



# Preprocedural Surveillance Testing for SARS-CoV-2 in an Asymptomatic Population in the Seattle Region Shows Low Rates of Positivity

 James A. Mays,<sup>a</sup> Alexander L. Greninger,<sup>a</sup> Keith R. Jerome,<sup>a,b</sup> John B. Lynch,<sup>c</sup>  Patrick C. Mathias<sup>a,d</sup>

<sup>a</sup>Department of Laboratory Medicine, University of Washington School of Medicine, Seattle, Washington, USA

<sup>b</sup>Vaccine and Infectious Disease Division, Fred Hutchinson Cancer Research Center, Seattle, Washington, USA

<sup>c</sup>Division of Allergy and Infectious Diseases, Department of Medicine, University of Washington School of Medicine, Seattle, Washington, USA

<sup>d</sup>Department of Biomedical Informatics and Medical Education, University of Washington School of Medicine, Seattle, Washington, USA

**KEYWORDS** COVID-19, procedures, SARS-CoV-2, surveillance

Seattle-region hospitals have been impacted for several months by community spread of the coronavirus disease of 2019 (COVID-19) (1, 2). Although testing was initially focused on the diagnosis of symptomatic patients, this effort has now expanded to include surveillance of asymptomatic patients to protect health care workers and prevent nosocomial infections. There is an urgent need to understand best practices for the delivery of routine medical care during an ongoing outbreak (3). Here, we report rates of SARS-CoV-2 infection in asymptomatic patients screened prior to admission or a surgical or aerosol-generating procedure.

On 13 April 2020, our hospital system began universal surveillance screening of asymptomatic patients prior to admission ( $n = 1,269$ ; 43.6% female; median age, 55 years; standard deviation [SD] = 20.2) and surgeries and aerosol-generating procedures ( $n = 787$ ; 38% female; median age, 55 years; SD = 19.0). The testing indication was stated at the time of order. PCR testing was performed on nasopharyngeal swabs using the Washington State emergency use-authorized University of Washington CDC-based laboratory-developed test ( $n = 176$ ) or FDA-authorized DiaSorin Simplexa SARS-CoV-2 ( $n = 1,241$ ), Hologic Panther Fusion SARS-CoV-2 ( $n = 2,591$ ), or Roche cobas SARS-CoV-2 tests ( $n = 423$ ) (4). This study was approved by the Institutional Review Board of the University of Washington Medical Center under a consent waiver (STUDY00009734).

For patients undergoing procedures, 5 of 787 patients (0.6%) were positive for SARS-CoV-2. For patients who were asymptomatic and tested at the time of admission, 4 of 1,269 patients (0.3%) were positive, and 2 of 1,269 (0.2%) were inconclusive; inconclusive results were treated as low-level positives and retested until negative. Among these patients, 4/9 positive and 1/2 inconclusive patients were intubated, sedated, intoxicated, or cognitively impaired at the time of assessment. By comparison, among inpatients with concerning symptoms ( $n = 1,336$ ; 38.6% female; median age, 53; SD = 18.7), 137 of 1,336 patients (10.3%) were positive, and 1 of 1,336 (0.07%) was inconclusive. Among asymptomatic patients tested for any other reason (e.g., exposure risk), 32 of 425 (7.5%) were positive, and 1 of 425 (0.2%) was inconclusive. During this time, the outpatient prevalence of SARS-CoV-2 active infection in our region was 2 to 5% (5).

The application in our region of universal testing for SARS-CoV-2 prior to surgery or aerosolizing procedures and hospital admissions shows that the positivity rate for SARS-CoV-2 is low (<1%) in asymptomatic patients without known exposure risk factors. This measure is notably lower than reported measurements during an outbreak

**Citation** Mays JA, Greninger AL, Jerome KR, Lynch JB, Mathias PC. 2020. Preprocedural surveillance testing for SARS-CoV-2 in an asymptomatic population in the Seattle region shows low rates of positivity. *J Clin Microbiol* 58:e01193-20. <https://doi.org/10.1128/JCM.01193-20>.

