



Telessaúde
UFSC



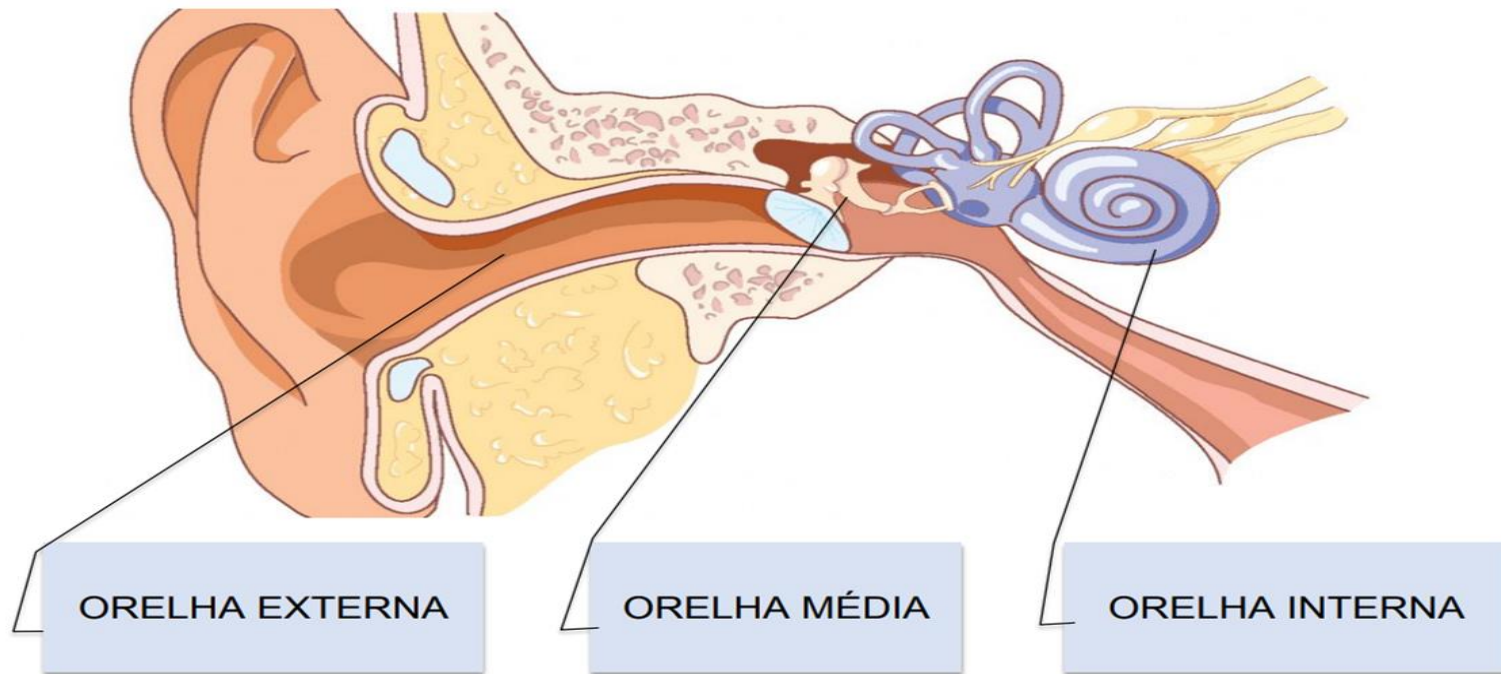
apresentam

SAÚDE AUDITIVA E ATENÇÃO BÁSICA EM SANTA CATARINA

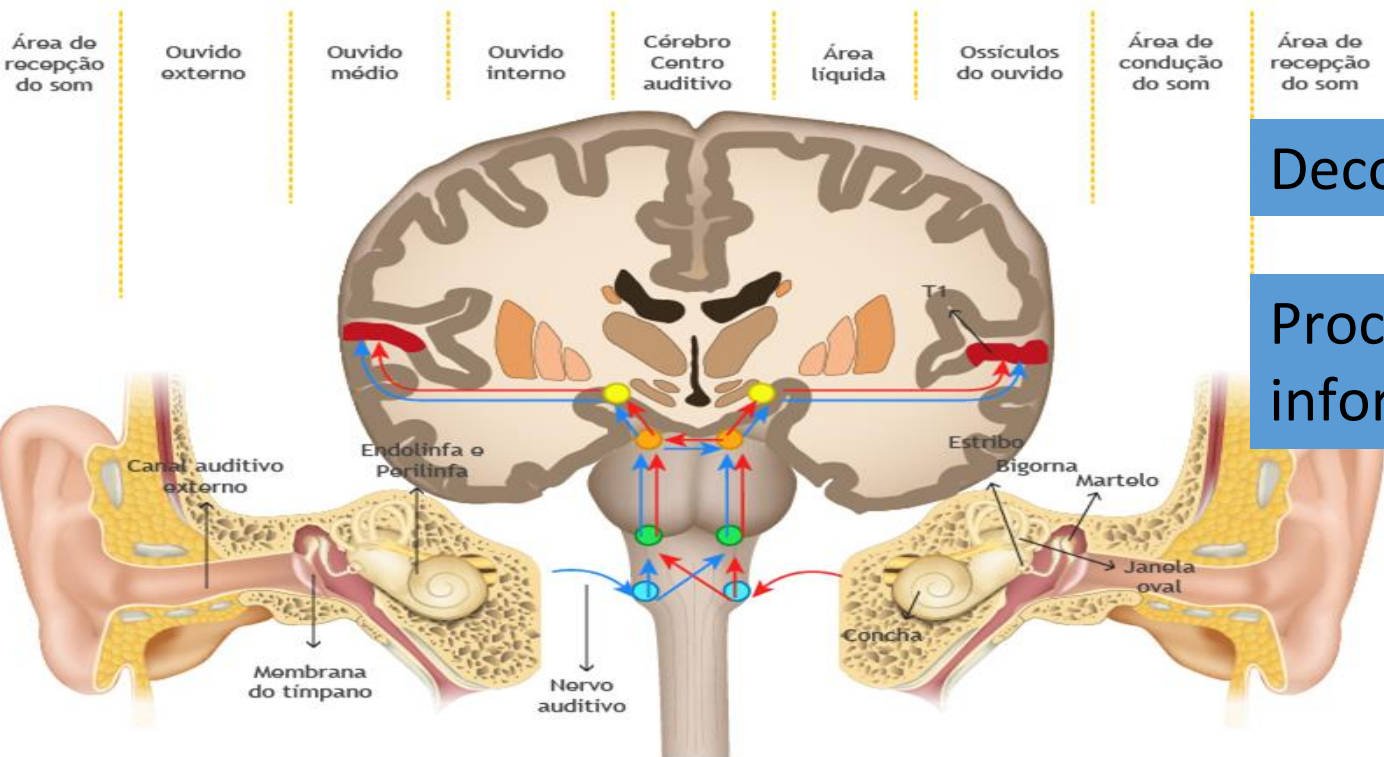
Profa Dra Karina Mary de Paiva

SISTEMA AUDITIVO

ÓRGÃO DA AUDIÇÃO: ORELHA



SISTEMA AUDITIVO CENTRAL

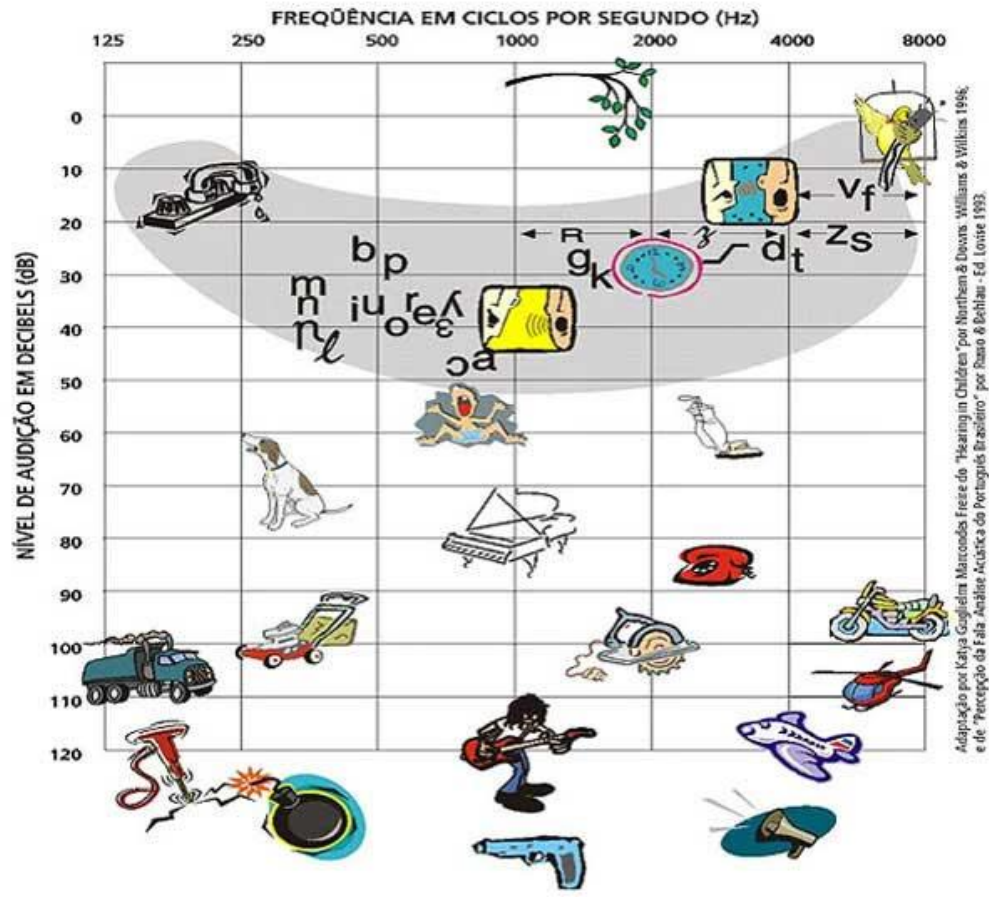


Decodificação do sinal

Processamento da informação



Audiograma de Sons Familiares



