[HOSPITAL / HEALTH AUTHORITY NAME]

ACUTE SHORTNESS OF BREATH AND RESPIRATORY DISTRESS PATHWAY

Protocol 14: Rapid Recognition, Oxygenation, Ventilatory Support, Cause-Directed Treatment, Reassessment, and Safe Disposition

DRAFT FOR EMERGENCY MEDICINE, INTERNAL MEDICINE, PAEDIATRICS, ANAESTHESIA, RESPIRATORY, CARDIOLOGY, NURSING, PHARMACY, LABORATORY, IMAGING, TRANSFER, AND CLINICAL-GOVERNANCE REVIEW

Immediate safety rule: Respiratory distress is a time-critical syndrome. Treat airway obstruction, severe hypoxaemia, ventilatory failure, tension pneumothorax, anaphylaxis, pulmonary oedema, shock, and impending exhaustion as they are recognized; do not wait for a definitive diagnosis or routine investigations.

Document control	Details
Document owner	Emergency Department / Medical Services / Nursing Services, with Respiratory Medicine, Anaesthesia, Paediatrics, Cardiology, Pharmacy, Laboratory, Imaging, and Transfer Services
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Effective date	[To be completed after approval]
Review date	[Normally 12-24 months after approval, or sooner after a serious respiratory event, equipment/formulary change, new evidence, or change in referral capability]
Approved by	[Clinical Governance Committee / Executive Management / Medical Director]
Related protocols	Protocols 1-12; resuscitation; triage; monitoring; investigations and critical results; medication safety; consultation; safe discharge; admission; interfacility transfer; asthma; COPD; sepsis; ACS; pulmonary embolism; anaphylaxis; pneumothorax; airway and ventilation algorithms
Applies to	Emergency Department clinicians, nurses, respiratory/anaesthetic teams, paediatric staff, ambulance/transfer staff, laboratory, imaging, pharmacy, and all staff contributing to emergency respiratory care

1. Purpose

To provide a standardized, time-sensitive, and auditable pathway for patients presenting with acute dyspnoea, respiratory distress, hypoxaemia, hypercapnia, or suspected respiratory failure, from first contact through stabilization, rapid diagnostic differentiation, cause-directed treatment, repeated reassessment, admission, critical-care or interfacility transfer, observation, or safe discharge.

2. Scope

This protocol applies to adults, adolescents, and children presenting with acute or acutely worsening shortness of breath, abnormal breathing, wheeze, stridor, cough with distress, cyanosis, unexplained hypoxaemia, respiratory fatigue, or altered mental status where respiratory failure may be present. Age-specific paediatric thresholds, medication doses, equipment sizes, and escalation pathways must be used for children. The protocol does not replace local advanced-airway, ventilation, asthma, COPD, pneumonia/sepsis, acute heart-failure, pulmonary-embolism, pneumothorax, anaphylaxis, toxicology, neonatal, or paediatric-resuscitation algorithms.

3. Core policy statements

- Every patient with respiratory distress shall receive an immediate visual safety screen and ABCDE assessment before routine registration or administrative processes.
- Respiratory rate, work of breathing, ability to speak or feed, mental status, pulse, blood pressure, temperature, and oxygen saturation shall be assessed and trended; a normal oxygen saturation does not exclude ventilatory failure, pulmonary embolism, metabolic acidosis, or impending fatigue.
- Oxygen shall be titrated to an explicit target range. A typical target is 94-98% for acutely ill patients not at risk of hypercapnic respiratory failure and 88-92% for patients with known or suspected risk of carbon-dioxide retention, pending blood-gas assessment and local policy.
- In critical hypoxaemia, peri-arrest, or cardiac arrest, high-concentration oxygen and immediate ventilatory support shall not be withheld while awaiting a blood gas or formal prescription.
- Non-invasive ventilation (NIV) shall be initiated only in an appropriate monitored setting by trained staff, with a documented indication, contraindication screen, treatment targets, frequent review, and a clear plan for failure or intubation.
- NIV, high-flow oxygen, imaging, laboratory testing, or transfer arrangements must never delay definitive airway management when the patient cannot protect the airway, is exhausted, is deteriorating, or has refractory gas-exchange failure.
- Tension pneumothorax, anaphylaxis, upper-airway obstruction, severe asthma with a silent chest, cardiogenic pulmonary oedema, massive pulmonary embolism, and sepsis with respiratory failure are clinical emergencies; treatment shall begin as soon as they are recognized.
- Nebulized therapy shall be used with appropriate infection-control precautions. A pressurized metered-dose inhaler with spacer should be used when clinically effective and feasible, particularly when aerosol-transmission risk is present.
- The label “anxiety” or “hyperventilation” shall not be used until important organic causes have been actively considered and the patient has been reassessed.
- Disposition shall be based on diagnosis, physiology, trajectory, treatment response, oxygen or ventilatory requirement, comorbidity, functional capacity, and social safety—not on a single normal observation or transient improvement.
- Every treatment episode shall include documented reassessment. Failure to improve, recurrent deterioration, or rising oxygen/ventilatory requirement requires senior review and escalation.

4. Definitions

Term	Operational definition
Dyspnoea	A subjective experience of breathing discomfort. Severity may not correlate with oxygen saturation or a single physiological measurement.

Term	Operational definition
Respiratory distress	Clinical evidence of increased work of breathing or inability to sustain effective ventilation or oxygenation, including tachypnoea, recession, accessory-muscle use, nasal flaring, grunting, abnormal posture, diaphoresis, inability to speak/feed, agitation, or exhaustion.
Hypoxaemia	Abnormally low arterial oxygenation, recognized by pulse oximetry and/or blood gas in clinical context. Pulse oximetry may be unreliable with poor perfusion, motion, dyshemoglobinaemia, or carbon-monoxide poisoning.
Hypercapnic respiratory failure	Inadequate alveolar ventilation with elevated arterial carbon dioxide, usually assessed with a blood gas and interpreted with pH, bicarbonate, clinical state, and prior baseline.
Impending respiratory arrest	Progressive exhaustion, reduced respiratory effort, silent chest, worsening consciousness, bradycardia, severe gas-exchange failure, or inability to protect the airway.
Non-invasive ventilation (NIV)	Positive-pressure ventilatory support delivered through a non-invasive interface, including CPAP or bilevel support, without an endotracheal tube.
High-flow nasal oxygen	Heated, humidified oxygen delivered at high flow through a dedicated system. Use requires local equipment, competency, monitoring, and escalation standards.
Treatment failure	Failure to achieve predefined clinical or physiological improvement, or any deterioration, after an appropriate trial of therapy.
Baseline oxygen requirement	The patient's stable prescribed long-term oxygen or ventilatory support requirement, verified where possible and not assumed from the patient's current acute use.

