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Attention to hearing health: analysis of a rehabilitation center and its network articulation

Atenção à saúde auditiva: análise de um centro de reabilitação e sua articulação em rede

Atención a la salud auditiva: análisis de un centro de rehabilitación y su articulación en red

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Abstract

Introduction: people with hearing loss should have access to comprehensive health care services, which requires the articulation of services in a network. **Purpose:** to map and analyze hearing healthcare in the SUS [Brazilian Unified Health System] network of a city in the State of São Paulo (SP), considering the organization of the healthcare system in a network. **Method:** qualitative research, of the interference and cartographic type, carried out in the SUS network of Campinas/SP. Seventeen semi-structured interviews were conducted with healthcare workers, participant observation, and field diary recording. The analysis was based on assumptions of Institutional Analysis from "analyzers". **Results:** three analyzers emerged from the material: 1) Hearing Health Care in Campinas/SP; 2) Linguistic barriers in the service to deaf users of Libras [Brazilian Sign Language]; 3) Mask and telephone as communication barriers.

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Discussion: reviewing the auditory health flowcharts revealed the need for better navigation of pathways, which could optimize public resource utilization and, most importantly, improve problem resolution and the quality of health care. The studied Auditory Rehabilitation Center exhibited impaired linguistic accessibility for the care of deaf users who communicate using Libras. The situation worsened with the COVID-19 pandemic, which introduced mask-wearing, preventing the capture of facial expressions and the performance of orofacial reading. **Final considerations:** the dissemination of flows to network workers and the expansion of communicational and linguistic accessibility are important measures for the expansion of comprehensiveness, with permanent education being a critical tool that can contribute significantly in this regard.

Keywords: Delivery of Health Care; Unified Health System; Hearing Loss; Health Services for People with Disabilities.

Resumo

Introdução: pessoas com perdas auditivas devem ter acesso aos atendimentos de saúde para seu cuidado integral, o que requer a articulação dos serviços em rede. **Objetivo:** mapear e analisar a atenção à Saúde Auditiva na rede SUS de uma cidade do interior do Estado de São Paulo (SP), considerando a organização do sistema de saúde em rede. **Método:** pesquisa qualitativa, do tipo interferência e cartográfica, realizada na rede SUS Campinas/SP. Foram realizadas 17 entrevistas semiestruturadas com trabalhadores de saúde, observação participante e registro em diário de campo. A análise foi pautada em pressupostos da Análise Institucional a partir de "analisadores". **Resultados:** emergiram do material três analisadores: 1) Atenção à Saúde Auditiva em Campinas/SP; 2) Barreiras linguísticas no atendimento ao surdo usuário de Língua Brasileira de Sinais (Libras); 3) Máscara e telefone como barreiras comunicacionais. **Discussão:** revisando os fluxogramas da Saúde Auditiva foi constatada a necessidade de melhor nortear os itinerários, o que poderia otimizar o uso do recurso público e, sobretudo, o alcance da resolubilidade de problemas e qualidade do cuidado em saúde. O Centro de Reabilitação Auditiva estudado apresentou acessibilidade linguística prejudicada para o atendimento de usuários surdos que se comunicam por meio de Libras. A situação se agravou com a pandemia de COVID-19, que instaurou o uso de máscaras, impedindo a captação das expressões faciais e a realização de leitura orofacial. **Considerações finais:** a divulgação dos fluxos para os trabalhadores da rede e a ampliação da acessibilidade comunicacional e linguística são importantes medidas para ampliação da integralidade, sendo a educação permanente uma ferramenta fundamental que pode contribuir neste sentido.

Palavras-chave: Atenção à Saúde; Sistema Único de Saúde; Deficiência Auditiva; Serviços de Saúde para Pessoas com Deficiência.

Resumen

Introducción: personas con pérdida auditiva deben tener acceso a los servicios de salud para su cuidado integral, lo que requiere la articulación de los servicios en red. **Objetivo:** mapear y analizar la atención a la Salud Auditiva en la red SUS de una ciudad del interior del Estado de São Paulo (SP), considerando la organización del sistema de salud en red. **Método:** investigación cualitativa, de tipo interferencia y cartográfica, realizada en la red SUS Campinas/SP. Se realizaron 17 entrevistas semiestructuradas con trabajadores de la salud, observación participante y registro en diario de campo. El análisis se basó en supuestos de la Análisis Institucional a partir de "analizadores". **Resultados:** emergieron del material tres analizadores: 1) Atención a la Salud Auditiva en Campinas/SP; 2) Barreras lingüísticas en la atención a usuarios sordos de Lengua de Señas Brasileña (Libras); 3) Mascarilla y teléfono como barreras comunicacionales. **Discusión:** revisando los flujogramas de la Salud Auditiva se constató la necesidad de orientar mejor los itinerarios, lo que podría optimizar el uso del recurso público y, sobre todo, mejorar la resolución de problemas y la calidad del cuidado en salud. El Centro de Rehabilitación Auditiva estudiado presentó accesibilidad lingüística perjudicada para la atención de usuarios sordos que se comunican a través de Libras. La situación se agravó con la pandemia de COVID-19, que instauró el uso de máscaras, impidiendo la captura de expresiones faciales y la realización de lectura orofacial.

Consideraciones finales: la divulgación de los flujos para los trabajadores de la red y la ampliación de la accesibilidad comunicacional y lingüística son medidas importantes para ampliar la integralidad, siendo la educación continua una herramienta fundamental que puede contribuir en este sentido.

Palabras clave: Atención a la Salud; Sistema Único de Salud; Discapacidad Auditiva; Servicios de Salud para Personas con Discapacidad.

Introduction

Hearing is one of the senses that enables individuals to integrate into their social context as communicative beings, as the detection and comprehension of sounds allow for a better perception of the world and the development of language[1,2]. Given the importance of hearing for child development and the continuous socialization process throughout an individual's life, early care is crucial for those with hearing impairments in order to mitigate or prevent the challenges resulting from sensory deprivation[2].

According to data from the World Health Organization (WHO), more than 1.5 billion people globally experience some degree of hearing loss[3]. However, most of this population lacks access to hearing healthcare services[3], which can significantly impair individuals' lives and also affect their families[4,5].

In Brazil, the Continuous National Household Sample Survey (*PNAD Contínua*) estimated that approximately 18.6 million individuals aged two years or older live with disabilities, with 1.2% of this population reporting difficulty hearing, even with the use of hearing amplification devices[6].

It should be noted that hearing loss can have a direct impact on an individual's quality of life, as it hinders the ability to understand auditory information, thereby affecting interpersonal relationships and interactions with the environment[1]. In addition, the potential consequences of hearing loss affect all age groups, with varying impacts depending on the stage of life.

In early childhood, children undergo the process of language acquisition and development. Hearing loss during this stage is particularly concerning compared to adulthood or old age, as it disrupts this process[7].

Among adults, hearing loss has been linked to cognitive decline and depression, as it limits participation in social activities such as leisure, work, and education.[4]

Similarly, in the elderly population, hearing loss leads to social isolation, job loss, depression, low self-esteem, lack of motivation, and cognitive impairment. The psychosocial implications are significant, as the challenge of successful communication can result in frustration during social interactions, reducing social participation[5,8].

The widespread impact of hearing loss across all age groups, combined with global and Brazilian census data, has prompted many health systems worldwide to view this issue as a public health concern.