Adaptação por Katja Gupel e Marcondes Frieze do "Hearing in Children" por Norris e Decors - Williams & Wilkins 1996, e de "Percepção da Fala - Análise Acústica do Português Brasileiro" por Rizzo & Bellini - Ed. Loutre 1993.





DEFICIÊNCIA AUDITIVA (SURDEZ) X PERDA AUDITIVA



Hearing loss prevalence and years lived with disability, 1990–2019: findings from the Global Burden of Disease Study 2019



GBD 2019 Hearing Loss Collaborators*

Summary

Lancet 2021; 397: 996–1009

Background Hearing loss affects access to spoken language, which can affect cognition and development, and can

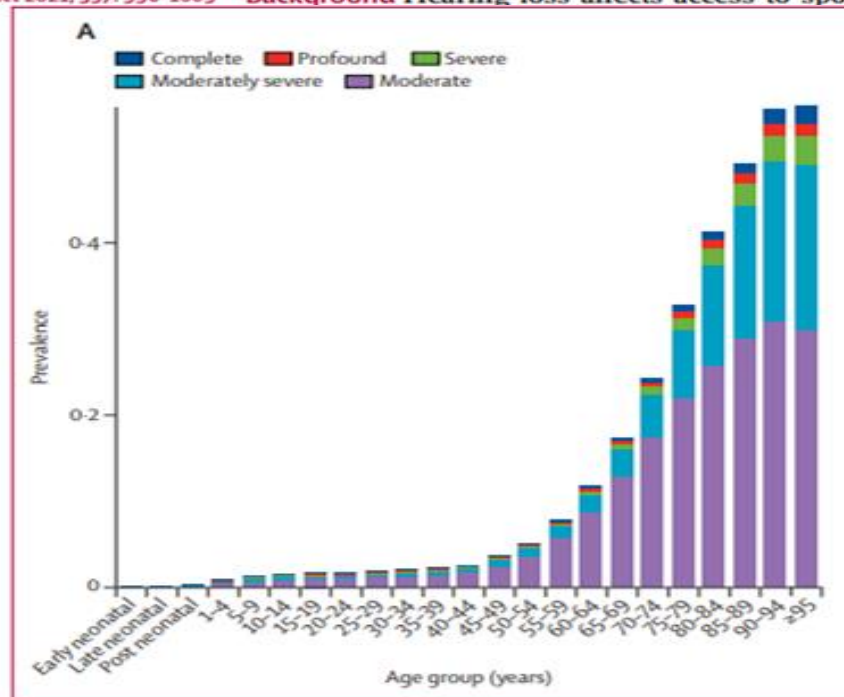


Figure 3: Prevalence of hearing loss 35 dB or greater by age, severity, and cause. Prevalence of hearing loss 35 dB or greater by age and severity (A) and proportion of

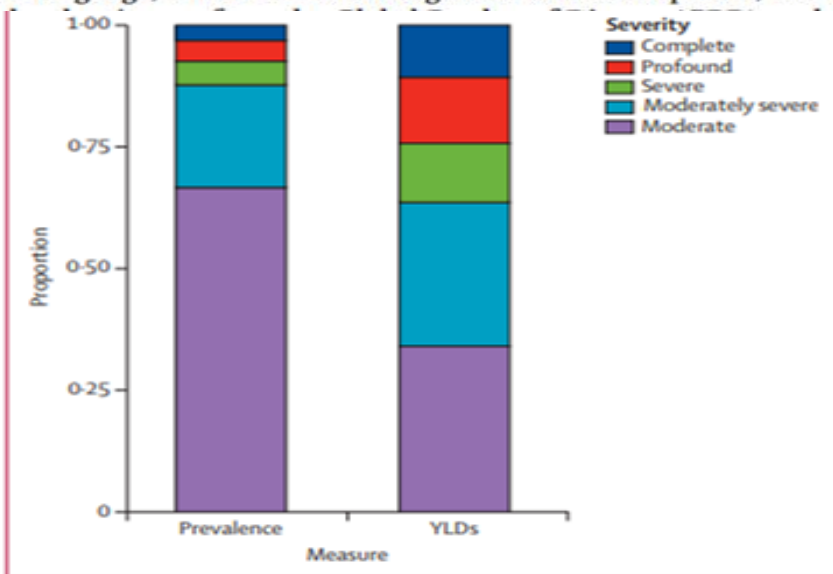


Figure 2: Proportion of individuals with moderate-to-complete hearing loss by measure and severity. YLD=years lived with disability.

