

**S320 PEDI®
NEWBORN AIRWAY TRAINER**

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SECTION I - FEATURES AND CAPABILITIES

The size of this model is designed to simulate a child (0-2) months of age. It may be an effective training tool for intubation and suctioning as well as placement of NP and OP tubes. It is to be used only as part of an approved training program for pediatric emergency care.

The simulator features the following:

- ▲ Realistic intubatable airway
- ▲ Heart, lungs, ribs, stomach, and liver
- ▲ Custom carrying bag

The available essential features of this model are:

INTUBATION

- ▲ Realistic mouth, tongue, vocal cords, trachea, and esophagus
- ▲ Fully articulating head, neck, and jaw
- ▲ Oral and nasal intubation plus suctioning
- ▲ Suction either airway or esophagus
- ▲ Crico prominence facilitates Sellick maneuver
- ▲ Endoscopically examine airway to level of bronchi
- ▲ Easily accessible chest cavity
- ▲ Chest compliance achieved through realistic heart, lungs, and ribcage
- ▲ Look, listen, and feel for bilateral lung expansion
- ▲ Palpable and visual landmarks
- ▲ Realistic chest rise

SECTION II - INTUBATION

NOTE: The **S320 PEDI® Newborn Airway Trainer** is equipped with a realistic airway having a soft, floppy epiglottis and vocal cords. The student **MUST** treat the simulator like a **PATIENT**. **BUT**, if the airway is **DAMAGED**, it is designed to be **REPLACED** by the customer.

1. OPENING THE AIRWAY

During your BLS training the ABC's of resuscitation were emphasized again and again. Recall the "A" stands for airway and "B" stands for breathing. Therefore, the mechanics of properly opening the airway are essential.

Remember the following during pediatric intubation:

- ▲ Children require more oxygen per amount of body weight than adults.
- ▲ The airway of a typical newborn child is only 3.8 millimeters in diameter at its narrowest point, located below the vocal cords. An adult's airway may be 20 millimeters in diameter.
- ▲ The tongue occupies a relatively larger portion of the mouth.
- ▲ A towel placed under the shoulders is essential to extend the infant's neck.

Intubation may be indicated in the unconscious patient or when the patient is not breathing properly. Successful intubation provides:

- ▲ means for oxygen and positive pressure ventilation
- ▲ alternative route for providing certain medications if IV is not available
- ▲ access for suctioning the trachea and bronchi

The **KEYS** to successful intubation are:

- ▲ Hyperventilation before intubation
- ▲ Patient position
- ▲ Using laryngoscope to visualize the vocal cords
- ▲ Passing the endotracheal tube between vocal cords
- ▲ Practice, practice, practice

2. HYPERVENTILATION BEFORE INTUBATION

During intubation attempts, the patient will **NOT** receive adequate oxygen. Therefore, the rescuer must provide 100% oxygen before attempting intubation, **AND MUST HYPERVENTILATE BETWEEN EACH ATTEMPT.**

3. PATIENT POSITION

The objective is to position the patient so that the rescuer will have the **BEST VIEW OF THE VOCAL CORDS.** Inserting an endotracheal tube (ET tube) must be a well-rehearsed procedure. Each **CORRECT** step makes the **NEXT STEP** that much easier.

Remember to ventilate the patient **BEFORE** and **BETWEEN** each intubation attempt.

Place the patient on his back. Use the "**SNIFFING POSITION**" or **JAW THRUST** shown below. A towel must be placed under the infant's shoulders. This places the patient in the so-called "**SNIFFING**" position. This provides the rescuer with the **BEST VIEW** of the vocal cords. **HEAD TILT/CHIN LIFT** is to be avoided in the newborn.

4. VISUALIZING THE VOCAL CORDS

The rescuer is normally positioned above and behind the head of the patient so that the line of sight is across the forehead, over the nose and along the axis of the patient's airway. The laryngoscope is used to lift the tongue and epiglottis out of the line of sight so that the vocal cords may be **CLEARLY** seen.

The laryngoscope may be fitted with two types of blades; the straight Miller or the curved Macintosh. The Miller traps the top edge of the epiglottis against the tongue while the Macintosh lifts the epiglottis by lifting the tongue at the vallecula. The **straight** blade is widely **preferred** for pediatric intubation.

In the event that you can **STILL** not see the vocal cords, use the **SELLICK** maneuver as follows: have an associate depress the crico cartilage - this forces the airway posteriorly, providing a better view of the vocal cords; locate the cricoid by finding the "Adam's Apple" or thyroid cartilage; move the hand lower and feel the crico-thyroid membrane; move further below and locate the cricoid cartilage.

5. POSITIONING THE ENDOTRACHEAL TUBE

With the patient in the sniffing position, and the rescuer behind the patient, place an uncuffed ET tube approximately 3.0mm I.D. by 10 to 12 centimeters in length as follows:

1. Use the left hand to insert the blade along the right side of the mouth, sweeping the tongue to the **LEFT** until the blade is midline
2. Lift the tongue and the epiglottis up and away
3. Keep low behind the patient and observe the vocal cords
4. It is a good idea to have 2 ET tubes ready for use; one **WITH A GUIDEWIRE** in place and the other without the guidewire.
5. Use Sellick maneuver and/or guidewire if necessary
6. Slide ET tube along the right side of the blade and between the vocal cords
7. Position the tip of the ET tube midway between the vocal cords and carina.
8. Carefully withdraw the guidewire as the ET tube moves through the trachea
9. Carefully withdraw the laryngoscope blade
10. Attach oxygen supply and check for bilateral lung expansion

6. CONFIRMING CORRECT PLACEMENT

- ▲ Look, listen, and feel for bilateral lung expansion
- ▲ In a patient
 - Auscultate for chest sounds and air entry
 - Observe ET tube - note fogging of the expelled air - you should **NOT** see the gastric contents
- ▲ Secure the ET tube and **VENTILATE**
- ▲ Check the patient
 - for **COLOR**
 - for the **EFFORT** of breathing
 - is the **RESPIRATION RATE** reasonable?
 - for **BLOOD PRESSURE** and **HEART RATE**.

FOR ADDED REALISM:

- ▲ Gastric contents and other fluids may be added to the stomach
- ▲ Suctioning may be practiced in either/or the esophagus/trachea
- ▲ Placement of the ET tube should also be attempted while fluids are present in the vicinity of the vocal folds
- ▲ Placement of the ET tube using the naso-tracheal route should also be demonstrated using an ET tube several centimeters **LONGER**.

SECTION III - GENERAL NOTES

1. Lubrication

When introducing any invasive device, always use a lubricant, such as one of the following:

- ▲ a drop of soap with water
- ▲ K-Y Jelly
- ▲ non-stick cooking spray

For the intubatable airway, USE A NON-AEROSOL CORN SPRAY.

2. Cleaning

The skin of the manikin may be cleaned with a mild detergent, or with soap and water. Do not clean with harsh abrasives.

Indelible marks made with ballpoint pens, ink, or markers will remain.

Do not wrap the manikin or any **Gaumard** product in newsprint.

Do not use povidone-iodine on this manikin or any **Gaumard** simulator.

3. Suggested References

1. *Golden Hour: The Handbook of Advanced Pediatric Life Support*, Nichols et al, Mosby Yearbook, 1991.
2. *Textbook of Pediatric Advanced Life Support*, American Heart Association, 1990.

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