5. Roles and accountability

Role	Minimum accountability
Triage / receiving nurse	Recognizes respiratory distress, assigns acuity, begins immediate observations and oxygen where indicated, activates resuscitation, applies infection precautions, and does not delay care for registration.
Assigned ED nurse	Maintains airway and oxygen equipment, administers approved therapy, monitors targets and alarms, documents response, repeats observations, recognizes fatigue/deterioration, and escalates immediately.
ED clinician	Performs rapid ABCDE and focused assessment, identifies immediate threats, orders and interprets investigations, prescribes target oxygen and treatment, reassesses response, and determines disposition.

Role	Minimum accountability
Senior ED clinician / physician in charge	Reviews severe, unclear, deteriorating, NIV-dependent, recurrent, or discordant cases; leads airway and transfer decisions; resolves disputes and delays.
Anaesthesia / critical-care team	Supports advanced airway management, NIV/ventilation, procedural sedation where relevant, critical-care admission, and transfer of ventilated or physiologically unstable patients.
Respiratory / internal medicine / paediatric / cardiology teams	Provide timely specialty input, support cause-specific management, accept admission when indicated, and assist with escalation or transfer.
Laboratory / imaging / point-of-care staff	Prioritize time-critical tests, ensure correct patient identification, communicate critical findings, and escalate delays or equipment failure.
Pharmacy	Maintains emergency respiratory medicines, supports safe preparation and dosing, and provides formulary and shortage guidance.
Transfer / ambulance team	Confirms transport capability, oxygen and power reserves, escort competency, monitoring, equipment, acceptance, and contingency plans.

6. Pathway activation and triage

Activate this pathway for any patient with new or worsening dyspnoea, visible respiratory distress, unexplained tachypnoea, wheeze, stridor, cyanosis, low oxygen saturation, abnormal breathing pattern, respiratory fatigue, or suspected respiratory failure. The triage category shall reflect the most dangerous plausible condition and the current physiological state.

- Red / immediate: airway obstruction or stridor with distress; severe hypoxaemia; inability to speak, feed, or maintain posture; silent chest; cyanosis; altered consciousness; exhaustion; bradypnoea or irregular breathing; shock; cardiac arrest; suspected tension pneumothorax; anaphylaxis; acute pulmonary oedema with severe distress; massive pulmonary embolism; major chest trauma; or rapidly rising oxygen requirement.
- Yellow / urgent: moderate work of breathing, abnormal respiratory rate, persistent hypoxaemia corrected with low-flow oxygen, significant wheeze, pleuritic pain, fever with respiratory symptoms, possible pulmonary embolism, acute heart failure, COPD/asthma exacerbation without current red features, or important comorbidity.
- Green classification should be exceptional until significant respiratory and non-respiratory causes have been assessed. A normal saturation and apparent anxiety do not establish low risk.
- Apply airborne, droplet, contact, or other transmission-based precautions according to symptoms, epidemiology, and local infection-control policy without delaying life-saving treatment.
- Patients with prehospital NIV, high-flow oxygen, severe hypoxaemia, airway compromise, or a pre-alert for critical respiratory illness shall go directly to a resuscitation-capable area.

7. The first 5 minutes

Target	Required action
0-1 minute	Immediate visual assessment: responsiveness, airway patency, breathing effort, colour, speech/cry, major bleeding, circulation, and need for resuscitation activation.

Target	Required action
0-3 minutes	Position for airway and breathing, attach pulse oximetry and cardiac monitoring when indicated, record respiratory rate, heart rate, blood pressure, mental status, temperature, and oxygen device/flow.
Concurrent	Give oxygen to the prescribed or emergency target, support ventilation, treat obvious airway obstruction/anaphylaxis/tension pneumothorax, and summon senior/airway assistance.
0-5 minutes	Obtain focused history, examine chest and circulation, establish IV/IO access appropriate to severity, check glucose, obtain ECG, and decide whether blood gas or bedside ultrasound is immediately required.
By 5 minutes	Document working syndrome, immediate threats considered, target oxygen range, initial treatment, reassessment time, escalation trigger, and named responsible clinician.

8. Immediate stabilization: ABCDE

8.1 Airway

- Assess patency, voice/cry, stridor, snoring, gurgling, secretions, swelling, foreign body, facial/neck trauma, burns, and ability to protect the airway.
- Use positioning, suction, airway manoeuvres, and age-appropriate adjuncts. Maintain cervical-spine precautions when trauma is possible.
- Treat anaphylaxis immediately with the locally approved intramuscular adrenaline pathway. Do not wait for hypotension or rash when airway/breathing compromise is present.
- Activate advanced-airway support early for progressive swelling, severe stridor, reduced consciousness, fatigue, or difficult-airway predictors. Prepare a primary plan, backup plan, and rescue oxygenation plan.
- Airway danger signs: worsening stridor, drooling, inability to swallow, muffled voice, severe facial/neck swelling, silent or minimal air movement, reduced consciousness, or rapidly progressive symptoms.

8.2 Breathing

- Assess respiratory rate and pattern, chest movement, accessory-muscle use, recession, nasal flaring, grunting, ability to speak/feed, breath sounds, percussion where appropriate, oxygen saturation, and signs of fatigue.
- Give controlled oxygen to an explicit target range; reassess saturation and clinical state after every device or flow change.
- Provide bag-mask ventilation when breathing is absent or inadequate. Use two-person technique and airway adjuncts where possible.
- A suspected tension pneumothorax with severe compromise is a clinical diagnosis requiring immediate decompression by an authorized clinician; do not delay for imaging.
- Start bronchodilator, CPAP/NIV, diuretic/vasodilator, antimicrobial, antidote, or other cause-directed treatment as indicated while continuing diagnostic assessment.

8.3 Circulation

- Assess pulse, blood pressure, perfusion, jugular venous pressure where relevant, heart sounds, peripheral oedema, bleeding, and shock.