Saúde Auditiva

- Por que o uso deste termo?
- **PREVENÇÃO**





WORLD REPORT ON HEARING

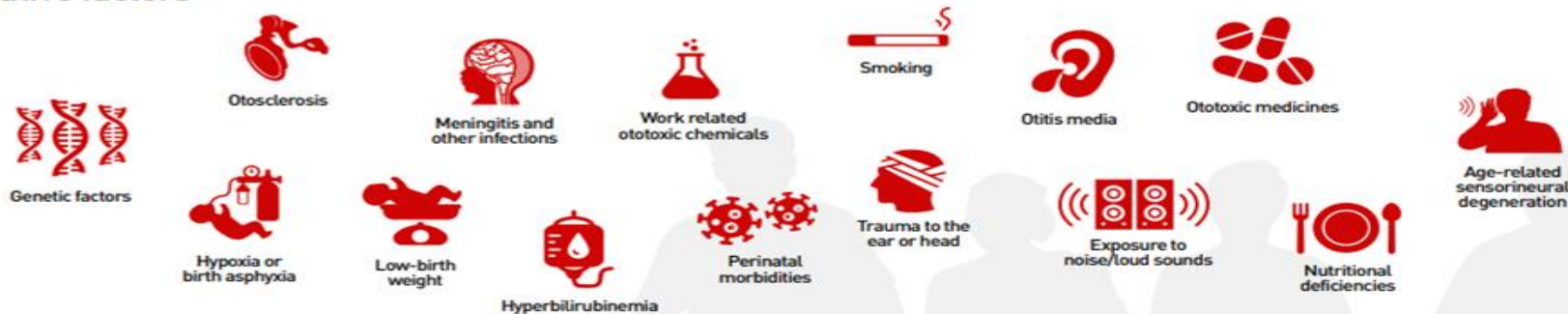


2021

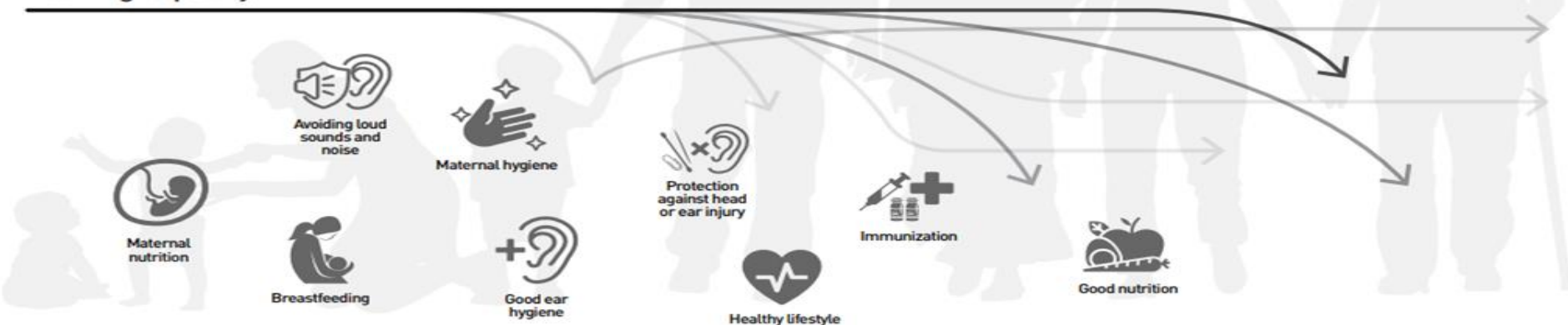
- Incapacidade invisível;
- A perda auditiva não tratada é a terceira maior causa de anos vividos com incapacidade globalmente;
- Estima-se que US\$ 1 trilhão é perdido a cada ano devido ao fracasso coletivo em abordar adequadamente a questão da audição perda.

Figure 1.1 Hearing across the life course

Causative factors



Hearing capacity



Protective factors

PRENATAL PERIOD



GENETIC FACTORS

These include 11 syndromes currently identified as being associated with hearing loss, including Usher's syndrome, Alport syndrome, Pendred syndrome among many others (11).

Consanguinity refers to marriage between close biological relatives, and may be associated with higher incidence of congenital problems (12).

INFLUENCE ON HEARING

Over 250 genes are associated with syndromic and nonsyndromic types of hearing loss, which are commonly hereditary in nature. These include autosomal dominant, autosomal recessive and X-linked genes (11).

