

Emergency (ED) Acute Exacerbation of Chronic Obstructive Pulmonary Disease (AECOPD) Adult Order Set

Evidence-based, severity-guided support for managing Acute Exacerbations of COPD, with recommendations on aerosol delivery, pharmacologic therapy, oxygen use, non-invasive support, and environmental impact.

PATIENT INFORMATION

Last Name (Legal)		First Name (Legal)	
Preferred Name	Last	First	DOB (dd-mm-yyyy)
PHN	ULI Same as PHN		MRN
Administrative Gender	Male	Female	Non-binary
	Prefer not to disclose	Unknown	

SEVERITY-BASED DECISION SUPPORT

Use one of the following validated COPD severity assessment scoring tools

GOLD		
MILD	MODERATE	SEVERE
☐ Dyspnea VAS <5 ☐ RR < 24 Breaths/min ☐ HR < 95 bpm ☐ Resting SaO ₂ ≥ 92% on ambient air or home O ₂ prescription ☐ CRP <10mg/L if obtained	☐ Dyspnea VAS ≥ 5 ☐ RR ≥ 24 Breaths/min ☐ HR ≥ 95 bpm ☐ Resting SaO ₂ < 92% on ambient air or home O ₂ prescription ☐ CRP 10mg ≥ /L if obtained ☐ If obtained ABG may show hypoxemia (PaO ₂ ≤ 60mmHg) and/or Hypercapnia (PaCO ₂ >45mm HG) but no acidosis	☐ Dyspnea, RR, HR, SaO ₂ m and CRP is same as moderate ☐ ABG shows new onset/worsening hypercapnia AND acidosis (PaCO ₂ > 45mmHg and pH <7.35)

DECAF				
DECAF Score[3]	0	1	2	3
Dyspnoea (MRC)	1–3	5	4	
Eosinopenia ($<0.05 \times 10^9/L$)	No	Yes		
Consolidation on CXR	No	Yes		
Acidaemia (pH < 7.30)	No	Yes		
Atrial fibrillation	No	Yes		

Total Score: _____

Disposition

- ☐ Discharge Home: 0-1
- ☐ Consider admission to floor: 2
- ☐ Consider escalated care/monitoring: 3-6

MONITORING / LABS

Monitoring / Lab	Check
Continuous SpO2	☐
Continuous Heart Rate Monitoring	☐
Blood Pressure Monitoring	☐
ABG	☐
VBG	☐
Complete Blood Count	☐
Basic Metabolic Panel	☐
Comprehensive Metabolic Panel	☐
Sputum culture	☐
Respiratory panel	☐
SARS-CoV-2 PCR	☐
Influenza PCR	☐
Chest X-ray	☐
D-dimer	☐
Troponin	☐

PHARMACOLOGIC THERAPY

Acute Management (first hour)

	MILD	MODERATE	SEVERE
Bronchodilators <i>(preferred option)</i>	☐ Salbutamol pMDI 100mcg/Puff with spacer ____ Puffs q20min X 3 PRN Shortness of breath ☐ Ipratropium pMDI 20mcg/puff with spacer ____ Puffs X3	☐ Salbutamol via VMN + Aerosol Reservoir ____ mg q20min PRN Shortness of breath ×3 ☐ Ipratropium Bromide via VMN + Aerosol Réservoir 0.5 mg Shortness of breath ×1	☐ Salbutamol via VMN in-line via HFNO or NIV ____mg q20min PRN shortness of breath X3 ☐ Ipratropium Bromide via VMN in-line via HFNO or NIV 0.5 mg Shortness of breath ×1
<i>Alternate medication delivery options</i>	☐ Salbutamol ____mg q20min PRN X3 via VMN ☐ Ipratropium Bromide via VMN + Aerosol Réservoir 0.5 mg ×1 <i>(for patients unable to coordinate breaths or those not receiving relief via pMDI)</i> ☐ Salbutamol via JN ____ mg q20min PRN Shortness of breath ×3 ☐ Ipratropium Bromide via JN 0.5 mg Shortness of breath ×3 <i>(for patients unable to coordinate breaths or those not receiving relief via pMDI and those without VMN)</i>	☐ Salbutamol pMDI 100mcg/puff with spacer ____ Puffs q20 min X3 PRN Shortness of breath ☐ Ipratropium pMDI 20mcg/puff with spacer ____ Puffs X3 ☐ Salbutamol via JN ____ mg q20min PRN Shortness of breath ×3 ☐ Ipratropium Bromide via JN 0.5 mg Shortness of breath ×3 <i>(For hospitals without access to VMN)</i>	☐ Salbutamol pMDI 100mcg/puff with Spacer ____ Puffs q20min X 3 PRN Shortness of breath ☐ Ipratropium pMDI 20mcg/puff with spacer chamber ____ Puffs X3

