

COMMON RAPID RESPONSE TEAM INTERVENTIONS

Course Handout

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Rapid Response Systems

Rapid response systems are designed to identify clinical deterioration early and bring appropriate resources to the bedside before a preventable cardiac arrest or other catastrophic event occurs.

- Afferent limb: detection of deterioration, recognition of triggers, and activation of the response.
- Efferent limb: assessment, diagnosis, treatment, triage, and transfer by the response team.
- Quality-improvement and administrative support are also important parts of a complete rapid response system.
- Activation criteria vary by facility; staff concern alone may be an appropriate reason to activate the team.

NEWS2: Early Recognition of Deterioration

NEWS2 uses respiratory rate, oxygen saturation, supplemental oxygen, systolic blood pressure, pulse, temperature, and level of consciousness. It supports clinical judgment rather than replacing it.

NEWS2 score	Clinical risk
0-4	Low
Any single parameter = 3	Requires clinical review/escalation
5-6	Medium
≥7	High

SpO₂ Scale 1 is used for most patients. Scale 2 is reserved for patients with a prescribed 88-92% target, typically because of confirmed hypercapnic respiratory failure.

Respiratory Emergencies

Airway and Breathing

- Assess airway patency, respiratory effort, SpO₂, breath sounds, mental status, and ventilation.
- Use airway adjuncts when appropriate. If ventilation is inadequate, support ventilation rather than relying on oxygen alone.
- Titrate oxygen to the clinical situation and obtain ABG/VBG data when it will change management.
- Prepare for controlled intubation when noninvasive measures are failing or the airway cannot be protected.

Upper-Airway Emergencies

- Foreign body, angioedema, and anaphylaxis can deteriorate rapidly.
- IM epinephrine is first-line treatment for anaphylaxis.
- ACE-inhibitor angioedema is typically bradykinin-mediated; involve expert airway help early.
- Heliox may temporarily reduce work of breathing in selected upper-airway obstruction but does not correct the underlying problem.

Pulmonary Embolism / Shunt

- Evaluate suspected PE according to pretest probability.
- D-dimer can help rule out PE in appropriately selected low/intermediate-risk patients; it does not rule PE in.
- CT pulmonary angiography is the standard diagnostic study in many patients; V/Q scanning remains useful in selected situations.
- High-risk PE may require anticoagulation plus urgent escalation for reperfusion therapy.

Oxygen Delivery and Perfusion

- Anemia can markedly reduce arterial oxygen content and tissue oxygen delivery even when SpO₂ is normal.
- Low cardiac output reduces oxygen delivery despite adequate saturation.
- Shock categories include hypovolemic, distributive, cardiogenic, and obstructive shock.

Neurologic Emergencies

Altered Mental Status

- Start with ABCs and a bedside glucose.
- Review oxygenation, ventilation, medications/toxins, neurologic findings, infection, metabolic causes, and perfusion.
- Pupil findings provide clues but are not diagnostic by themselves.

Seizures

- Status epilepticus: seizure lasting 5 minutes or longer, or recurrent seizures without recovery between episodes.
- Benzodiazepines are first-line treatment.
- Common second-line options include levetiracetam, fosphenytoin, or valproate.
- Use flumazenil cautiously because it can precipitate seizures in susceptible patients.

Cardiac Rhythm Emergencies

Tachyarrhythmias

- Determine whether the patient is stable or unstable and whether the rhythm is narrow or wide, regular or irregular.
- Stable regular narrow-complex SVT: vagal maneuvers, then adenosine 6 mg rapid IV push; if needed, 12 mg.
- Unstable tachyarrhythmia with a pulse: synchronized cardioversion using rhythm/device-appropriate energy.
- Pulseless VT/VF: defibrillation and cardiac-arrest care. Polymorphic VT is treated with unsynchronized shock.

Bradycardia

- Treat symptomatic bradycardia when there is cardiopulmonary compromise.
- Atropine: 1 mg IV every 3-5 minutes, maximum 3 mg.
- If atropine is ineffective, consider transcutaneous pacing and/or epinephrine or dopamine infusion.

Cardiac Arrest

- High-quality CPR: compression rate 100-120/min.
- With an advanced airway in place, provide 1 breath every 6 seconds (10/min) without pausing compressions.
- For respiratory arrest with a pulse, provide 1 breath every 6 seconds.
- Avoid intentional hyperventilation. Search for and treat reversible causes (Hs and Ts).

Other Common Rapid Response Problems

Sepsis / Distributive Shock

- Sepsis is life-threatening organ dysfunction caused by a dysregulated response to infection; bacteremia is not required.
- Give fluids when indicated, but reassess response rather than automatically continuing large volumes.
- Norepinephrine is the usual first-line vasopressor when hypotension persists despite appropriate initial resuscitation.

Agitation and Alcohol Withdrawal

- Treat agitation as a symptom and look for hypoxia, hypercapnia, hypoglycemia, medication effects, withdrawal, delirium, pain, or neurologic disease.
- Use verbal de-escalation when feasible; medication choice depends on the cause and severity.
- Benzodiazepines are first-line for alcohol withdrawal. Phenobarbital may be used as an alternative or adjunct in established protocols.

- Provide thiamine and correct fluids/electrolyte abnormalities when indicated.

Opioid Overdose

- Airway support and ventilation come first when breathing is inadequate.
- Naloxone should be titrated to restore adequate ventilation.
- Recurrent respiratory depression can occur because naloxone may wear off before the opioid.