IMPORTANT CONSIDERATIONS

Genetic hearing loss is encountered more frequently in children born to consanguineous parents (12–15). Consanguineous marriages are a common tradition in many communities across the world, where such unions collectively account for 20–50% of all marriages (12, 14, 16, 17).

Syndromic hearing loss is accompanied by additional clinical features in the visual, nervous system, endocrine and other systems (18, 19).

RELATED STATISTICS

Genetic factors are responsible for over 50% of hearing loss encountered in neonates (18), and account for nearly 40% of childhood hearing loss (20).

Syndromic factors account for 15% of neonatal hearing loss, while nonsyndromic hearing loss accounts for the remaining 35% (18).



INTRAUTERINE INFECTIONS

Infections contracted by the mother during the intrauterine period which can lead to hearing loss. These include viral, bacterial and parasitic pathogens.

Congenital infections commonly associated with hearing loss include:

- Toxoplasmosis
- Rubella
- Cytomegalovirus (CMV)
- Herpes simplex virus type 1 and 2
- Human immunodeficiency virus
- Lymphocytic choriomeningitis virus
- Zika virus
- Syphilis

INFLUENCE ON HEARING

Most commonly associated with congenital sensorineural hearing loss which varies from moderate to profound and in some cases, with auditory processing disorders such as toxoplasmosis (21–23).

At times, hearing loss may develop in the early months or years of life, as with, for example cytomegalovirus infection.

IMPORTANT CONSIDERATIONS

Presentation may be accompanied by other features of disease: Clutton's joints or Mulberry molars for example, in cases of congenital syphilis (24); sequelae of congenital zika syndrome (25); or cardiac or eye abnormalities associated with CHARGE syndrome in congenital rubella (23) depending on the cause.

RELATED STATISTICS

Viral infections cause up to 40% of all non-genetic congenital hearing loss (22). Cytomegalovirus infection is a common cause, resulting in hearing loss

Doenças reemergentes no Brasil

TORSCH
Zika vírus
Prevalência



PERINATAL PERIOD



HYPOXIA OR BIRTH ASPHYXIA

(27–30)

Lack of adequate oxygenation experienced at time of birth. This commonly manifests as a low APGAR score which is assessed in the minutes immediately following birth.

INFLUENCE ON HEARING

Severe hypoxia or anoxia experienced at the time of birth leads to irreversible cellular damage in the cochlea, with consequent sensorineural hearing loss.

IMPORTANT CONSIDERATIONS

The risk is higher in neonates that require assisted ventilation for neonatal respiratory failure.

RELATED STATISTICS

No available data.



HYPERBILIRUBINEMIA (27, 31)

An increase in the serum bilirubin levels, also commonly known as jaundice.

INFLUENCE ON HEARING

Neonatal jaundice is a frequent occurrence, and is mostly mild and transient, with no long-lasting sequelae. However, bilirubin-induced neurologic damage may occur in some infants and the auditory system is most sensitive to its effects. Such damage most commonly occurs within the auditory nerve or brainstem, often manifesting as an auditory neuropathy spectrum disorder.

IMPORTANT CONSIDERATIONS



LOW-BIRTH WEIGHT (18, 27, 32)

A birth weight of below 1500 g, as a result of premature birth or maternal undernutrition.

INFLUENCE ON HEARING

Low birth weight is a well identified risk factor for hearing loss. It is likely that while low weight itself may not have an impact on hearing, it is commonly associated with multiple risk factors, such as ototoxic medicines, hypoxia and hyperbilirubinemia, that act synergistically leading to hearing loss.

IMPORTANT CONSIDERATIONS

Infants with very low birth weight may at times have conductive hearing loss due to transient middle ear effusion.

RELATED STATISTICS

No available data.



OTHER PERINATAL MORBIDITIES AND THEIR MANAGEMENT (18, 27, 29)

Includes perinatal infections and use of ototoxic medicines.

INFLUENCE ON HEARING

Certain infections occurring in the newborn period may be due to pathogens that have a direct effect on the auditory system (e.g. CMV infection and meningitis). Hearing loss can also be the result of ototoxic medicines used to treat these infections.

IMPORTANT CONSIDERATIONS

It is observed that infants managed in neonatal intensive care units (NICU) have a significantly higher

CHILDHOOD AND ADOLESCENCE



OTITIS MEDIA* (34–40)

This includes a range of suppurative and nonsuppurative ear conditions characterized by inflammation of the middle ear.

INFLUENCE ON HEARING

Chronic otitis media is commonly associated with mild to moderate conductive hearing loss as a result of disruption in transmission of sound vibrations through the middle ear due to the accumulated fluid, ruptured ear drum or erosion of middle ear ossicles (bones). It may, at times, lead to sensorineural or severe hearing loss.

IMPORTANT CONSIDERATIONS

Otitis media is a leading cause for health care visits and morbidity, especially in children.

