

## Repeat Imaging in Pneumonia

Pneumonia is a clinical diagnosis made with compatible signs (e.g. fever, tachycardia, tachypnea, rales, rhonchi), symptoms (e.g. cough, sputum production, shortness of air, chills, fatigue, chest pain) and radiographic imaging. Clinical stability is typically expected to be achieved within 48 – 72 hours after initiating antibiotic treatment. The recommended duration of antibiotic treatment for most patients with pneumonia is 5 – 7 days.<sup>1</sup> Are there any radiographic signs that can help assess response to antibiotic therapy in the treatment of pneumonia? Read on to learn more about repeat imaging in pneumonia.

### How long does it take for pneumonia to resolve on imaging?

In a study with 288 patients hospitalized with severe CAP, 55.9% patients had clinical improvement by day 7 (i.e. respiratory rate < 25 BPM, SpO<sub>2</sub> ≥ 90%, blood pressure within normal limits, no altered mental status) and 77.9% had clinical cure by day 28. However, only 25.1% and 52.8% of patients had a normal repeat radiograph at day 7 and day 28, respectively (Figure 1.). In patients with confirmed *Streptococcus pneumoniae* pneumonia, radiographic resolution was only in 37.3% of patients at day 28.<sup>2</sup> In another study of hospitalized patients aged ≥ 70, resolution took up to 12 weeks in some patients.<sup>3</sup>

**Figure 1. Percent of patients with abnormal chest x-ray at day 0, day 7, and day 28<sup>2</sup>**



### When should repeat imaging be performed?

The 2019 American Thoracic Society & Infectious Diseases Society of America community-acquired pneumonia guidelines **recommend against** routine repeat imaging in patients who are clinically improving.<sup>4</sup> Repeat imaging may be considered in a non-responding or worsening patient.<sup>5</sup>

### Key takeaway

Radiographic improvement in pneumonia lags behind clinical improvement, therefore repeat imaging should not be routinely obtained. Persistent radiographic abnormalities in patients who are clinically improving is not an indication for prolonging duration of antibiotic therapy.

### References

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