

## COVID-19 Research Watch

June 12, 2020

### **CLINICAL PRESENTATION**

#### **[Pulmonary post-mortem findings in a series of COVID-19 cases from northern Italy: a two-centre descriptive study](#)<sup>1</sup>**

In this study, the authors sought to assess lung tissue samples from patients (n=38) who died from COVID-19 in two hospitals in northern Italy. Pathologically, all cases demonstrated hallmark features of widespread, diffuse alveolar damage, including capillary congestion, pneumocyte necrosis, type 2 pneumocyte hyperplasia and intra-alveolar oedema. Further, platelet microthrombi were noted in 87% of cases, signalling the potential utility of anticoagulants in severe COVID-19 management. Finally, in the majority of cases, macrophages dominated the alveolar lumina, while lymphocytes crowded the lung interstitium. These findings are in keeping with previous patterns of the coronavirus illnesses seen with SARS or MERS.

### **CONTAINMENT EFFORTS RESULTS**

#### **[The natural history and transmission potential of asymptomatic SARS-CoV-2 infection](#)<sup>2</sup>**

In a cohort of RT-PCR-confirmed SARS-CoV-2 patients (n=30) in Ho Chi Minh City, Vietnam symptomatic (n=17) and asymptomatic (n=13) cases were followed to assess detection and transmission patterns. The authors found that asymptomatic infections were less likely to be detected by saliva sample or nasopharyngeal throat swabs (NTS) when compared with symptomatic patients. In addition, asymptomatic patients' viral loads fell significantly faster over time and at a faster viral clearance rate, compared to symptomatic patients (p<0.001). Finally, two of the asymptomatic patients transmitted the infection to up to four contacts. In conclusion, the authors highlight the use of airport quarantine, contact tracing, and RT-PCR screening (most sensitive) among isolated individuals to reduce transmission.

### **NON-PHARMACEUTICAL INTERVENTIONS**

#### **[Introductions and early spread of SARS-CoV-2 in the New York City area](#)<sup>3</sup>**

This study aimed to understand the sources and spread of SARS-CoV-2 infections within New York City (NYC), a major epicenter of the virus in the US. To do so, the study analyzed the genetic similarity and conducted a phylogenetic analysis of 90 SARS-CoV-2 isolates acquired from 84 patients within the Mount Sinai Health System between February 29<sup>th</sup> and March 18<sup>th</sup>, 2020. The study found there were multiple isolated introductions of SARS-CoV-2 to NYC. The SARS-CoV-2 isolates had either European origins or appear to have been introduced domestically. In addition, the authors found evidence of community spread. The

authors note that due to the multiple introductions of the virus and the presence of community spread, travel restrictions into NYC may have had limited efficacy on preventing additional transmission.

[Detection of SARS-CoV-2 in wastewater, using the existing environmental surveillance network: An epidemiological gateway to an early warning for COVID-19 in communities<sup>4,\\*</sup>](#)

While SARS-CoV-2 is known to be transmitted person-to-person by droplets, there is evidence of the potential for fecal-oral transmission, suggesting environmentally mediated transmission. This study utilized samples collected for routine polio environment surveillance sites between March 20<sup>th</sup> and April 28<sup>th</sup>. E-gene detection and commercially available real-time RT-PCR kits were used to analyze 78 wastewater samples from 38 districts within Pakistan for SARS-CoV-2 RNA. The results of the RT-qPCR found 27% of samples tested positive for SARS-CoV-2, from 13 districts. The use of wastewater surveillance allows for close to real time viral tracking and circulation in situations where door to door tracing may not be feasible.

\* Please note all studies published in medRxiv and bioRxiv are preprints and have not yet undergone a rigorous peer review process.

**ADDITIONAL RESOURCES**

[UCSF Library COVID-19 Research and Information Resources](#)  
[UCSF Institute for Global Health Sciences COVID-19 Resources](#)  
[UC Davis One Health Institute COVID-19 FAQs](#)  
[Harvard Viswanath Lab Myths vs Facts](#)

**Note on this Document:** This document was assembled by graduate and doctoral students attending the University of California, San Francisco with the intent of facilitating the rapid dissemination of information to the global community in order to help during this time. Hannah Thomas and Brooke VanSickle contributed to these summaries. This work is volunteer based.

**References:**

- 1 Carsana L, Sonzogni A, Nasr A, Rossi RS, Pellegrinelli A, Zerbi P, et al. Pulmonary post-mortem findings in a series of COVID-19 cases from northern Italy: a two-centre descriptive study. *The Lancet Infectious Diseases*.
- 2 Chau NVV, Thanh Lam V, Thanh Dung N, Yen LM, Minh NNQ, Hung LM, et al. The natural history and transmission potential of asymptomatic SARS-CoV-2 infection. *Clinical Infectious Diseases*. 2020.
- 3 Gonzalez-Reiche AS, Hernandez MM, Sullivan MJ, et al. Introductions and early spread of SARS-CoV-2 in the New York City area. *Science (80- )* 2020. DOI:10.1016/j.solener.2019.02.027.
- 4 Sharif S, Ikram A, Khurshid A, Salman M, Mehmood N, Arshad Y, et al. Detection of SARS-Coronavirus-2 in wastewater, using the existing environmental surveillance network: An epidemiological gateway to an early warning for COVID-19 in communities. medRxiv. 2020:2020.06.03.20121426.