Suppurative otitis media may be associated with life-threatening complications.

RELATED STATISTICS

An estimated 98.7 million people or more, are affected by hearing loss (mild or greater) as a consequence of acute and chronic suppurative otitis media. (41)

*Further information is provided on page 23.



MENINGITIS AND OTHER INFECTIONS (18, 42, 43)

Infections common in childhood, such as measles, mumps and meningitis. Other pathogens that can lead to permanent hearing loss include:

- *Borrelia burgdorferi*
- Epstein-Barr virus
- *Haemophilus influenzae*
- *Neisseria meningitidis*
- Non-polio enteroviruses
- *Plasmodium falciparum*
- *Streptococcus pneumoniae*
- Varicella zoster virus

INFLUENCE ON HEARING

The mechanism has not always been well studied and could vary from middle ear effusion, caused by the infection, to auditory damage. In meningitis for example, it is likely that spread of inflammation to the inner ear results in labyrinthitis and cochlear cell damage. Damage to the auditory nerve due to inflammation or ischemia is another possibility.

IMPORTANT CONSIDERATIONS

Hearing loss varies in severity and nature and can be unilateral or bilateral.

Post-meningitic hearing loss can be unilateral or bilateral, severe or profound, and may deteriorate over time.

RELATED STATISTICS

Meningitis may be responsible for 6% of

ADULTHOOD AND OLDER AGE



CHRONIC DISEASES (6, 8, 44, 45)

Commonly encountered health conditions such as hypertension, diabetes and central adiposity.

INFLUENCE ON HEARING

It is not clear yet whether chronic disease denotes a possible causal relationship or only a correlation due to shared biological processes. Nevertheless, persons with these conditions are at greater risk of hearing loss.

IMPORTANT CONSIDERATIONS

Persons with chronic health conditions such as those enumerated need vigilance, with the aim of early identification and rehabilitation.

RELATED STATISTICS

Can contribute to the overall prevalence of hearing loss.



SMOKING (46–49)

Tobacco smoke, commonly inhaled through smoking cigarettes.

Exposure to cigarette smoke clearly increases an individual's risk of hearing loss.

INFLUENCE ON HEARING

Hearing loss could be due to the antioxidative and



OTOSCLEROSIS (50–52)

Abnormal bone growth inside the ear of unknown cause, with possible genetic and environmental influences.

INFLUENCE ON HEARING

The abnormal bone growth commonly affects the Stapes (one of the ear ossicles), but in some cases also extends to the cochlea. It can cause conductive, mixed or sensorineural hearing loss.

IMPORTANT CONSIDERATIONS

Although not a common disease, otosclerosis can often be managed effectively through surgical and non-surgical means, including the use of hearing aids.



AGE-RELATED SENSORINEURAL DEGENERATION* (6, 8, 53–57)

Degenerative changes to the structures within the ear, associated with ageing.

Over 65% of adults above 60 years of age experience hearing loss.

INFLUENCE ON HEARING

Degenerative changes affect the ability of the inner ear and higher centres to process and discriminate acoustic signals, presented as difficulty in hearing some sounds and discriminating speech.

IMPORTANT CONSIDERATIONS

Age-related hearing loss is a multifactorial condition influenced by genetic factors that determine the rate and extent of neural degeneration, pre-existing ear conditions, chronic illnesses, noise exposure, use of ototoxic medicines and lifestyles.

RELATED STATISTICS

The Global Burden of Disease estimates for 2019 suggest that over 65% of persons aged more than 60 years of age experience some degree of hearing loss, and this is of moderate or higher grade in nearly 25% of this age group. Studies show that prevalence of hearing loss doubles in the USA during every decade of life from the second to the seventh decade (58, 59), with the sharpest rises occurring in those aged more than 80 years (6, 48).

*Further information is provided on page 28.



NON-MODIFIABLE RISK FACTORS (45, 62, 63)

Includes:

- Syndromes associated with progressive hearing loss, such as Usher's syndrome and neurofibromatosis; and neurodegenerative disorders e.g. Hunter's, Friedreich's ataxia
- Gene mutations that commonly manifest in later life (i.e. from childhood to old age)

- Gender
- Race

INFLUENCE ON HEARING

- The mechanism of genetic factors varies according to the gene affected and its expression or the relevant syndrome.
- Men are more prone to hearing loss, mainly due to their higher engagement in activities associated with noise-induced hearing loss (64, 65), and because of the positive influence of estrogen on hearing functions among women. Since the hearing sensibility is correlated with the level of estrogen, women are more protected against hearing loss until menopause (66).
- Racial differences in the cochlear pigmentation have been associated with hearing loss risk. Melanin pigmentation – significantly more abundant in the cochlea of African-Americans than those of Caucasians – underlies the decreased risk of age-related hearing loss in those of African origin Americans (67).

