



## Clinical Validation Guidelines

### RESPIRATORY FAILURE

**Definition:** failure of gas exchange function of lungs either of oxygenation (hypoxemic) or carbon dioxide elimination (hypercapnic), or both (combination).

**Diagnostic Criteria** <sup>(1,2)</sup>: To clinically validate the following diagnoses the listed criteria must be met AND the diagnosis must be documented by a physician in the medical records.

**(J96.11)** Chronic respiratory failure with hypoxia (ONE or more of the following Criteria #1 or Criteria #2 + Criteria #3 is needed to make the diagnosis):

- 1) SpO<sub>2</sub> <91% on room air, OR
- 2) pO<sub>2</sub><60, AND
- 3) Home oxygen support for at least 15 hours per day.<sup>3,4</sup>

Home oxygen is a reliable indicator of chronic hypoxemic respiratory failure since SpO<sub>2</sub> ≤ 88% is required to meet medical necessity criteria for home O<sub>2</sub>.

P/F ratio cannot be used in the setting of chronic hypoxemic respiratory failure on home O<sub>2</sub> since it is always less than 300<sup>(2)</sup>

**(J96.12)** Chronic respiratory failure with hypercapnia (ALL of the following Criteria #1 and Criteria #2 is needed to make the diagnosis):

- 1) Elevated pCO<sub>2</sub> >50, AND
- 2) A normal pH (7.35-7.45).

**(J96.01)** Acute respiratory failure with hypoxia (ONE or more of the following Criteria #1 -3 + Criteria #4 and #5 is needed to make the diagnosis):

- 1) pO<sub>2</sub> <60 mmHg on ABG on room air, OR
- 2) SpO<sub>2</sub> <91% on room air, OR
- 3) P/F ratio on inspired air <300
- 4) Does not meet criteria for chronic respiratory failure with hypoxia (see above). Not on home oxygen, or if on home oxygen support is for < 15 hours per day.
- 5) **Additionally**, any patient with hypoxemic respiratory failure would be expected to exhibit some degree of respiratory difficulty or distress (tachypnea, labored breathing, accessory muscle use, retractions, cyanosis, episodes of desaturation) and/or changes in mental status (decreased alertness or confusion).

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**(J96.21)** Acute on chronic respiratory failure with hypoxia (ONE or more of the following Criteria #1 with Criteria #2, or Criteria #3 or Criteria #4 + Criteria #5):

- 1) Increased dyspnea treated with an increase in chronic supplemental oxygen, **AND**
- 2) Cause for increase in chronic supplemental oxygen is documented and it is not an identifiable as immediately reversible (e.g. overdose of medication or drug, sedation for a procedure, pneumothorax), **OR**
- 3) Decrease in baseline pO<sub>2</sub> by 10 mmHg on ABG, **OR**
- 4) PaO<sub>2</sub> <60 or SpO<sub>2</sub> <91% on baseline home oxygen (rather than room air)
- 5) **Additionally**, any patient with hypoxemic respiratory failure would be expected to exhibit some degree of respiratory difficulty or distress (tachypnea, labored breathing, accessory muscle use, retractions, cyanosis, episodes of desaturation) and/or changes in mental status (decreased alertness, confusion).

**(J96.02)** Acute respiratory failure with hypercapnia (ALL of the following criteria is needed to make this diagnosis):

- 1) pCO<sub>2</sub> >50 mmHg **WITH** pH <7.35. The diagnosis requires an ABG (or VBG) showing elevated pCO<sub>2</sub> due to acute retention of carbon dioxide gas resulting in a respiratory acidosis.
- 2) **Additionally**, any patient with hypercapneic respiratory failure would be expected to exhibit some degree of respiratory difficulty or distress (tachypnea, labored breathing, accessory muscle use, retractions, cyanosis), reduced ventilatory drive (RR <10) and/or changes in mental status (confusion, hypersomnolence).

