**Hearing Loss in Children: Critical Medical Education Delivered as Massive Open Online Course (MOOC)**

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Background: Early identification of hearing loss is crucial to ensure appropriate interventions begin during critical periods of brain development. However, a formal training course on hearing loss in children has not been available in a self-paced, free, open online learning format for medical learners. To address this gap, a multidisciplinary team of otolaryngologists, pediatricians, audiologists, speech pathologists, physical therapists, and curriculum experts created a new online course on pediatric hearing loss for medical learners worldwide.

Methods: Course development began in February 2019 and was completed in May 2020. Seventeen experts, emphasizing inter-professionalism in content delivery, provided high-definition video lectures and demonstrations, including a multi-faceted tour of ear anatomy, operating room footage of tympanostomy tube insertion and cochlear implants, and video demonstrations of children undergoing hearing testing. Content also included steps for interpreting basic audiograms, an overview of early screening programs, interviews with Deaf/Hard of Hearing children, and an overview of the public health/educational infrastructure supporting Deaf/Hard of Hearing children. The course was hosted on the largest e-learning platform, Coursera.

Results: The course spanned five modules: Ear Anatomy; Hearing Loss Diagnosis; Impact on Speech and Language; State of the Art Interventions; and Pediatric Vestibular System and Balance. It was approved for 11.5 Continuing Medical Education (CME) credits and was also the first course to be approved for the American Board of Pediatrics Maintenance of Certification Part II credits at this university. Globally, of the 4,529 learners who enrolled in the course, 2,648 started the course, and 1,077 fully completed the course. Based on learner metrics, 61% were female, and 18.6% were from the U.S. The course achieved the top 20 most popular MOOC in July 2020, with learner engagement peaking on 08/2020 and again in 10/2021. Average star rating was 4.9 out of 5 (n=133 reviews). Among local medical students taking the 2-week elective, 38 completed the course from May 2020 until December 2021.

Conclusions: We created a free, global online course that provides a broad overview of pediatric hearing loss that can be applied to various medical educational settings. Our multidisciplinary approach addresses a substantial medical education gap and can serve as a model for developing other online medical education courses.