In Brazil, the creation of the Department of Informatics of the Unified Health System (DATASUS) in 1991 allowed access to SUS data online, thus centralizing information on all outpatient procedures. This system laid the foundation for the implementation of the Brazilian National Hearing Health Care Policy (PNASA) in 2004, as a robust information system is crucial for evaluating health policies.[9]

Prior to this, the first Directive of the Ministry of Health (SAS/MS No. 432) in 2000 already required the registration of procedures for monitoring individuals with hearing impairments. This Directive was significant, as it led the Ministry of Health to revise the way records were kept, services organized, qualifications granted, and funding provided, laying the groundwork for the establishment of the PNASA in 2004, which addresses different levels of care and life stages. To operationalize it, complementary regulations were issued for its implementation and organization (Directives of the SAS/MS No. 587 and 68), as well as for the execution of procedures (Directive of the SAS/MS No. 589), reorganizing and improving both outpatient and hospital care within Specialized Services[10].

PNASA, instituted by the Ministry of Health through the Directive GM/MS No. 2,073/2004, aimed to establish State Hearing Health Care Networks, which sought to provide comprehensive care, ranging from the promotion of hearing health to rehabilitation, using technologies such as electronic sound amplification devices, combined

with speech-language pathology therapy[9] across all age groups.

In 2012, the Network of Care for Persons with Disabilities (RCPCD) was established within SUS aiming to integrate and coordinate services for all segments of people with disabilities, including hearing impairments. Thus, it strengthened a regionalized and hierarchical network organized around components of Primary Care, Specialized Care, and Hospital and Emergency Care[11].

As a result, individuals with hearing impairments should have access not only to evaluations, electronic sound amplification device adaptations, and speech-language pathology therapy, but also to promotion and prevention actions aimed at comprehensive care. To achieve this, it is essential to integrate hearing health care services into Health Care Networks (RAS), establishing an effective care flow for patients. RAS are "organizational arrangements of health actions and services, with varying technological densities, integrated through systems of technical, logistical, and management support, aimed at ensuring comprehensive care[12]." These networks operate through a coordinated set of health services that, when organized, enhance the system's resolution capacity and enable continuous, comprehensive care, with Primary Health Care serving as the coordinating point[13].

The set of hearing health-related actions and policies has undoubtedly expanded user access to rehabilitation services. However, there is still a need to increase service availability and assess service quality to ensure improvement[14].

Therefore, this study aimed to map and analyze hearing healthcare in the SUS [Brazilian Unified Health System] network of a city in the State of São Paulo (SP), considering the organization of the healthcare system.

Material and Methods

This study is part of the research project *"Analysis of a Hearing Rehabilitation Center: users, managers, and workers as guides*", funded by FAPESP *[São Paulo Research Foundation]* (under the Process No. 2020/09229-4) and the 2024/23 FAEPEX Scientific Initiation Scholarship. The research was approved by the Research Ethics Committee of the participating institution (Decision No. 4.759.446, CAAE *[Certificate of Presentation for Ethical Consideration]* No. 46693021300005404) and by the Research Ethics Committee of the co-participating institution (Decision No. 4.798.144, CAAE *[Certificate of Presentation for Ethical Consideration]* No. 46693021330015481).

This is a qualitative study of the cartographic type. In geographic sciences, cartography is a method of recording landscapes over time, paying attention to nature and life. In cartography, the method is grounded in encounters with the other[16] and takes shape through the movements and subjectivities of the field[17]. Thus, cartography enables investigation through field experimentation, resulting in present-time interferences and the construction of paths of affect among the researchers[18,16].

While some research methods focus on the impartiality of the researcher, attempting to isolate the object from its reality to reduce the risk of biasing the researcher and the research results[18], this study adopts the interference-research approach. In this approach, researchers abandon the position of being mere holders of truth and knowledge, immersing themselves in the field and embracing the act of research. In interference-research, the researcher does not maintain a position of impartiality but instead assumes the role of an in-world researcher – one who blends, entangles, and is affected by the research process[18].

The study was conducted in a Hearing Rehabilitation Center at a University Hospital, which is a reference center for high-complexity services, specializing in the evaluation, selection, recommendation, and adaptation of hearing amplification devices for residents of Campinas, in the State of São Paulo.

The research corpus consisted of semi-structured interviews conducted with 17 healthcare workers, including ten professionals from the Hearing Rehabilitation Center, two professionals from maternity wards, three managers from the Municipal Health Department, and two managers from the University Hospital, which serves as a municipal reference and houses the Hearing Rehabilitation Center. A limitation of the study was the absence of interviews with Primary Healthcare professionals. A guide with key questions was used for the interviews, focusing on hearing healthcare within the SUS *[Unified Health System]* network in the municipality, including its operation and how different services interact with one another. Excerpts from the interviews were anonymized with fictitious names.

Field notes were documented in a field diary, an important research tool as it allows detailed recording of lived experiences in the field, contributing to the preservation of reflections, perceptions, emotions, and sensations that emerge during data collection. Furthermore, it is an easily accessible tool that can be revisited when necessary, proving useful throughout the entire research process[19].

Additionally, records from participant observation conducted at the service and the "*First Seminar on Hearing Health: Weaving Networks, Untying Knots*", organized by the research team, were included. The seminar aimed to share preliminary research findings, provide continuing education for professionals involved with the topic, and trigger critical and reflective analysis of the information produced.

The data analysis was based on the principles of Institutional Analysis, using "analyzers," which are phenomena whose function is to reveal aspects that previously seemed stable. Analyzers make visible what was previously invisible and articulate what was previously unspoken. Thus, an analyzer can be any material phenomenon characterized by its capacity for self-analysis.

Results and Discussion

Three key analyzers were found in the analysis of the SUS network in Campinas/SP regarding Hearing Health: 1) Hearing Health Care in Campinas/SP; 2) Linguistic barriers in providing care to deaf users of LIBRAS *[Brazilian Sign Language]*; 3) The use of masks and telephones as communication barriers.

Hearing Health Care in Campinas/SP

The policies regulating care for hearing health have facilitated greater access to rehabilitation services for users[14]. However, for this care to be provided comprehensively, it is essential for healthcare professionals to understand where their patients come from and where they should be directed, based on the required interventions. Thus, they need to be familiar with the various hearing health pathways established for different age groups, ensuring that users navigate the system safely. At the Hearing Rehabilitation Center under study, professionals demonstrated knowledge of certain entry points into the healthcare system, as shown in the following excerpts:

> *"Adult patients come through the UBS [Primary Care Unit]]; they have to go through the UBS in their neighborhood, their designated reference center, and then the UBS refers them to us [...] I believe they come straight here" (Isabel, Speech-language pathologist at the Hearing Rehabilitation Center).*

> *"There are different entry pathways, so there is an auditory screening process for patients born here [...]. Young children can be referred directly from the UBS to us, while adults generally need to see an Otorhinolaryngologist at another unit before being referred here, but there are also direct referrals" (Graziela, Otorhinolaryngologist at the Hearing Rehabilitation Center).*

In Campinas/SP, individuals with hearing loss can access the healthcare network in various ways, depending on the age at which the condition manifested. Field immersion, particularly through interactions with network workers and managers, as well as access to institutional documents, enabled the creation of flowcharts, divided by age group: a) Flowchart for newborns with suspected hearing loss; b) Flowchart for children and adolescents with complaints of hearing loss; and c) Flowchart for adults and the elderly with hearing loss complaints. These flowcharts are presented in Figures 1 to 7.

