

Aural rehabilitation in the Nordic countries 2014

Background

The Nordic Audiological Society (NAS) is an umbrella organization for professionals and users. NAS includes over 30 member organizations, with a combined membership of approximately 120,000 persons. NAS has several tasks and one of these is to follow the audiological developments, in the Nordics.

From the 1950s on, aural rehabilitation in the Nordic countries has largely followed common guidelines. There are, however, some differences between the countries. To be able to map the situation of persons with hearing impairment, NAS decided, at the beginning of 2014, to prepare a report on aural rehabilitation in the different Nordic countries. The work has been individually conducted, in the different Nordic countries, with a number of common issues. Each country has either appointed an individual author for the report or a workgroup.

This report contains five highly interesting reports from the Nordic countries. The documents from the different Nordic countries have been prepared in different ways. All of the reports are included in this document.

The following is a summary that attempts to highlight the differences, similarities and trends in aural rehabilitation, in the Nordics.

This report is defined as aural rehabilitation, which includes rehabilitation measures for hearing impairment/deafness in persons ≥ 18 years of age. Some of the reports also contain a brief discussion of rehabilitation measures for tinnitus and hyperacusis. All of the reports have used a biopsychosocial viewpoint, which means that the document highlights aural rehabilitation from a medical, technical, pedagogical and psychological perspective.

An overall summary of the report is that aural rehabilitation in the Nordics is fragmented and that we lack both quantitative and qualitative data, as well as socioeconomic calculations of the costs and benefits. This report can lift audiology healthcare budgeting processes to a level where there are opportunities of distributing resources based on a socioeconomic perspective and thereby, provide audiology healthcare greater resources for using its resources in new investments, for a positive socioeconomic net gain.

History

The Nordic countries share a similar aural rehabilitation history. In Denmark, an audiology institute was established in 1892, while in Norway, Sweden and Finland it took until the beginning of the 1900s. By 1929, the deaf and hard of hearing, in Denmark, received a number of rights. During the 30s, 40s and 50s in Denmark, these mostly targeted the deaf, however, from the 1950s on, these also included persons with hearing impairment. Similar developments were seen in the other Nordic countries. During the 1900s until after the second world war, different types of help organizations played a major role. Aural rehabilitation, and in particular, technical devices such as hearing aids, was started in the 50s, in the different Nordic countries. This followed, to a great extent, development in the USA, where a large number of young men had acquired a hearing loss during the war. Hearing

aids experienced further development with the advent of transistors.

In Norway, rehabilitation development has been interesting, in as they have historically had two parallel lines of development, a pedagogic one and a technical/medical one. This still has an effect on parts of the rehabilitation range that exists in Norway. Any similarly clear division in aural rehabilitation cannot be seen in any of the other Nordic countries. To a degree, Denmark differs historically from the other countries, in that very early on Denmark had a number of world leading hearing aid companies (Oticon, Danavox, GN, Resound and Widex). Therefore, Denmark has historically had highly advanced technical audiology. Even Sweden, in the 50s and 60s, had a very active audiology healthcare expansion. This came about through the farsighted decisions of some ENT professors building audiology clinics, around the country. Over the past 25 years, the countries' aural rehabilitation has developed in slightly different directions. Denmark, very early on, opened private audiology clinics, which for the most part targeted aural rehabilitation with hearing aids. Finland has somewhat followed another line, in that a major part of aural rehabilitation has been built from so-called lotteries and with the help of user organizations. In Norway, development of aural rehabilitation has occurred in both public and private ENT clinics. In Sweden, a trend toward private development of aural rehabilitation has occurred during the past 10 years. Finally, in Iceland, aural rehabilitation had been public up until the past 10 years, when several private actors appeared.

Epidemiology

The reports from the different countries describe different ways of calculating occurrence. Prevalence (occurrence) of persons that have hearing impairments is entirely uniform (10-14%). Some differences in the data are worth mentioning.

Denmark

Several studies show that approximately 1% of men between 18-24 years of age have a hearing impairment and 25-40% of those older than 65 years of age have a hearing impairment. In the over 75-year-old group, 40-66% have a hearing impairment and for those over 80 years of age, 80% have a hearing impairment. It is estimated that 800,000 persons in Denmark have a hearing impairment to some degree. These figures are not taken from individual estimates, but rather from a compilation by the Department of Audiology at Bispebjerg Hospital and the Danish National Centre for Social Research that conducted a survey of hearing aid users.

