

## Pediatric Otolaryngology and Pandemics

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### Abstract

The ideal is to describe how the COVID epidemic changed the epidemiology and operation of pediatric otolaryngologic conditions, which may impact clinical decision-making in the future. Numerous changes were made to the structure of healthcare delivery to minimize transmission of coronavirus. As a result, there was a wide relinquishment of telehealth. Also, guidelines were published with new protocols for evaluation and operation of common pediatric otolaryngologic conditions, which in numerous circumstances, delayed or replaced surgical intervention. Now, as we estimate the impact of these clinical changes, we've gained new understanding about the pathophysiology of certain pediatric conditions, videlicet otitis media, for which upper respiratory infection exposure may play a larger part than preliminarily allowed. As we've altered practice patterns for common pediatric otolaryngologic conditions, we hope that ongoing exploration may help us determine if surgical interventions have been overpassed in the history and help guide clinical practice guidelines moving forward. Over the last 50 years, we've seen the dramatic impact of pandemics and vaccines on pediatric otolaryngologic complaint epidemiology and treatment.

**Keywords:** Pediatric otolaryngology; COVID-19

### Introduction

Vaccines have directly impacted the epidemiology of pediatric conditions. For illustration, previous to vaccine development, haemophilus influenzae type b (Hib) would infect 1000 individualities annually and was the leading cause of pneumonia, epiglottitis, and bacterial meningitis.<sup>1</sup> Like the SARS-CoV-2 contagion, Hib enters the body through the nasopharynx previous to propagating along the respiratory tract. Prior to vaccinations, about 0.5% of children would develop bacterial meningitis, of which two-thirds were under the age of 18 months. The Hib polysaccharide vaccine was originally developed in 1985 also replaced with the conjugate vaccine in 1987 which was extensively available in the United States by the 1990s. As a result, cases of invasive Hib dropped to, in 10 times after the development of vaccinations. More lately, Hib infections have dropped to 0.08% per population. As a result, the prevalence, pathogens, and demographic distribution of acute epiglottitis, preliminarily generally caused by Hib, has changed dramatically in the post vaccine period.<sup>2</sup> also, previous to the development and distribution of the MMR vaccine, measles was acquired by nearly 90% of children.<sup>3</sup> Mumps was a common cause of parotitis.

Pertussis affected over 1000 individualities annually, generally children, in their vaccine period.<sup>5</sup> More lately, we've seen the distribution of HPV vaccination dramatically drop rates of pediatric respiratory papilloma. Within 10 years of introducing the HPV vaccination, rates of HPV infections among womanish adolescents Coronavirus (CoV), like these other pathogens, has had a dramatic impact on children. It's estimated that 9.5 million children have been infected by COVID-19, making up 18% of all CoV infections [1-4]. Fortunately, mortality rates among the pediatric population have remained low with lower than 0.02% of all pediatric COVID infections performing in mortality. While the instantiations in the pediatric population have been relatively variable and generally milder than the adult population, there have been cases of severe multisystem septic pattern in children. Fortunately, only 0.1-1.5% of pediatric COVID-19 infections needed hospitalization, and smaller than 0.02% redounded in deaths. However, beyond the direct physical instantiations of COVID-19 infections, there has been a dramatic impact on the diurnal life of children growing up in a global epidemic. Beforehand data has

suggested that children born during the SARS-CoV-2 epidemic, irrespective of direct exposure to the contagion, had lower gross motor, fine motor, and social development at 6 months of age<sup>8</sup> and up to 12 months of age.

Models have demonstrated that regular masks and N95 masks devalue sound by 4dB and 12 dB, independently.<sup>10</sup> While this deficiency would still fall within a normal hearing range, it could be enough to inclusively dwindle access to sound and consequent development. There has been rising concern that mask wearing and virtual education has disproportionately impacted the pediatric deaf and hard of hearing population who calculate heavily on visual cues for communication. Likewise, the loss of visual cues due to mask wearing or virtual literacy may limit speech processing and language accession during critical ages for language development.<sup>11</sup> Children with audile processing diseases can find virtual education particularly challenging given the limitations of differencing between background noise and the speaking voice. While measures to help contagion including mask wearing, physical distancing and remote literacy were critical in controlling infection rates, we may see unintended secondary goods of these measures manifest in other realms including development.

