COMMENT & RESPONSE

In Reply We appreciate the opportunity to reply to the thoughtful commentary provided by Briggs et al. The authors have nicely summarized the recent literature on the topic of COVID-19 and COVID-19 infection-related otologic manifestations. Two different studies, which were published in tandem in JAMA Otolaryngology, one from our group,¹ and another from Yanir et al,² offer an opportunity for discussion with respect to different methodologies used and different conclusions reached. Whereas our group used a publicly reported database with unverified case reports submitted to the Centers for Disease Control and Prevention's Vaccine Adverse Events Reporting System (VAERS), Yanir et al harnessed a more widely used population-based database in Israel that captures approximately 50% of the population or more. Despite using sensitivity analyses that maximized an estimate for the incidence of sudden sensorineural hearing loss (SSNHL) following COVID-19 vaccination, we did not find a clear population level signal for increased incidence of SSNHL after COVID-19 vaccination more than what would be expected over a similar time frame in the US population.

In contrast, Yanir et al² did find a significantly increased risk of SSNHL after COVID-19 vaccination in their population-based study, though the authors thoughtfully emphasize that the effect size (eg, the absolute risk increase relative to those who were not vaccinated, which was 0.61-0.91 additional cases of SSNHL per 100 000 vaccinated) was still extremely small, thus not heralding a risk that should limit the continued widespread dissemination of COVID-19 vaccinations. That differing results arose from these very different study designs is not surprising, and results from each study need to be contextualized in these inherent methodological differences to allow thoughtful interpretation. As Ulrich et al³ have eloquently underscored, even if a small increase in the absolute risk for SSNHL after COVID-19 vaccination exists, it should not limit our efforts at achieving widespread immunity to COVID-19.

We applaud the continued global efforts to investigate hypotheses regarding mechanisms for COVID-19 infection-related hearing loss and COVID-19 vaccination-mediated otologic manifestations, and reemphasize that only prospective, population-level trials with high-fidelity reporting of cases would definitively establish association between vaccination and hearing loss, whereas causation would require additional laboratory-based investigations. Results such as those published by Frazier et al,⁴ and recently by Jeong et al,⁵ have established some biologic plausibility for hearing loss related to COVID-19 infection, and we are confident that ongoing concerted endeavors to characterize these relationships will help clarify unanswered questions about otologic symptoms after COVID-19 vaccination.

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Published Online: June 30, 2022. doi:10.1001/jamaoto.2022.1603

Conflict of Interest Disclosures: None reported.