal tube, the proximal pharyngeal balloon can be deflated and the ET tube can be placed alongside the Combitube. If visualization is inadequate, the distal balloon may also be deflated after adequately decompressing the stomach, and the Combitube can be removed.



Combitube Device

EMS Week '99 Is Set for May 16-22, 1999! Mark Your Calendars!

Next Year's Theme Will Be 'EMS: Meeting the Challenge'

To help you start thinking about activities, we offer a brief photo glance at some of the events throughout the state that took place last May. EMS providers continue to present their messages to their communities in new and creative ways.



Tri-Towns Ambulance & Rescue Service demonstrate equipment at the Country Club Mall in LaVale.



The Medical Bureau of the Baltimore City Fire Dept. demonstrate patient care at the Inner Harbor.



Teddy Bear Clinic at the Valley Mall in Hagerstown.



Proclaiming EMS Week in Washington County.



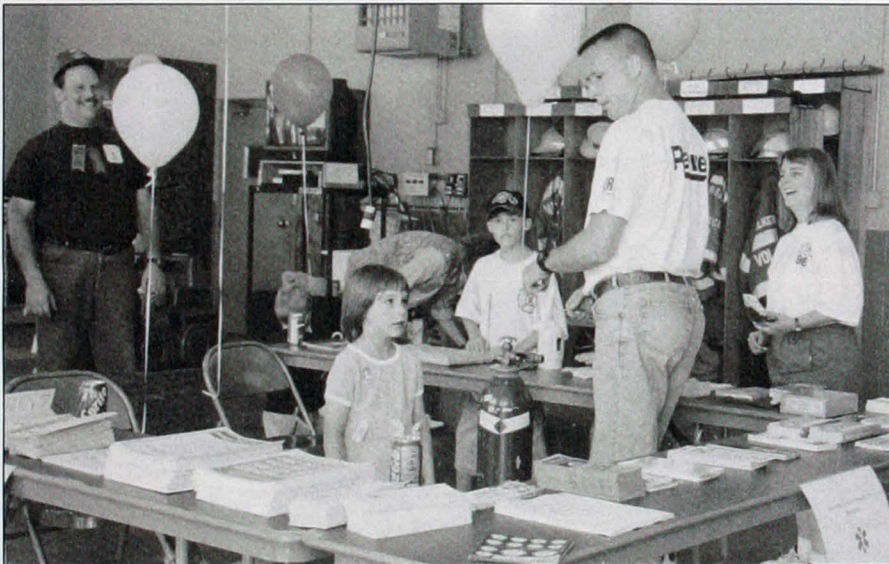
Dedication of the memorial to the deceased members of the Frederick County Fire & Rescue Services.



Art work by elementary school children that interprets EMS is on display at the EMS Week event at the Prime Outlets in Queenstown.



Vince and Larry, the seat belt dummies, promoting EMS safety information at the Harry S. Grove Stadium in Frederick City prior to the Frederick Keys baseball game on Heroes Day.



EMS Week Open House at Walkersville Volunteer Rescue Company in Frederick County.



Child safety seat inspections preceded by a news conference in Norrisville.



Publicizing EMS Week '98 in Norrisville.



Children's Safety Awareness Day at Valley Mall in Hagerstown.

MSP Helicopter Inspections Curtail Helicopter Demos at Educational Events

Editor's Note: The following letter from Maj. Donald G. Lewis, Commander of the Maryland State Police (MSP) Aviation Division, was received at MIEMSS in September. To "spread the word," we are printing it in its entirety.

"The Maryland State Police Aviation Division helicopters are entering into an intense maintenance cycle designated by the manufacturers as a "G" inspection. The "G" inspection occurs when the helicopters reach 5,000 hours of flight time. The inspection requires that all systems components be inspected and that all discovered discrepancies be rectified. The "G" mandates disassembly of the aircraft to complete a detailed inspection that includes checking the airframe for structural integrity. The inspections require a minimum of 90 days to complete on each aircraft.

