

Adult Respiratory Distress - The Unresponsive Patient

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Monitoring (blood pressure, heart rate, pulse oximetry, respiratory rate) ongoing throughout evaluation and management. All initial actions are performed simultaneously after verification of unresponsiveness by stimulating the patient including head tilt and jaw lift. Reversal agents (naloxone and flumazenil) may be administered at any time.

Breathing Normally and Unresponsive

Clinical Condition	Action
Respiratory rate >10 and Oxygen saturation > 95%	Step 1 Verify unresponsiveness. Call for emergency equipment. Monitor patient.
	Step 2 Open the airway with head tilt, chin lift, and jaw thrust. Ammonia vaporole respiratory stimulant (optional). Supplemental oxygen with Non-rebreathing face mask 15 L/minute or Nasal cannula/Nasal hood 4 L/minute. Raise the legs.
	Step 3 Reversal agent(s) if indicated.
	Step 4 Respiratory deterioration. Raise the legs. Ventilation Management (see below)

Respiratory Depression and Unresponsive

Clinical Condition	Action
Respiratory rate <10 and/or Oxygen saturation <95%	Step 1 Verify unresponsiveness. Call for emergency equipment. Monitor patient.
	Step 2 Open the airway with head tilt, chin lift, and jaw thrust. Ammonia vaporole respiratory stimulant. Raise the legs. Ventilation Management (see below)
	Step 3 Reversal agent(s) if indicated.

Apnea with Carotid Pulse

Clinical Condition	Action
Respiratory rate 0	Step 1 Verify unresponsiveness. Call for emergency equipment. Monitor patient.
	Step 2 Open the airway with head tilt, chin lift, and jaw thrust. Verify not breathing. Check Pulse oximeter (BP >80 systolic) and/or Carotid pulse present (BP >60 systolic) which indicate chest compressions not needed.
	Step 3 Raise the legs. Ventilation Management (see below)
	Step 4 Reversal agent(s) if indicated.

Apnea without Carotid Pulse - see Adult Cardiac Management

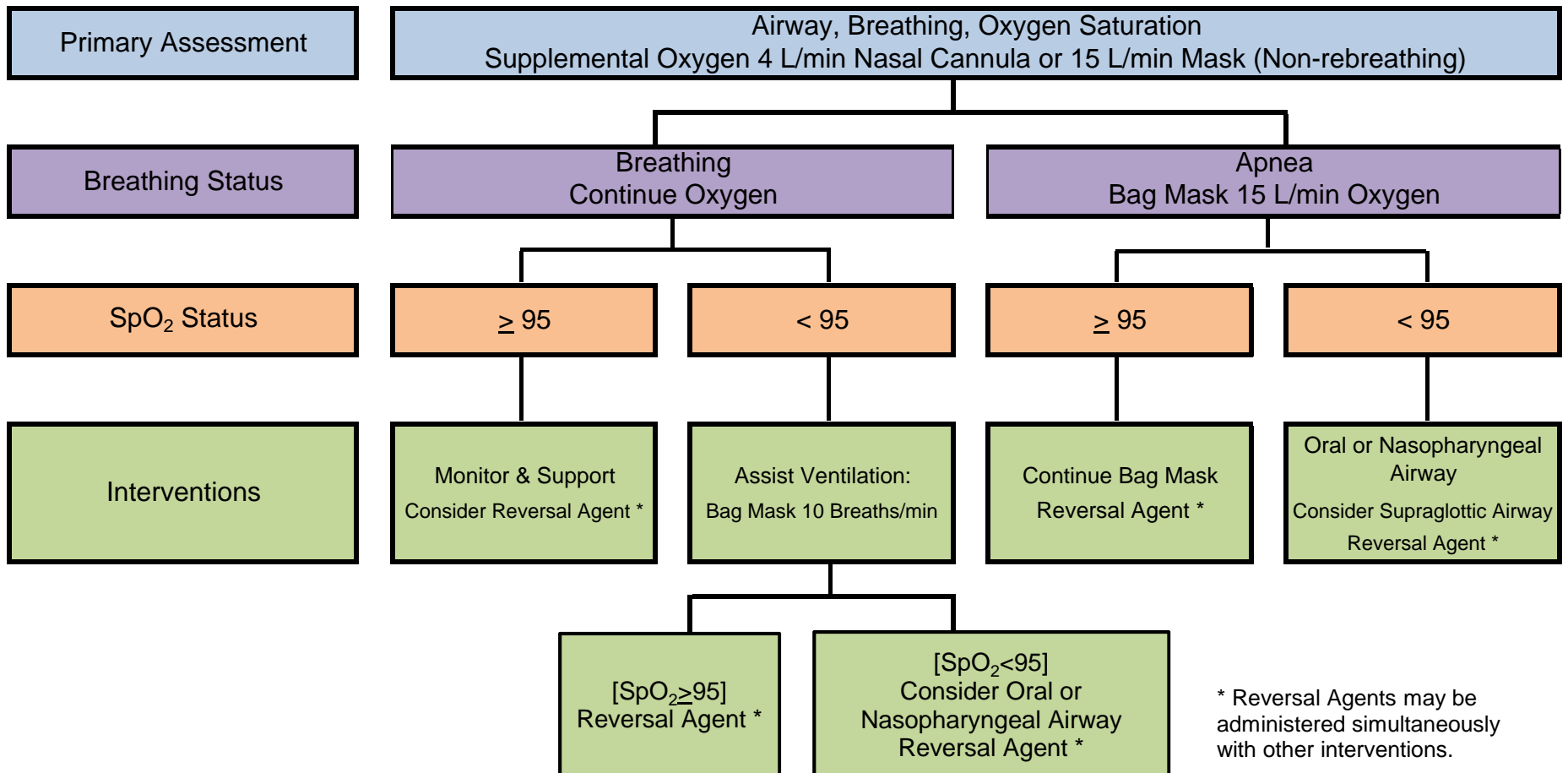
Ventilation Management - Apnea / Hypoventilation / Obstruction