Hearing Health Care for Newborns

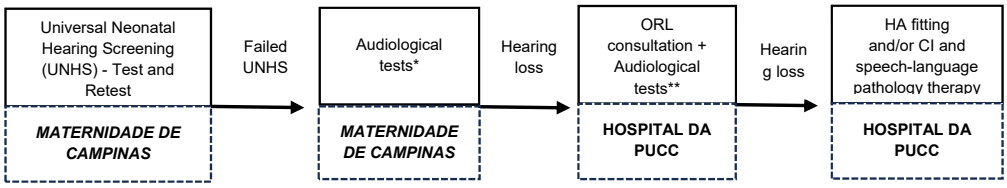
The care pathway refers to the organization of healthcare services into a continuous flow, aimed at ensuring comprehensive care practices[15]. For newborns, the hearing health care pathway begins at the maternity ward, whether public or private, where Neonatal Hearing Screening (NHS) must be performed using the Otoacoustic Emissions (OAE) test, commonly known as the "Baby Hearing Screening." This test, mandated by law in all maternity hospitals[21], must be conducted between 24 and 48 hours after birth and aims to detect hearing loss early, offering the benefit of prompt intervention. Some maternity hospitals provide Universal Neonatal Hearing Screening (UNHS), a strategy designed to screen all newborns, with or without risk indicators for hearing loss. This screening includes two tests: the recording of otoacoustic emissions and the Brainstem Auditory Evoked Potential (BAEP) test[22]. The screening tests are of the pass-fail type, and in the event of a failure, a retest should be scheduled 15 days after the initial test.

Within the SUS network in Campinas, there are three maternity hospitals where deliveries occur: the *Maternidade de Campinas*, the *Maternidade do Hospital da Pontifícia Universidade Católica de Campinas (PUCC)*, and the *Hospital da Mulher Prof. Dr. J. A. Pinotti da Universidade Estadual de Campinas (CAISM/Unicamp)*.

All of these facilities operate as "open-door" maternity hospitals, meaning that pregnant women are guided during prenatal care provided at the UBS *[Primary Care Unit]* and can choose where to go when labor begins, typically based on proximity to their residence.

The *Maternidade de Campinas*, the *Maternidade do Hospital da PUCC*, and *CAISM* are referral centers for high-risk pregnancies. In such cases, the user's UBS facilitates the appropriate referrals for high-risk prenatal care at these locations, with the exception of the *Maternidade de Campinas*, where prenatal care is conducted at the *Policlínica*. In addition to serving users from Campinas, *CAISM* also accommodates pregnant women from other municipalities in the region.

Newborns delivered at the *Maternidade de Campinas* undergo both the initial and retest for the auditory screening tests.If they do not pass, further audiological assessments are conducted to confirm or rule out hearing loss. At this stage, when hearing loss is detected, the infant is referred to the Hearing Rehabilitation Center of the *Hospital da PUCC*, as illustrated in Figure 1.



Abbreviation: __ Procedure; _ _ Service; UNHS: Universal Neonatal Hearing Screening; ORL: Otorhinolaryngologist; HA: Hearing Aid; CI: Cochlear Implant; PUCC: Pontifícia Universidade Católica de Campinas
*Brainstem Auditory Evoked Potential (BAEP) and Otoacoustic Emissions (OAE)
**BAEP, OAE, behavioral assessment and tympanometry

Figure 1. Flowchart for Newborns/Infants Suspected of Hearing Loss from the Maternidade de Campinas

This flow highlights a significant issue: the duplication of hearing loss detection tests. The repetition of the same step in the process is due to how services at the *Maternidade de Campinas* have long been organized. According to Brenda, "*at the maternity, we've always had the screening stage and the diagnostic stage*." Brenda explains that they are working to reorganize the flow, since there are two stages for hearing loss detection currently:

"*We're trying to reestablish the entire flowchart to avoid delays because there's no need to perform the diagnosis twice, right [...] so considering the SUS system, we're working to reestablish communication to streamline the entire structure, so they arrive at PUCC only for the evaluation and medical diagnosis stage, where they see an Otorhinolaryngologist and also undergo the necessary intervention*" (Brenda, Speech-language pathologist at the *Maternidade de Campinas*).

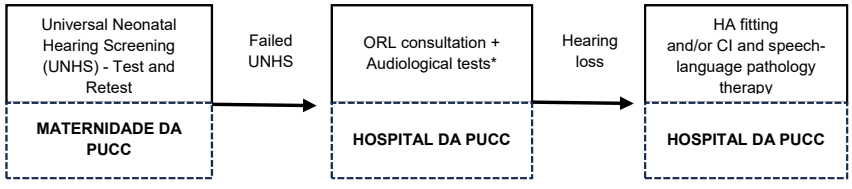
Brenda highlighted another issue that troubles her regarding the flow: the continuity of care is not effectively achieved, as the follow-up is lost once the patient is referred from the *Maternidade* to *PUCC*. According to her, "*this is something I'm trying to implement because we need to provide comprehensive neonatal hearing care*" (Brenda, Speech-language pathologist at the *Maternidade de Campinas*).

In the flow described in Figure 1, as well as in all subsequent ones, speech-language pathology therapy refers to the entire process that occurs during and/or after the fitting of a hearing aid (HA) and/or cochlear implant (CI). Speech therapy can be delivered individually or in groups, and it may be brief, focusing on counseling and guidance, or more prolonged, with the patient being treated at least once a week over a longer period. Speech-language pathology therapy plays a critical role, as after the fitting of hearing aids, the user requires time to "learn how to use them," meaning they need to develop or enhance auditory perception through the use of technological resources that amplify sound[23].

Special attention must be given to the processes of language acquisition and development during speech-language pathology therapy, as the mere use of hearing aids devices does not guarantee this process. It is crucial that the speech-language pathologist provides support and guidance to the family, offering them an overview of the child's linguistic development, knowledge acquisition, and integration into the flow of social interactions. Another important responsibility of the speech-language pathologist is to clarify that, more than just repeating words, it is essential for the child to be immersed in the flow of language, understanding and being understood in interactions.

Thus, each unique case – with its specific hearing loss, the technology used, the user's age, and other factors – will determine the type of speech-language pathology therapy recommended. Hearing rehabilitation, often mistakenly used as a synonym for speech-language pathology therapy, encompasses the entire process, from the recommendation, selection, and fitting of hearing aids or cochlear implants, to speech-language pathology therapy follow-up, as well as interventions from other professionals as required, such as social workers, psychologists, and physicians.

