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## CT Scan Best for COVID-19 Diagnosis



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Time is crucial in diagnosing the novel coronavirus disease (COVID-19) as it is highly contagious, such that any delay increases risk of infecting a larger population. New research from China, where the virus outbreak started, suggests that chest CT should be used as the primary screening tool for COVID-19.

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This recommendation is based on a study of 1,014 patients, who underwent both chest CT and laboratory testing with reverse-transcription polymerase chain reaction (RT-PCR) -- or gene sequencing for respiratory or blood specimens.

"Early diagnosis of COVID-19 is crucial for disease treatment and control. Compared to RT-PCR, chest CT imaging may be a more reliable, practical and rapid method to diagnose and assess COVID-19, especially in the epidemic area," according to the study published in the journal Radiology.

Chest CT is commonly used for pneumonia diagnosis. This imaging test, which is fast and relatively easy to perform, has been shown in previous research to have high sensitivity for COVID-19 – up to 98% – compared to RT-PCR sensitivity of 71%.

The current study, conducted by researchers at [Tongji Hospital in Wuhan, China](#), aimed to evaluate the diagnostic value and consistency of chest CT imaging in comparison to RT-PCR assay in COVID-19. Chest CTs and RT-PCR tests included in this study were performed between 6 January and 6 February 2020.

Using RT-PCR as reference standard, the researchers assessed the performance of chest CT in diagnosing COVID-19. For patients with multiple RT-PCR assays, the dynamic conversion of RT-PCR test results (negative to positive, and positive to negative, respectively) was also analysed as compared with serial chest CT scans.

Key findings of the study include:

- 59% of patients (601) had positive RT-PCR results, whereas 88% (888) had positive chest CT scans.
- Chest CT had 97% sensitivity in detecting COVID-19, based on positive RT-PCR results.

Meanwhile, 75% of patients (308/413) with negative RT-PCR results were found to have positive chest CT findings. Of these, 48% were considered as highly likely cases, with 33% as probable cases. In addition, analyses of serial RT-PCR assays and [CT scans showed the interval between the initial negative to positive RT-PCR results](#) was 4 to 8 days.

"About 81% of the patients with negative RT-PCR results but positive chest CT scans were reclassified as highly likely or probable cases with COVID-19, by the comprehensive analysis of clinical symptoms, typical CT manifestations and dynamic CT follow-ups," according to the journal

study.

Source: [RSNA](#)

Reference: Ai T, Yang Z et al. (2020) Correlation of Chest CT and RT-PCR Testing in Coronavirus Disease 2019 (COVID-19) in China: A Report of 1014 Cases. Radiology; Published online 26 February. <https://doi.org/10.1148/radiol.2020200642>

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