Aspirus Network, Inc.
Chronic Obstructive Pulmonary Disease Care (COPD) Guideline 2012

Key Points:
• The diagnosis of COPD should be suspected based on the patient’s medical history and physical examination.

Symptoms of and Risk Factors for COPD
COPD may be indicated by the presence of one of the following symptoms:
- Chronic cough (duration greater than three months) with or without sputum production
- Dyspnea or without wheezing
- COPD should also be considered if the patient has one or more of the following risk factors:
  - History of tobacco use or prolonged exposure to secondhand or environmental smoke
  - Occupations exposed to dust or chemicals (e.g., firefighters, welders)
  - Alpha 1-antitrypsin deficiency
  - Chronic respiratory infections

Recommended Etiological Evaluations for the Diagnosis of COPD
- Spirometry and pre- and post-bronchodilator recommended
- Screening for Alpha 1-antitrypsin deficiency recommended in patients who develop COPD at a young age
- Resting oxygen saturation measurement suggested in moderate or severe disease
- Arterial blood gas (ABG) measurement recommended in moderate or severe disease or if oxygen saturation is less than 92% for more than 30 minutes
- Spirometry is necessary for diagnosis and to establish appropriate therapy as indicated.

Differential Diagnosis
The chest radiograph in COPD is often normal but may show signs of hyperinflation, a flattened diaphragm, or bulla. In addition, asthma, possible differential diagnoses for COPD include bronchiolitis, cyclic fibrosis, obliterative bronchiolitis, congestive heart failure, and upper airway lesions.

COPD Diagnosis Codes
COPTIC-9-CM Diagnosis
- Chronic bronchitis 492
- Emphysema 492
- COPD 496

COPD Stages - Symptoms - Signs

<table>
<thead>
<tr>
<th>Stage of COPD</th>
<th>FEV1</th>
<th>Typical Symptoms and Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild (I)</td>
<td>&gt;50%</td>
<td>Little or no dyspnea</td>
</tr>
<tr>
<td>Moderate (II)</td>
<td>30-49%</td>
<td>- Breathlessness (e.g., wheezing on moderate exertion)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Cough (sputum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Variable abnormal signs (general)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Dyspnea in breath sounds, presence of wheezes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hypoxemia may be present</td>
</tr>
<tr>
<td>Severe (III)</td>
<td>&lt;30%</td>
<td>- Dyspnea with any exertion or at rest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Wheezing and cough often prominent</td>
</tr>
<tr>
<td>Very severe (IV)</td>
<td>Less than 20%</td>
<td>- Lung hyperinflation (pneumothorax, peripheral edema, and polychromatophilia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Progressive respiratory failure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hypoxemia and hypercapnia are common</td>
</tr>
</tbody>
</table>

Ongoing Management
• Schedule regular follow-up visits
• Evaluate/talk to patient about goals of care
• Evaluate/talk to patient about health care directives
• Evaluate/talk to patient about co-morbidities
• Schedule regular follow-up visits

Recommended Etiological Evaluations for the Diagnosis of COPD
- Spirometry and pre- and post-bronchodilator recommended
- Screening for Alpha 1-antitrypsin deficiency recommended in patients who develop COPD at a young age
- Resting oxygen saturation measurement suggested in moderate or severe disease
- Arterial blood gas (ABG) measurement recommended in moderate or severe disease or if oxygen saturation is less than 92% for more than 30 minutes
- Spirometry is necessary for diagnosis and to establish appropriate therapy as indicated.

Differential Diagnosis
The chest radiograph in COPD is often normal but may show signs of hyperinflation, a flattened diaphragm, or bulla. In addition, asthma, possible differential diagnoses for COPD include bronchiolitis, cyclic fibrosis, obliterative bronchiolitis, congestive heart failure, and upper airway lesions.