Clinical Considerations

- **If VMN is unavailable, standard JN may be substituted.**
- JN is inferior to VMN (clinical outcomes & deposition) and not superior to pMDI → excluded as handheld option [1,2].
- Moderately ill patients: pMDI may be inadequate due to poor inspiratory flow → included as alternative [23,26].
- Severe patients (HFNO/NIV):
 - Best option: VMN inline [24].
 - Alternative: pMDI with spacer for NIV (JN not recommended — interrupts therapy, adds flow) [25]

Environmental Sustainability Considerations:

VMN + Ultra: Enables continuous delivery in-line with HFNO/BiPAP; reusable; less plastic waste than disposable jet nebulizers [6-10] [11,12]

pMDI + Spacer: Lower plastic waste and energy use vs disposable jet nebulizers; reusable spacers last months

Corticosteroids[2]	Route	Medication/dose	Select
	Oral	Prednisone	☐ 40 mg daily × 5 days
	Oral	Prednisolone	☐ 40 mg daily × 5 days
	IV	Methylprednisolone	☐ 32 mg daily x 5 days

*GOLD guidelines recommend 40mg of prednisone or equivalent. Methylprednisolone 4mg=prednisone 5mg

Antibiotics Initiate antibiotics if any of the following are present: - Increased dyspnea, sputum volume, and sputum purulence (all three) - sputum purulence and either dyspnea or sputum volume - Requirement for mechanical ventilation (invasive or noninvasive)	Route	Medication/dose	Select	Continuation
	Oral	Amoxicillin/clavulanate*	☐ 875mg/125mg X1	☐ 875mg/125mg q12h X5 days
	Oral	Doxycycline	☐ 200 mg X1	☐ 100 mg BID X5 days
	Oral	Azithromycin	☐ 500 mg X1	☐ 500 mg Qday X4 days
	Oral	Levofloxacin*	☐ 750 mg X1	☐ 750 mg Qday X4 days
	IV	Ceftriaxone	☐ 2000 mg X1	☐ 1gm qday X4 days
	IV	Cefepime*	☐ 2000 mg X1	☐ 2000mg q8h
	IV	Levofloxacin*	☐ 750 mg X1	☐ 750 mg Qday X4 days
	IV	Piperacillin/Tazobactam*	☐ 4.5g X1	☐ 4.5gm q8h X4 days

*Should be dose adjusted based on renal function

- Antibiotics should be chosen based on local resistance patterns
- Antibiotics should be continued for no more than 5 days for simple COPD
- Critically ill patients should be dosed with the most aggressive regimen possible

Ordering Prescriber (<i>print</i>)	Designation	Signature	Date/Time (dd/mm/yyyy hhmm)
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Reassessment / Maintenance (Post 1-hour)