Step 1 Open the airway with head tilt, chin lift, and jaw thrust.
Step 2 Consider oral or nasal airway if apneic.
Step 3 Bag Mask ventilation - preferably two person. One breath every 6 seconds, breath volume 400-800 mL, pressure <20 cm H ₂ O, oxygen flow 15 L/minute.
Step 4 Confirm chest rise with each breath.
Step 5 Consider advanced supraglottic airway with gastric venting capacity if unable to ventilate with bag mask easily.
Step 6 Confirm supraglottic airway placement with chest rise.
Step 7 If no chest rise seen after advanced airway placement, continue with evaluation for laryngospasm, foreign body, bronchospasm, or chest wall rigidity.

Respiratory Distress: Oxygenation - Airway - Ventilation Algorithm

Office Team with AHA BLS HP Training

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Adult Cardiac Emergency Management

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Responsive with Chest Pain: ACS Diagnosis	
<p style="text-align: center;">Acute Coronary Syndrome (ACS) symptoms Chest, arm, or face discomfort / pressure Diaphoresis Syncope Hemodynamic instability</p>	<p>Step 1 Assistance and Emergency Medical Service (EMS) called. Call for emergency equipment. Monitor patient.</p>
	<p>Step 2 Supplemental oxygen: Face mask non-rebreathing 15 L/min or Nasal cannula/Nasal hood 4 L/min. Nitroglycerin 0.4 mg tablet sublingual or metered spray dose if blood pressure >90 systolic and heart rate > 50. Aspirin 325 mg tablet or 81 mg x 4 tablets chew and swallow.</p>
	<p>Step 3 Repeat nitroglycerin 0.4 mg in 5 minutes if pain persists and blood pressure >90 systolic.</p>

Unresponsive with Apnea and Carotid Pulse Absent	
<p style="text-align: center;">Apnea No pulse oximeter reading Carotid pulse absent</p>	<p>Step 1 Assistance and EMS called. Call for emergency equipment.</p>
	<p>Step 2 Begin chest compression at 100/minute for 30 compressions. Turn on AED and follow directions.</p>
	<p>Step 3 Insert oral airway and deliver 2 bag-mask ventilations at the end of each 30 chest compression cycle. Advanced Airway placement as soon as possible - See Adult Respiratory Management.</p>
	<p>Step 4 Continue with 30 chest compressions and 2 bag-mask ventilations five (5) times or until AED says stop to analyze rhythm.</p>
	<p>Step 5 AED will indicate either shock recommended (V-fib or pulseless V-tach) or no shock recommended (PEA/Asystole) - see below.</p>