- Avoid reflex large-volume fluid administration when pulmonary oedema, right-heart failure, or cardiogenic shock is possible. Use small reassessed aliquots or alternative haemodynamic support according to the working diagnosis and local resuscitation protocol.
- Obtain ECG promptly when ACS, arrhythmia, pulmonary embolism, myocarditis, electrolyte disturbance, or heart failure is possible.

8.4 Disability and exposure

- Assess mental status, agitation, drowsiness, headache, asterixis, seizure, and glucose. Reduced consciousness may reflect hypoxaemia, hypercapnia, shock, poisoning, infection, or exhaustion.
- Expose sufficiently to identify trauma, rash, urticaria, asymmetry, subcutaneous emphysema, infection, oedema, or thromboembolic signs while preserving dignity and preventing hypothermia.

9. Oxygen therapy and target saturation

Clinical group	Oxygen standard
Most acutely ill patients not at risk of hypercapnic failure	Use a locally approved target, typically 94-98%. Titrate to target and reduce oxygen when above target.
Known COPD or other risk of hypercapnic respiratory failure	Use controlled oxygen, typically 88-92% pending blood-gas results and knowledge of the patient's usual target. Reassess clinically and repeat gas after significant change.
Critical hypoxaemia / peri-arrest / cardiac arrest	Give high-concentration oxygen and immediate ventilation support while urgent definitive assessment proceeds. Do not delay emergency treatment for prescription formalities.
Carbon-monoxide or dyshemoglobinaemia concern	Pulse oximetry may be misleading. Give appropriate high-concentration oxygen and obtain co-oximetry or specialist toxicology guidance where available.
Pregnancy	Avoid maternal hypoxaemia; use obstetric and fetal assessment where appropriate. Escalate early because maternal deterioration threatens both patient and fetus.
Chronic home oxygen / baseline hypoxaemia	Verify the prescribed baseline and target where possible. Acute deterioration still requires assessment; do not assume a low saturation is normal.

- Record the device, flow or concentration, target saturation, measured saturation, time, and response.
- Check the complete oxygen delivery system, tubing, humidification where applicable, cylinder contents, power, and alarm settings.
- Unexpected desaturation requires clinical reassessment and an equipment check; do not treat the monitor alone.
- Do not use oxygen to treat subjective dyspnoea in a non-hypoxaemic patient without another indication; identify and treat the cause.

10. Ventilatory support and advanced airway escalation

10.1 Non-invasive support

- Consider CPAP/NIV for appropriate patients with acute cardiogenic pulmonary oedema or acute hypercapnic respiratory failure, particularly COPD exacerbation, when local criteria are met.
- NIV requires a cooperative patient who can protect the airway, an appropriate interface, continuous observation, monitoring, trained staff, and immediate access to escalation.

- Document the indication, mode, initial settings per local protocol, oxygen target, baseline observations and blood gas, treatment goals, review time, ceiling of care, and intubation/failure plan.
- Relative or absolute contraindications include respiratory arrest, inability to protect the airway, copious vomiting/secretions, severe agitation or reduced consciousness not rapidly reversible, major facial trauma or recent upper-airway surgery, untreated pneumothorax, and severe haemodynamic instability. Senior clinical judgment is required.
- Assess comfort, leak, synchrony, respiratory rate, work of breathing, mental status, haemodynamics, saturation, and blood gas. Failure to improve or any deterioration requires immediate senior/airway review.

10.2 High-flow nasal oxygen

- Use only under an approved pathway with defined indications, infection precautions, monitoring, oxygen targets, maximum care location, and escalation criteria.
- High-flow oxygen must not create false reassurance or delay intubation in progressive respiratory failure.

10.3 Invasive ventilation

- Prepare for definitive airway management when there is inability to protect the airway, refractory hypoxaemia, severe or worsening hypercapnic acidosis, exhaustion, reduced respiratory effort, deteriorating consciousness, haemodynamic collapse, or failure of non-invasive support.
- Use an experienced team, pre-oxygenation appropriate to physiology, full monitoring, a difficult-airway plan, haemodynamic preparation, and post-intubation sedation/ventilation/transfer plan.
- Do not allow repeated unsuccessful NIV, nebulization, transport, imaging, or administrative delay to postpone a clinically required airway.

11. Focused history and examination

Domain	Minimum assessment
Onset and trajectory	Sudden or gradual; maximal at onset; episodic; progressive; exertional; nocturnal; positional; relation to allergen, infection, medication, trauma, aspiration, exertion, travel, immobilization, or procedure.
Associated symptoms	Chest pain, pleurisy, fever, cough, sputum, haemoptysis, wheeze, stridor, orthopnoea, paroxysmal nocturnal dyspnoea, syncope, palpitations, swelling, rash, choking, vomiting, weakness, headache, or confusion.
Relevant history	Asthma/COPD, prior intubation or ICU admission, home oxygen/NIV, heart failure, coronary disease, thromboembolism, malignancy, neuromuscular disease, renal disease, pregnancy, immunosuppression, anaemia, recent surgery, and smoking/vaping.
Medication and exposure	Inhalers and adherence, diuretics, anticoagulants, sedatives/opioids, beta-blockers, ACE inhibitors, new medicines, illicit stimulants, inhalational exposure, carbon monoxide, occupational or household chemicals.
Examination	Work and pattern of breathing; speech/feeding; chest movement and sounds; upper airway; heart and circulation; JVP/oedema; calves; skin/rash; neurological strength; trauma; hydration; and signs of infection.

Domain	Minimum assessment
Baseline and context	Usual functional status, baseline saturation/oxygen, recent peak flow if known, prior admissions, advance care plan, communication needs, caregiver support, and ability to obtain medicines/follow-up.