Hypertensive Emergency

- Hypertensive emergency requires severe hypertension plus acute target-organ injury.
- When no compelling condition is present, an initial systolic BP reduction of no more than about 25% during the first hour is commonly targeted.
- Aortic dissection requires rapid BP control with beta blockade first; stroke and pregnancy require condition-specific targets.

Hypoglycemia

- ADA Level 1: glucose <70 mg/dL and ≥54 mg/dL.
- Level 2: glucose <54 mg/dL.
- Level 3: severe altered mental/physical status requiring assistance, regardless of measured glucose.
- If conscious and able to swallow, give about 15 g fast-acting carbohydrate and recheck in 15 minutes. Use IV dextrose when oral treatment is unsafe; glucagon is an option when IV access is unavailable.

Hyperkalemia

- Severe concern: $K^+ \geq 6.5$ mEq/L or significant ECG changes.
- IV calcium stabilizes the myocardium when significant ECG changes are present.
- Insulin plus dextrose shifts potassium intracellularly; high-dose nebulized albuterol can be an adjunct.
- Potassium must ultimately be removed from the body; dialysis is definitive in severe/refractory cases, particularly with renal failure.

Disease-Specific Rapid Response Interventions

Acute Decompensated Heart Failure

- Use diuretics for congestion when appropriate.
- Nitrates may be particularly useful in hypertensive pulmonary edema.
- NIV can rapidly improve respiratory distress in selected patients.
- Reserve inotropes for selected low-output states; ultrafiltration/dialysis may be needed for refractory volume overload.

Atrial Fibrillation with RVR

- Stable patients may receive a beta blocker or diltiazem/verapamil depending on EF and comorbidities.
- Avoid non-dihydropyridine calcium-channel blockers in significant systolic heart failure.
- Unstable AF with RVR requires synchronized cardioversion.

Acute Asthma

- Use inhaled SABA; add ipratropium in severe exacerbations and give systemic corticosteroids early.
- Give oxygen as needed; IV magnesium may be considered in selected severe cases.
- NIV may be appropriate in selected patients, but do not delay intubation when respiratory failure is progressing.
- After stabilization, current asthma management emphasizes ICS-containing therapy rather than SABA-only treatment.

COPD Exacerbation

- Use bronchodilators, systemic corticosteroids, and antibiotics when bacterial infection is likely.
- For patients at risk of hypercapnic respiratory failure, a common oxygen target is 88-92%.
- NIV is a key intervention for acute hypercapnic respiratory acidosis when appropriate.
- Do not delay intubation when NIV is failing or contraindicated.

Accidental Tracheostomy Decannulation

- A fresh tracheostomy tract carries a high risk of creating a false passage during reinsertion.
- When anatomy is uncertain, oxygenate both the face and stoma while help is mobilized.
- In a mature tract, trained staff may attempt the same-size or one-size-smaller tube according to protocol.
- Use waveform capnography when available to confirm ventilation.
- A total laryngectomy patient can only be oxygenated and ventilated through the stoma.

Life-Threatening Hemoptysis

- Airway management is the first priority.
- If the bleeding side is known, position the patient with the bleeding lung down when appropriate.
- Correct coagulopathy, prepare for bronchoscopy, and consider a large-bore endotracheal tube when intubation is required.
- Bronchial artery embolization is a major definitive treatment.

Acute Ischemic Stroke

- Activate the stroke pathway immediately and establish last-known-well time.
- Eligible patients with disabling acute ischemic stroke may receive alteplase or tenecteplase within 4.5 hours.
- Selected patients may qualify for extended-window thrombolysis using advanced imaging.
- Mechanical thrombectomy eligibility has expanded; selected patients may benefit up to 24 hours after last known well.

Rapid Response Bedside Checklist

Question	What to assess
Airway?	Patent? Secretions? Stridor? Aspiration? Artificial airway problem?
Breathing?	RR, effort, SpO ₂ , breath sounds, ventilation, oxygen/device
Circulation?	HR/rhythm, BP, perfusion, bleeding, IV access
Disability?	Mental status, pupils, glucose, seizure/stroke findings
Exposure / cause?	Temperature, medications, infection, labs, recent procedures
What changed?	Trend vital signs and compare with baseline
What is needed next?	Treatment, diagnostics, consultation, higher level of care

Key Takeaways

- Recognize deterioration early and activate help before the patient reaches cardiac arrest.
- Treat immediate threats to airway, breathing, and circulation while the cause is being identified.
- Use protocols and scoring systems as aids, not substitutes for clinical judgment.
- Reassess after every intervention and escalate the level of care when the patient is not responding.

Selected References

American Heart Association. 2025 Guidelines for CPR & Emergency Cardiovascular Care.

Prabhakaran S, et al. 2026 Guideline for the Early Management of Patients With Acute Ischemic Stroke. American Heart Association/American Stroke Association.

Joglar JA, et al. 2023 ACC/AHA/ACCP/HRS Guideline for the Diagnosis and Management of Atrial Fibrillation.

Global Initiative for Asthma. Global Strategy for Asthma Management and Prevention. 2026.

Global Initiative for Chronic Obstructive Lung Disease. GOLD Report. 2026.

American Diabetes Association. Standards of Care in Diabetes. 2026.

Surviving Sepsis Campaign. International Guidelines for Management of Sepsis and Septic Shock.