"During the next year we will have six aircraft undergo this inspection. As you may well imagine, this level of maintenance and the associated turnaround times will have an impact on our ability to continue some of the non-emergency missions we were able to do in the past. In a typical year the Aviation Division receives more than 200 requests for educational demonstrations at various events around our State. In the past, we have tried to accommodate as many requests as was possible contingent upon mission demand, helicopter availability, and public impact. During the next 12 months it will be necessary to conserve as many flight hours as possible. All of our efforts will be focused upon making sure the helicopters are available for emergency services. As such, we will be unable to provide helicopters for demonstration purposes.

"Interaction with our EMS and law enforcement partners is an integral part of our strategic plan. We recognize the importance of providing the citizens of Maryland an

opportunity to see how their tax dollars are spent and for those who request the service a chance to understand the helicopter's capabilities. I ask for your patience and understand-

ing as we undertake this challenge. Please be assured that the Aviation Division is committed to quality service and cooperation to the fullest extent possible."

If a Minor Refuses to Consent To Prehospital Treatment

Maryland law defines a minor as a person under 18. A minor has the same capacity as an adult to consent to medical treatment if, in the judgment of the attending physician, the life or health of the minor would be affected adversely by delaying treatment to obtain the consent of a parent or guardian.

How should you proceed in the case of a minor who refuses to consent to treatment when the parent or guardian is not immediately available to provide or refuse consent? The following provides general guidelines for some of the circumstances that may arise when **a minor cannot or will not consent to treatment**. Because of uncertainties in the law, EMS programs should develop policies for treating minors in consultation with counsel.

1. Is the minor married or a parent?

- ◆ Yes — handle as an adult.
- ◆ No — consider whether the minor is able to give informed consent.

2. Is the minor able to give informed consent?

Does the minor have the maturity, intelligence, and clarity of thought under the circumstances to understand the potential outcomes of the treatment or treatments proposed and no treatment and to make an informed choice about whether to consent to treatment?

◆ No—the minor is not able to give informed consent. Then ask if the attending physician has determined that there is a substantial risk of death or immediate and serious harm to the patient and with a reasonable degree of medical certainty that the life or health of the patient would be affected adversely by delaying treatment. [Consult the base station physician to make this determination.]

— Yes. Treat the patient and transport.

— No. Transport and contact the parents or guardian for treatment instructions.

◆ Yes—the minor is able to give informed consent. Then consider the severity of the injury.

3. Is the injury serious?

In the judgment of the attending physician, would the life or health of the minor be affected adversely by delaying treatment to obtain the consent of another individual? [Consult the base station physician to make this determination.]

◆ Yes, serious—monitor and/or transport the patient and immediately contact the parents or guardian for consent or instructions.

◆ No, not serious—document refusal of treatment (obtain the signature of the patient if possible) and notify the parents or guardian promptly of the emergency event and refusal of treatment.



EMS SEMINAR '99 OCEAN CITY, MARYLAND

Conference Lectures: March 20-21, 1999

Time: Saturday (8AM-5PM), March 20 and Sunday (8AM-4PM), March 21

Location: Sheraton Fontainebleau Hotel, 10100 Coastal Highway, Ocean City, MD 21842

Continuing Education Credits:

12 Hours (for EMT-A's, EMT-B's, CRT's, and EMT-P's)

Fee: \$58 (Covers all lectures, continental breakfasts, and lunches)

24-Hour EMT Bridge Session: March 18-21, 1999

The EMT-Bridge session provides all 24 hours of training required to become a Maryland EMT-Basic.

Time: Thursday (6-10 PM), March 18; Friday (6-10 PM), March 19;

Saturday (8 AM-5 PM), March 20; and Sunday (8 AM-5 PM), March 21.

