Patterns of COVID-19 Vaccination and Protective Equipment Usage in Endoscopy: a Survey of Endoscopy Providers

Kenneth W. Chow, MD[1]; Matthew T. Bell, MD[1]; Phuong Nguyen, MD[2]; Mary L. Krinsky, DO[3]; Sofiya Reicher, MD[1]
[1]Harbor-UCLA Medical Center, [2]Hoag Medical Center, [3]University of California, San Diego School of Medicine

Introduction

- COVID-19 is believed to spread through respiratory droplets and aerosolized particles [1]
- Endoscopy is associated with the generation of respiratory droplets and aerosols [2], and endoscopic procedures are typically performed in relatively small and enclosed suites with multiple providers
- Without appropriate personal protective equipment (PPE), endoscopy poses a significant risk factor for COVID-19 transmission
- The pandemic drastically affected gastrointestinal practice worldwide with many endoscopy centers cancelling elective procedures, leading to delayed cancer diagnoses and patient follow-up
- Case series and cross-sectional studies have examined COVID-19 transmission in endoscopy. However, these studies were performed in early 2020 with results varying between 1-13.5% of endoscopy workers who tested positive and attributed this to endoscopy [3,4]
- The advent of the COVID-19 vaccine in late 2020 has shown to reduce both disease transmission and severity
- Vaccine hesitancy has grown in certain groups of healthcare workers and patients alike, fueled by misinformation by anti-vaccination groups
- The rise of novel disease variants such as Delta variant in early 2021 has led to renewed concern regarding infection risk
- We aimed to examine how these recent trends have affected patterns of COVID-19 positivity, endoscopy center pre-procedure screening protocols, protective equipment usage, and healthcare provider perceptions of safety in endoscopy

Methods and Materials

- We surveyed endoscopy unit personnel throughout the United States
- Included gastroenterologists, nursing staff, endoscopy technicians, and healthcare administrators
- Assessed patterns of COVID-19 positivity among providers, vaccination status, COVID-19 pre-procedural testing protocols, PPE usage, and healthcare provider perceptions of safety
- Email database of 700 endoscopy workers was used
- Anonymous online survey using Microsoft Forms software
- Up to 25 questions (branched logic)
- Survey required less than 5 minutes for completion
- Survey was sent out twice: first on November 1, 2021, and again on November 15, 2021

Demographics	
Number of responses	72
Age (mean ± SD)	47.4 ± 11.6
Male	23 (31.9%)
Female	49 (68.1%)

Table 1. Demographics of survey respondents.

COVID-19 Positivity	
Tested positive for COVID-19	
Yes	9 (12.5%)
No	63 (87.5%)
Timing of COVID-19 positivity	
Vaccination	
Before vaccination	9 (100.0%)
After vaccination	0 (0.0%)
Date	
January 2020 to June 2020	2 (22.2%)
July 2020 to December 2020	5 (55.6%)
January 2021 to June 2021	1 (11.1%)
July 2021 to November 2021	1 (11.1%)
Symptom severity in COVID-19 positive individuals	
Asymptomatic	0 (0.0%)
Mild	5 (55.6%)
Moderate	4 (44.4%)
Severe	0 (0.0%)
Critical illness	0 (0.0%)
Endoscopy Center Guidelines	
My institution requires N95 masks:	
Does not require for any patient	14 (19.4%)
Only for suspected COVID-19 patients	32 (44.4%)
For all upper endoscopic procedures	5 (6.9%)
For all endoscopic procedures	20 (27.8%)
Other	1 (1.4%)
Mandatory routine COVID-19 screening for all patients	
Yes	43 (59.7%)
No	29 (40.3%)
Endoscopy Provider Perceptions	
Perception of safety performing endoscopic procedures after vaccination compared to before:	
Much safer	41 (56.9%)
Somewhat safer	20 (27.8%)
Same	9 (12.5%)
Somewhat less safe	1 (1.4%)
Much less safe	0 (0.0%)
No response	1 (1.4%)

Table 2. Patterns of COVID-19 positivity, endoscopy center guidelines, and endoscopy provider perceptions.

Discussion

- 72 individuals responded to our survey with a vaccination rate of 100%
- No respondents tested positive for COVID-19 after receiving their first vaccination series, compared to 9 respondents (13%) who tested positive before vaccination
- The majority (77.8%) of positive tests occurred before January 2021, which is approximately when vaccines began their roll-out in the United States
- Most endoscopy workers (90.1%) received the booster dose or planned to once available
- Most respondents (85.0%) report feeling safer during endoscopy post-vaccination
- Although the American Gastroenterological Association (AGA) recommends against routine COVID-19 screen prior to elective endoscopy [5], 60% of respondents report that their endoscopy center mandated routine pre-procedural testing
- Although seemingly well-intentioned, mandatory pre-procedural screening can exacerbate disparities in healthcare access

Conclusions

- Our findings suggest that even with the advent of the highly transmissible Delta variant in early 2021, COVID-19 transmission during endoscopy remained low given vaccination and proper PPE utilization
- Further data is needed to shape practice-changing guidelines regarding booster vaccine mandates and pre-procedural screening in high-risk fields such as endoscopy, especially with the emerging viral variants of COVID-19

Contact

Kenneth W. Chow, MD
Harbor-UCLA Medical Center
Email: kwchow555@gmail.com
Phone: 530-902-6384

References

1. Lotfi M, Hamblin MR, Rezaei N. COVID-19: Transmission, prevention, and potential therapeutic opportunities. Clin Chim Acta. 2020;508:254-266.
2. Sagami R, Nishikiori H, Sato T, et al. Aerosols produced by upper gastrointestinal endoscopy: a quantitative evaluation. Am J Gastroenterol. 2021;116(1):202-205.
3. Arantes VN, Martins BC, Seqatto R, et al. Impact of coronavirus pandemic crisis in endoscopic clinical practice: Results from a national survey in Brazil. Endosc Int Open. 2020;8(6):E822-E829.
4. Parasa S, Reddy N, Faigel DO, Repici A, Emura F, Sharma P. Global impact of the covid-19 pandemic on endoscopy: an international survey of 252 centers from 55 countries. Gastroenterology. 2020;159(4):1579-1581.e5.
5. Sultan S, Siddique SM, Singh S, et al. Aga rapid review and guideline for sars-cov2 testing and endoscopy post-vaccination: 2021 update. Gastroenterology. 2021;161(3):1011-1029.e11.