**Editor** Yi-Wei Tang, Cepheid

**Copyright** © 2020 American Society for Microbiology. All Rights Reserved.

Address correspondence to Patrick C. Mathias, pcm10@uw.edu.

**Accepted manuscript posted online** 3 June 2020

**Published** 23 July 2020

in New York City that found a positivity rate of 13.7% in asymptomatic pregnant women (6). The rate of subclinical infection likely varies with the scale of the community outbreak.

Even during a community-wide outbreak in Seattle, our data show a low prevalence of COVID-19 infection in the preprocedural setting. These data provide an assessment of exposure risk around the time of admission in a population that uses medical services. The Greater Seattle Coronavirus Assessment Network (SCAN) also published results from 18 days of home-based testing and reported no positive tests in 1,392 patients reporting no COVID-19-like illness (7). Although other studies support a large proportion of asymptomatic infections, data from this metropolitan outbreak suggest a different pattern. Importantly, this universal surveillance testing decreased the use of personal protective equipment (PPE), identified appropriate precautions for patients, and reduced the risk of nosocomial infection in cases where infection was not suspected.

### ACKNOWLEDGMENTS

A.L.G. discloses personal fees from Abbott Molecular Inc. outside the submitted work.

### REFERENCES

- Holshue ML, DeBolt C, Lindquist S, Lofy KH, Wiesman J, Bruce H, Spitters C, Ericson K, Wilkerson S, Tural A, Diaz G, Cohn A, Fox L, Patel A, Gerber SI, Kim L, Tong S, Lu X, Lindstrom S, Pallansch MA, Weldon WC, Biggs HM, Uyeki TM, Pillai SK, Washington State 2019-nCoV Case Investigation Team. 2020. First case of 2019 novel coronavirus in the United States. *N Engl J Med* 382:929–936. <https://doi.org/10.1056/NEJMoa2001191>.
- Bhatraju PK, Ghassemieh BJ, Nichols M, Kim R, Jerome KR, Nalla AK, Greninger AL, Pipavath S, Wurfel MM, Evans L, Kritek PA, West TE, Luks A, Gerbino A, Dale CR, Goldman JD, O'Mahony S, Mikacenic C. 2020. Covid-19 in critically ill patients in the Seattle region — case series. *N Engl J Med* 382:2012–2022. <https://doi.org/10.1056/NEJMoa2004500>.
- Ueda M, Martins R, Hendrie PC, McDonnell T, Crews JR, Wong TL, McCreery B, Jagels B, Crane A, Byrd DR, Pergam SA, Davidson NE, Liu C, Stewart FM. 2020. Managing cancer care during the Covid-19 pandemic: agility and collaboration toward a common goal. *J Natl Compr Canc Netw* 18:366–369. <https://doi.org/10.6004/jnccn.2020.7560>.
- Lieberman JA, Pepper G, Naccache SN, Huang M-L, Jerome KR, Greninger AL. 2020. Comparison of commercially available and laboratory developed assays for in vitro detection of SARS-CoV-2 in clinical laboratories. *J Clin Microbiol* <https://doi.org/10.1128/JCM.00821-20>.
- Randhawa AK, Fisher LH, Greninger AL, Li SS, Andriesen J, Corey L, Jerome KR. 2020. Changes in SARS-CoV-2 positivity rate in outpatients in Seattle and Washington State, March 1–April 16, 2020. *JAMA* <https://doi.org/10.1001/jama.2020.8097>.
- Sutton D, Fuchs K, D'Alton M, Goffman D. 2020. Universal screening for SARS-CoV-2 in women admitted for delivery. *N Engl J Med* 382: 2163–2164. <https://doi.org/10.1056/NEJMc2009316>.
- Greater Seattle Coronavirus Assessment Network. 2020. SCAN technical report. Greater Seattle Coronavirus Assessment Network, Seattle, WA. <https://publichealthinsider.com/wp-content/uploads/2020/04/SCAN-Technical-Report-v1-17-APR-2020.pdf>. Accessed 23 April 2020.