Optimizing CPR	AED Indicates Shock	AED Indicates No Shock
<p>AED 2 minute timer is activated once unit is turned on. Practitioner should check carotid pulse at end of each 2 minute interval of chest compressions while AED is analyzing ECG rhythm.</p> <p>With bag-mask ventilation the 2 minute interval of chest compressions to ventilations at a ratio of 30-2 for 5 cycles provides 150 chest compressions and 10 ventilations. Additionally, the coronary and cerebral perfusion pressures drop with each pause and require ~ 3 compressions to peak again.</p> <p>With placement of an LMA/advanced airway, compressions and ventilations are continuous resulting in 200 compressions and 20 ventilations for the 2 minute interval. Additionally, the coronary and cerebral perfusion pressures are maintained throughout the 2 minute interval.</p> <p>Chest compressions are optimized at a depth of at least 2 inches / 50 mm and a rate of 100/minute. Good chest recoil is necessary to fill the heart. Change the individual performing chest compressions at the end of each 2 minute interval.</p>	<p>Step 1 AED charges and practitioner clears and defibrillates #1.</p> <p>Step 2 Resume CPR for 2 minutes per AED timer.</p> <p>Step 3 Two minute interval complete. AED analyzes ECG rhythm and carotid pulse absent. AED indicates shock.</p> <p>Step 4 AED charges and practitioner clears and defibrillates #2.</p> <p>Step 5 Resume CPR and administer epinephrine 1 mg in prefilled syringe 1:10,000 10 ml IV followed by flush.</p> <p>Step 6 Two minute interval complete. AED analyzes ECG rhythm and carotid pulse absent.</p> <p>Step 7 AED charges and practitioner clears and defibrillates #3.</p> <p>Step 8 Resume CPR and administer amiodarone 300 mg/IV followed by flush.</p> <p>Step 9 Two minute interval complete. AED analyzes ECG rhythm and carotid pulse absent. AED indicates shock.</p> <p>Step 10 AED charges and practitioner clears and defibrillates #4.</p> <p>Step 11 Resume CPR and administer epinephrine 1 mg in prefilled syringe 1:10,000 10 mL IV followed by flush.</p> <p>Step 12 CPR continues at 2 minute intervals until EMS arrives.</p>	<p>Step 1 Resume CPR and administer epinephrine 1 mg in prefilled syringe 1:10,000 10 mL IV followed by flush.</p> <p>Step 2 Two minute interval complete. AED analyzes ECG rhythm and carotid pulse absent. AED still indicates no shock.</p> <p>Step 3 Resume CPR.</p> <p>Step 4 Two minute interval complete. AED analyzes ECG rhythm and carotid pulse absent. AED still indicates no shock.</p> <p>Step 5 Resume CPR and administer epinephrine 1 mg in prefilled syringe 1:10,000 10 mL IV followed by flush.</p> <p>Step 6 CPR continues at 2 minute intervals until EMS arrives.</p>

Drug Management for Adult Emergencies - AHA BLS HP and ACLS Provider

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- 1) Primary Assessment: Responsiveness, Pulse, Ventilation, Oxygenation SpO2, BP
- 2) Initial Management: Oxygenation and Ventilation (nasal cannula, face mask, BVM), Circulation (raise legs, chest compressions, defibrillation)
- 3) Determine diagnosis for drug administration