Norway

Hearing impairment in Norway is not included in Norwegian health statistics. During 1995-1997, however, a general hearing screening of 51,000 adults was conducted in Nord-Trøndelag. In this screening, a steep increase in the presentation of hearing impairment, occurring with age, was noted. They found that in the adult population, approximately 39% of men and 33% of women had a hearing impairment.

Iceland

Iceland has not done any specific study of prevalence, but instead has built their survey on the number of persons needing hearing aids.

Finland

Some existing population studies in Finland indicate that approximately 15% of the population has a hearing impairment. A study conducted in 1999, found that 7% of the population around 45 years of

age, 16% at 55 years of age, 37% at 65 years of age and 65% at 75 years of age had a hearing impairment. No national registry exists in Finland.

Sweden

The prevalence of hearing impairment in Sweden has been estimated in many different ways. According to a Statistics Sweden (SCB) 2007 survey, prevalence is similar to that in the other Nordic countries. Men, both younger and older, have a higher incidence of hearing impairment. In summary, this means 16% of the total population, 19% of men and 13% of women. Over the past five years, Sweden has introduced different types of quality registers that measure different degrees of aural rehabilitation, satisfaction, etc., for both children and adults. However, this statistic does not measure the prevalence, but rather only those who have received assorted types of support. In Sweden, there is data on persons who have sought audiology healthcare and who have severe hearing impairments (≥ 70 dB in the best ear). This data now shows that previous estimates of persons with severe hearing impairment have drastically underestimated the numbers. New data shows that approximately 20,000 persons in Sweden have a severe hearing impairment, either congenitally (deafness) or acquired. Previous calculations had estimated a figure of 10,000. These new data are entirely based on information from audiograms.

Summary

It can be concluded that the incidence of hearing impairment, in the different Nordic countries, is similar in age and gender distributions. All reports indicate increases in life span and thus, an increase in the percent of elderly with hearing impairments. This is also reflected in the figures of later documents regarding aural rehabilitation/hearing aids. In addition to changed age demographics, it should also be pointed out that a large influx of new citizens, to some of the Nordic countries, from countries where other types of hearing impairments (middle ear disease, trauma, noise-induced hearing loss etc.) will be significant.

Organization of aural rehabilitation

The previous organization of Nordic aural rehabilitation had essentially followed common guidelines and inspiration from such places as the USA. Aural rehabilitation, during the past decade has undergone major changes in all of the Nordic countries, which has meant major differences in how audiology healthcare is organized.

Denmark

Organization has changed during the past few years. As of 2013, there were 22 public audiology clinics (16 within hospital audiology departments), approximately 275 private audiology clinics, 30 ENT physicians with contracts for hearing aid dispensing as well as 30 different communication centers that are either municipal or regional, etc.

For a citizen that requires aural rehabilitation, the first contact is usually a practicing ENT physician. They are expected to provide information on the possibilities of getting aural rehabilitation via public or private clinics. Many in Denmark directly seek out a private or public audiology clinic/ENT physician without a referral from a general practitioner. The conclusion from the group is that, today, there are many paths into the aural rehabilitation system. In the Danish report, there are excellent

figures on the paths to aural rehabilitation. The Danish group concluded that the current system is fragmented. A citizen has difficulty finding their way among so many actors.

Norway

Norwegian aural rehabilitation has three different levels. Municipalities, user organizations and the State. The municipalities have the formal responsibility for aural rehabilitation. There are significant variations in the quantity and quality of the proffered services between the municipalities. One explanation, according to the report, is that Norway has 428 municipalities that vary greatly as to number of inhabitants and economy. In Norway, there is a system of “fastleger” (general practitioners) that is a mandatory scheme for the population. Their primary responsibility is to refer patients to specialists, either within the State healthcare system or to user organizations. User organizations are active in organizing aural rehabilitation through such things as school activities. In Norway, healthcare is mostly State financed and part of the State’s mission includes ensuring good professional practice and short wait times, which contributes to services being offered in collaboration with the municipalities. The State can enter into agreements for aural rehabilitation with private ENT physicians or assistive technology centers, municipalities and others. Today, there are approximately 36 auditory centers and approximately 100 ENT physicians that dispense hearing aids. Hearing aid adjustments and other technical auditory aids are not handled within the same organization, instead technical auditory aids are adjusted at assistive technology centers. The Norwegian picture of aural rehabilitation can also be viewed as fragmented.