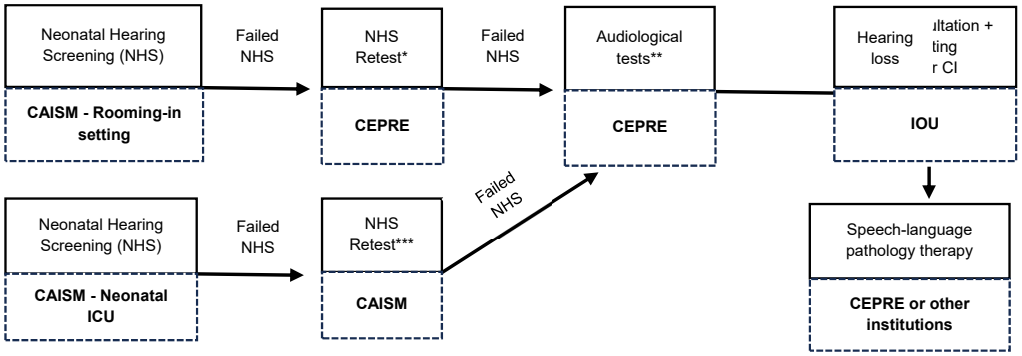
For babies born at the *Maternidade do Hospital da PUCC*, the UNHSis performed on-site, including both the initial test and the retest. If the baby fails the test, they will undergo consultation and audiological exams at the hospital's Hearing Rehabilitation Center, and if hearing loss is confirmed, hearing aid fitting and speech-language pathology therapy will begin, as shown in Figure 2.



Abbreviation: __ Procedure; _ _ Service; UNHS: Universal Neonatal Hearing Screening; PUCC: Pontifícia Universidade Católica de Campinas; ORL: Otorhinolaryngologist; HA: Hearing Aid; CI: Cochlear Implant
*Brainstem Auditory Evoked Potential (BAEP) and Otoacoustic Emissions (OAE), Behavioral Assessment and Tympanometry

Figure 2. Flowchart of the newborn/infant suspected of hearing loss at the Maternidade do Hospital da PUCC (Pontifícia Universidade Católica de Campinas)

For newborns delivered at *CAISM*, the hearing care process is structured as shown in Figure 3. The newborn may pass through three units: *CAISM, Centro de Estudos e Pesquisas em Reabilitação "Prof. Dr. Gabriel O. S. Porto" (CEPRE) and Instituto de Otorrinolaringologia da Unicamp (IOU).* These three services are located within the same university complex, *Unicamp*. Although they are separate units at different locations, they are interconnected services. Figure 3 illustrates this flow:



Abbreviation: __ Procedure; _ _ Service; CAISM: Hospital da Mulher Prof. Dr. J. A. Pinotti; NHS: Neonatal Hearing Screening; ICU: Intensive Care Unit; CEPRE: Centro de Estudos e Pesquisa em Reabilitação Prof. Dr. Gabriel O. S. Porto; IOU: Instituto de Otorrinolaringologia Cirúrgica de Cabeça e Pescoço – Unicamp; ORL: Otorhinolaryngologist; HA: Hearing Aid; CI: Cochlear Implant.
*Transient Otoacoustic Emissions (TOAE)
**Brainstem Auditory Evoked Potential (BAEP), Otoacoustic Emissions (OAE), Behavioral Assessment and Tympanometry
***Automatic - Brainstem Auditory Evoked Potential (a-BAEP)

Figure 3. Flowchart of the newborn/infant suspected of hearing loss at CAISM (Hospital da Mulher Prof. Dr. J. A. Pinotti)

In the case of *CAISM*, there is no regulation regarding the flow for newborns suspected of hearing loss. According to Milena, a technical professional linked to the management of the *Municipal Health Department of Campinas*:

> *"[There is] no regulation regarding public service offerings. The issue is that Unicamp should ensure a flow within the care pathway; so, if the child entered CAISM, if they were born there, if CAISM is providing this support and internal outpatient care [...] then it is up to them. But Unicamp decided what services it wants to offer and to whom [...] but there is no formal contract with the municipality" (Milena, technical professional linked to municipal management).*

At *CAISM*, the infant is not always referred to speech-language pathology therapy at *CEPRE*, and this happens for various reasons: the family opts for services closer to their residence, and the infant is referred to those locations; or they choose private services; or the infant is referred to services that adopt a therapeutic approach different from that practiced at *CEPRE*.

Despite the presence of these three maternity hospitals in the city that conduct Neonatal Hearing Screening, there are cases where the screening is not performed. The reasons include: infants discharged from the maternity hospital without having undergone screening because no professional was available every day of the week to perform the test; infants born in another city where screening was not conducted who now reside in Campinas/SP; or infants born outside of a maternity hospital, such as in the case of home births. For these cases, the process functions differently.

In situations where NHS could not be performed on children aged 0 to 24 months, the Otoacoustic Emissions test should have been conducted at the *Associação de Pais e Amigos de Surdos de Campinas [Association of Parents and Friends of the Deaf of Campinas] (APASCAMP)* (until April 2023, when the agreement with the Municipality ended) or at the Speech-Language Pathology Clinic at *PUCC*. In cases of abnormal results, they should be referred to the Otolaryngology Outpatient Clinic or the Hearing Rehabilitation Center at the *Hospital da PUCC*[24].

In the specific case of being evaluated at the Speech-Language Pathology Clinic at *PUCC* and confirming hearing loss, the infant is referred back to the pediatrician at their reference UBS *[Primary Care Unit]* with the screening already completed, so they can be reintegrated into the Hearing Health pathway, as illustrated in Figure 5.

In addition to the SUS *[Unified Health System]*, there is another possibility for these cases where NHS was not performed: NHS can be conducted through private insurance or a private consultation (dual system) at the *Maternidade de Campinas*. For those children who pass the NHS, they are discharged. For those who fail the NHS, parents

are informed about "*the need for retesting and/or diagnosis, depending on the case and the timing of when the baby arrives*" (Brenda, Speech-language pathologist at *Maternidade de Campinas*).

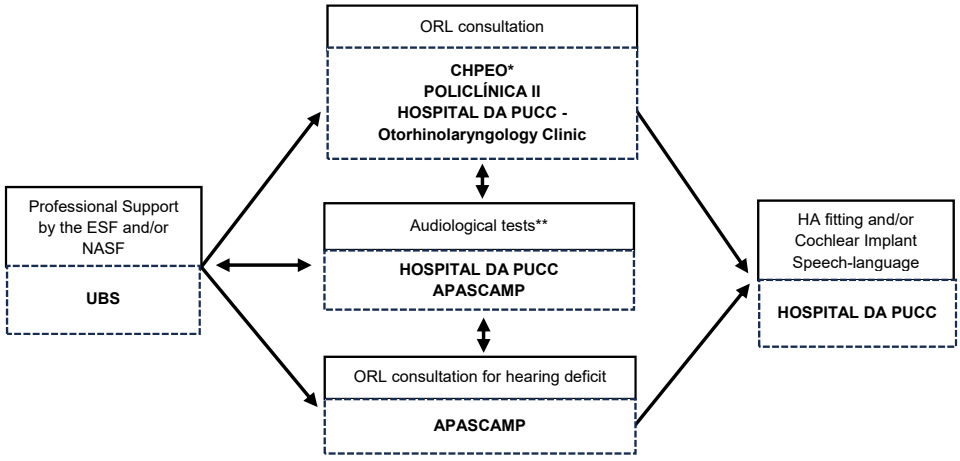
The so-called "dual system," adopted by the *Maternidade de Campinas*, occurs when a healthcare service integrates two systems in its operations: the public system and the private system[25].

Given that the budget from SUS *[Unified Health System]* is insufficient to meet the entire demand of the public health system, the private healthcare system emerges as an alternative. This system is organized based on a market-driven logic, offering financial mobility beyond what is provided by SUS *[Unified Health System]*. In 2015, the paid healthcare system represented about 27% of the Brazilian population's coverage, represented by health plans, accounting for approximately 139 billion of the total services, while the public budget totaled around 109 billion[25].