Undoubtedly, there has been an increase in maternal anxiety and stress because of the epidemic.<sup>13</sup> previous exploration has illustrated that motherly stress correlates with cognitive and social development of children. There has been early exploration raising concern for negative goods of COVID-related stress on child development;<sup>16</sup> still, this area of study will probably grow in the coming times as we've more longitudinal data to determine the impact of development in

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the times to come. The decline in viral-associated upper respiratory infections from social distancing and masking measures has further corroborated the URI-driven pathophysiology of otitis media. The position of impact on ossicle surgery has been shown in a multitude of timely studies during this epidemic performed a review of transnational publications related to reduction in otitis media burden during the epidemic [5,6].

## Discussion

The roll-eschewal of the SARS-CoV-2 vaccine within the pediatric population not only aimed to reduce infections, but it has allowed children to return to the classroom. Studies have demonstrated that deaf and hard of hearing children frequently didn't admit educational support during virtual literacy. Numerous children calculate on academy-grounded services and were accordingly under-resourced during the epidemic. Vaccinations allowed them to return to academy and gain the critical educational support and speech remedy services. To help the spread of the COVID-19 contagion to cases as well as the healthcare pool, dramatic changes were made to the healthcare delivery system to reduce the number of cases entering healthcare installations, staying in participated spaces, and limit aerosol generation.

Within 1 week of the WHO declaring a global epidemic, sanitarium systems civil were enforcing significant changes to their practices, with immediate reduction in itinerant visits and holdback of optional procedures. Also, there was the rapid-fire relinquishment and perpetration of telehealth. In 2019, only 8 of Americans employed telehealth. Within 1 month of the protestation of the global epidemic, telehealth increased by 600. Part of this was enabled by both the request demand, new payment by insurers, as well as the US department of Health and Human Services to waive the Health Insurance Portability and Responsibility Act regulations which also allowed the use of consumer audio and videotape communication during telehealth consultations. As a result, by Dr-April 2020, the number of telehealth visits in certain systems [7].

At the launch of the epidemic, the American Academy of Otolaryngology Head and Neck surgery recommended delaying optional surgeries. Several recommendations were published comparing Tympanostomy tube placement and observation while avoiding contributing factors to otitis media similar as alternate-hand bank exposure, mollifying antipathetic symptoms, limiting anodyne use, perfecting gastro esophageal reflux (GERD), reducing daycare visits, and keeping up to date with vaccination schedules, and operation with antibiotics. The SARS-CoV-2 epidemic has reared long term trends in frequency of otitis media. Social gets similar as mask wearing, frequent temperature checks, academy closures and social distancing measures on a wide scale has redounded in a decline in rates of upper respiratory ails (URI) transmission, Acute Otitis Media (AOM) and Otitis Media with Effusion (OME) and, as a result, Tympanostomy tube surgeries.

They set up 16 publications with nearly all showing a significant reduction in number of otitis media visits, prevalence of mastoiditis and exigency department visits related to OM. The decline in upper respiratory infections and as it relates to OM has been illustrated by several authors. Penman et al studied pediatric ED visits in Birmingham, UK and set up a 65-75 reduction in URI, tonsillitis, and otitis media-related visits. A study in Italy set up out of 102 children with intermittent otitis mediocre-pandemic, of them had resolution of

infections and 90 had a normal observance test during lockdown ages at Massachusetts Eye and observance Infirmary studied Tympanostomy tube volume over 29 providers and cases. They performed month-to-month comparisons of Tympanostomy tube volume before and during the epidemic and set up significant reduction in observance tube volume, a shift of surgeries to tertiary care and an increase in the age of children entering observance tube [8-10].

## Conclusion

This data contributed to the argument that viral URIs are a common pathogenic precursor the SARS-CoV-2 epidemic has led to dramatic changes in healthcare delivery. It has led to robust development of telehealth, a system of healthcare delivery anticipated to continue beyond this epidemic. There have been changes in mass public geste similar as social distancing, mask wearing, social commerce and exertion that could have continuity for times depending on the post-pandemic course. However, it's possible we will witness patient reduction in URI affiliated ails, similar as OM, If mask wearing and defensive gets come more hardwired in our culture. This could have tremendous downstream goods including altering the epidemiology of OM/ PE tubes, impacting practice patterns and enhancement in speech and hail for numerous children. The epidemic will give a large volume of new data and prompt farther exploration to understand the influence of defensive measures on URI frequency and associated diseases similar as otitis media.

## Acknowledgement

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## Conflict of Interest

None

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