Location: Sheraton Fontainebleau Hotel, 10100 Coastal Highway, Ocean City, MD 21842

Fee: \$125 (Covers 24-hour session, including continental breakfasts and lunches on March 20 and 21 and books)

Note: Anyone attending the EMT Bridge Session must have current EMT-A Certification and a current health care provider CPR card. *Heartsaver cards are not acceptable.*

12-Hour EMT-B Recertification Skill Session: March 18-20, 1999

This skill session is being provided for EMT-B's who need to recertify their 12-hour skill portion of the EMT-B recertification requirements. We will also offer the CPR and AED recertifications with this skill session.

Time: Skill Portion—Thursday (6-10 PM), March 18; Friday (6-10 PM), March 19; and Saturday (6-10 PM), March 20.

CPR and AED Recertifications: Friday (8 AM-5 PM), March 19.

Fee: \$55 (Covers EMT-B recertification skill session and CPR and AED recertifications)

Hotel Accommodations: Sheraton Fontainebleau Hotel

Address: 10100 Coastal Highway, Ocean City, Maryland 21842

Phone: 1-800-638-2100 or 1-410-524-3535

Rates: Suites, \$89/night, plus tax, for single or double occupancy.

Deadline: Reservations must be made no later than February 18, 1999, to receive the seminar rate. To ensure that you get the seminar rate, mention that you are attending "EMS Seminar '99."



REGISTRATION FORM

Deadline: February 20, 1999 (Registration is limited)

NAME: _____

ADDRESS: _____

PHONE: _____ SS#: _____

AFFILIATION: _____

CERTIFICATION: EMT-A EMT-B CRT EMT-P

I will be attending:

Conference Lectures (March 20-21) \$58

EMT Bridge Session (March 18-21) \$125

NOTE: A copy of your Maryland EMT-A card and Healthcare Provider CPR card must accompany your registration form.

EMT-B 12-Hour Recertification Skill Session, CPR, and AED (March 18-20) \$55

I am enclosing:

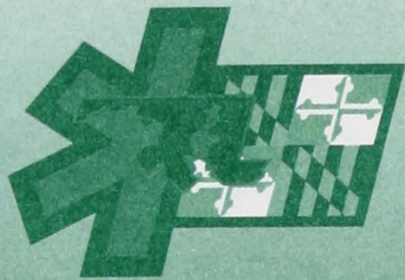
\$58 (Conference Lectures) \$125 (EMT Bridge Session) \$55 (EMT-B Recertification Skill Session, CPR, and AED)

MAIL REGISTRATION TO:

Ocean City Paramedics, P.O. Box 1228, Ocean City, MD 21843-1228

Attention: Debbie Patterson. For more information, call 410-723-6616.

Cancellations received after February 24 will result in forfeiture of your entire registration fee.



Governor Parris N. Glendening

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DATED MATERIAL

Get MS Degree In EHS Management Via Distance Education

UMBC has launched Management Studies in Emergency Health Services, a graduate program for those interested in becoming managers for high performance emergency health systems. The academic program is offered exclusively on-line and can be taken for graduate credit leading to a Master of Science degree or for noncredit professional development. The UMBC program meets the criteria of the Maryland Higher Education Commission's Firefighter, Ambulance, and Rescue Squad Member Tuition Reimbursement Program. During the fall semester 24 students from across the country were enrolled in the program.

The new program emphasizes the newest systems design and management methods employed by high performance EHS systems and taps into the most experienced and up-to-date expertise available from leaders across the country who have practical

experience leading high performance systems.

Associate Professor Jim Eastham is director of distance education. Sharon Hodgson is point of contact at 410-455-2797. Find a detailed description at <http://ehs.umbc.edu> or e-mail to connect@umbc.edu.

Reminder

See page 7 for the registration form for the Ocean City EMS Seminar '99.

Come Join Us!



WINTERFEST EMS '99

January 30 & 31, 1999
Tilghman Island
Talbot County
Maryland

**Headquarters at Harrison's Chesapeake House
Conference at the Tilghman Island Elementary School**

**Call the WINTERFEST EMS '99 hotline (410) 763-7063
for registration information.**