COPD Diagnosis Codes
COPTIC-9-CM Diagnosis
- Chronic bronchitis 492
- Emphysema 492
- COPD 496

COPD Stages - Symptoms - Signs

<table>
<thead>
<tr>
<th>Stage of COPD</th>
<th>FEV1</th>
<th>Typical Symptoms and Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild (I)</td>
<td>&gt;50%</td>
<td>Little or no dyspnea</td>
</tr>
<tr>
<td>Moderate (II)</td>
<td>30-49%</td>
<td>- Breathlessness (e.g., wheezing on moderate exertion)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Cough (sputum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Variable abnormal signs (general)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Dyspnea in breath sounds, presence of wheezes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hypoxemia may be present</td>
</tr>
<tr>
<td>Severe (III)</td>
<td>&lt;30%</td>
<td>- Dyspnea with any exertion or at rest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Wheezing and cough often prominent</td>
</tr>
<tr>
<td>Very severe (IV)</td>
<td>Less than 20%</td>
<td>- Lung hyperinflation (pneumothorax, peripheral edema, and polychromatophilia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Progressive respiratory failure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hypoxemia and hypercapnia are common</td>
</tr>
</tbody>
</table>

Ongoing Management
• Schedule regular follow-up visits
• Evaluate/talk to patient about goals of care
• Evaluate/talk to patient about health care directives
• Evaluate/talk to patient about co-morbidities
• Schedule regular follow-up visits

Recommended Etiological Evaluations for the Diagnosis of COPD
- Spirometry and pre- and post-bronchodilator recommended
- Screening for Alpha 1-antitrypsin deficiency recommended in patients who develop COPD at a young age
- Resting oxygen saturation measurement suggested in moderate or severe disease
- Arterial blood gas (ABG) measurement recommended in moderate or severe disease or if oxygen saturation is less than 92% for more than 30 minutes
- Spirometry is necessary for diagnosis and to establish appropriate therapy as indicated.

Differential Diagnosis
The chest radiograph in COPD is often normal but may show signs of hyperinflation, a flattened diaphragm, or bulla. In addition, asthma, possible differential diagnoses for COPD include bronchiolitis, cyclic fibrosis, obliterative bronchiolitis, congestive heart failure, and upper airway lesions.

COPD Diagnosis Codes
COPTIC-9-CM Diagnosis
- Chronic bronchitis 492
- Emphysema 492
- COPD 496

COPD Stages - Symptoms - Signs

<table>
<thead>
<tr>
<th>Stage of COPD</th>
<th>FEV1</th>
<th>Typical Symptoms and Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild (I)</td>
<td>&gt;50%</td>
<td>Little or no dyspnea</td>
</tr>
<tr>
<td>Moderate (II)</td>
<td>30-49%</td>
<td>- Breathlessness (e.g., wheezing on moderate exertion)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Cough (sputum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Variable abnormal signs (general)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Dyspnea in breath sounds, presence of wheezes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hypoxemia may be present</td>
</tr>
<tr>
<td>Severe (III)</td>
<td>&lt;30%</td>
<td>- Dyspnea with any exertion or at rest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Wheezing and cough often prominent</td>
</tr>
<tr>
<td>Very severe (IV)</td>
<td>Less than 20%</td>
<td>- Lung hyperinflation (pneumothorax, peripheral edema, and polychromatophilia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Progressive respiratory failure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hypoxemia and hypercapnia are common</td>
</tr>
</tbody>
</table>

Ongoing Management
• Schedule regular follow-up visits
• Evaluate/talk to patient about goals of care
• Evaluate/talk to patient about health care directives
• Evaluate/talk to patient about co-morbidities
• Schedule regular follow-up visits

Recommended Etiological Evaluations for the Diagnosis of COPD
- Spirometry and pre- and post-bronchodilator recommended
- Screening for Alpha 1-antitrypsin deficiency recommended in patients who develop COPD at a young age
- Resting oxygen saturation measurement suggested in moderate or severe disease
- Arterial blood gas (ABG) measurement recommended in moderate or severe disease or if oxygen saturation is less than 92% for more than 30 minutes
- Spirometry is necessary for diagnosis and to establish appropriate therapy as indicated.

Differential Diagnosis
The chest radiograph in COPD is often normal but may show signs of hyperinflation, a flattened diaphragm, or bulla. In addition, asthma, possible differential diagnoses for COPD include bronchiolitis, cyclic fibrosis, obliterative bronchiolitis, congestive heart failure, and upper airway lesions.