However, access to services through the private system is not equally available to all, as sociocultural and geographical distinctions influence the profile of users in this system. These characteristics reflect a selective pattern among users accessing services and show the unequal treatment between SUS *[Unified Health System]* users and health plan users, which is a significant issue pointed out in the dual system of healthcare access[25].

Children and adolescents

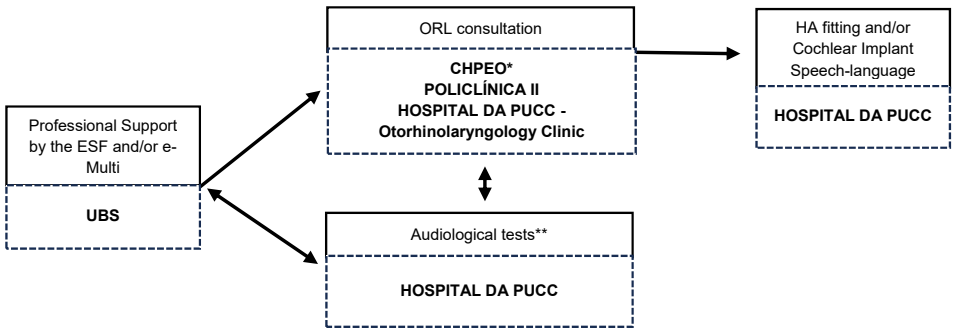
Children or adolescents suspected of having hearing loss may receive care at various points of attention within the SUS *[Unified Health System]* network of Campinas. The care pathway begins at the UBS *[Primary Care Unit]*, from where the patient is referred for specialized care for medical consultations and/or audiological tests. The outpatient services of reference for these procedures include: *Complexo Hospitalar Prefeito Edivaldo Orsi (CHPEO), Policlínica II, Hospital da PUCC and APASCAMP* (until April/2023). Once hearing loss is confirmed, the patient is referred to the Hearing Rehabilitation Center at *Hospital da PUCC*. Figure 4 illustrates the access possibilities.



Abbreviation: __ Procedure; _ _ Service; ESF: Family Health Team; NASF: Support Center for Family Health; UBS: Primary Health Unit; ORL: Otorhinolaryngologist; CHPEO: Complexo Hospitalar Prefeito Edivaldo Orsi; PUCC: Pontifícia Universidade Católica de Campinas; APASCAMP: Associação de Pais e Amigos de Surdos de Campinas; HA: Hearing Aid; CI: Cochlear Implant
*The CHPEO offers audiometry services for internal cases.
**Brainstem Auditory Evoked Potential (BAEP), Otoacoustic Emissions (OAE), Visual Reinforcement Audiometry, Tympanometry and Behavioral Assessment
Note: The Specialty Medical Outpatient Clinic (AME) conducts in-house ORL consultations and audiometry. In cases where hearing loss is detected, the patient is referred to the UBS [Primary Care Unit] to be integrated into the appropriate care pathway.

Figure 4. Flowchart of children over two years old and adolescents with suspected hearing loss

In April 2023, the partnership between the Municipal Health Department and APASCAMP, which provided audiological assessments and speech-language pathology therapy, was discontinued. As a result, a new referral process was established, as illustrated in Figure 5.



Abbreviation: __ Procedure; _ _ Service; ESF: Family Health Team; UBS: Primary Health Unit; ORL: Otorhinolaryngologist; CHPEO: Complexo Hospitalar Prefeito Edivaldo Orsi; PUCC: Pontifícia Universidade Católica de Campinas; HA: Hearing Aid; CI: Cochlear Implant
*The CHPEO offers audiometry services for internal cases.
**Brainstem Auditory Evoked Potential (BAEP), Otoacoustic Emissions (OAE), Visual Reinforcement Audiometry, Tympanometry and Behavioral Assessment
Note: The Specialty Medical Outpatient Clinic (AME) conducts in-house ORL consultations and audiometry. In cases where hearing loss is detected, the patient is referred to the UBS [*Primary Care Unit*] to be integrated into the appropriate care pathway.

Figure 5. Flowchart of children over two years old and adolescents with suspected hearing loss

For children, adolescents, adults, and the elderly in the municipality of Campinas, there is also the *AME [Specialty Medical Outpatient Clinic]*. However, despite being an outpatient service that performs auditory health procedures, it follows an independent and different referral pathway from those presented here. Even if hearing loss is detected at the *AME*, there is no direct way to refer the patient from this service to the *PUCC*. The patient must return to the UBS *[Primary Care Unit]* and be re-enrolled in the care pathway from the beginning, eventually reaching the Hearing Rehabilitation Center at the *Hospital da PUCC*.

Additionally, children older than 24 months without having undergone NHS can be identified. For such cases, the Speech-Language Pathology Protocol[24] recommends scheduling the patient for an otolaryngologist consultation at *APASCAMP* (until April 2023) or at the *PUCC* Otolaryngology Outpatient Clinic, which is now the only available service.

Patients following the pathway outlined in Figure 5 undergo multiple audiological assessments since the procedure is performed both when they are referred by the UBS *[Primary Care Unit]* to ambulatory services and later when they are sent to the Hearing Rehabilitation Center of the *Hospital da PUCC*. This single-modality service is the SUS *[Unified Health System]* reference for outpatient diagnostic services, auditory prosthesis fitting, follow-ups, and rehabilitation for patients – from newborns to the elderly – experiencing hearing loss in the city where this study was conducted and in seven other municipalities in the region. On the other hand, there is a waiting list of patients who need to undergo the exams but have not yet been scheduled. Nevertheless, this referral pathway from ambulatory diagnostic services to the Hearing Rehabilitation Center is established to ensure that the cases referred are appropriate, meaning that only those who require specific rehabilitation are included, thus preventing cases that do not need auditory prostheses from entering the system.

Furthermore, in some cases, a considerable amount of time passes before the patient reaches *PUCC*, and by the time they access the service, their exams may be outdated. Hence, it is reasonable for the exams to be repeated so that the patient can receive care that aligns with their current needs. A study conducted[26] corroborates the findings of this research regarding the waiting list, which ultimately leads to disparities in care among us-

ers: while one patient is further along in the care pathway, another patient, who also requires the service, must endure a long waiting list.

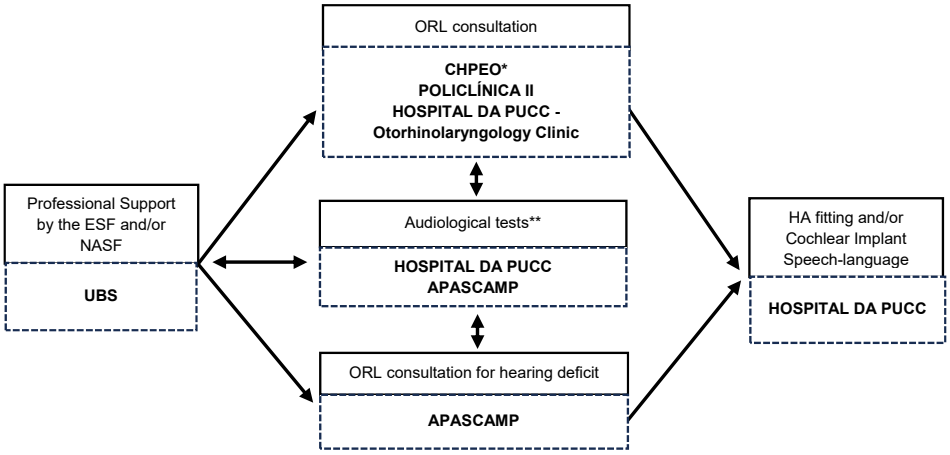
Additionally, there is the possibility that a patient may arrive at the service with altered test results, meaning their hearing thresholds have changed since the audiometry that initially revealed the need for referral to the Hearing Rehabilitation Center. These findings suggest potential errors in recording the results at the time of testing or changes in hearing thresholds between the dates of the audiometries. This scenario justifies the need to repeat the audiological assessments.

