

# SPUTUM CULTURE

**Patient:** What is sputum culture?

**Doctor:** A sputum culture is a test to detect and identify bacteria or fungi that infect the lungs or breathing passages. Sputum is a thick fluid produced in the lungs and in the adjacent airways. A sample of sputum is placed in a sterile container and sent to the laboratory for testing.

**Patient:** What is it for?

**Doctor:** As I've said, sputum culture is ordered to detect and diagnose bacterial lower respiratory tract infections such as bacterial pneumonia. A bacterial infection can reach the lungs in several ways. Bacteria may spread downward from the upper respiratory tract, bacteria in oral or gastric secretions may be aspirated into the lungs, airborne droplets – such as from a person sneezing or coughing – can be inhaled into the lungs, and bacteria from a localized infection may spread to the blood (septicemia) and then be carried to the lungs. Bacterial pneumonia may be a person's primary infection, or it may develop secondary to a viral infection such as influenza, a cold or viral pneumonia. A sputum culture may be ordered by itself, along with a CBC (Complete Blood Count) to evaluate the type and number of white blood cells as an indication of infection, and/or along with a blood culture to test for septicemia. If pathogenic bacteria are identified during a sputum culture, then antimicrobial susceptibility testing is usually performed so that the appropriate antibiotics can be prescribed.

**Patient:** When is the test ordered?

**Doctor:** A sputum culture is ordered when a doctor suspects that a person has a bacterial infection of the lungs or airways, such as bacterial pneumonia, which may show as changes in the lungs as seen on a chest x-ray. Symptoms may include: cough, fever, chills, muscle aches, fatigue, trouble breathing, chest pain and confusion. Sometimes a sputum culture may be ordered after treatment of an infection, to verify its effectiveness.

**Patient:** Is there any test preparation needed?

**Doctor:** Rinse mouth out with water prior to collection to remove loose cells in the mouth.

**Patient:** How is the sample collected for testing?

**Doctor:** Sputum samples may be expectorated or induced. Expectorated samples are coughed up and expelled into a sterile cup provided by the laboratory. The person's mouth should be rinsed with water or saline prior to sample collection. Deep coughing is generally required, and the person should be informed that it is phlegm/mucus from the lungs that is necessary, not saliva. If someone cannot produce a sputum sample, then it can often be induced by inhaling a sterile saline or glycerin aerosol for several minutes to loosen phlegm in the lungs.

**Patient:** What happens after the sample is taken?

**Doctor:** All samples collected should be taken to the laboratory promptly for processing while they are fresh. Sputum samples must be evaluated and accepted by the laboratory before they are processed. Useful sputum culture results rely heavily on good sample collection. A sample that is not considered "adequate" must be rejected and a recollection requested. Adequate means that it is considered representative of conditions in the lower respiratory tract.

**Patient:** Why would my doctor collect more than one sputum sample?

**Doctor:** This may be done if the first sample is not considered adequate or if the doctor wants to order additional tests on sputum samples.

**Patient:** I have been sick for more than a week. Why would you order a sputum culture now?

**Doctor:** Because I suspect that you have developed a bacterial infection secondary to an initial viral infection or that your infection has not responded as expected to treatment.

**Patient:** Is there anything else I should know doctor?

**Doctor:** Yes, those people whose lungs have become damaged, through disease, exposure to toxins or chronic exposure to irritants, or from previous infections, have an increased risk of recurrent infections. With bacterial respiratory infections, the sputum may have a thick consistency (viscous), appear discolored – yellowish, greenish, grayish, or rarely rusty or bloody – and may have an unpleasant odor.

## **SPUTUM CULTURE**

### **QUESTIONS:**

- 1. What is the sputum culture for?**
- 2. Can bacterial pneumonia be prevented? How?**
- 3. Is there a possibility that a bacterial lower respiratory tract infection will return?**