**(J96.20)** Acute on chronic respiratory failure with hypercapnia (Criteria #1 and Criteria #4 plus ONE or more of the following Criteria #2 or Criteria #3 is needed to make the diagnosis):

- 1) Worsening dyspnea, **AND**
- 2) pCO<sub>2</sub> >50 mmHg **WITH** pH <7.35. The diagnosis requires an ABG (or VBG) showing elevated pCO<sub>2</sub> due to acute retention of carbon dioxide gas resulting in a respiratory acidosis, **OR**
- 3) Increase in baseline pCO<sub>2</sub> on ABG by  $\geq 10$  mmHg
- 4) **Additionally**, any patient with hypercapneic respiratory failure would be expected to exhibit some degree of respiratory difficulty or distress (tachypnea, labored breathing, accessory muscle use, retractions, cyanosis), reduced ventilatory drive (RR <10) and/or changes in mental status (confusion, hypersomnolence).

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### **Common Causes of Respiratory Failure:**

- Hypoxic respiratory failure: infections, CVA, obstruction (e.g. pulmonary embolism), trauma.
- Hypercapnic respiratory failure: oversedation, COPD, obesity hypoventilation syndrome (OHS), obstructive sleep apnea (OSA), head trauma.

### **Clinical Indicators of Respiratory Failure:**

- Use of supplemental oxygen (nasal cannula, face mask, BiPAP, HFNC, ventilator)
- Respiratory therapy interventions (inhaled bronchodilators, mucolytics).
- Changes in mental status (restlessness, confused, somnolent)

### **Differential Diagnoses for Respiratory Failure:**

**(J95.821)** Post-procedural respiratory failure: is considered a surgical complication. The cause/effect relationship must be clearly documented by the provider to show respiratory failure is a direct complication of the surgery. If the respiratory failure is attributed to an underlying or preexisting condition (e.g. severe COPD, heart failure aspiration pneumonia, pneumothorax) it would not be reported to this code. Patients who require a short period of routine ventilator support during surgical recovery should not be assigned this code.

**(J95.1-J95.3)** Pulmonary insufficiency following surgery: pulmonary insufficiency (acute or chronic) has no clinical diagnostic standards. It is not a valid diagnosis for routine post-op management when no significant underlying pulmonary problem can be substantiated. This code should be used with caution since it is coding without a clear definition.

**(R06.89)** Respiratory insufficiency is used to describe hypoxemia (pO<sub>2</sub> 60-79 or SpO<sub>2</sub> 91-94%) without respiratory failure.

### **References:**

- 1) Tang, C., Pinson, R. (2023). Respiratory Failure. CDI Pocket Guide (16<sup>th</sup> Edition), Pages 210-221.
- 2) Prescott, L., James, M. (2023). Respiratory Failure. ACDIS Pocket Guide: The Essential CDI Resource. Pages 219-228.
- 3) Ahmadi Z, Sundh J, Bornefalk-Hermansson A, Ekström M. Long-Term Oxygen Therapy 24 vs 15 h/day and Mortality in Chronic Obstructive Pulmonary Disease. PLoS One. 2016 Sep 20;11(9):e0163293. doi: 10.1371/journal.pone.0163293. PMID: 27649490; PMCID: PMC5029935.

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- 4) Koczulla AR, Schneeberger T, Jarosch I, Kenn K, Gloeckl R. Long-Term Oxygen Therapy. Dtsch Arztebl Int. 2018 Dec 24;115(51-52):871-877. doi: 10.3238/arztebl.2018.0871. PMID: 30765024; PMCID: PMC6381774.

### SUPPLEMENTS:

Nasal Cannula Flow Rate and FiO<sub>2</sub> Chart for Calculating P/F Ratio

<b>Liters Per Minute (LPM)</b>	<b>Approximate FiO<sub>2</sub></b>
<b>1</b>	<b>24%</b>
<b>2</b>	<b>28%</b>
<b>3</b>	<b>32%</b>
<b>4</b>	<b>36%</b>
<b>5</b>	<b>40%</b>
<b>6</b>	<b>44%</b>
<b>7</b>	<b>48%</b>
<b>8</b>	<b>52%</b>
<b>9</b>	<b>56%</b>
<b>10</b>	<b>60%</b>