Iceland

The main responsibility lies with the State. People can receive aural rehabilitation at a State auditory center, in Iceland, as well as at three private ones. The privately run auditory centers offer hearing aids from a single manufacturer, that is to say hearing aid companies privately run aural rehabilitation.

Finland

Finland, too, has partially fragmented audiology healthcare. Just under 40 units run aural rehabilitation with hearing aid adjustments. Twenty-five of these 40 are somewhat larger and the remaining 15 can consist of, e.g., one otologist.

Sweden

Audiology healthcare organization varies greatly in the different geographical areas. In some county councils/regions, Sweden has established so-called free choice of care, which means that a part of audiology healthcare is private. In other parts of the country, all audiology healthcare is public. The county councils/regions are the principle providers of healthcare and thus, aural rehabilitation. Three models can be ascertained in Sweden, at this time. The first model means that the county council/region runs the operations with their own personnel. In the second model, a choice of healthcare has been offered, for some simpler activities, within aural rehabilitation. This includes, for example, hearing aid adjustments for hearing impairments of low complexity. Regulations have been established and the private and public actors can apply for authorization and execute work assigned by the county councils. In the third model, each so-called authorized clinic has, in addition to the county council’s assignments, their own assignments. There, the patient receives a hearing test and economic support and, thereafter, can choose to use this or to purchase further equipment. Some of the authorized private aural rehabilitation units are linked to specific hearing aid manufacturers.

Financing

Here the different economic systems, primarily for hearing aid adjustments, are reported for the Nordic countries. During the past 4-5 years, hearing aid technology has improved and prices have followed other technical equipment, that is to say, become less expensive.

Denmark

Patients that are referred by their general practitioner or otologist for aural rehabilitation have two choices:

a) to receive a hearing aid fitting free from the public hospital system. This aural rehabilitation takes place in the hospital's audiology clinic/audiology department or at a practicing otologist who offers hearing aid rehabilitation. Citizens can freely choose which public institution they want to go to, for aural rehabilitation.

b) receive a subsidy (auditory allowance) to buy a hearing aid at an approved private institution. Private aural rehabilitation can occur through dealers that sell hearing aids, which citizens can access via the Internet. Payment is made by the region, regardless of whether it is conducted publically or privately. Normally, regional permission to execute aural rehabilitation is required. Hearing aids that are provided by public institutions belong to the institution and are to be returned after use or when changing to new aids. If a person chooses a private hearing aid fitting, then a current subsidy (2015) of SEK 4,030 for one hearing aid and 6,386 for two hearing aids is paid. These hearing aids are owned by the patient. There are some variations, between the regions, regarding the sum. Regardless of whether the hearing aid is obtained from the private or public sector, instructions for and training in hearing aid use is free in the municipalities. Different wait times exist in the public system. Statistics from Denmark show that in 2015, there were approximately 325,000 individuals with hearing aids. The annual cost in 2013, was approximately DKK 275 million in the private system and approximately DKK 408 million in the public system. All hearing aid users receive free batteries (DKK 15 million). Aural pedagogy in special centers and the municipalities costs approximately DKK 170 million along with other municipal expenses of approximately DKK 30 million. The direct total annual costs for aural rehabilitation in Denmark is approximately DKK 900 million (2013), for approximately DKK 2,770 per user and year

Norway

Aural rehabilitation occurs, in Norway, at very different levels within the different sectors and by different professions/volunteers. Financing is complex. The major financial portion is paid by the State, with some volunteer and municipal investments. On page 9 in the Norwegian document, you get an extremely clear picture of the financial complexity. Different institutions, both public and private, take different paths, but essentially all financing ends with the State covering the costs.

Iceland

Iceland has different systems, based on the degree of hearing impairment. Children receive free aural rehabilitation. Adults with more than a 70 dB loss receive 80% of the hearing aid price as well as the

batteries. Others who need aural rehabilitation/hearing aids receive some form of State allowance for hearing aids.