12. Rapid diagnostic differentiation

Pattern	Key clues and safety point
Upper-airway obstruction / anaphylaxis	Stridor, voice change, drooling, swelling, urticaria, wheeze, hypotension, sudden onset after exposure. Treat immediately; diagnosis is clinical.
Asthma / bronchospasm	Wheeze, prolonged expiration, variable symptoms, trigger or known asthma. Severe disease may have little wheeze or a silent chest.
COPD exacerbation / hypercapnic failure	Known COPD, increased dyspnoea/cough/sputum, wheeze, reduced air entry, drowsiness or headache. Exclude pneumonia, heart failure, PE, and pneumothorax.
Pneumonia / sepsis	Fever or hypothermia, cough, focal signs, hypoxaemia, shock, altered mental status. Older or immunocompromised patients may lack fever.
Acute cardiogenic pulmonary oedema	Orthopnoea, crackles, hypertension or shock, raised JVP, oedema, cardiac history, diffuse B-lines on trained ultrasound, or radiographic congestion.
Pulmonary embolism	Sudden dyspnoea, pleuritic pain, syncope, haemoptysis, tachycardia, unexplained hypoxaemia, VTE risk. Examination and chest radiograph may be nonspecific.
Pneumothorax	Sudden unilateral pleuritic pain, asymmetrical movement, reduced breath sounds, hyperresonance, trauma or lung disease. Tension physiology requires immediate treatment.
Metabolic / toxic / haematologic	Tachypnoea with relatively clear lungs may reflect acidosis, DKA, sepsis, salicylate toxicity, severe anaemia, carbon monoxide, or other poisoning.
Neuromuscular / fatigue	Weak cough, shallow breathing, bulbar symptoms, reduced vital capacity, progressive weakness, or inability to clear secretions; saturation may remain normal until late.
Dysfunctional breathing / anxiety	Consider only after important cardiopulmonary, metabolic, toxic, and neurological causes have been assessed and the patient has been reassessed.

13. Investigations

Investigations shall be selected to answer specific clinical questions and must not delay treatment of immediate threats. A normal test does not override a concerning clinical trajectory.

Investigation	Use and limitation
Pulse oximetry and serial observations	Required for most patients; interpret signal quality, perfusion, trajectory, and oxygen device.
Blood gas	Obtain promptly for severe distress, suspected hypercapnia, altered consciousness, shock, escalating oxygen or ventilatory support, severe asthma/COPD, metabolic acidosis, or NIV assessment. Venous gas may answer selected questions but does not replace arterial oxygenation assessment when required.
ECG	Use when cardiac disease, pulmonary embolism, arrhythmia, electrolyte disturbance, drug effect, or unexplained dyspnoea is possible.
Chest imaging	Chest radiograph or ultrasound when pneumonia, oedema, pneumothorax, effusion, trauma, or alternative pathology is possible. Do not delay decompression of suspected tension pneumothorax.
Laboratory tests	CBC, renal function/electrolytes, glucose, inflammatory markers, lactate, troponin, natriuretic peptide, cultures, viral testing, pregnancy testing, toxicology, or co-oximetry according to the differential.
Pulmonary embolism testing	Use a validated pretest-probability pathway. D-dimer and CTPA should not be ordered indiscriminately. Unstable suspected PE requires immediate senior/reperfusion/transfer planning.
Peak flow / objective airflow	Use when safe and feasible in asthma to establish severity and response. Do not force testing in a critically ill, exhausted, or poorly cooperative patient.
Point-of-care ultrasound	May support rapid differentiation of pulmonary oedema, pneumothorax, pleural fluid, cardiac dysfunction, or shock when performed by trained clinicians; it complements rather than replaces clinical judgment and definitive imaging.

14. Cause-directed emergency treatment

14.1 Acute asthma / severe bronchospasm

- Give repeated rapid-acting inhaled bronchodilator therapy using the locally approved age-specific pathway. A pressurized metered-dose inhaler with spacer is preferred when effective and feasible; use nebulization for life-threatening disease or when the patient cannot use a spacer.
- Add inhaled anticholinergic therapy for severe exacerbation, give systemic corticosteroid early, and consider intravenous magnesium for severe disease with inadequate response to intensive initial therapy according to the approved algorithm.
- Titrate oxygen, monitor frequently, and obtain objective airflow measurement when safe. Avoid sedatives. Antibiotics and chest radiography are not routine unless an alternative or complicating diagnosis is suspected.
- Silent chest, exhaustion, cyanosis, altered consciousness, worsening gas exchange, bradycardia, or poor response requires immediate senior/airway/critical-care escalation.

14.2 COPD exacerbation / acute hypercapnic respiratory failure

- Use controlled oxygen, typically targeting 88-92% pending blood-gas assessment and prior records. Obtain a blood gas early when hypercapnia or acidosis is possible.
- Give short-acting bronchodilator therapy, systemic corticosteroid, and antibiotics only when clinically indicated under the local COPD/infection protocol.
- Consider NIV for persistent acute hypercapnic acidosis in an appropriate patient and monitored setting. Reassess gas and clinical response within the locally approved interval.
- Actively consider pneumonia, acute heart failure, pulmonary embolism, pneumothorax, arrhythmia, ACS, and medication-related respiratory depression.

14.3 Acute cardiogenic pulmonary oedema

- Sit the patient upright when haemodynamically tolerated, monitor continuously, give oxygen only as needed to target, and consider early CPAP/NIV for severe distress or hypoxaemia in a suitable patient.
- Use nitrates/vasodilator therapy when indicated and blood pressure permits; use diuretic when congestion or fluid overload is present; treat ACS, arrhythmia, hypertensive emergency, or another precipitant.
- Avoid routine large fluid boluses. Hypotension, shock, new ischaemia, severe valve disease, or failure to improve requires urgent senior/cardiology/critical-care review and possible transfer.

14.4 Pneumonia, severe infection, and sepsis

- Apply the locally approved sepsis and antimicrobial pathway. Obtain indicated cultures without delaying time-critical antimicrobials.
- Provide oxygen and ventilatory support, assess perfusion, and individualize fluids with frequent reassessment, especially where cardiac or renal disease is possible.
- Consider aspiration, immunosuppression, tuberculosis, viral respiratory infection, and local epidemiology; use appropriate isolation and public-health procedures.

14.5 Pulmonary embolism

- Assess haemodynamic stability and use a validated diagnostic pathway. Do not rely on oxygen saturation, chest radiograph, or a single normal ECG to exclude PE.
- Suspected high-risk PE with shock or persistent hypotension requires immediate senior review, bedside assessment where available, anticoagulation/reperfusion decision, and transfer planning under the PE protocol.
- Stable patients require probability-based investigation and bleeding-risk assessment before anticoagulation or discharge.

