

Acute Respiratory Illness in Immunocompetent Patients

Acute respiratory illness (ARI) is one of the most common reasons for individuals to seek medical treatment. A person with ARI will have one or more of the following symptoms: cough, phlegm production, chest pain, or trouble breathing. Most cases of ARI are caused by infection that will clear up without treatment. ARI cases caused by bacterial pneumonia (<https://www.radiologyinfo.org/en/info/pneumonia>) require treatment. Imaging is used to determine if there is pneumonia.

A chest x-ray (<https://www.radiologyinfo.org/en/info/chestrad>) is usually the initial imaging test used for a person with a healthy immune system and no other risk factors.

In individuals with other risk factors, such as abnormal vital signs, a chest x-ray is usually appropriate. Chest ultrasound (<https://www.radiologyinfo.org/en/info/genus>) may be appropriate. If the initial chest x-ray is negative or inconclusive, chest CT (<https://www.radiologyinfo.org/en/info/chestct>) without intravenous (IV) contrast is usually appropriate as the next imaging test. In a person with pneumonia and suspected abscess or fluid around the lung on the chest x-ray, chest CT either with or without IV contrast is usually appropriate.

In individuals with acute worsening asthma and no suspected pneumonia or pneumothorax (air around the lung), a chest x-ray may be appropriate. If pneumonia or pneumothorax is suspected, then a chest x-ray is usually appropriate.

In individuals with acute worsening of chronic obstructive pulmonary disease (<https://www.radiologyinfo.org/en/info/copd>), a chest x-ray is usually appropriate for the initial imaging. Chest CT with or without IV contrast may be appropriate. In people who have symptoms such as chest pain or a history of heart disease, an ultrasound examination may be appropriate.

For more information, see the *Pneumonia* (<https://www.radiologyinfo.org/en/info/pneumonia>) page.

— By Ryan Lockhart and Nina S. Vincoff, MD. This information originally appeared in the *Journal of the American College of Radiology*.

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