FAQ

COVID-19

Siemens Healthineers – frequently asked questions

Computed Tomography

How can computed tomography (CT) help detecting COVID-19?

Computed tomography plays an important role in both the diagnosis and monitoring of COVID-19. CT images of the chest provide important information about the patient's health and the effectiveness of therapies. Virally acquired pneumonia, such as COVID-19, can be characterized by different patterns of changes in the lungs and their localization.

Which pathological changes are visible on a thoracic CT/lung CT of a COVID-19 patient and at which stage of the disease?

CT images of the thorax show characteristic signs of viral pneumonia already at an early stage of the disease. These include, for example, so-called ground glass opacities or consolidations, characterized as extensive brightening of the lung. In addition, CT plays an important role in monitoring the progression of the disease, especially in patients with acute or imminent lung failure.

Ultrasound

How can ultrasound help in the diagnosis and treatment of COVID-19?

The ultrasound scan reveals abnormalities on the lung surface. A pneumonia that extends to this pleural surface may be diagnosed using pulmonary ultrasound. COVID-19 tends to affect the terminal alveoli in the peripheral area of the lung. Lesions tend to be close to the pleura, which is exactly where ultrasound works best. In addition, ultrasound diagnostics offers the great advantage of mobility, since it can be performed directly at the patient's bedside and the patient does not have to be transported to another treatment room for this purpose. This is a great advantage especially for COVID-19 patients who are in a very critical condition and depend on artificial respiration.

What is the difference between CT and ultrasound in terms of knowledge gain?

Due to its high sensitivity, CT is currently the imaging method of choice for diagnosing and monitoring patients with COVID-19. However, chest CT can be difficult for patients with hypoxemia and hemodynamic failure. On the other hand, due to the ventilation of the lungs, the signal of the ultrasound is blocked, which makes deeper, pathological changes undetectable here. However, in recent years it has been ascertained that also airborne ultrasound artefacts show different states with different lung diseases and that this can help in the case of COVID-19 to better diagnose the state/phase of the disease. In order to exhaust the diagnostic possibilities, both procedures should be used together.

When would a COVID-19 patient have a CT scan and when an ultrasound scan?

A thoracic CT is not suitable for all patients, for example patients with a lack of oxygen in the blood, pregnant women or COVID-19 patients with particularly severe symptoms for whom transport would be a heavy burden.

X-ray

How can (mobile) X-ray systems help with diagnose and treatment of COVID-19?

X-ray systems especially help with the initial diagnosis of the severity of existing lung damage caused by COVID-19 and its follow-up. Chest X-rays can show characteristic signs of viral pneumonia. These include, for example, so-called ground-glass opacities or consolidations, which are shown by patchy shadows in the lungs. Mobile X-ray systems can also help with the follow-up on particularly severe cases, since the device is driven to the patient in the intensive care unit for example, and the patient does not have to be transported through the hospital effortfully.

Blood gas analyzer

How does blood gas analyzers contribute to the fight against COVID-19?

Blood gas analyzers are crucial for the diagnosis and monitoring of critically ill patients in intensive care units, operating rooms or emergency rooms. For patients who need to be ventilated due to a serious COVID-19 disease, blood gas analyzer measure oxygenation levels of the patient's blood. Based on these results, nurses and physicians adjust ventilator settings or other necessary treatments.

This FAQ as well as press releases, press images and other material are available at https://www.siemens-healthineers.com/press-room/press-features/pf-covid-19.html.

Further information on COVID-19: https://www.corporate.siemens-healthineers.com/covid-19.

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