14.6 Pneumothorax and pleural emergencies

- Suspected tension pneumothorax with severe respiratory or circulatory compromise requires immediate decompression by an authorized clinician without waiting for imaging.
- After emergency decompression, provide definitive pleural management, monitoring, imaging, analgesia, and specialty/transfer planning under the approved pleural procedure pathway.
- Stable spontaneous pneumothorax management depends on symptoms, physiology, size, underlying lung disease, recurrence risk, local expertise, and reliable follow-up.

14.7 Anaphylaxis and upper-airway emergencies

- Give intramuscular adrenaline immediately for anaphylaxis according to the locally approved age/weight algorithm; repeat as clinically indicated and provide airway, oxygen, fluids, monitoring, and escalation.
- Prepare early for a difficult airway in progressive swelling or stridor. Nebulized or adjunctive medicines do not replace intramuscular adrenaline in anaphylaxis.
- Choking or foreign-body obstruction requires immediate age-appropriate first-aid and airway procedures.

14.8 Metabolic, toxic, neuromuscular, and other causes

- Treat the underlying cause of compensatory tachypnoea; suppressing respiratory drive may be dangerous in metabolic acidosis or poisoning.
- Suspected opioid toxicity, carbon monoxide, salicylate poisoning, toxic inhalation, neuromuscular weakness, severe anaemia, or diabetic ketoacidosis requires the relevant emergency pathway and early specialist advice.
- Patients with neuromuscular weakness may deteriorate despite a normal saturation; monitor ventilatory capacity, cough, secretion clearance, and bulbar function.

15. Monitoring and mandatory reassessment

Trigger	Minimum reassessment
Immediately after each major intervention	Recheck airway, work of breathing, respiratory rate, speech/feeding, mental status, saturation, oxygen device, pulse, blood pressure, and treatment complications.
Unstable / resuscitation / NIV	Continuous observation with documented formal reviews at locally approved short intervals and whenever alarms, symptoms, or physiology change.
After bronchodilator treatment	Document symptoms, air entry/wheeze, respiratory rate, saturation, heart rate, adverse effects, and peak flow when safe.
After oxygen or ventilatory change	Confirm target achievement, work of breathing, comfort, mental state, haemodynamics, and need for blood-gas reassessment.
Diagnostic timeout	Reconsider the working diagnosis when response is absent, partial, transient, or discordant with expected physiology.
Before disposition	Complete a final full reassessment, review all available results, confirm oxygen/ventilation needs, mobility/feeding where relevant, medications, follow-up, and return precautions.

Treatment failure rule: Failure to improve is clinical information. Recheck the diagnosis, treatment delivery, equipment, dose/route, complications, and need for airway, critical care, specialty consultation, or transfer.

16. Escalation and treatment-failure criteria

- Worsening work of breathing, reduced respiratory effort, silent chest, new stridor, inability to speak/feed, cyanosis, altered mental status, seizure, or exhaustion.
- Persistent or worsening hypoxaemia despite escalating oxygen, new or worsening hypercapnic acidosis, or poor response to NIV/high-flow support.
- Shock, arrhythmia, bradycardia, cardiac ischaemia, rising lactate, oliguria, or deteriorating perfusion.
- Need for continuous bronchodilator therapy, repeated adrenaline, escalating vasodilator/diuretic support, pleural decompression, or advanced airway intervention.
- Diagnostic uncertainty with high-risk possibilities, conflicting tests, recurrent symptoms, or deterioration during transport/imaging.
- No appropriate bed, equipment, oxygen supply, trained staff, or receiving specialty available locally.

Escalation shall identify who was contacted, time, clinical concern, advice, response time, acceptance, contingency plan, and the clinician retaining responsibility. Use Protocol 8 when response is delayed, disputed, or inadequate.

17. Special populations and safety considerations

Population	Required consideration
Children	Use age-specific respiratory rates, equipment, doses, PEWS, and paediatric escalation. Feeding difficulty, grunting, recession, apnoea, cyanosis, lethargy, or poor interaction may be critical signs.
Pregnancy / postpartum	Consider pulmonary embolism, pulmonary oedema, asthma, pneumonia, cardiomyopathy, pre-eclampsia, and haemorrhage. Involve obstetrics early and assess fetal wellbeing when viable and appropriate.
Older adults / frailty	May present with weakness, delirium, falls, or reduced function rather than prominent dyspnoea. Avoid under-triage; review goals of care without withholding indicated comfort and emergency treatment.
Obesity / sleep-disordered breathing	Higher risk of difficult airway, hypoventilation, hypercapnia, positioning/transport problems, and equipment mismatch. Use appropriate beds, masks, and lifting resources.
Neuromuscular disease	Weak cough and ventilatory failure may precede hypoxaemia. Escalate early for secretion management and ventilatory support.
Immunocompromised patients	May have muted signs, rapid deterioration, atypical infection, and broader differential. Use early senior and specialty review.
Communication or disability needs	Use interpreters, hearing/visual aids, caregiver input, accessible explanations, and individualized assessment; do not misattribute distress to behaviour.
Palliative or treatment-limited care	Clarify goals and documented ceilings of care early. Provide active symptom relief, oxygen only where indicated or beneficial, and involve the patient/family and palliative team.

18. Observation, admission, critical care, transfer, and discharge

18.1 Critical care or immediate transfer

- Invasive ventilation or likely need for intubation; NIV/high-flow dependence beyond local ward capability; severe or worsening gas-exchange failure; shock; recurrent life-threatening bronchospasm/anaphylaxis; high-risk PE; unresolved airway threat; or need for unavailable specialist intervention.
- Transfer planning shall begin early and follow Protocol 11. Stabilize as far as possible, confirm acceptance, match escort and equipment to risk, calculate oxygen/power reserves, and document contingency plans.

18.2 Admission or monitored observation

- Persistent oxygen requirement above verified baseline, recurrent symptoms, abnormal blood gas, severe exacerbation, pneumonia/sepsis, heart failure, significant PE/pneumothorax, treatment complication, important comorbidity, unreliable follow-up, or unsafe social situation.

- Observation requires explicit diagnosis/risk statement, monitoring level, treatment plan, reassessment schedule, pending-result owner, and discharge/admission criteria.