Finland

Aural rehabilitation in public healthcare is free for everyone with Finnish national insurance, however, a small consultation fee may be charged in some cases. Hearing aids are provided free of charge as a loan. The costs are covered by the municipalities. Due to increased pressure, quite a bit of aural rehabilitation (hearing aid fitting) is purchased from private companies. In 2014, approximately 25% of all those needing hearing aids received them from the private sector. The national insurance system also covers the costs of interpreters and some aural rehabilitation costs. In certain individual cases, the State or insurance company may pay for aural rehabilitation. A citizen can also strictly use the private sector, but then they must pay for it themselves. The total cost for Finnish audiology healthcare(2015) was approximately Euro 34 million. In 2000, Finland's population had a low percentage of hearing aids (1%) compare to 3.5% in, e.g. Denmark. Later figures are not available for comparison.

Sweden

In the Swedish report, aural rehabilitation is highlighted and audiology healthcare compared to other public health diseases. It shows that hearing impairment, from a public health perspective in regard to number of individuals, comes in second after musculoskeletal diseases, while social costs for audiology healthcare, however, are among the lowest items in the so-called prioritized healthcare areas. This comparison is not from Sweden, but was done in Australia. In the report, it was concluded that the situation is similar in Sweden. The report from Sweden emphasizes that one of the reasons for a relatively low cost is that hearing impairment and its treatment, compared, e.g., to drugs, does not burden society with long-term continuous costs. The costs of aural rehabilitation in Sweden are difficult to calculate, due to the high amount of fragmentation of audiology healthcare services. E.g., it can be said that fees for consultations can be anything from free to SEK 200 and hearing aid fittings can be anywhere from free to SEK 1500. In some areas, there is high-cost protection. Some county councils have completely free aural rehabilitation, in others, it is very expensive. Aural rehabilitation in Sweden is not provided on an equal basis. In the latest report, (Hörselrehabilitering till vuxna – rapport från Expertgruppen för hörselvård, beställt av Sveriges kommuner och landsting) [Aural rehabilitation of adults - report from the Expert Group for audiology healthcare, ordered by Sweden's municipalities and county councils], the wholesale price of hearing aids, ear molds and technical auditory aids, in 2006, was approximately SEK 390 million.

Medical perspective

Denmark

The medical perspective of aural rehabilitation, in Denmark, is handled within otorhinolaryngology (ENT). In ENT, there are few physicians that have subspecialized in audiology. For advanced diagnosis and treatment of hearing impairment, there were ten public audiology departments/audiology clinics, in 2013. Danish medical audiology has significantly contributed to technical audiological diagnostics and hearing aid development. A number of specialized diagnostics within electrophysiology are only conducted at university departments, as is the diagnosis and treatment of

children with hearing impairment. The audiology departments at university hospitals employ a multidisciplinary approach, with all specialties, within audiology.

Norway

In Norway, medical audiology is handled by ENT physicians. There are approximately 450 ENT physicians in Norway. The ENT departments are part of 23 hospitals, whereof six of these are university hospitals. Norway has no audiologists (medical audiology).

Iceland

Medical audiology is handled by ENT physicians in Iceland.

Finland

In Finland, medical audiology is handled by ENT physicians as well as audiologists (medical audiologists). In 2015, there were 340 ENT physicians and 20 medical audiologists.

Sweden

In Sweden, medical audiology is handled by both ENT physicians and audiologists. Sweden has approximately 700 ENT physicians and 70 audiologists. Audiologists work at university clinics within ENT healthcare or at special audiology clinics (Stockholm and Örebro). The larger county hospitals often employ 1-2 audiologists. To be an audiologist in Sweden requires ENT competence plus an approximate 2.5-3 years of additional training.

Technical perspective

Below as well as further down in the document, calculations for hearing aid fittings are reported, which need to be kept separated from aural rehabilitation that includes multiple occasions. The statistics from several of the Nordic countries are very incomplete, which is why direct comparisons are difficult to do. However, large differences in the number of fitted hearing aids can be seen, where, e.g., Finland has a relatively low percent of hearing aids/1,000 persons compared to the rest of the Nordic countries.

Denmark

The number of prescribed hearing aids in 2013 was:

Public audiology healthcare	63,000
Audiology clinics with contracts for hearing aid dispensing	18,500
Private audiology clinics	55,000

Thus, the total number is approximately 136,000 hearing aids, where the division between monaural/binaural was 20/80%, which means that approximately 81,000 citizens received hearing aids. In 2014, approximately 2,150 citizens had received CI in Denmark, of which 600 were binaural. Approximately 650 of these were children.

