

## **Clinical findings of 6 children with COVID-19, risk factors associated with COVID-19 death, and detection of SARS-CoV-2 in different clinical specimens**

By Denise Baez

NEW YORK -- March 13, 2020 -- Today's DG Alert covers clinical findings of 6 children hospitalised in Wuhan, China, with coronavirus disease 2019 (COVID-19), risk factors associated with death in adults hospitalised with COVID-19, and detection of SARS-CoV-2 in different types of clinical specimens.

A [study](#) published in The New England Journal of Medicine showed that COVID-19 occurred in children in the early phase of the outbreak in Wuhan, causing moderate-to-severe respiratory illness. The onset of COVID-19 was detected in 6 patients between January 2, 2020, and January 8, 2020, and the patients were hospitalised between January 7 and January 13.

Common clinical characteristics included high fever (all 6 six patients), cough (all 6 patients), and vomiting (in 4 patients). Duration of fever was 3 to 11 days. Four children had pneumonia. Three patients showed patch shadows in both lungs, and 1 patient showed patch ground-glass opacities in both lungs.

Only 1 child was admitted to the paediatric intensive care unit and received pooled immune globulin from healthy donors. Duration of hospitalisation was 5 to 13 days. All children recovered after hospitalisation.

Another [study](#), published in The Lancet, of 191 patients with confirmed COVID-19 from 2 hospitals in Wuhan showed that older age, showing signs of sepsis, and having blood clotting issues when admitted to the hospital were key risk factors associated with death in adults hospitalised with the virus.

Specifically, being of an older age, having a high Sequential Organ Failure Assessment score, and having d-dimer  $>1 \mu\text{g/mL}$  are the factors that could help clinicians to identify patients with poor prognosis at an early stage. The frequency of complications were higher in those who died than survivors and included respiratory failure (98 vs 36%), sepsis (100% vs 42%), and secondary infections (50% vs 1%).

In addition, the authors presented new data on viral shedding, which indicate that the median duration of viral shedding was 20 days in survivors (ranging from 8-37 days), but the virus was detectable until death in the 54 non-survivors. While prolonged viral shedding suggests that patients may still be capable of spreading COVID-19, the authors cautioned that the duration of viral shedding is influenced by disease severity, and noted that all patients in the study were

hospitalised -- approximately two-thirds of whom had severe or critical illness. Moreover, the estimated duration of viral shedding was limited by the low frequency of respiratory specimen collection and the lack of measurable genetic material detection in samples.

Lastly, a [study](#) published in JAMA examined whether SARS-CoV-2 can be detected in different types of clinical specimens from other sites, and therefore potentially transmitted in other ways than by respiratory droplets. The study included 205 patients with COVID-19 (1,070 specimens) collected from 3 hospitals in the Hubei and Shandong provinces and Beijing, China, from January 1, 2020 to February 17, 2020. Pharyngeal swabs were collected from most patients 1 to 3 days after hospital admission. Blood, sputum, feces, urine, and nasal samples were collected throughout the illness. Bronchoalveolar lavage fluid and fibrobronchoscope brush biopsy were sampled from patients with severe illness or undergoing mechanical ventilation.

Most of the patients presented with fever, dry cough, and fatigue and 19% of patients had severe illness. Bronchoalveolar lavage fluid specimens showed the highest positive rates (93%), followed by sputum (72%), nasal swabs (63%), fibrobronchoscope brush biopsy (46%), pharyngeal swabs (32%), feces (29%), and blood (1%). None of the 72 urine specimens tested positive.

“In this study, SARS-CoV-2 was detected in specimens from multiple sites of 205 patients with COVID-19, with lower respiratory tract samples most often testing positive for the virus,” wrote Wenjie Tan, MD, National Institute for Viral Disease Control and Prevention, Beijing, China, and colleagues. “Importantly, the live virus was detected in feces, implying that SARS-CoV-2 may be transmitted by the fecal route. A small percentage of blood samples had positive PCR test results, suggesting that infection sometimes may be systemic. Transmission of the virus by respiratory and extra-respiratory routes may help explain the rapid spread of disease. In addition, testing of specimens from multiple sites may improve the sensitivity and reduce false-negative test results.”

Reference: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30566-3/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30566-3/fulltext)

SOURCE: The New England Journal of Medicine; The Lancet; JAMA