18.3 Safe discharge

- The cause is established or important dangerous causes have been reasonably excluded; the patient is clinically stable with an acceptable respiratory rate and work of breathing; oxygen saturation is stable on room air or verified baseline therapy; and symptoms have improved and remained stable after appropriate observation.
- The patient can mobilize, speak, feed, sleep, or perform required activities safely as relevant; ambulatory saturation is assessed when clinically indicated.
- Inhaler/spacer or device technique is checked; medicines are reconciled and accessible; steroid/antibiotic plans are clear when prescribed; smoking/vaping advice is provided where appropriate.
- Written and verbal information states the working diagnosis, remaining uncertainty, expected course, medicines, follow-up, pending results, and specific return precautions. Teach-back is documented.
- Return immediately for worsening breathlessness, inability to speak or walk, blue colour, chest pain, fainting, confusion, fever with deterioration, haemoptysis, facial/tongue swelling, recurrent wheeze not relieved by the action plan, or any concern.

19. Documentation requirements

- Arrival and triage times; acuity; infection precautions; initial respiratory rate, work of breathing, speech/feeding, mental status, saturation, oxygen device/flow, pulse, blood pressure, and temperature.
- Focused history, baseline oxygen/ventilation, relevant risks, examination, dangerous diagnoses considered, working diagnosis, and clinical uncertainty.
- Oxygen target, all device/flow changes, bronchodilator and other treatments, NIV/high-flow/intubation decisions, procedures, medication safety checks, and response.
- Investigation rationale, results, critical-result communication, pending-result ownership, and any discrepancy between clinical and test findings.
- Serial reassessments, trend, treatment failure, escalation contacts, consultations, acceptance, transfer of responsibility, and transport plan.
- Final diagnosis or syndrome, disposition rationale, final observations and oxygen requirement, discharge instructions/follow-up, or admission/transfer handover.

20. Quality indicators and audit

Indicator	Suggested measure
Immediate assessment	Percentage of red respiratory presentations receiving documented ABCDE and oxygen saturation without avoidable delay.
Respiratory-rate reliability	Percentage with a directly counted respiratory rate and documented work-of-breathing assessment at initial and final review.
Oxygen safety	Percentage receiving oxygen with target range, device/flow, saturation, and response documented; episodes outside target and corrective action.
Blood-gas use	Percentage of patients with suspected hypercapnic or severe respiratory failure receiving timely clinically indicated blood gas and documented action.

Indicator	Suggested measure
Treatment reassessment	Percentage with documented response after bronchodilator, oxygen escalation, NIV, diuresis/vasodilation, adrenaline, or other major therapy.
NIV governance	Appropriate indication, contraindication screen, senior review, treatment targets, gas reassessment, and failure plan.
Critical diagnosis	Missed/delayed tension pneumothorax, anaphylaxis, PE, pulmonary oedema, severe asthma, pneumonia/sepsis, airway obstruction, or toxic/metabolic cause.
Disposition safety	Unplanned return, ICU transfer, intubation, cardiac arrest, or death within the locally selected post-discharge/admission interval.
Transfer	Time from decision to acceptance and departure; adverse events; oxygen/power/equipment failures; handover completeness.

21. Training, equipment, and implementation

- All clinical staff shall be trained in respiratory-distress recognition, ABCDE, oxygen devices and targets, bag-mask ventilation, bronchodilator delivery, anaphylaxis, pneumothorax recognition, and deterioration escalation.
- Designated staff shall maintain competency in NIV/high-flow support, blood-gas interpretation, airway assistance, pleural emergency procedures, paediatric respiratory care, and transport of oxygen-dependent patients.
- The department shall maintain checked oxygen and suction systems, bag-mask devices and adjuncts for all ages, nebulizer and spacer systems, NIV/high-flow equipment where offered, capnography where indicated, emergency airway equipment, and transport oxygen/power backups.
- Local implementation must define target ranges, device selection, oxygen and cylinder calculations, blood-gas availability, NIV criteria/settings/review intervals, intubation response, specialty contacts, transfer capability, and paediatric pathways.
- Simulation should test severe asthma, COPD with hypercapnic failure, pulmonary oedema, anaphylaxis, tension pneumothorax, difficult airway, oxygen-system failure, and delayed overseas transfer.
- Every unexpected respiratory arrest, delayed airway, failed NIV escalation, oxygen-related harm, missed critical diagnosis, or transfer equipment failure shall trigger multidisciplinary review and system repair.

22. References and evidence base

1. World Health Organization. Emergency Care Toolkit; WHO-ICRC-IFEM Basic Emergency Care: Approach to the Acutely Ill and Injured. Current online editions.
2. Global Initiative for Asthma. Global Strategy for Asthma Management and Prevention. 2026 update.
3. Global Initiative for Chronic Obstructive Lung Disease. Global Strategy for Prevention, Diagnosis and Management of COPD. 2026 report and pocket guide.
4. O'Driscoll BR, Howard LS, Earis J, Mak V. BTS guideline for oxygen use in adults in healthcare and emergency settings. Thorax. 2017;72(Suppl 1):ii1-ii90.
5. McDonagh TA, Metra M, Adamo M, et al. 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure; and 2023 focused update.
6. Konstantinides SV, Meyer G, Becattini C, et al. 2019 ESC Guidelines for the diagnosis and management of acute pulmonary embolism, developed with the European Respiratory Society.
7. Roberts ME, Rahman NM, Maskell NA, et al. British Thoracic Society Guideline for pleural disease. Thorax. 2023;78(Suppl 3).
8. Rochwerg B, Brochard L, Elliott MW, et al. Official ERS/ATS clinical practice guidelines: noninvasive ventilation for acute respiratory failure. European Respiratory Journal. 2017;50:1602426.
9. Prescott HC, et al. Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock 2026. Critical Care Medicine. 2026;54(4):725-812.
Local clinical use requires verification against the current hospital formulary, age-specific dosing references, oxygen and ventilation equipment, laboratory and imaging capability, specialist availability, transfer agreements, national law, and the receiving facility's capability.