Reversal / Respiratory Depression		Chest Pain: Stable Angina / Acute Coronary Syndrome (Unstable Angina / MI)			
Flumazenil 0.1 mg/mL	Naloxone 0.4 mg/mL	Nitroglycerin 0.4 mg tablet or spray	Fentanyl 50 mcg/mL or Morphine 10 mg/mL		Aspirin (not enteric coated) 325 mg tablet x 1 or 81 mg tablets x 4
10 mL Syringe	1 mL Syringe	SL: 1 tab/spray q 5 min x 3	1 mL Syringe		Chew and swallow 325 mg tablet x 1 or 81 mg tablets x 4
IV: 0.2 mg = 2 mL x 5 doses q 1 min	IV, IM or SLI: 0.2-0.4 mg = 0.5-1.0 mL q 4 min	Administer only if blood pressure >90 and heart rate >50. Assume ACS if no relief following first dose	Fentanyl IV, IM or SLI: 25-50 mcg = 0.5-1 mL q 4 min	Morphine IV, IM or SLI: 2 mg = 0.2 mL q 4 min	
Bradycardia	Hypotension		Cardiac Arrest		
Atropine 1 mg/mL vial 1 mL Syringe IV, IM, or SLI: 0.5 mg = 0.5 mL q 4 min	Ephedrine 50 mg/mL	Epinephrine 1:10,000 0.1 mg/mL	Vasopressin 20 units/mL 1 mL vial x 2	Amiodarone 50 mg/mL 3 mL vial x 3	or Lidocaine 20 mg/mL
0.1 mg/mL Prefilled Syringe IV: 0.5 mg = 5 mL q 4 min	1 mL Syringe	Prefilled Syringe	5 mL Syringe	10 mL Syringe	Prefilled Syringe
	IV: 5 mg=0.1 mL IM or SLI: 10 mg = 0.2 mL q 4 min	IV: 1 mg = 10 mL q 4 min	IV: 40 units/2 mL 1 dose per ACLS	IV: 300 mg 6 mL Initial per ACLS	IV: 1.5 mg/kg Initial per ACLS
Allergy / Asthma - Bronchospasm			Anaphylaxis / Laryngeal Edema		
Diphenhydramine 50 mg/mL 1 mL Syringe	Albuterol 90 mcg metered inhaler	Epinephrine 1:1000 1 mg/mL 1 mL Syringe or auto-injector IM: 0.3 mg = 0.3 mL	Epinephrine 1:1000 1 mg/mL		
IM: 50 mg = 1 mL or IV: Dilute 1 mL in 10 mL syringe to 5 mg/mL Deliver 25 mg=5 mL q 4 min	2 inhalations x 3	1:10,000 0.1 mg/mL Prefilled Syringe Only if life-threatening IV: 0.1 mg = 1 mL increments q 4 min	Auto-injector / Epi-pen®	1 mL syringe	
	Requires cooperative patient		Auto inject 0.3 mg over 10 sec	IM: 0.3 mg = 0.3 mL	
			Repeat q 4 min if necessary		
Hypoglycemia			Laryngospasm		
Glucose Oral 15 or 24 g tube	Glucagon Kit		Succinylcholine 20 mg/mL (Refrigerated)		
Only conscious patient slowly swallow oral delivery	1 mg vial + 1 mL sterile water 1 mg IV or IM		1 mL Syringe IV or IM 20 mg = 1 mL		
IM=Intramuscular Vastus Lateralis or Deltoid / IV=Intravenous / SLI=Sublingual submucosal injection / SL=Sublingual mucosal topical					

Adult Emergency - Drug Management (CPR excluded)

AHA BLS HP and ACLS + General anesthesia training

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Respiratory Depression / Over Sedation / Respiratory Soft Tissue Obstruction			
Drug	Action	Supplied	Administration
Naloxone	Opioid antagonist	0.4 mg/mL	IV or IM: 0.4 mg (1 mL) q 4 minutes
Flumazenil	Benzodiazepine antagonist	0.1 mg/mL	IV: 0.2 mg (2 mL) q 1 minute
Bradycardia			
Drug	Action	Supplied	Administration
Atropine	Anticholinergic	1 mg/mL	IV or IM: 0.5 mg (0.5 mL) q 4 minutes
	Anticholinergic	0.1 mg/mL 10 mL prefilled syringe	IV: 0.5 mg (5 mL) q 4 minutes
Hypotension			
Drug	Action	Supplied	Administration
Ephedrine	Alpha and beta agonist	50 mg/mL	IV: 10-25 mg (0.2-0.5 mL) q 3-5 minutes
Hypoglycemia			
Drug	Action	Supplied	Administration
Glucose oral	Carbohydrate	15 or 24 gram tube	Contents slowly swallowed. Only for conscious patient.
Glucagon (optional)	Induces liver glycogen breakdown and glucose release	1 mg with 1 mL diluent	IV, IM or SC 1 mg (1mL)
Allergic Reaction Mild			
Drug	Action	Supplied	Administration
Diphenhydramine	Histamine H1 antagonist	50 mg/mL	IM: 25 mg (0.5 mL). May need to repeat.
Anaphylaxis / Laryngeal Edema			
Drug	Action	Supplied	Administration
Epinephrine	Alpha and beta agonist	1:1000 in 1 mg/mL vial	IM: 0.3 mg (0.3 mL). May need to repeat.
		1:1000 auto-injector adult 0.3 mg	Auto-inject IM: 0.3 mg. May need to repeat.
Bronchospasm			
Drug	Action	Supplied	Administration
Albuterol	Selective beta-2 agonist	90 mcg/dose metered inhaler	2 inhalations. Epinephrine IM if ineffective.
Epinephrine Severe bronchospasm	Alpha and beta agonist	1:1000 in 1 mg/mL	IM: 0.3 mg (0.3 mL). May need to repeat. Cardiovascular compromised patient consider reduced dose.
		1:1000 auto-injector adult 0.3 mg	Auto-inject IM: 0.3 mg. May need to repeat.
Laryngospasm			
Drug	Action	Supplied	Administration
Succinylcholine	Paralysis	20 mg/mL	IV or IM: 20 mg (1 mL)