Access to the service network is regulated through care pathways, which include referral and counter-referral actions to ensure coordinated care. A study conducted in 11 municipalities within the Santa Catarina Health Region showed that auditory health care is not organized in a way that allows for integrated follow-up[26]. According to the authors, this occurs because regional discrepancies compromise access to medical services in different municipalities. In contrast, at the Hearing Rehabilitation Center studied, the network is organized to facilitate this integration, but the arrival of patients with altered test results for the aforementioned reasons is a significant barrier to a smoother flow.

Therefore, measures are needed to ensure the flow operates more efficiently, reducing obstacles and strengthening patient care[1,2]. To improve and update the pathway, resources could be reallocated to expedite referrals, thus speeding up the inclusion in the Hearing Rehabilitation Center at *PUCC*, completion of the necessary stages, and faster access to hearing technology.

Adults and Elderly

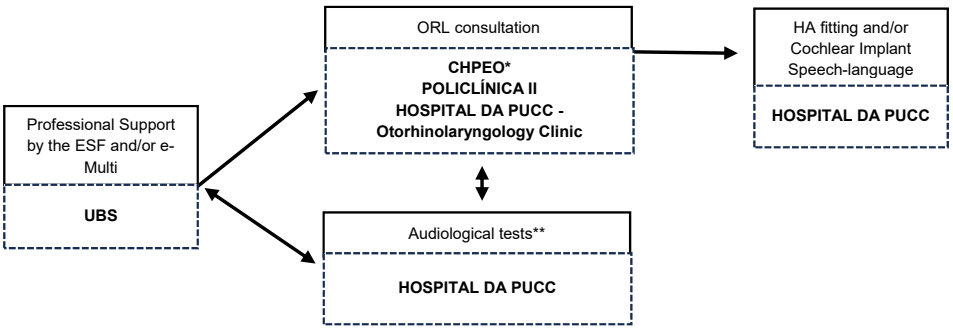
For adults and elderly individuals with suspected hearing loss – whether identified by professionals or by the patient themselves –the entry point is also the UBS, and the patient follows the same pathway established for children over two years old and adolescents. In the flowcharts, the difference between Figure 4 and Figure 6 lies in the audiological assessments that are performed, depending on the patient's age group.



Abbreviation: __ Procedure; _ _ Service; ESF: Family Health Team; NASF: Support Center for Family Health; UBS: Primary Health Unit; ORL: Otorhinolaryngologist; CHPEO: Complexo Hospitalar Prefeito Edivaldo Orsi; PUCC: Pontifícia Universidade Católica de Campinas; APASCAMP: Associação de Pais e Amigos de Surdos de Campinas; HA: Hearing Aid; CI: Cochlear Implant
*The CHPEO offers audiometry services for internal cases.
**Referred by the Primary Care: Pure tone audiometry; Referred by the Special care: Brainstem Auditory Evoked Potential (BAEP), Otoacoustic Emissions (OAE) and Tympanometry
Note: The Specialty Medical Outpatient Clinic (AME) conducts in-house ORL consultations and audiometry. In cases where hearing loss is detected, the patient is referred to the UBS [*Primary Care Unit*] to be integrated into the appropriate care pathway.

Figure 6. Flowchart of adult and elderly users with suspected hearing loss

Adults and elderly individuals have also lost access to *APASCAMP* services since April 2023, and now follow the flow as shown in Figure 7:



Abbreviation: __ Procedure; _ _ Service; ESF: Family Health Team; UBS: Primary Health Unit; ORL: Otorhinolaryngologist; CHPEO: Complexo Hospitalar Prefeito Edivaldo Orsi; PUCC: Pontifícia Universidade Católica de Campinas; HA: Hearing Aid; CI: Cochlear Implant
*The CHPEO offers audiometry services for internal cases.
**Referred by the Primary Care: Pure tone audiometry; Referred by the Special care: Brainstem Auditory Evoked Potential (BAEP), Otoacoustic Emissions (OAE) and Tympanometry
Note: The Specialty Medical Outpatient Clinic (AME) conducts in-house ORL consultations and audiometry. In cases where hearing loss is detected, the patient is referred to the UBS [*Primary Care Unit*] to be integrated into the appropriate care pathway.

Figure 7. Flowchart of adult and elderly users with suspected hearing loss

As with the previous age group, the flow for adult and elderly users also reveals the same issue of lack of efficiency in the care process prior to the fitting of HA and/or CI.

For the proposed flows to function effectively and for patients to have a positive experience in their auditory health care, communication between the user and the service is essential. Communication in healthcare is a fundamental pillar for safety throughout all stages of life, whether for the user or the professional providing the service[27]. Thus, it is crucial that, throughout the entire care pathway, communication is optimized to minimize misunderstandings. This includes establishing communication in the user's native language for those who rely on LIBRAS *[Brazilian Sign Language]*, or ensuring the use of strategies and resources that facilitate communication through non-auditory means, such as text messaging instead of phone calls for appointment scheduling. These aspects may, to some extent, slow down or impair the flow's functioning, and they will be further explored in the following two sections.

Linguistic Barriers in the Care of Deaf Users of LIBRAS [Brazilian Sign Language]

Hearing-impaired individuals face situations that negatively affect their quality of life[1], including the linguistic and communicational barriers present in their daily lives. When communication difficulties arise during care, the quality of assistance is compromised, potentially having a direct impact on people's lives[27]. Some hearing-impaired individuals use LIBRAS *[Brazilian Sign Language]* as their primary means of communication. However, health professionals do not always fully understand sign language. This is also the case at the studied Hearing Rehabilitation Center.

The First Seminar on Auditory Health, which aimed to share reflections triggered during the course of the research, involved the participation of users, healthcare workers, and managers. Among these users, there were deaf individuals who use LIBRAS *[Brazilian Sign Language]*, and during the event, it became evident how linguistic and communication barriers impact the lives of these citizens.

> *They (deaf participants) "took over" the event, emphatically demonstrating how difficult it is to live with linguistic barriers and the lack of knowledge of sign language among healthcare professionals, or the absence of a professional interpreter in the service. Numerous accounts of experiences shared by the deaf participants moved the audience and the research team. The deaf individuals strongly advocated for changes, provoking in me a sense of discomfort and concern due to the lack of accessibility in the studied service, and more broadly, the lack of a genuine concern for the needs of this group across most services, including within the SUS [Unified Health System] (Excerpt from the field diary of one of the researchers, 09/23/2022).*

In Brazil, in 2002, through Law No. 10.436, LIBRAS *[Brazilian Sign Language]* was recognized as a legal means of communication and expression, stating that:

> Public institutions and companies providing public health services must ensure proper care and treatment to individuals with hearing impairments, in accordance with current legal regulations[28].

