

Table S1 Benefits of Different Therapies (based on GOLD^[10])

Pharmacological Therapy

- Bronchodilators:
 - Short acting inhaled bronchodilators (**Evidence A**)
 - Theophylline (**Evidence B**)
- Systemic corticosteroids (**Evidence A**)
- Antibiotics (**Evidences B and C**)

Non-Pharmacological Therapy

- Controlled oxygen therapy (**Evidence A**)
- Assisted mechanical support:
 - Non-invasive ventilation (**Evidence A**)
 - Invasive ventilation (**Evidence A**)
- Pulmonary rehabilitation (**Evidence D**)

Table S2 Indications for Non-Invasive Ventilation (adapted from GOLD^[10])

- Moderate-to-severe dyspnoea, use of accessory muscles and paradoxical abdominal motion
- Moderate-to-severe acidosis ($\text{pH} \leq 7.35$) and hypercapnia ($\text{PaCO}_2 > 6.0$ kPa)
- Respiratory frequency > 25 breaths/min

Indications for Invasive Ventilation

- Severe dyspnoea, use of accessory muscles and paradoxical abdominal motion
- Respiratory frequency > 35 breaths/min
- Life-threatening hypoxaemia ($\text{PaO}_2 < 5.3$ kPa or $\text{PaO}_2/\text{F}_i\text{O}_2 < 27$ kPa)
- Severe acidosis ($\text{pH} < 7.25$) and hypercapnia ($\text{PaCO}_2 > 8.0$ kPa)
- Respiratory arrest, somnolence and/or impaired mental status
- Cardiovascular complications (hypotension, shock, heart failure)
- Other severe complications (metabolic abnormalities, sepsis, pneumonia, pulmonary embolism)

Table S3 Indications for Hospitalisation (adapted from GOLD^[10])

- Marked increase in symptoms severity
- Severe COPD background
- Onset of new physical signs (i.e. cyanosis, peripheral oedema)
- Failure of exacerbation to respond to initial pharmacological therapy
- Significant co-morbidities; diagnostic uncertainty
- Poor socioeconomic conditions

Indications for Intensive Care

- Severe dyspnoea with inadequate response to initial emergency therapy
- Confusion; lethargy; coma
- Persistent or worsening hypoxaemia ($\text{PaO}_2 < 5.3 \text{ kPa}$), and/or severe-worsening hypercapnia ($\text{PaCO}_2 > 8.0 \text{ kPa}$) and/or severe-worsening respiratory acidosis ($\text{pH} < 7.25$) despite supplemental oxygen therapy or non-invasive ventilation

Figure S1 Diagram to manage hypoxaemia with supplemental oxygen therapy (OT) in patients with exacerbation of COPD. ABG=arterial blood gases; SaO_2 =arterial oxygen saturation (adapted from ref 9).

Fig 1