In total, approximately 325,000 Danish citizens have hearing aids. Hearing aid fitting is done by audiology assistants, who have completed a 2.5 year education. This education is not conducted at the university level, but rather at the high school level (9th school year). The other group that fits hearing aids is speech and language pathologists, which have a 4-year education. A university level audiology education is offered at the University of Southern Denmark, 3 + 2 years. At the University of Copenhagen, programs exist for speech and language pathology, with a 2-year undergraduate

education plus just over 3 years of optional courses. Engineers in audiology have drastically decreased in number, in Denmark.

Norway

In Norway, persons fitting hearing aids or participating in diagnoses etc. are called audiographers. Currently there are 350 audiographers in Norway. The education is a three-year bachelor program. In Norway, there is the Norwegian Technological Audiological Society that organizes different personnel groups within technology and audiology. This society has approximately 100 members. These can be hearing aid technicians, engineers, etc.

Iceland

Hearing aids can be purchased at four different auditory centers, with 55% being public and 45% private. Iceland does not have any audiometrist/audiographer education, instead many are educated in the other Nordic countries.

Finland

In 2013, there were approximately 28,000 persons with hearing aids. Of these, approximately 56% were new users, with approximately being 20% children and 80% retirees. 31% of the retirees received 2 hearing aids and approximately 67% of the younger persons received 2 hearing aids. Audiometry (audiometrist) can be studied at several universities, however, there is no specifically established audiometry education. A number of people that fit hearing aids have a nursing degree. There is no existing special program for engineers and technical audiologists in Finland.

Sweden

Audiometry education, in Sweden, is a three-year program (bachelor degree). Currently, there are 1,200 audiometrists in Sweden. They work in both public and private operations. Technical audiology is a relatively strong specialty in Sweden. The Swedish Technical Audiological Society has about 100 members. They work in public healthcare and the hearing aid industry etc. Hearing aid fittings in Sweden have greatly increased in number, in recent years. Currently, approximately 70% of the patients have two hearing aids. A quality register for hearing aid fitting exists nationally and currently encompasses approximately 70% of the county councils and regions. The quality register (Hörselbron www.horselbron.org) annually reports the quantity and quality results from a large number of clinics, and in 2014, approximately 130,000 persons received hearing aids. Increasing numbers of patients now also receive other technical auditory aids, such as FM systems etc. Large differences exist, in Sweden, regarding hearing aid fitting. Hearing aids are generally procured regionally, with fixed-term contracts. Generally, 3-5 companies/region are selected and receive contracts.

Pedagogic/psychological/social perspective

Denmark

Denmark has a long tradition of having pedagogic personnel in audiology. These can be speech and language pathologists and/or special education teachers. They have a university education. Many of them work with special education, CI rehabilitation etc. Psychologists can be found at some public

audiology clinics. They basically work with aural rehabilitation, hearing aids and CI in children. At some communication centers there are social counselors. Few of them have audiology competence.

Norway

The Norsk audiopedagogisk förening (Norwegian Educational Audiologists Association) has approximately 140 active members. Many work in the educational system and the State operation called Statped. Audiology healthcare includes educational audiologists and counselors that, among other things, work with CI patients. Certain assistive technology centers also have educational audiologist advisors. A few work privately.

Iceland

Educational audiologists exist, but these are primarily employed in special departments within the education system. Educational audiologists do not exist outside of the education system. Iceland has no psychologists etc. for rehabilitation.

Finland

Finland does not report any special professional groups that work with communications and psychosocial perspectives, however, they have rehabilitation classes and/or information days for adults with hearing impairments.

Sweden

In Sweden, there is an increasing number of ENT clinics and specialist audiology clinics, social workers (counselors) that work together with physicians regarding rehabilitation, granting of sick leave, workplace adaptations, etc. for adults with severe hearing impairments. Some audiometrists/social workers also work with tinnitus rehabilitation. Some departments have educational audiologists and/or audiometrists with special education competence, as well as speech therapists who work with children and adults. They primarily work with persons with profound hearing impairments and CIs. Psychologists are available at the larger audiology clinics and primarily work with children, but in certain cases, also with adults. The seven CI teams that exist in Sweden at the university hospitals, generally have their own personnel within the above stated personnel categories. These, together with the audiometrists, engineers and physicians, form a team. Included in some of the CI teams, is a speech therapist for adults with profound hearing impairments and CIs.