Decree No. 5.626 of 2005, in Chapter VII, item IX, further specifies:

> Care for deaf individuals or those with hearing impairments in the SUS *[Unified Health System]* network and companies holding concessions or permits for public health services should be provided by professionals trained in the use of Libras or for its translation and interpretation[29].

At the studied Hearing Rehabilitation Center, when professionals and managers were asked whether they considered the service to be accessible in terms of communication, they responded:

> *"Accessibility today in Brazil as a whole is an issue, right? We (at the Hearing Rehabilitation Center) have many points to improve. If we were to say that the patient is very well served, that the service is highly accessible, we know that it's not" (Graziela, Otorhinolaryngologist at the Hearing Rehabilitation Center of the Hospital and Maternity).*

> *"There is no professional who knows LIBRAS [Brazilian Sign Language] to make [the service] accessible, not even in administrative roles, to better support these patients" (Irene, speech-language pathologist at the Hearing Rehabilitation Center).*

Despite the awareness of the need for improvements in accessibility, not all professionals know how to communicate through Sign Language; some have basic knowledge of the language and can establish some communication with LIBRAS *[Brazilian Sign Language]* users.

> *"I know it [LIBRAS [Brazilian Sign Language]], but not everyone does" (Sônia, speech-language pathologist at the Hearing Rehabilitation Center).*

> *"So, not all the speech-language pathologist here know LIBRAS [Brazilian Sign Language]. I, for example, don't know it" (Isabel, speech-language pathologist at the Hearing Rehabilitation Center).*

> *"Most professionals are not fully trained in LIBRAS [Brazilian Sign Language], so there's definitely a lot to improve" (Graziela, Otorhinolaryngologist at the Hearing Rehabilitation Center of the Hospital and Maternity).*

> *"I believe that we have an issue in this area [of accessibility]. Usually, these patients come accompanied, so they arrive with an interpreter, now via cellphone. (...) I know the basics [of LIBRAS [Brazilian Sign Language]], but to truly communicate, I think it's an issue in all services, not just here" (Antônio, Otorhinolaryngologist at the Hearing Rehabilitation Center).*

As observed at the studied Hearing Rehabilitation Center, another study[30] also highlighted the shortage of healthcare professionals who can effectively communicate with deaf users, in a public institution linked to the State Department of Education, located in Fortaleza.

The "cellphone interpreter," mentioned in the interview, refers to a remote LIBRAS *[Brazilian Sign Language]* Central, accessible via app or website, where a professional LIBRAS *[Brazilian Sign Language]* interpreter facilitates communication between a deaf person and a hearing person remotely. In April 2024, the municipality contracted this service, naming it "Acessa Libras"[31], with the aim of allowing deaf individuals to access the service free of charge in public and affiliated institutions, such as the reference Municipal Hospital where the Hearing Rehabilitation Center is located.

Antônio brings up an important point: *"it's an issue in all services, not just here."* It is crucial to remember that the Hearing Rehabilitation Center operates within a hospital, which offers many other

outpatient and hospital services. It is not an independent service with its own management. A shift towards improving accessibility in the Auditory Health service requires decisions from hospital management in coordination with the Municipal Health Department, with which the hospital has an established agreement. Furthermore, there is a need to expand accessibility throughout the entire hospital, not just within the studied service, as deaf users may receive care in any department, ranging from the Emergency and Urgent Care units to outpatient services, as well as in hospital wards and the Intensive Care Unit.

Nise, a psychologist who works in various areas of the hospital where the Hearing Rehabilitation Center is located, highlights a communication barrier in her report:

> *"We had a patient hospitalized with COVID, who stayed with us for months [...] The patient's wife had a hearing impairment [...] We needed the OT team to make transparent masks, and communicating with her was very difficult [...]. I think she had the option of using her cellphone, which connected her to a live interpreter" (Nise, Psychologist at the hospital).*

When asked about a possible solution to alleviate communication difficulties, Graziela, a professional at the Hearing Rehabilitation Center, offers the following reflection:

> *"I believe a big part of this is somewhat our emotional responsibility as professionals, having empathy for these patients and trying, in some way, to communicate well with them [...] I don't think the solution is to include an intermediary, an interpreter [...] I think it's largely our responsibility' (Graziela, Otorhinolaryngologist at the Hearing Rehabilitation Center).*

Faced with communication difficulties arising from the lack of knowledge of Brazilian Sign Language (Libras), professionals reported seeking alternatives such as writing, making gestures, encouraging lip reading, using free apps, and accessing the Interpreter Center provided by the Municipality of Campinas, which was also noted in a previous study[32].

> *"On some occasions, professionals contacted the Municipality's Brazilian Sign Language Interpretation Center (CIL) because the patient had not yet done so, and they tried to involve someone on the team with greater skills in this language or resorted to smartphone apps" (Excerpt from the field diary of one of the researchers and professionals at the Rehabilitation Center, 09/13/2023).*

"Often, they [secretaries or reception staff] don't know LIBRAS [Brazilian Sign Language], and the patients (deaf individuals) arrive asking to communicate through LIBRAS [Brazilian Sign Language]. Sometimes, they come to us for help, asking us to relay a message to the patients, or they write it down on paper or call us" (Sônia, speech-language pathologist at the Hearing Rehabilitation Center).

> *"For those [users] who can read and write, I usually write things down or use simple gestures. But if you consider full accessibility from the moment they are screened at the entrance to the reception, I find it difficult" (Isabel, speech-language pathologist at the Hearing Rehabilitation Center).*

I'm not [fully prepared to communicate with a user who uses LIBRAS [Brazilian Sign Language]]. But the patient is often much more prepared, right? He was able to lip-read, we would write things down, or he would bring someone with him [...]. I didn't experience any impact on the care due to this, in fact, I think it was easier because of the patient themselves" (Sara, social worker at the Hearing Rehabilitation Center).

> *"And mainly, adult patients often bring a companion, many times to assist with accessibility because they know it's challenging" (Graziela, Otorhinolaryngologist at the Hearing Rehabilitation Center at the Hospital and Maternity).*

The presence of a companion facilitates communication, temporarily solving the problem for the healthcare professional. However, the presence, and almost implicit requirement, of a companion takes away the user's autonomy[33]. This occurs because the presence of a companion arises from a communication barrier, which may not contribute positively to the healthcare process for individuals with hearing loss. These barriers, beyond generating feelings of social exclusion and disrespect for the culture and language of deaf individuals, also render the patient vulnerable by distancing the interaction between the professional and the user, making them dependent on someone to mediate the communication[33].

Nevertheless, although these tools appear to be useful for communication between professionals and users, they present certain issues. Some authors[32] indicate that written communication is not the most effective method for this purpose, as the structure of Sign Language writing differs from the standard structure of written Brazilian Portuguese. Therefore, according to some authors[30] and considering the linguistic and communication barriers encountered in the research, any resources that deviate from those appropriate for effective communication with the user are seen as obstacles to maintaining the individual as the central figure in their own care.

In response, at the Hearing Rehabilitation Center studied, steps are being taken to facilitate better communication. Nise, a professional at the service, reports:

> *"Look, I've noticed a great deal of effort by the hospital to improve accessibility' (Nise, Psychologist at the Hearing Rehabilitation Center).*

When communication barriers are not recognized as gaps in professional preparation, they can alienate users from healthcare services, as they may impact the perceived quality of care[33]. Even though other strategies and communication resources are employed, Libras is seen as a tool that preserves the identity and autonomy of deaf individuals. Therefore, to ensure the inclusion of people with hearing loss in healthcare services, it is important for the service to focus on the training of its professionals[33].