ANNEX A. One-page acute dyspnoea and respiratory-distress workflow

Step	Action
1. SEE	Immediate visual safety screen: airway, work of breathing, speech/feeding, colour, consciousness, shock.
2. STABILIZE	ABCDE; position; monitors; target oxygen; ventilation; treat anaphylaxis, tension pneumothorax, airway obstruction, or arrest immediately.
3. DEFINE FAILURE	Hypoxaemic, hypercapnic, mixed, compensatory tachypnoea, upper-airway, or impending arrest? Obtain blood gas when indicated.
4. DIFFERENTIATE	Asthma/COPD, pneumonia/sepsis, pulmonary oedema, PE, pneumothorax, anaphylaxis/upper airway, metabolic/toxic, neuromuscular, other.
5. TREAT	Cause-directed therapy plus oxygen/ventilation support. Do not delay airway, reperfusion, decompression, adrenaline, or antibiotics when time-critical.
6. REASSESS	Respiratory rate, work, speech, mental status, saturation/device, haemodynamics, gas/peak flow when indicated. Failure to improve = escalate and rethink.
7. DISPOSE	Critical care/transfer, admission, observation, or safe discharge with final reassessment, medicines, follow-up, teach-back, and return precautions.

ANNEX B. First-5-minute checklist

- ☐ Two identifiers, arrival time, and triage category recorded
- ☐ Immediate airway and breathing danger screen completed
- ☐ Respiratory rate directly counted; work of breathing and ability to speak/feed documented
- ☐ SpO2 recorded with signal quality and oxygen device/flow
- ☐ Pulse, blood pressure, temperature, mental status, and glucose if indicated
- ☐ Patient positioned; oxygen target selected; emergency oxygen/ventilation started if required
- ☐ Cardiac monitoring and IV/IO access appropriate to severity
- ☐ Immediate threats treated: anaphylaxis, tension pneumothorax, airway obstruction, severe bronchospasm, pulmonary oedema, shock
- ☐ Senior/airway/critical-care assistance activated when indicated
- ☐ Working syndrome, initial plan, reassessment time, and escalation trigger documented

ANNEX C. Respiratory danger signs card

Domain	Red flag
Airway	Stridor, drooling, voice change, swelling, foreign body, inability to protect airway.

Domain	Red flag
Breathing	Silent chest, severe recession/accessory use, inability to speak/feed, cyanosis, grunting, apnoea, bradypnoea, irregular breathing, unilateral absent breath sounds.
Gas exchange	Severe or worsening hypoxaemia, rising oxygen requirement, hypercapnic acidosis, altered consciousness.
Fatigue	Reduced effort after intense distress, exhaustion, diaphoresis, drowsiness, weak cough, poor air entry.
Circulation	Shock, bradycardia, arrhythmia, syncope, chest pain, severe hypertension with pulmonary oedema.
Trajectory	Rapid progression, treatment failure, recurrence, deterioration during movement or after transient response.

ANNEX D. Oxygen prescription and device record

Field	Record
Target saturation	[ ] 94-98% [ ] 88-92% [ ] Individual target: _____ Reason: _____
Baseline	Room air / usual device and flow: _____ SpO2: _____ Time: _____
Current device	Nasal cannula / simple mask / reservoir / Venturi / tracheostomy / HFNO / NIV / other: _____
Flow or concentration	_____ SpO2 after change: _____ Time: _____ Clinical response: _____
Blood gas	Indication: _____ Time: _____ pH: ____ pCO2: ____ pO2: ____ HCO3: ____ Action: _____
Equipment safety	Tubing and connection checked / cylinder content / backup source / humidification / alarms / transport reserve
Responsible clinician	Name/signature: _____ Review time: _____

ANNEX E. NIV / non-invasive respiratory-support safety checklist

- ☐ Indication documented and consistent with local pathway
- ☐ Senior clinician aware; appropriate monitored location and trained staff available
- ☐ Airway protection, consciousness, secretions, vomiting, facial trauma, haemodynamics, and pneumothorax risk assessed
- ☐ Baseline respiratory rate, work of breathing, mental status, SpO2/device, BP, ECG, and blood gas documented
- ☐ Mode/settings and oxygen target prescribed according to local algorithm
- ☐ Mask/interface fit, skin protection, leak, synchrony, and patient explanation completed
- ☐ Reassessment time, treatment targets, ceiling of care, and intubation/failure plan documented
- ☐ Immediate access to suction, bag-mask ventilation, airway equipment, and escalation team

- ☐ Response documented: symptoms, RR, work, mental status, saturation, haemodynamics, and repeat gas
- ☐ NIV stopped/escalated promptly for deterioration or treatment failure

ANNEX F. Rapid diagnostic differentiation matrix

Finding	Raises concern for	Immediate implication
Stridor / swelling / urticaria	Upper-airway obstruction or anaphylaxis	Adrenaline/airway response; do not delay.
Silent chest / exhaustion	Life-threatening asthma or impending arrest	Senior airway/critical-care escalation.
Unilateral absent breath sounds + shock	Tension pneumothorax	Immediate clinical decompression.
Crackles + hypertension/orthopnoea	Cardiogenic pulmonary oedema	CPAP/NIV, vasodilator/diuretic pathway.
Pleuritic pain/syncope/VTE risk	Pulmonary embolism	Stability assessment and probability-based PE pathway.
Fever/focal signs/shock	Pneumonia/sepsis	Isolation, antimicrobials and sepsis pathway.
Drowsiness/headache/asterixis	Hypercapnic failure	Controlled oxygen, blood gas, NIV/airway assessment.
Tachypnoea with clear lungs	Metabolic acidosis, anaemia, PE, toxic cause	Do not label anxiety; check glucose/gas/ECG and targeted tests.

ANNEX G. Acute asthma emergency checklist

- ☐ Severity assessed: speech, posture, respiratory rate, pulse, SpO2, air entry/wheeze, exhaustion, mental status, peak flow if safe
- ☐ Oxygen titrated to target; cardiac/SpO2 monitoring appropriate to severity
- ☐ Repeated rapid-acting inhaled bronchodilator delivered correctly
- ☐ Inhaled anticholinergic added for severe exacerbation
- ☐ Systemic corticosteroid given early unless contraindicated
- ☐ Intravenous magnesium considered for severe poor response under approved protocol
- ☐ No sedative; antibiotics/chest radiograph only if indicated by alternative/complication
- ☐ Response reassessed and recorded; senior/airway escalation for silent chest, fatigue, altered consciousness, worsening gas exchange, or poor response
- ☐ Discharge includes inhaled corticosteroid-containing plan, device technique, action plan, trigger review, follow-up, and return precautions

