

Abstract

Telediagnosis is an information system of the Telehealth Program subdivided into modules, including the hearing telescreening system. The modules are integrated, making it possible to create a telediagnosis request and send it to healthcare professionals in areas other than the patient's origin. When using the system, the following actors are envisaged: the patient, the requester (health professional responsible for requesting a report on a specific patient, according to the exam previously carried out), the specialist (health professional responsible for analyzing the patient's exam and issuing the report) and system administrator (professional responsible for analyzing auxiliary tables and configuring the system for the proper functioning of other actors). We used the Python language, the PostgreSQL database management system, web services based on RESTful, and the Django development framework. The hearing telescreening module was developed to receive information on audiological procedures conventionally used in hearing screening, such as audiometric screening, tympanometry, and auditory evoked otoacoustic emissions, and insert data from the DIN test in Brazilian Portuguese. The system proposes to connect the user to the Primary Care Health Network to analyze and manage the referral to the Specialized Health Network for complete otological and audiological diagnosis and audiological intervention. At first, the system was developed to have its data entered and reported by audiologists or doctors, and the results are sent to the patient with the aim of receiving feedback on their follow-up processes based on the hearing screening. Thus, in its initial implementation process, the system's technical and operational functionalities were tested for the insertion of audiological data, its reporting, and sending information to users as part of usage validation by specialists to improve system applicability to Hearing Health in Brazil.

Objectifs

To describe the development and validation of a hearing telescreening system and its initial implementation in the hearing health at school program, binding it to the Telehealth Program of the Brazilian Ministry of Health

Méthodes et Matériels

Cross-sectional and prospective study, approved by the Research Ethics Committee (n. 2525183). Actors on Telediagnosis System: patient, requester (health professional responsible for requesting a report on a specific patient, according to the exam previously carried out), specialist (health professional responsible for analyzing the patient's exam and issuing the report) and system administrator (professional responsible for analyzing auxiliary tables and configuring the system for the proper functioning of other actors). Developed using Python language, the PostgreSQL database management system, web services based on RESTful, and the Django development framework. The hearing telescreening: audiometric screening, tympanometry, and auditory evoked otoacoustic emissions, and insert data from the DIN test in Brazilian Portuguese.

Résultats

At first, the system was developed to have its data entered and reported by audiologists or doctors, and the results are sent to the patient with the aim of receiving feedback on their follow-up processes based on the hearing screening.



- 1496 tele-screenings requested
- 1457 reported
- Audiologist specialist analyzed the patient's exam and issued the report,
- Adjustments had to be made to some of the system's functionalities to make it more ergonomic



The initial stage of implementing the system occurred as expected, and the specialist audiologists' suggestions contributed to improving the Hearing Telescreening Platform.

Conclusion

The future challenges will be automating the processes between data collection and the reporting and referral flow to monitor and manage the journey of these subjects within the Unified System Network. The future challenges will be automating the processes between data collection and the reporting and referral flow to monitor and manage the journey of these subjects within the Unified System Network.

Références

D'Onofrio KL, Zeng FG. Tele-Audiology: Current State and Future Directions. *Front Digit Health*. 2022 Jan 10;3:788103. doi: 10.3389/fdgth.2021.788103.

Govender SM, Mars M. The use of telehealth services to facilitate audiological management for children: A scoping review and content analysis. *J Telemed Telecare*. 2017 Apr;23(3):392-401. doi: 10.1177/1357633X16645728. Epub 2016 Apr 28. PMID: 27130158.

WHO. Global diffusion of eHealth: Making universal health coverage achievable. *Cap. Telehealth*. p 56. 2016.

¹ Department of Speech, Language and Hearing Sciences, Laboratory of Technological Innovation in Health/Federal University of Rio Grande do Norte; ² Laboratory of Technological Innovation in Health/Federal University of Rio Grande do Norte; ³ Federal Institute of Rio Grande do Norte / Laboratory of Technological Innovation in Health/Federal University of Rio Grande do Norte.