



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

Low Risk of COVID-19 Infection Among Bronchoscopy Suite Personnel in a Hospital Without Preprocedural Outpatient Testing Mandate



To the Editor:

Bronchoscopy is an aerosol-generating procedure (AGP) typically performed in an outpatient setting. On the basis of the nature of the procedure and the transmission of the COVID-19 virus, several societies, including the American Association of Bronchoscopy and Interventional Pulmonology, American College of Chest Physicians,¹ and additional societies representing surgery and otolaryngology specialties,^{2,3} published guidelines to minimize nosocomial transmission. These recommendations aimed to reduce the number of health care workers (HCWs) participating in AGP, to reduce any known or occult COVID-19 exposures, and to promote the use of personal protection equipment (PPE), including N95 respirators, goggles, face shields, surgical gowns, and gloves. The goal was to prevent the

spread of the virus among both HCWs and patients. These recommendations, however, suggested mandating universal COVID-19 testing, which may have contributed to the delay of necessary medical procedures, and have added additional burden to the health care system and patients themselves. Since the beginning of the pandemic, the University of Florida has had a flexible policy regarding preprocedural COVID-19 testing, wherein all patients and visitors are symptomatically screened (upper respiratory tract infection symptoms, nausea, vomiting, loss of taste or smell, shortness of breath, cough, or fever), asked about recent travel history, as well as history of recent exposure to patients positive for COVID-19. A temperature check was also performed at the hospital entrance. Preprocedural COVID-19 PCR testing was done at the discretion of the individual provider and procedural team. Mandatory precautionary measures were followed at our institution, including limiting observers; reducing the staff to the core team; and mandating patients to wear a face mask in the waiting room, bronchoscopy suite, and recovery areas. All personnel in the procedure area were required to use disposable gowns, gloves, face shields, and surgical masks, with a mandatory N95 or other respirator for all during the procedure (full PPE).

Methods

The intent of our study was to determine whether the absence of mandatory prebronchoscopy COVID-19 testing was associated with symptomatic infection among HCWs involved in the bronchoscopy suite. This study was approved by the University of Florida institutional review board (IRB#202003291).

To assess the usefulness of the above-mentioned measures in the protection of HCWs, we retrospectively identified all outpatient bronchoscopies performed between March 2020 and February 2021. Medical charts were reviewed for the following information: baseline

demographic data, procedure details, and whether the patient underwent COVID-19 testing in the 30 days pre- and postprocedure, with the results of those tests if performed. All HCWs involved in bronchoscopy were screened weekly with an online symptom questionnaire, and were tested if they had any signs or symptoms of COVID-19, or known exposures as per institutional policy.

Data Analysis

Data were analyzed with IBM SPSS Statistics for Windows (version 23.0, released 2015; IBM). Descriptive statistics were calculated and reported for all variables in the study.

Results

A total of 1,189 bronchoscopies were performed during the study period. Bronchoscopies performed for hospitalized inpatients ($n = 525$) were excluded from the study, as all these patients were tested by COVID-19 PCR during their hospitalization. A total of 664 patients who underwent outpatient bronchoscopies were included in the final analyses. Of the total number of

patients, 50.9% were men and 83.5% were White. The mean age was 61 years (SD, 12.9 years).

Demographic and procedure-related details can be seen in [Table 1](#). All procedures except for rigid bronchoscopy with cryobiopsy ($n = 4$) were performed under moderate sedation using fentanyl/meperidine and midazolam. A total of 172 patients (25.9%) were tested for COVID-19 in the 30 days before the procedure at the

TABLE 1] Baseline Demographics and Procedural Characteristics of Patients Undergoing Outpatient Bronchoscopies During the COVID-19 Pandemic Between March 2020 and February 2021

| Demographic/Procedural Characteristic | Patients Undergoing Outpatient Bronchoscopy (N = 664) |
|---|---|
| Demographics | |
| Age, mean \pm SD, y | 61 \pm 12.9 |
| Women, No. (%) | 326 (49.1) |
| Race, No. (%) | |
| White | 555 (83.5) |
| Black | 66 (10) |
| Other | 43 (6.5) |
| Procedure duration, mean \pm SD, min | 24 \pm 14.5 |
| Procedures, No. (%) | |
| Routine bronchoscopy | 201(30.3) |
| EBUS/radial EBUS-TBNA | 173 (26.1) |
| Airway mechanical intervention ^a | 136 (20.5) |
| Transbronchial/endobronchial biopsy | 103 (15.5) |
| Ablative/cryo/photodynamic therapy | 31 (4.7) |
| Endobronchial valve placement/removal | 16 (2.4) |
| Rigid bronchoscopy | 4 (0.5) |
| 30-Day preprocedural COVID-19 test, No. (%) | 172 (25.9) |
| 30-Day postprocedural COVID-19 test, No. (%) ^b | 114 (17.2) |

EBUS = endobronchial ultrasound; TBNA = transbronchial needle aspiration.