COPD Diagnosis Codes
COPTIC-9-CM Diagnosis
- Chronic bronchitis 492
- Emphysema 492
- COPD 496

COPD Stages - Symptoms - Signs

<table>
<thead>
<tr>
<th>Stage of COPD</th>
<th>FEV1</th>
<th>Typical Symptoms and Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild (I)</td>
<td>&gt;50%</td>
<td>Little or no dyspnea</td>
</tr>
<tr>
<td>Moderate (II)</td>
<td>30-49%</td>
<td>- Breathlessness (e.g., wheezing on moderate exertion)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Cough (sputum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Variable abnormal signs (general)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Dyspnea in breath sounds, presence of wheezes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hypoxemia may be present</td>
</tr>
<tr>
<td>Severe (III)</td>
<td>&lt;30%</td>
<td>- Dyspnea with any exertion or at rest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Wheezing and cough often prominent</td>
</tr>
<tr>
<td>Very severe (IV)</td>
<td>Less than 20%</td>
<td>- Lung hyperinflation (pneumothorax, peripheral edema, and polychromatophilia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Progressive respiratory failure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hypoxemia and hypercapnia are common</td>
</tr>
</tbody>
</table>

Ongoing Management
• Schedule regular follow-up visits
• Evaluate/talk to patient about goals of care
• Evaluate/talk to patient about health care directives
• Evaluate/talk to patient about co-morbidities
• Schedule regular follow-up visits

Recommended Etiological Evaluations for the Diagnosis of COPD
- Spirometry and pre- and post-bronchodilator recommended
- Screening for Alpha 1-antitrypsin deficiency recommended in patients who develop COPD at a young age
- Resting oxygen saturation measurement suggested in moderate or severe disease
- Arterial blood gas (ABG) measurement recommended in moderate or severe disease or if oxygen saturation is less than 92% for more than 30 minutes
- Spirometry is necessary for diagnosis and to establish appropriate therapy as indicated.

Differential Diagnosis
The chest radiograph in COPD is often normal but may show signs of hyperinflation, a flattened diaphragm, or bulla. In addition, asthma, possible differential diagnoses for COPD include bronchiolitis, cyclic fibrosis, obliterative bronchiolitis, congestive heart failure, and upper airway lesions.

COPD Diagnosis Codes
COPTIC-9-CM Diagnosis
- Chronic bronchitis 492
- Emphysema 492
- COPD 496

COPD Stages - Symptoms - Signs

<table>
<thead>
<tr>
<th>Stage of COPD</th>
<th>FEV1</th>
<th>Typical Symptoms and Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild (I)</td>
<td>&gt;50%</td>
<td>Little or no dyspnea</td>
</tr>
<tr>
<td>Moderate (II)</td>
<td>30-49%</td>
<td>- Breathlessness (e.g., wheezing on moderate exertion)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Cough (sputum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Variable abnormal signs (general)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Dyspnea in breath sounds, presence of wheezes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hypoxemia may be present</td>
</tr>
<tr>
<td>Severe (III)</td>
<td>&lt;30%</td>
<td>- Dyspnea with any exertion or at rest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Wheezing and cough often prominent</td>
</tr>
<tr>
<td>Very severe (IV)</td>
<td>Less than 20%</td>
<td>- Lung hyperinflation (pneumothorax, peripheral edema, and polychromatophilia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Progressive respiratory failure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hypoxemia and hypercapnia are common</td>
</tr>
</tbody>
</table>
Step 3 Therapy for COPD (continued)

Key Points:
- Drug therapy is determined by severity of symptoms.
- Pulmonary rehabilitation programs are effective in improving exercise capacity, quality of life and perception of symptoms, regardless of age (Di Mleo, 2008 [C]). (See Appendix A)
- Long-term oxygen therapy (more than 15 hours per day) improves survival and quality of life in hypoxic patients.
- Moderate severity of COPD: physical examination and laboratory/radiology evaluation should be considered:
  - Physical examination
  - Laboratory/radiology evaluation

Step 4 Evaluation of Acute Exacerbation (continued)

Evaluation of Acute Exacerbation

- Symptoms associated with exacerbation of COPD because of its rapid onset of action.
- Bronchitis may be added to produce additive bronchodilation and allow the use of lower doses of antibiotics.
- Antibiotics should be used in both acute exacerbations, 30-40 day regimen for 7-14 days.
- In the presence of an exacerbation with persistently open airways, an antibiotic is warranted. Trimethoprim/sulfamethoxazole (TMP/ SMX) and doxycycline are considered adequate “first-line” agents.
- The “titrate-up” strategy requires assessing for concern about antibiotic resistance, either from previous culture information or known local antibiotic tolerance, or if the patient is considered difficult to treat.
- It is mandatory to check oxygen saturation or arterial blood gas measurement.

