

AIRWAY - BAG VALVE MASK

1. Levels: EMT, AEMT, Paramedic, RN
2. Purpose: Bag-valve-mask ventilation (BVM) with 15 liters per minute supplemental oxygen is the technique of providing rescue breathing for patients with inadequate respiratory effort or cardiac arrest. Patients in respiratory failure may respond to BVM ventilation and not require endotracheal intubation (especially pediatric patients). A BVM may also be used to administer inhaled medications for patients with severe respiratory failure.
3. Indications:
 - 3.1. Inadequate respiratory rate
 - 3.1.1. Infant less than 30
 - 3.1.2. Toddler less than 20
 - 3.1.3. Child less than 16
 - 3.1.4. Adolescent less than 12
 - 3.1.5. Adult less than 8
 - 3.2. Inadequate respiratory effort
 - 3.2.1. Absent or diminished breath sounds
 - 3.2.2. Paradoxical breathing (chest and abdomen moving in opposite directions)
 - 3.2.3. Cyanosis on 100% oxygen by non-rebreather mask
 - 3.3. Bradycardia secondary to hypoxia
 - 3.3.1. Infant Heart rate less than 80
 - 3.3.2. Child Heart rate less than 60
 - 3.3.3. Adult Heart rate less than 60
 - 3.4. Cardiac arrest
 - 3.5. Altered Mental Status secondary to hypoxia
4. Contraindications: None
5. Adverse Effects/Complications:
 - 5.1. Gastric distension
 - 5.2. Vomiting
6. Procedure:
 - 6.1. Attach high flow oxygen to the bag
 - 6.2. Attach PEEP valve to BVM
 - 6.2.1. Remove the exhaust port cap
 - 6.2.2. Attach PEEP valve onto the exhaust port
 - 6.2.3. PEEP valve is pre-set to 5 cmH₂O which is the physiologic norm
 - 6.2.4. To increase PEEP, rotate the orange cap on the PEEP valve clockwise. The amount of PEEP is indicated on the numbered scale where the bottom lip of the orange cap rest.
 - 6.2.4.1. Alveolar shunting occurs when fluid fills the alveolar space and does not allow air to enter the alveoli. Common conditions that cause alveolar shunting include CHF, ARDS and pneumonia. These patients will benefit from additional PEEP up to 15 cmH₂O.
 - 6.2.5. To decrease PEEP, the orange cap on the PEEP valve should be rotated counter clock- wise.
 - 6.3. Use an appropriate size airway adjunct with BVM

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- 6.4. For single provider BVM use the "E-C clamp" technique to achieve an adequate seal and avoid pressure on the soft tissues of the face or neck: Place the third, fourth, and fifth fingers along the jaw to provide a chin lift (forming an E); use the thumb and index finger to hold the mask on the patient's face (forming a C).
- 6.5. If the patient does not have adequate chest rise and breath sounds with BVM, consider the following interventions:
 - 6.5.1. Reposition the Head
 - 6.5.2. Check for Airway Obstruction
 - 6.5.3. Suction the Airway
- 6.6. Ventilation Rate:
 - 6.6.1. Adults (non-cardiac arrest): 10-12 breaths per minute
 - 6.6.2. Adults (cardiac arrest): 10 breaths per minute
 - 6.6.3. Pediatrics (non-cardiac arrest): 12-20 breaths per minute
 - 6.6.4. Pediatrics (cardiac arrest): 10 breaths per minute