- Reassessed COPD Severity: _____

	MILD	MODERATE	SEVERE
Bronchodilators <i>(preferred option)</i>	Scheduled doses ☐ Salbutamol pMDI 100mcg/puff with spacer ____ Puffs q6h ☐ Ipratropium pMDI 20mcg/puff with spacer ____ Puffs q6h As Needed doses ☐ Salbutamol pMDI 100mcg/puff with spacer ____ Puffs q2h PRN Shortness of breath	Scheduled doses ☐ Salbutamol via VMN + Aerosol Reservoir ____ mg q6h ☐ Ipratropium Bromide via VMN + Aerosol Réservoir 0.5 mg q6h As Needed doses ☐ Salbutamol via VMN + Ultra ____ mg q1hr PRN Shortness of breath	Scheduled doses ☐ Salbutamol via VMN in-line via HFNO or NIV ____mg q6hr ☐ Ipratropium Bromide via VMN in-line via HFNO or NIV 0.5 mg q6h As Needed doses ☐ Salbutamol via VMN + Ultra ____ mg q1hr PRN Shortness of breath
<i>Alternate medication delivery options</i>	Scheduled doses ☐ Salbutamol via VMN + Ultra ____ mg q6h ☐ Ipratropium Bromide via VMN + Aerosol Réservoir 0.5 mg q6h ☐ Salbutamol via JN ____ mg q6h ☐ Ipratropium Bromide via JN 0.5 mg q6h As Needed doses ☐ Salbutamol via VMN + Ultra ____ mg q2hr PRN Shortness of breath ☐ Salbutamol via JN ____ mg q20min PRN Shortness of breath <i>(for patients unable to coordinate breaths or those not receiving relief via pMDI)</i>	Scheduled doses ☐ Salbutamol pMDI 100mcg/puff with spacer ____ Puffs q6h ☐ Ipratropium pMDI 20mcg/puff with spacer ____ Puffs q6h ☐ Salbutamol via JN ____ mg q6h ☐ Ipratropium Bromide via JN 0.5 mg q6h As Needed doses ☐ Salbutamol pMDI 100mcg/puff with spacer ____ Puffs q1h PRN Shortness of breath ☐ Salbutamol via JN ____ mg q20min PRN Shortness of breath x3	Scheduled doses ☐ Salbutamol pMDI 100mcg/puff with Spacer ____ Puffs q6hr ☐ Ipratropium pMDI 20mcg/puff with spacer ____ Puffs q6h As Needed doses ☐ Salbutamol pMDI 100mcg/puff with Spacer ____ Puffs q1hr PRN Shortness of breath

Ordering Prescriber (<i>print</i>)	Designation	Signature	Date/Time (dd/mm/yyyy hhmm)
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RESPIRATORY SUPPORT / SUPPLEMENTAL OXYGEN

Target 88-92%

Alternative Target $\geq 92\%$

- ☐ Room Air
- ☐ Nasal Cannula ____ L/min
- ☐ HFNO (with Cannula): ____ L/min (30–60 L/min)
 - ☐ VMN in-line for bronchodilator delivery
 - ☐ May be considered for patients with increased work of breathing and hypoxemia without hypercapnia [28,29]
- ☐ NIV/BiPAP: IPAP ____ / EPAP ____
 - ☐ VMN in-line via T-piece or mask adapter [6-10] [11,12]
 - ☐ NIV is preferred for Hypercapnic respiratory failure associated with COPD [28,29]

Considerations

- HFNO with Cannula (Mild to Moderate)
 - ☐ In-line with Fisher&Paykel Airvo2 or 3 in combination with the Airvo Neb humidifier adaptor
 - ☐ In-line with the VapoTherm HVT 2.0 Aerosol Adapter
 - ☐ If High-flow Nasal Oxygen is being delivered via standalone humidification Aerogen should be on the Dry side of the humidifier at the inlet
 - ☐ Higher delivery occurs when the patients inspiratory flow is matched to or greater than flow from the HFNO device (consider reducing the flow of the highflow)
- Optimal Placement for NIV (Severe)
 - ☐ Single Limb Circuit: Between a non-vented mask and the patient side of the leak port (non-vented masks not recommended)
 - ☐ Dual Limb Circuit: Optimal position would 15cm back from the Wye at the inspiratory limb or between the Wye and the patient, and pre-humidifier
- Reassessment
 - ☐ Response to NIV should be monitored at least hourly
 - ☐ Follow institutional guidelines for need of escalation
- **Medication Considerations**
 - ☐ Magnesium Sulfate IV 2gm X1
 - May be considered in severe COPD and Asthma COPD overlap and those with hypomagnesemia in which hypoxia and hypercarbia persist despite other therapies however evidence is limited [30]

DEFINITIONS

pMDI	Pressurized Metered Dose Inhaler
VMN	Aerogen Solo Vibrating Mesh Nebulizer
Aerosol Reservoir	Aerogen Ultra Aerosol Reservoir with aerosol mask or valved mouthpiece
HFNO	High-Flow Nasal Oxygen
NIV	Non-Invasive Ventilation
DECAF	Dyspnea, Eosinopenia, Consolidation on chest x-ray, Acidemia (pH<7.3), Atrial fibrillation
BiPAP	Bilevel Positive Airway Pressure
EPAP	Expiratory Positive Airway Pressure
FiO2	Fraction of inspired Oxygen
JN	Jet Nebulizer

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