

# Care of Respiratory Conditions in an Observation Unit



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## KEYWORDS

- Emergency department • Emergency department observation unit • Asthma
- Chronic obstructive pulmonary disease • Community-acquired pneumonia
- Observation

## KEY POINTS

- Asthma, chronic obstructive pulmonary disease, and community-acquired pneumonia are the second most common category of diseases treated in an emergency department observation unit (EDOU).
- EDU management of respiratory disorders is effective, efficient, safe, and less costly compared with inpatient care.
- Risk stratification ensures appropriate patients are placed in the EDU.
- Use of condition-specific rapid diagnostic and treatment protocols and clinical pathways allow for standardizing care using evidence-based best practice.

Respiratory conditions are common complaints seen in the emergency department (ED). After initial ED evaluation, stabilization, and treatment, patients may require further testing or treatment. The ED observation unit (EDOU) offers an alternative disposition to inpatient admission for patients who require short-term monitoring, testing, and/or treatment. By using rapid diagnostic and therapeutic protocols, the vast majority of patients can be safely discharged home within 24 hours (or 2 midnights).

This article focuses on 3 respiratory conditions that are frequently managed in an EDU: exacerbations of asthma and chronic obstructive pulmonary disease (COPD) and treatment of community-acquired pneumonia (CAP). Other authors discuss additional respiratory conditions such as congestive heart failure and pneumothorax elsewhere within this issue.

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### Case Study

Jennifer Andrews, a 35-year-old female asthmatic, complains of shortness of breath and wheezing for 2 days. Despite nebulizer therapy and oral corticosteroids in the ED, her peak flow measurement increases to only 200 L/min (personal best 400 L/min). Auscultation reveals persistent diffuse expiratory wheezing. She is placed in the EDOU, where she receives nebulized bronchodilator therapy. After 15 hours, her peak flow increases to 350 L/min and auscultation reveals only rare expiratory wheezing. Ambulatory pulse oximetry on room air is 98%. She is discharged with prescriptions for oral and inhaled corticosteroids. Follow-up with her primary care physician is arranged.

## ASTHMA

The Global Initiative for Asthma defines asthma as “a heterogeneous disease, usually characterized by chronic airway inflammation. It is defined by the history of respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough that vary over time and in intensity, together with variable expiratory airflow limitation.”<sup>1</sup> This common disease affects 7.0 million children and 18.7 million adults in the United States.<sup>2</sup> In 2011, asthma accounted for 1.6 million ED visits and 27% (439,000) were hospitalized an average of 3.6 days (1.6 million hospital days).<sup>3–5</sup> Asthma is one of the most common conditions managed in an observation setting for all ages.<sup>6,7</sup>

The cost of asthma care in the United States increased to \$56 billion in 2007 with the majority of cost owing to the cost of hospitalization (\$50 billion).<sup>8,9</sup> The average annual costs for an asthma-related hospital stay are estimated at \$3600 per child and as much as \$6600 per adult.<sup>9</sup> Annually, asthma causes adults to miss 14 million days of work and children to miss 10 million days of school.<sup>5,10</sup>

### *Evidence for Emergency Department Observation Unit Management of Asthma Exacerbation*

The EDOU is ideal for asthma exacerbation care and offers many advantages to traditional admission. Because ED rescue therapy (eg, corticosteroids) may not reach full effect for up to 6 hours, the EDOU allows time for medications to achieve effect and for repeated clinical assessments so that final disposition can be made.<sup>11</sup> This extended period of observation affords time for patient teaching and preventative treatments that may lead to decreased recidivism, admissions, morbidity, and mortality.<sup>11,12</sup>

Numerous studies since the 1980s have demonstrated that treatment of adult and pediatric asthmatics in an EDOU avoids hospitalization, is cost effective, and is clinically beneficial with reduced morbidity and mortality.<sup>13–23</sup> Prospective, randomized, clinical trials found greater patient satisfaction and perceived quality of life.<sup>17,20,24</sup>

Despite evidence favoring EDOU use for asthma exacerbation, reports demonstrate that EDOUs continue to be underused. This is evidenced by large numbers of both pediatric and adult patients treated as inpatients during short-stay admissions.<sup>25–27</sup>

### *Patient Selection*

Patient assessment should include determination of risk factors, especially those for fatal or near-fatal asthma (**Box 1**). Asthma severity can be classified as mild, moderate, or severe based on vital signs and physical examination findings.<sup>28</sup> Scoring systems assess symptom severity and treatment response but do not assess the need for admission. Commonly used scores include the Pediatric Asthma Severity Score,<sup>29</sup> Pulmonary Index Score,<sup>30</sup> Pediatric Respiratory Assessment Measure,<sup>31</sup> and RAD<sup>32</sup>

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