One of the strategies under the responsibility of Municipal Health Departments is to promote Continuous Health Education as a way to mitigate potential fragmentation in care. Continuous Health Education is comprised of 'a) education at work, for work, and in the workplace; [...] d) strategic focus; and e) inherent interprofessionalism"[34].

Sara, a professional at the Center, views Continuous Education strategies as smart and functional alternatives for the service:

> *"I believe that professionals working directly in Auditory Health need to be prepared. I think there should be a training or something that can help us be prepared." (Sara, social worker at the Hearing Rehabilitation Center).*

Antônio, a professional at the Center, also highlights Continuous Education as one of the ways to mitigate communication barriers:

> *"I think that in the medium and long term, services could train professionals. I believe that everyone here who works with the deaf, myself included, would be interested in learning [...] I would venture to say that no one would oppose it; on the contrary." (Antônio, Otorhinolaryngologist at the Hearing Rehabilitation Center).*

However, he emphasizes that these strategies need to be integrated into the professional's working hours:

> *"But I think that for this to happen, there needs to be institutional willingness [...] so this has to be done during working hours, within the schedule, right?" (Antônio, Otorhinolaryngologist at the Hearing Rehabilitation Center).*

In the studied service, managers from various professional areas are currently implementing a welcoming protocol for deaf patients and other individuals with disabilities. This protocol includes resources for preparing hospital professionals in LIBRAS *[Brazilian Sign Language]*, as well as tools that can contribute to quality care across all units, including reception, outpatient services, and hospitalization. Furthermore, as mentioned earlier, the Municipality has made available the "*Acessa Libras*" program, which will complement the work of interpreters already available.e internet access, a camera, and a microphone. This program aims to promote communication accessibility for deaf individuals in services administered by the Municipal Government of Campinas. The "*Acessa Libras*" service operates through a remote communication platform in Sign Language, via an application, where a Libras interpreter facilitates communication between the deaf individual and their interlocutor. The service is free and can be accessed on smartphones or computers, provided they have internet access, a camera, and a microphone[31].

Masks and Phones as Communication Barriers

In March 2020, the World Health Organization declared a pandemic due to COVID-19. With respiratory droplets identified as one of the main transmission routes for the virus, the use of protec-

tive masks became mandatory[32]. This context was recognized by professionals and managers as an additional barrier in the communication process with patients who have hearing loss. During this period, protective masks covered the lower part of the face, including the mouth and nose. Therefore, orofacial reading became impossible, and this was reported as a significant barrier. According to the authors,

> "the relationship between healthcare professionals and deaf individuals encounters an obstruction when communication difficulties arise, which hampers the bond, the reception, and the assistance itself"[32].

Regarding the communication challenges stemming from the use of masks, the professional Irene, a speech-language pathologist at the Hearing Rehabilitation Center, recalls:

> *"Now that you mentioned it, because of the pandemic, I remembered a patient who came here the other day, and she complained about the mask, as It was very difficult for them." (Irene, speech-language pathologist at the Hearing Rehabilitation Center).*

The authors[32] indicate that an alternative solution to the use of masks during the pandemic was the transparent surgical masks. These emerged as a means to alleviate the communication barrier between the user and the service, as they allow for the visualization of facial expressions and lip reading, in addition to improving speech perception in noisy environments.

In the Rehabilitation Center studied in this research, this resource was used as a specific measure, as noted in the following account:

> *"We had a patient hospitalized with COVID, who stayed with us for months. The patient's wife had a hearing impairment [...] We needed the OT team to make transparent masks, and communicating with her was very difficult [...] So, from this example, I would say that no, we are not able to [be fully accessible]." (Nise, Psychologist at the hospital).*

However, following a consultation conducted by the service with the Brazilian Federal Council of Speech-Language Pathology and Audiology , transparent surgical masks could not be used on a wide scale in the care settings, particularly in hospitalization units, due to a lack of regulatory approval regarding their effectiveness against COVID-19.

Outside the pandemic context, but still as a barrier, the telephone emerged as a communication obstacle, one that may have been exacerbated by the pandemic situation. Due to social isolation and restricted access to services, the telephone became the primary means for users to communicate with the Rehabilitation Center, whether to ask questions or to make appointments. Despite the multiple functions that a telephone possesses today, such as voice calls, video calls, and text messaging, in the studied service, the telephone is used solely for voice calls. Here, the user faces the same issue previously mentioned: how to facilitate communication when one of the interlocutors has difficulty hearing and, in many cases, struggles to speak due to communicating in a visuospatial language?

> *"Then [when the user is deaf] one must ask the neighbor or another person to call, right?" (Sônia, speech-language pathologist at the Hearing Rehabilitation Center).*

In the context of the pandemic, management authorized professionals to communicate with their respective users via text messages, significantly facilitating communication.

> *"This adherence via email for us is very small, right? We have already requested a corporate cell phone exclusively for the Service, which they are considering." (Sônia, speech-language pathologist at the Hearing Rehabilitation Center).*

After the critical period of the pandemic, in-person consultations returned alongside the modality of phone calls.

Given this, since this model was implemented during the pandemic and proved efficient, the need was emphasized to the hospital management for a corporate cell phone that would allow access to text messages, in addition to emails, which had already been a usual form of communication adopted. Text messages became facilitating strategies for communication between users and services during the pandemic, and it would be contradictory for an auditory health service to also be a place where patients encounter access barriers, finding that the phone is the only means for scheduling.

Therefore, providing care for deaf individuals presents a challenge, both for healthcare professionals and for the deaf individuals themselves[33]. Thus, promoting user autonomy throughout their

care process is crucial, resulting in a more inclusive and humanized service without barriers throughout their access to the service.

Final considerations

The analysis allowed for mapping and describing how the SUS *[Unified Health System]* network is organized concerning Auditory Health Care, presenting flowcharts according to age groups of newborns/infants, children/adolescents, and adults/elders.

The creation of flowcharts for each age group enabled the organization of the municipality's care pathway and facilitated articulation between levels of care. The analysis of these flows revealed that there are, in some situations, delays in referrals and waiting lists, necessitating a review by public authorities to provide safe pathways for the care of individuals with hearing disabilities and optimize the use of public resources.

The findings of the research also enabled an analysis of communicational accessibility in services for users who communicate in LIBRAS *[Brazilian Sign Language]*. The Hearing Rehabilitation Center studied showed that not all professionals in the service are knowledgeable in the language to attend to users communicating in Sign Language. Therefore, they seek alternative methods, such as writing, applications, interpreters, and companions. With the COVID-19 pandemic, users needing the service faced difficulties using surgical masks, which exacerbated communication challenges as it restricted orofacial reading.

Consequently, the findings of the research highlighted the need to revise referral flows for Auditory Health Care in the municipality, aiming to promote timely access to health services for the population so that they can benefit from health promotion actions, prevention of ailments, and auditory rehabilitation. Furthermore, they reinforced the necessity to enhance the communicational accessibility of health services through ongoing education in LIBRAS *[Brazilian Sign Language]* and the adequacy of communication resources with users, in order to improve the quality of care and the care pathway.

Acknowledgment

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