^aAirway mechanical interventions included balloon dilatation, stent placement, stent removal, and tumor debulking.

^bOnly one patient tested positive 27 d after the procedure.

provider's discretion. Of those tests, none came back positive. A total of 114 patients (17.2%) were tested in the 30 days after the procedure. The average length of time from the procedure to the COVID-19 test day was 15.1 days (SD, 9). Of those tested in the postprocedural group, only one patient (0.8%) tested positive 27 days after the procedure. Although the precise reason for which these patients were tested could not be determined, potential reasons include additional procedures requiring testing, hospitalization, exposure to patients positive for COVID-19, or symptoms suggestive of COVID-19. During the study period, there were zero COVID-19 infections among the bronchoscopy suite staff workers. This was confirmed by hospital epidemiologists with a contact tracing team that was established in conjunction with our departments of epidemiology and infectious diseases. A total of four bronchoscopy staff members received COVID-19 nasal PCR testing on nine separate instances during the study period, and none of them were positive.

Discussion

This study examined outpatient bronchoscopy procedures during the COVID-19 pandemic at an

institute that does not mandate preprocedural COVID-19 testing. None of the staff members had a workplace-related diagnosis of COVID-19.

Given that Florida had a prevalent community transmission of COVID-19 with a test positivity rate averaging about 8.5% during the study period (2%-24%),⁴ one would suspect an increased risk of contracting COVID-19 during a high-risk outpatient procedure. Our results provide evidence that the risk of contracting the virus during an AGP is low, if a protocolized approach as mentioned above is followed.

Our study suffers from limitations related to its retrospective nature and relatively small sample size. To compensate for this, our screening protocols were very thorough, with the study including strict follow-ups, periodic screenings of all HCWs involved with bronchoscopy, and a strictly enforced PPE mandate. With that being said, our protocols relied heavily on temperature and symptomatic screening, which do not account for asymptomatic infection among HCWs and patients.

The findings of our study might suggest that the absence of preprocedural testing may not result in a higher risk of

symptomatic SARS-CoV-2 transmission to the HCWs involved. Not mandating testing can decrease the burden on the health care system and patients. Given the variability in testing procedures, as well as the incubation period for different tests, we agree with most recommended guidelines that even if a patient's COVID-19 PCR result is negative a few days before a procedure, all HCWs should use full PPE as mentioned above during any AGP. We believe that both wearing adequate PPE, and now vaccination, are the biggest deterrents in protecting HCWs from COVID-19 infection.

Conclusions

Mandatory preprocedural COVID-19 testing for asymptomatic patients does not necessarily decrease the rate of infection among HCWs. Further research is needed to replicate these findings and to determine the best course of action regarding surgical procedure guidelines during the COVID-19 pandemic.

Hawazin K. Abbas, MD
Bashar N. Alzghoul, MD
Johnny F. Jaber, DO, MPH
Hiren J. Mehta, MD
Gainesville, FL

AFFILIATIONS: From the Division of Pulmonary, Critical Care and Sleep Medicine (H. K. Abbas, B. N. Alzghoul, and H. J. Mehta), and the Department of Medicine (H. K. Abbas, B. N. Alzghoul, J. F. Jaber, and H. J. Mehta), University of Florida.

FINANCIAL/NONFINANCIAL DISCLOSURES: None declared.

CORRESPONDENCE TO: Hiren J. Mehta, MD; email: hiren.mehta@medicine.ufl.edu

Copyright © 2021 American College of Chest Physicians. Published by Elsevier Inc. All rights reserved.

DOI: <https://doi.org/10.1016/j.chest.2021.05.004>

Acknowledgments

Other contributions: Data are available on request from the corresponding author.

References

1. Wahidi MM, Shojaae S, Lamb CR, et al. The use of bronchoscopy during the coronavirus disease 2019 pandemic: CHEST/AABIP guideline and expert panel report. *Chest*. 2020;158(3):1268-1281.
2. Urban MJ, Patel TR, Raad R, et al. Implementation of preoperative screening protocols in otolaryngology during the COVID-19 pandemic. *Otolaryngol Head Neck Surg*. 2020;163(2):265-270.
3. Zheng H, Hébert HL, Chatziperi A, et al. Perioperative management of patients with suspected or confirmed COVID-19: review and recommendations for perioperative management from a retrospective cohort study. *Br J Anaesth*. 2020;125(6):895-911.
4. Division of Disease Control and Health Protection, Florida Department of Health. Florida's COVID-19 data and surveillance dashboard. <https://experience.arcgis.com/experience/96dd742462124fa0b38ddedb9b25e429>. Accessed May 13, 2021.