ANNEX H. COPD exacerbation and hypercapnic-failure checklist

- ☐ Controlled oxygen target documented, typically 88-92% pending gas/records
- ☐ Blood gas obtained and interpreted when hypercapnia/acidosis possible
- ☐ Short-acting bronchodilator therapy delivered; response and adverse effects documented
- ☐ Systemic corticosteroid and antibiotic indication reviewed under local protocol
- ☐ Pneumonia, heart failure, PE, pneumothorax, ACS/arrhythmia, and sedative/opioid effect considered

- ☐ NIV criteria, contraindications, senior review, goals, repeat gas, and failure plan documented
- ☐ Baseline oxygen/NIV and prior hypercapnic episodes verified where possible
- ☐ Admission/discharge decision includes gas exchange, oxygen requirement, function, comorbidity, support, medicines, technique, and follow-up

ANNEX I. Acute pulmonary oedema checklist

- ☐ Patient positioned upright if tolerated; continuous monitoring and IV access
- ☐ Oxygen only to target; CPAP/NIV considered early for severe distress/hypoxaemia
- ☐ Blood pressure and shock status guide therapy
- ☐ Nitrate/vasodilator and diuretic indications reviewed under local pathway
- ☐ ACS, arrhythmia, hypertensive emergency, valve disease, renal failure, infection, and nonadherence considered
- ☐ Large unmonitored fluid bolus avoided unless a clear competing indication exists
- ☐ ECG, chest imaging/ultrasound, troponin, renal/electrolytes and other tests selected appropriately
- ☐ Treatment response and need for critical care/cardiology/transfer documented

ANNEX J. Three diagnoses that cannot wait

Diagnosis	Recognition	Do now
Anaphylaxis	Sudden airway/breathing/circulatory compromise after likely exposure; skin signs may be absent.	IM adrenaline under age/weight algorithm; airway, oxygen, monitoring, fluids, repeat/escalate.
Tension pneumothorax	Severe respiratory distress with unilateral reduced/absent breath sounds and obstructive shock or peri-arrest.	Immediate decompression by authorized clinician; definitive pleural management; do not wait for imaging.
Impending respiratory arrest	Exhaustion, reduced effort, silent chest, worsening consciousness, bradycardia, severe refractory gas-exchange failure.	Call airway/critical-care team; bag-mask ventilation; prepare definitive airway; do not persist with failing non-invasive therapy.

ANNEX K. Respiratory reassessment record

Field	Record
Time	_____
Respiratory rate / pattern	_____
Work of breathing / speech or feeding	_____
Air entry / wheeze / crackles / stridor	_____
SpO2 / target / device / flow	_____
Heart rate / BP / perfusion	_____
Mental status / fatigue	_____
Peak flow or blood gas if indicated	_____

Field	Record
Treatment since last review	_____
Response: improved / unchanged / worse	_____
Revised diagnosis and plan	_____
Escalation / next review time / responsible clinician	_____

ANNEX L. Safe-discharge checklist for acute dyspnoea

- ☐ Final diagnosis or working syndrome documented; dangerous alternatives reasonably excluded
- ☐ Symptoms and work of breathing improved and stable after observation
- ☐ Final respiratory rate, pulse, BP, temperature, mental status, SpO2, device/flow documented
- ☐ Stable on room air or verified baseline oxygen/ventilatory support
- ☐ Relevant results reviewed; pending-result owner and patient-contact plan documented
- ☐ Ambulatory/functional assessment completed when relevant
- ☐ Medication reconciliation, prescription, affordability/access, and first doses addressed
- ☐ Inhaler/spacer/device technique checked; written action plan when appropriate
- ☐ Follow-up arranged or clearly instructed
- ☐ Written return precautions and emergency access explained
- ☐ Teach-back documented; interpreter/accessibility needs addressed
- ☐ Safe transport, destination, caregiver/support, and ability to obtain help confirmed

ANNEX M. Respiratory pathway audit tool

Audit item	Result
Immediate visual/ABCDE assessment	Yes / No / N/A
Respiratory rate and work of breathing documented	Yes / No / N/A
SpO2 and oxygen device/flow documented	Yes / No / N/A
Oxygen target documented and maintained	Yes / No / N/A
Dangerous diagnoses considered	Yes / No / N/A
Blood gas performed when indicated	Yes / No / N/A
Major treatment followed by reassessment	Yes / No / N/A
NIV indication, contraindications, targets and failure plan complete	Yes / No / N/A
Senior/escalation response timely	Yes / No / N/A
Final reassessment and disposition rationale documented	Yes / No / N/A
Discharge medicines, technique, follow-up and return precautions complete	Yes / No / N/A

Audit item	Result
Adverse event / unplanned return / ICU transfer	Details: _____

ANNEX N. Local configuration table

Item	Local approved configuration
Paediatric age threshold / pathway	[Insert]
Standard oxygen target ranges and exceptions	[Insert approved local policy]
Available oxygen devices and maximum locations	[Insert]
Blood-gas availability and turnaround	[Insert]
NIV/CPAP indications, modes, initial settings and review interval	[Insert approved algorithm]
High-flow nasal oxygen criteria	[Insert or state not available]
Advanced-airway response and contact	[Insert]
Pleural decompression equipment and authorized staff	[Insert]
Asthma and COPD age-specific drug algorithms	[Insert]
Sepsis/pneumonia antimicrobial pathway	[Insert]
PE and acute-heart-failure pathways	[Insert]
Critical-care / ward admission criteria	[Insert]
Local and overseas receiving facilities	[Insert]
Transfer oxygen/power calculation standard	[Insert]
Respiratory observation and reassessment intervals	[Insert]

ANNEX O. Approval and sign-off

Approver	Sign-off
Emergency Department Clinical Lead	Name: _____ Signature: _____ Date: _____
Nursing Lead	Name: _____ Signature: _____ Date: _____
Internal / Respiratory Medicine	Name: _____ Signature: _____ Date: _____
Anaesthesia / Critical Care	Name: _____ Signature: _____ Date: _____
Paediatrics	Name: _____ Signature: _____ Date: _____
Cardiology	Name: _____ Signature: _____ Date: _____
Pharmacy	Name: _____ Signature: _____ Date: _____
Laboratory / Imaging	Name: _____ Signature: _____ Date: _____
Clinical Governance / Medical Director	Name: _____ Signature: _____ Date: _____

Controlled-copy note: Once approved, all local configuration tables, contact lists, formularies, algorithms, and equipment references shall be completed before issue. Obsolete copies shall be removed from clinical areas and electronic repositories.