Approach to Dyspnea

RESPIRATORY

LR 0.11 — KEY DECISION RULE
BNP <100 ng/L (pg/mL)[2]
for HF in ED dyspnea; NT-proBNP uses its own, higher cutoffs

Shortness of breath, new or acutely worse

→ Look yourself: RR, SpO2, work of breathing, speech, mentation; ABCs, monitor, IV[12]

→ ECG, chest X-ray, blood gas, BNP, hs-troponin; lung and cardiac POCUS[2,5,12]

→ **Respiratory distress?**

Yes →

Distress: call for help; secure the airway[12]

- Stridor, angioedema: IM epi[10]
- Can't speak; quiet chest
- Drowsy, tiring, or rising PaCO2
- Hypoxemia despite high-flow O2
- Tension PTX signs: decompress
- Shock: PE, tamponade[3,12]

→ **O2 to SpO2 ≤96% (88–92% if CO2 retainer); intubate early[7,8]**

If not: where is the problem?

	Heart & vessels	Airways	Lung & pleura	Outside the chest
CAUSES	• **Acute heart failure, ACS** • **Pulmonary embolism** • Arrhythmia, valve disease, tamponade	• **Anaphylaxis, angioedema, foreign body** • Asthma or COPD exacerbation • Mucus plug; vocal cord dysfunction	• Pneumonia, aspiration • **Tension pneumothorax** • Effusion, ARDS, ILD, hemorrhage	• **Metabolic acidosis: DKA, sepsis** • Anemia; toxins: CO, salicylate, opioids • GBS, MG, ALS; obesity; anxiety
CLUES	• Prior HF (LR 5.8); PND (LR 2.6)[2] • S3 (LR 11); CXR congestion (LR 12)[2] • PE: sudden, pleuritic; clear CXR; DVT[3]	• Stridor, urticaria after an exposure • Wheeze, prolonged expiration • A-lines + sliding, no DVT: asthma/COPD[5]	• Fever, cough, focal crackles • Unilateral ↓ breath sounds • Hypoxemia worse on exertion: ILD[12]	• Clear lungs; SpO2 normal (falsely in CO) • Kussmaul breathing; low HCO3 • Weak cough, ↓FVC; PaCO2 rises late[12]
WORKUP	• ECG, hs-troponin, (NT-pro)BNP; echo[1] • Diffuse B-lines: edema (sens 97%)[5] • PE: Wells, then D-dimer or CTPA[3]	• Peak flow or FEV1 if able • Blood gas if drowsy or tiring[12] • Spirometry once stable	• CXR; POCUS: pneumonia sens 89%[5] • No sliding + lung point: PTX[5] • Cultures; tap a new effusion[12]	• VBG, COHb, lactate, glucose, CBC, salicylate • Normal A-a, ↑PaCO2: hypoventilation[12] • Bedside FVC or NIF if weak[12]
MANAGE	• Edema: CPAP, IV diuretic; nitrate if SBP OK[1,6] • PE: anticoagulate; lyse if shock[3] • ACS: chew ASA; STEMI: cath lab[4]	• Anaphylaxis: IM epi 0.5 mg, thigh[10] • Nebs, steroids; asthma: IV Mg[9,12] • COPD, pH ≤7.35 + ↑PaCO2: bilevel NIV[6,9]	• Tension PTX: needle, then chest tube[12] • Pneumonia: cultures, antibiotics • Hypoxemic: HFNC rather than NIV[11]	• Opioid: naloxone; treat DKA, sepsis[12] • Weak: serial FVC; ICU early[12] • Anxiety only after the rest excluded[12]

Stethopedia
stethopedia.ca/approach/dyspnea

Evidence [1] Heidenreich 2022, Circulation [2] Wang 2005, JAMA [3] Creager 2026, Circulation [4] Rao 2025, Circulation [5] Lichtenstein 2008, Chest [6] Rochwerg 2017, Eur Respir J [7] Siemieniuk 2018, BMJ [8] O'Driscoll 2017, Thorax (BTS) [9] Wedzicha 2017, Eur Respir J [10] Cardona 2020, World Allergy Organ J [11] Oczkowski 2022, Eur Respir J [12] Manual 2024–25, pp. 22, 43–44, 51