Emergency Drug List – Adult Medical Emergency Management
 AHA BLS HP and ACLS
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Drugs		Syringes and Needles for Administration
Albuterol Inhalation Metered Inhaler (90 mcg/actuation)	Epinephrine 1:10,000 0.1 mg/mL 10 mL prefilled syringe – two	1 mL syringe with 21 gauge 1 inch needle – four
Amiodarone 50 mg/mL 3 mL vial – three	Flumazenil 0.1 mg/mL 10 mL vial (or 5 mL vials – two)	5 mL syringe with 21 gauge 1.5 inch needle – two
Aromatic Ammonia Inhalant Vaporole(s) – two (optional)	Glucose Oral 15 gram tube – two (or 24 gram tube – one) Glucagon Kit 1 mg vial + 1 mL sterile water (optional)	10 mL syringe with 21 gauge 1.5 inch needle - two
Aspirin 81 mg tablets - four or Aspirin 325 mg tablets (not enteric coated) unit dose package	Naloxone 0.4 mg/mL 1 mL vial	20 mL syringe + 21 gauge 1 inch needle (optional)
Atropine 1 mg/mL 1 mL vial Atropine 0.1 mg/mL 10 mL prefilled syringe (optional)	Nitroglycerin 0.4 mg tablets Nitroglycerin 0.4 mg/dose pump spray bottle (optional)	<p>Ten Minutes Saves A Life! is a registered trademark of the ADSA Anesthesia Research Foundation © 2013 EmergSim LLC 10Min EmergDrugs ACLS 131203 (6A)</p>
Diphenhydramine 50 mg/mL 1 mL vial	Succinylcholine 20 mg/mL 10 mL vial (Refrigerated)	
Ephedrine 50 mg/mL 1 mL vial	Vasopressin 20 units/mL 1 mL vial – two (optional)	
Epinephrine 1:1,000 1 mg/mL 1 mL vial Epinephrine auto-injectors (0.3 mg/actuation) - two (optional)		

Oxygenation, Ventilation, Airway Equipment

Adult Emergency Management

AHA BLS HP and ACLS

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Oxygen E tank (alloy) with regulator (integral or detachable with key), pressure gauge, and flow meter (1-15L/minute)
Suction handle with Yankauer tip, suction tubing, and vacuum high volume system adapter
Nasal cannula adult
Face mask non-rebreather adult
Resuscitation bag adult 800-1100 mL stroke volume with pressure manometer (with or without pressure-limiting valve and override), face mask, oxygen reservoir bag, and oxygen tubing
Nasopharyngeal airways (poly vinyl chloride): 24 Fr / 6.0 mm I.D. 26 Fr / 6.5 mm I.D. 28 Fr / 7.0 mm I.D. 30 Fr 7.5 mm I.D.
Oropharyngeal airways (Guedel): 80 mm, 90 mm, and 100 mm
Laryngeal Supraglottic Airways - gastric venting Size 3 (30-60 kg) Size 4 (50-90 kg) Size 5 (90 kg+)
Stethoscope + Sphygmomanometer with adult standard and large cuffs
Magill forceps
Practitioner with advanced airway intubation training:
Laryngoscope handle - practitioner preference
Laryngoscope blade(s) - practitioner preference
Endotracheal tubes: 6.0 / 6.5 / 7.0 / 7.5
Endotracheal tube stylet
Eschmann introducer/bougie
10 mL syringe
End-tidal carbon dioxide detector
End-tidal monitor adapter and tubing for attachment to LMA, ET, and mask
Albuterol aerosol holding chamber for resuscitation bag (e.g. Aero Chamber mini, Monaghan) - optional

Adult Emergency Drugs

AHA BLS HP and ACLS

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Amiodarone

Flumazenil

Naloxone

Atropine Prefilled Syringe

Epinephrine 1:10,000 Prefilled Syringes

Aspirin

Succinylcholine
(Refrigerated)

Syringes and
Needles

Optional

Aromatic Ammonia

Glucagon

Nitroglycerin
pump spray bottle

Atropine
Vasopressin
(optional)

Nitroglycerin

Diphenhydramine

Epinephrine 1:1,000 auto-injectors (optional)

Ephedrine

Epinephrine

Glucose Oral

Albuterol Inhaler

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