

Reply (by Kevin Welch) to Zara Patel Correspondence

I'd like to thank Dr. Patel and her colleagues for tireless work to have raised the potential hazards of our profession during the COVID-19 pandemic and for her efforts to dive deeper into the origins. The numbers are staggering, and at the time of my response, over 1.3 million individuals globally are infected with over 70,000 deaths. With nearly 350,000 Americans infected with SARS-CoV-2¹, including some of my friends and colleagues, it's easy to see the black cloud on the horizon and view it with fear, uncertainty and doom.

Since the time of Dr. Patel's original publication² and warning to otolaryngologists and neurosurgeons, particularly rhinologists and endoscopic skull base surgeons, there has been much discussion – and confusion – about whether we put ourselves, our patients and our colleagues at risk for infection with SARS-CoV-2. This discussion has spread across academic and private practice communities around the country and around the globe. The epicenter of this debate is a patient in Wuhan, China who underwent endoscopic endonasal pituitary tumor resection and reportedly infected 14 health care workers (HCW) who were present in the operating room at the time of the surgery. Later, another communication that circulated among our community appeared to dissect the “official report,” and this suggested that multiple HCW within the hospital were infected as they interacted or cared for this patient and rather than simultaneous infection in the operating room. Reports conflict as to the status of the patient at the time of the surgery with regard to COVID-19. We may never know whether staff were wearing appropriate PPE. We may never know *when* during this patient's care HCW were infected. The confusion surrounding this case brings to mind that of another: Dr. Li Wenliang, the Chinese ophthalmologist who sounded the alarm early in the course of COVID-19 and how he was sternly reprimanded by the Public Security Bureau for “spreading rumors” about SARS-CoV-2. Dr. Wenliang subsequently was infected with SARS-CoV-2 after treating a COVID-19+ patient and died on February 7, 2020.³ While I cannot help but see him as the present-day Tiananmen “Tank Man,” it is his admonishment that serves as another piece in a growing body of obfuscation at the source related to the outbreak and current status of COVID-19.

To say elsewhere that our otolaryngology colleagues have suffered is an understatement.² These dutiful clinicians were on the front line, got infected and sadly died. This fact has not escaped me; however, we are short of information as to how or when they were infected. They represent a growing number of physicians and HCW on the front line who were exposed while treating patients but not necessarily because their specialty has put them at greater risk. Nevertheless, otolaryngologists are frequently on the front line in dealing with patients who have respiratory illnesses, so it should not surprise any of us that we are potentially at risk when going about caring for patients in our customary ways.

The mucosal surfaces that we evaluate harbor the virus, and I agree with Dr. Patel that the nose and nasopharynx are areas of high viral load and shedding as evidenced by Zou and colleagues.⁴ That aerosolized viral material can remain airborne for several hours⁵ should not be a subject of debate either. Nevertheless, the extent to which endoscopic and skull base procedures aerosolize infected material is a matter of investigation and debate. A recent publication by Givi B, et al.⁶ has suggested that endoscopic examination of the nose, sinuses, oropharynx and larynx are aerosol generating medical procedures (AGMPs) and cite the CDC⁷ as a reference. However, the referenced CDC document does not define these endoscopic procedures as AGMPs. The CDC defined an AGMP⁸ after the Ebola crisis, and while not exhaustive, the list does not include nasal endoscopy or sinonasal endoscopic procedures. In fact, there is very limited data to support including nasal endoscopy and endoscopic surgery as AGMPs, regardless of whether this seems logical to us. Even fewer data support that these endoscopic nasal procedures increase the risk of infecting HCW. To provide some evidence for this, Workman and colleagues⁹ have done some preliminary work to investigate whether endoscopic procedures generate aerosolized particles. They determined that the use of the high speed drill and, as expected, sneezing or coughing, present the greatest risk for potential particle aerosolization; however, in their analysis, cold instrumentation of the nasal mucosa and the microdebrider did not generate detectable aerosolized particles. Obviously this study has limits in terms of the size of the particles that could be detected; however, it does seem to fall in line with a large meta-analysis by Tran et al.¹⁰ While nasal endoscopy or endonasal surgery were not specifically assessed, procedures such as bronchoscopy and insertion of a nasogastric tube, despite being AGMPs, were not found to be a significant risks for *transmission* of SARS-CoV-1.

It's hard to deny the possibility that rhinologic procedures aerosolize particles – it certainly makes sense. However, we

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do not have sufficient data from which to draw conclusions about the 1) potential to generate aerosolized particles and 2) the potential to infect HCW using proper PPE (even basic PPE) during these procedures. For our specialty it is time to exercise caution when we interpret data and to treat our patients in a manner that is consistent with the best available data.

Like Dr. Patel, I remain hopeful and confident in our talented HCW and in our humanity. As I write this, I hear that New York may be at its apex, and this suggests a point of inflection for COVID-19. Chicago's very own McDonald's

Corporation is donating 1,000,000 N95 masks to Illinois hospitals. Corporations like Dyson and Tesla are diverting to producing ventilators while many corporations are donating large sums of money. Vaccine development is occurring at lightning pace. Hospitals and communities are coming together to fight this disease. This is all invigorating to me, and as Dr. Patel said, "we will soon adapt and normalize in our practices, just as we have done before."

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