Costs for aural rehabilitation

The different country reports, contain a large amount of facts, however, it has not been possible to make a comparison between the different countries, as the economic calculation methods vary between the countries. In some cases, reliable statistics are missing entirely. In addition, the systems for costs-expenses vary greatly, not just between the different Nordic countries, but also within the countries.

Denmark and Norway, which have a partially centralized system, are the two countries that have the best knowledge of costs, which is reported in their country reports.

Denmark

80% of all persons who sought help at public clinics received two hearing aids. In public healthcare,

64,000 hearing aids were fitted on 35,000 persons, at a total cost of DKK 325 million, in 2012. Overhead expenses, for a hearing aid fitting, at a public clinic, was DKK 5,000. Private audiology healthcare in Denmark was paid DKK 183 million for 55,000 hearing aids, in 2014. The subsidy, in 2013, was DKK 4,000 for the first hearing aid and 2,350 for the second. Within private audiology healthcare, 66% (21,000 persons) received two hearing aids. Added to this, are the costs for consultations with ENT physicians, which is mandatory. The total cost for this is estimated at DKK 12.7 million. **The annual costs for basic aural rehabilitation/hearing aid fitting is estimated to have been approximately DKK 900 million (325,000 hearing aid users), in 2013.**

Norway

In Norway, it is difficult to get an overall estimate of aural rehabilitation costs. Hearing aids within public audiology healthcare cost approximately NOK 310 million, in 2013. Added to this are unspecified costs for work, such as that of ENT physicians and private operations. In Norway's report, there is an especially careful reporting of CIs. Norway, has different actors that individually report different costs. **By a conservative estimate, the Norwegian Group determined that the costs for aural rehabilitation, in 2013, were around NOK 1.6 billion.**

Iceland

Iceland has no aggregate estimates of costs. In particular, data from private audiology healthcare is lacking. Iceland has, on the other hand, relatively detailed calculations for user organizations' contributions.

Finland

Finland has no aggregate estimate of costs. On the other hand, certain conclusions are drawn from several studies, where hearing aid fittings were estimated to have cost EUR 14 million (15,000 hearing aids), in 2000.

Sweden

Sweden has no aggregate estimate of costs. There is some data for public audiology healthcare, however, it is significantly more difficult to report the costs of private audiology healthcare. The costs vary and depend on the county council, region and remuneration levels. In the report, Nationella Medicinska Indikationer – Hörselrehabilitering till vuxna, Sveriges kommuner och landsting [National Medical Indications - Aural rehabilitation of adults, Sweden's municipalities and county councils] (Möller et al, 2006), 101,000 hearing aids were reportedly fit, in 2006. This figure, according to unconfirmed data from 2014, is approximately 130,000 annually. Wholesale costs in 2006, were SEK 390 million, however, estimated costs for personnel etc. are not included. Hearing aids have become cheaper over the years, but with extrapolation, current hearing aid costs can, in all likelihood, be estimated at approximately SEK 500 million. However, there is a private market, which in part, sells hearing aids, at a significantly higher price. The total costs for either basic aural rehabilitation/hearing aid fitting or extensive rehabilitation on the national level do not exist.

User organizations

Many user organizations have been established as well as charitable organizations, primarily for persons with severe hearing loss/deafness. In Denmark, e.g. "Tunghøres vel" and in Sweden, "De

dövas väl". These have gradually transformed into different types of organizations, as reported below.

Denmark

Høreföreningen has approximately 8,500 members and 800 volunteers that represent the association. The association publishes a newspaper Hørelsen. Høreföreningen was founded in 1912, under the name Tunghøres vel. In 2006, the association received its current name. Høreföreningen works to improve conditions for persons with hearing difficulties and is politically active.

Hør nu is a new association for persons with hearing impairments in Denmark. It was started in 2014. The association has approximately 2,000 members. Hør nu also works with relevant political issues.

Cochlear Implant Föreningen (CIF) is a CI association for adults. The association was founded in 2002 and currently has approximately 300 members.

Decibel is a country federation for children and young people with hearing impairments. The federation has approximately 1,800 members. The federation works, like the others, with relevant political issues.