IMPORTANT CONSIDERATIONS

More than 100 genes and their known mutations

Uso da CIF – Classificação Funcional De Incapacidade

Box 1.1 International Classification of Functioning, Disability and Health [158]

The International Classification of Functioning, Disability and Health (ICF) is the WHO framework for measuring health and disability at both individual and population levels. The ICF defines a person's state of health across three dimensions:

- (i) *Impairment*: which relates to the body-level function or shape (referred to as “hearing loss” in the case of hearing).
- (ii) *Activity limitation*: which relates to personal level of function (formerly termed as “disability”).
- (iii) *Participation restriction*: which relates to psychosocial function (termed as “handicap” in earlier versions of the ICF).

The term “disability” encompasses all problems or difficulties a person with hearing loss may encounter when carrying out everyday activities or situations, such as self-care, or going to school or work. “Disability” in terms of hearing loss refers to the impairments, limitations and restrictions (physical, social, or attitudinal) experienced. As functioning and disability are influenced by context, the ICF also includes a list of environmental factors that contribute to the difficulties experienced by people with hearing loss.

Table 4.1 H.E.A.R.I.N.G. package of ear and hearing care interventions

- H** HEARING SCREENING AND INTERVENTION
- E** EAR DISEASE PREVENTION AND MANAGEMENT
- A** ACCESS TO TECHNOLOGIES
- R** REHABILITATION SERVICES
- I** IMPROVED COMMUNICATION
- N** NOISE REDUCTION
- G** GREATER COMMUNITY ENGAGEMENT

O relatório mundial sobre audição propõe ações para que nenhuma experiência individual de perda auditiva devido a causas evitáveis se concretize.

E para aqueles com perda auditiva propõe estratégias para alcançar seu pleno potencial através da **reabilitação, educação e fortalecimento.**

Reabilitação da PA

- Diagnóstico precoce;
- Seleção e adaptação de dispositivos eletrônicos de reabilitação auditiva;
- Treinamento auditivo



Aparelhos auditivos

Próteses auditivas/Aparelho de Amplificação Sonora Individual (AASI)



Implante Coclear

- Cirurgia para implantação de eletrodos na cóclea;
- Indicado quando não há respostas com os aparelhos auditivos



POLÍTICAS DE SAÚDE: ATENÇÃO À SAÚDE AUDITIVA

Política Nacional de Atenção à Saúde Auditiva

- Instituída em 2004;
- Concessão de aparelhos auditivos pelo SUS;
- Obrigatoriedade de Fonoaudiólogos em empresas de aparelhos auditivos.

Plano Nacional dos Direitos da Pessoa com deficiência – Plano Viver sem Limites

- 2011
- Inclusão social da pessoa com deficiência auditiva
- Escolarização e inserção no mercado de trabalho

Rede de Cuidados à Pessoa com Deficiência no âmbito do Sistema Único de Saúde

- 2012
- amplia o acesso e qualificar o atendimento às **pessoas com deficiência** temporária ou permanente