Appendix A - Medicare Standards for Pulmonary Rehabilitation Coverage

Effective January 1, 2010, Medicare will pay for up to two (2) one hour sessions per day, for up to 36 lifetime sessions (in some cases, up to 72 lifetime sessions) of a physician-supervised, comprehensive Pulmonary Rehabilitation Program if it is generally provided for 4.6 hours per week for an 8-1/2 week period. The PR program must include the following mandatory components:

1. Education/Exercise class (30 minutes to 1 hour)
2. Education or training
3. Pulmonary rehabilitation programs are effective in improving respiratory status

Step 5 Treatment of Acute COPD Exacerbation

Key Points:
- Ambulatory is the preferred bronchodilator in the setting of an acute exacerbation of COPD because of its rapid onset of action.
- Ipratropium may be added to produce additive bronchodilation and allow the use of lower doses of antibiotics.
- Antibiotics should be used in both acute exacerbations, 30-40 day regimen for 7-14 days.
- In the presence of an exacerbation with persistently open airways, an antibiotic is warranted. Trimethoprim/sulfamethoxazole (TMP/ SMX) and doxycycline are considered adequate “first-line” agents.
- The “titrate-up” strategy requires assessing for concern about antibiotic resistance, either from previous culture information or known local antibiotic tolerance, or if the patient is considered difficult to treat.
- It is mandatory to check oxygen saturation or arterial blood gas measurement.

Documentation Requirements

- Detailed account of all therapies, usual and customary
- Flow rate: liters per minute (LPM) – oxygen must be titrated to the least flow rate needed to correct SaO2.
- Initial Certification; that is, with the 1st month’s claim
- Re-certification every 30 days
- Physical examination by a physician
- Oxygen level prior to therapy
- Oxygen level immediately after therapy
- Flow rate
- Description of symptoms
- Hemoglobin oxygen saturation
- Date and time
- Signature of the physician or an individual designated by the physician
- Associated with an acute exacerbation of COPD
- The benefits of the program are assessed for patients with COPD

Oxygen Prescription

- May qualify as a system by itself as a complement to stationary oxygen system.
- If the patient qualifies for reimbursement under the oxygen coverage guidelines noted previously, and the patient is mobile within the home.

Oxygen Prescription

- Oxygen for patients with COPD is covered under Medicare. The prescription for home oxygen therapy must include:
  - Flow rate: liters per minute (LPM) – oxygen must be titrated to the least flow rate needed to correct SaO2.
  - Duration of need: specific number of months or indefinitely;
  - Laboratory evidence (blood gas), or oxygen analyzers
  -Bronchodilators (inhaler, nebulizer)
  - Long-term oxygen therapy

Portable Oxygen

- May qualify as a system by itself or as a complement to stationary oxygen system.
- If the patient qualifies for reimbursement under the oxygen coverage guidelines noted previously, and the patient is mobile within the home.

Oxygen Prescription

- Oxygen for patients with COPD is covered under Medicare. The prescription for home oxygen therapy must include:
  - Flow rate: liters per minute (LPM) – oxygen must be titrated to the least flow rate needed to correct SaO2.
  - Duration of need: specific number of months or indefinitely;
  - Laboratory evidence (blood gas), or oxygen analyzers
  -Bronchodilators (inhaler, nebulizer)
  - Long-term oxygen therapy
  - Oxygen saturation monitoring system (monitor, oximeter)

Documentation Requirements

- Detailed account of all therapies, usual and customary
- Flow rate: liters per minute (LPM) – oxygen must be titrated to the least flow rate needed to correct SaO2.
- Initial Certification; that is, with the 1st month’s claim
- Re-certification every 30 days
- Physical examination by a physician
- Oxygen level prior to therapy
- Oxygen level immediately after therapy
- Flow rate
- Description of symptoms
- Hemoglobin oxygen saturation
- Date and time
- Signature of the physician or an individual designated by the physician
- Associated with an acute exacerbation of COPD
- The benefits of the program are assessed for patients with COPD

Oxygen Prescription

- May qualify as a system by itself as a complement to stationary oxygen system.
- If the patient qualifies for reimbursement under the oxygen coverage guidelines noted previously, and the patient is mobile within the home.