Danska dövas landsförbund (DDL) is an interest organization that works to ensure better living conditions for the deaf in Denmark. They too work with politically relevant issues. The association has a very long history dating back to 1866. DDL currently has approximately 3,000 members.

The Danish DeafBlind Association (FDDB) was founded in 1987 and today, has approximately 430 members. FDDB is a user governed organization that works for improved conditions for persons with deaf blindness and combined visual/hearing impairments.

Norway

User organizations for persons with hearing impairments are

Hørselhæmmades landsforbund (HLF) (Hearing Impaired Country Association)

Norges døvforbund (NDF) (Norway's Deaf Society)

Føreningen Norges døvblinde (Norwegian Association of the Deaf)

The Norwegian Association for Combined Visual and Hearing Impairment/Deafblind

Cochleaklubben (The Cochlear Club) More information can be found in the Norwegian report and references to the homepage.

Iceland

User organizations in Iceland work with politically relevant issues. They also provide social support.

Revenues partly come from the State and partly from donations. User organizations are

Fèlag Heyrnarlausra (Association of the Deaf)

Heyrnarhjálp, Foreldra-og Styrktar (Hearing Help, Parents and Empowerment)

Fèlag Heyrnardaufra barna (Association of Hearing Impaired Children)

Fjòla, Fèlag Fòlks med Sambaetta Sjòn- og Heyrmarskerdiengu.

Homepage addresses for the user associations are found in the Icelandic report.

Finland

Finland has a somewhat different system for supporting the user section. Most comes from the National Slot Machine Association, RAY. Some also comes from municipal and other economic financiers. The organizations are

Kuuloliitto (Finnish Federation of Hard of Hearing). This federation has approximately 16,000 members. The target group is hearing impaired children and adults.

Kuurojen Liitto (The Finnish Association of the Deaf) has approximately 4,100 members and is a sign language association. Works with relevant political issues.

Svenska Hörselförbundet (The Swedish Hearing Association) has approximately 3,400 members. Primarily works with Swedish speaking users in Finland.

Kuurosokeatry (The Finnish Deafblind Association) has approximately 400 members. Works with rehabilitation, communication, recreation etc., targeting persons who are deaf blind.

Kuurojen Palvelusäätiö (Service Foundation of the Deaf) has approximately 350 members and runs rehabilitation and different home services.

Hörsestjänst RF in Finland (The Hearing Service RF in Finland)

Sweden

Sweden, like the other Nordic countries has a fairly large number of user organizations.

Hörselskadades Riksförbund (HRF) has approximately 30,000 members that are organized into 200 associations, in 22 districts. HRF works with politically relevant issues and has a regularly published newspaper, homepage etc.

The National Swedish Association of Deaf People (SDR) organizes deaf signers in Sweden. SDR works with relevant political issues to safeguard deaf persons' social, economic, linguistic and cultural interests.

The Association of the Deaf-Blind (FSDB) is a politically and religiously independent association that works with politically relevant issues. FSDB has approximately 500 members. Within the associations there is parental guidance, family sections and deaf blind young people.

The National [Swedish] Association of Parents and Guardians of Deaf and Partially Hearing Children (DHB) works with deaf, hearing impaired and language impaired children and their families.

Vuxendöva i Sverige (VIS) [Adult Deaf in Sweden] is a nationwide association of adult deaf persons. Many of VIS' members have cochlear implants. VIS works with relevant political issues.

Barnplantorna [Child Plants] is a family association for children with cochlear implants. The association works with politically relevant issues and regularly publishes a newspaper (Barnplantabladet).

Future perspectives

The different countries' groups have been given free rein to work with future perspectives. The countries emphasize that the main issue concerns changing demographics resulting from an increasingly large number of elderly, moreover, elderly that are active and immigration. The elderly with hearing impairments will demand good communication situations, i.e., better audiology healthcare. 60-70% of the elderly around 75 years of age have a hearing impairment, which will place great demands on aural rehabilitation, in the different countries. Technical auditory aids and hearing aids are undergoing a massive change and are increasingly integrated into common technology, which means that hearing aids have been decreasing in cost, over the past ten years. This development is expected to continue. Several of the groups also emphasize the unfortunate fragmentation that has occurred in audiology healthcare and which is likely to be costly and not socioeconomically profitable. Several of the groups emphasize a stovepiping phenomenon, where the significance of aural rehabilitation is only viewed within the context of elderly care etc.