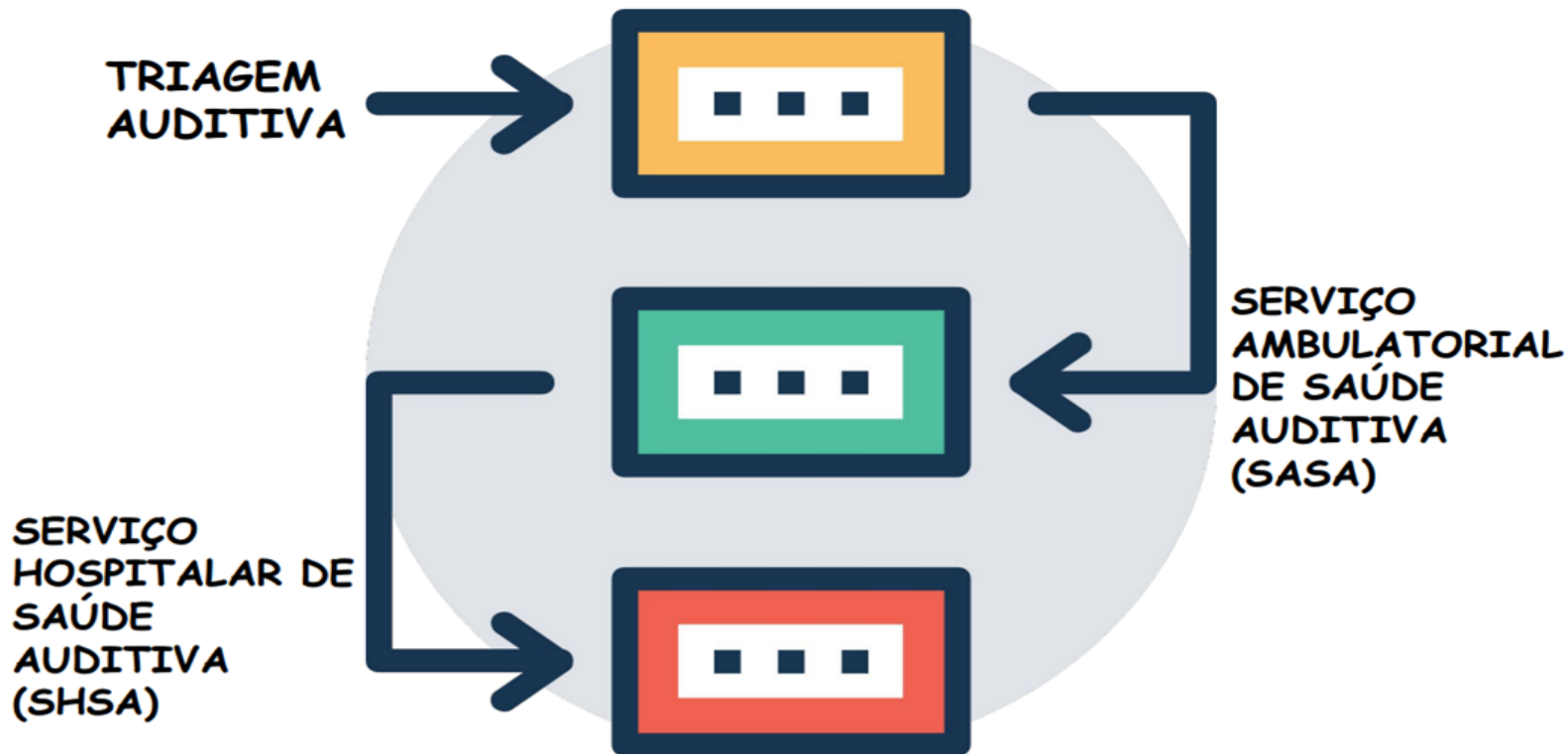
Programa de Saúde Auditiva



Prestadores de Saúde Auditiva SC



Secretaria de Estado da Saúde SC



TRIAGEM AUDITIVA NEONATAL TESTE DA ORELHINHA

- Screening
- Ainda na maternidade
- RESULTADO: Passa/Falha
- Falha precisa do reteste



USUÁRIO

Documentos: Encaminhamento SASA, cópia RG, CPF e CNS, comprovante de residência, comprovante de matrícula para estudantes.

SECRETARIA MUNICIPAL DE SAÚDE

Solicitar agendamento no SISREG.

GESTOR SASA

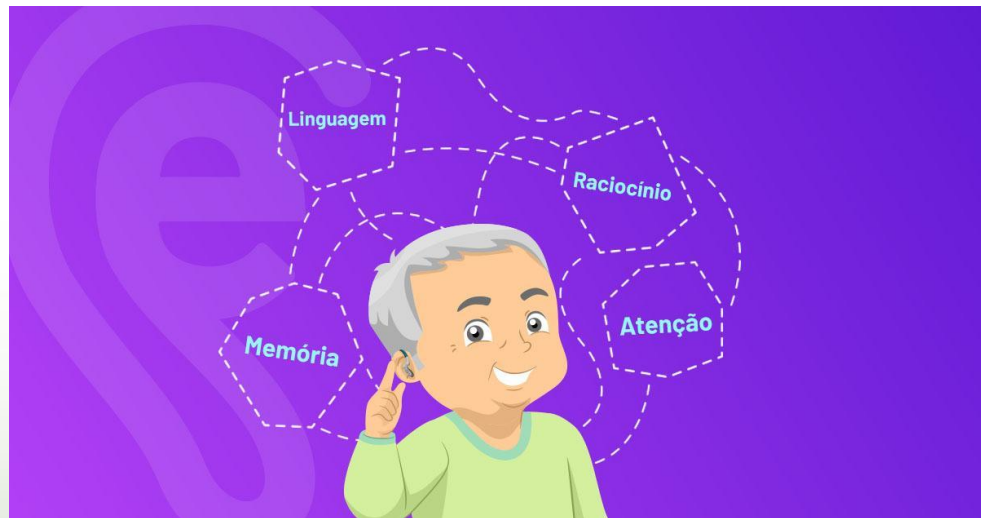
Classificação de risco e agendamento do SISREG

SECRETARIA MUNICIPAL DE SAÚDE

Informa o paciente da data da consulta e providencia TFD, caso necessário.

Reabilitação auditiva em idosos

- LANCET (2017) destacou que o uso de aparelhos auditivos é uma das principais estratégias de prevenção à demência.
- Requer treinamento auditivo



NOVEMBRO LARANJA

CAMPANHA NACIONAL DE ALERTA AO
ZUMBIDO, MISOFONIA E HIPERACUSIA



OBRIGADA!!!

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Perguntas e respostas