Denmark

In the future, it is estimated that approximately 800,000 persons in Denmark will have a hearing impairment that would benefit from aural rehabilitation. At present, approximately 325,000 currently have hearing aids. Current aural rehabilitation in Denmark is fragmented. There are many different pathways into the system. The Group finds that there is significant reason for adjusting and developing the current systems. They outline a future aural rehabilitation that shall be of the highest quality, accessible to all and have a reasonable wait time (eight weeks). A key demographic is that the job market in the future will include more elderly persons and have a raised retirement age, which will thus include more hearing impairments with a need for good rehabilitation. The Danish Group has a number of vision targets of which a few are listed here.

- A system with one point of entry into the system. They suggest that, in the future, ENT physicians should provide the point of entry for the patient
- Establishment of a national research center.
- Modernization of the system for wholesale purchase of hearing aids.
- The key person in future aural rehabilitation shall be a licensed and qualified audiometrist/audiographer.
- A review and centralization of existing audiology education.
- Audiograms in electronic medical records.
- Regular cost and efficiency analyses.

Norway

The Norwegian Group points out that there are no official statistics and that this Norwegian subreport is pioneering work. Access to data has been limited and varied. The Norwegian report employs a principle of access to the lowest effective level of care. This requires user participation. In addition to the principle of access to the lowest effective level of care, they also emphasize a desire to introduce ICF Core Sets for Hearing Loss, to improve rehabilitation. Norway, too, emphasizes the increasing number of elderly that are also active and in need of aural rehabilitation. They envision two scenarios, either the worst case scenario, where public healthcare is not involved with aural rehabilitation and only provides so-called hearing tests. Or the best future audiology healthcare, where one sees an audiology sector pulling in a single direction, both in regard to unions and political interests.

Iceland

Iceland has not written any future perspective.

Finland

Finland emphasizes that one of the main issues is the increasing number of elderly with hearing impairments. They have estimated that seven times as many will have need of aural rehabilitation, in the year 2020, as compared to 2000. They also point out new technical solutions and predict that these will become increasingly more expensive. At this time in Finland, the local number of persons with adequate education, within aural rehabilitation, is insufficient. They point out that there is no education for, e.g., medical audiologists (physicians). More audiometrists/audiographers are needed. The Finnish Group also expresses the desire for an extended education. They also take up

globalization and immigration with other groups of people with new ethnicities, cultures and languages. In summary, better allocation of funding for aural rehabilitation is needed in Finland.

Sweden

The Swedish report emphasizes different types of problems within aural rehabilitation, in Sweden today, and this culminates with thoughts of the future. Here are some examples of their thoughts:

- It is important to provide aural rehabilitation with the necessary requirements to enable it to live up to the Healthcare Act's demand of equal care, for the entire population.
- To create a more uniform system for aural rehabilitation and prevent high co-payments for services.
- To lift audiology healthcare's budgeting processes to a level that enables it to distribute resources based on a socioeconomic perspective and thus, provide audiology healthcare with greater resources to use expertise on new investments, for a positive net social economy.
- Allowing the individual to be part of the selection process, whenever possible.
- To revise different types of assistive technology procurements.
- To strengthen clinical research and generate the necessary data for evidence-based care.
- To place high demands on education, continuing education and continuous professional development.
- To make audiology healthcare into a mandatory element of dementia diagnosis and better integrate audiology healthcare into both primary healthcare operations and the different organizations that are responsible for elderly care.

Conclusions

The reports have, in different ways, highlighted the strengths and problems within aural rehabilitation. The strengths, compared to a European perspective, are that a relatively high percent of the population has access to aural rehabilitation. Furthermore, the costs for aural rehabilitation are entirely or partially paid for by public funds. All of the reports, however, see increased fragmentation and uneven distribution and quality as the greatest threats to good audiology healthcare. Furthermore, the reports point out concerns for the large demographic changes that are occurring with a quickly increasing elderly population, with a large percent of hearing impairment and strong demands for good communication. The reports point out the fact that hearing impairment, to a certain extent, is not equated with other diseases, and thus, access to healthcare. "To date, no healthcare system has announced that patients have to purchase or rent their pacemaker or their hip implant."

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