

Belgium



Population: 11 million
(2016 Estimate)

Area: 11,690 square
miles

GDP(PPP): \$494.620
billion (2015 Estimate)

Currency: Euro (0.90
Euro = 1.00 US
Dollars)

Languages: Dutch,
French, and German

AUDIOLOGY IN BELGIUM

- By Griet De Smet, 2017

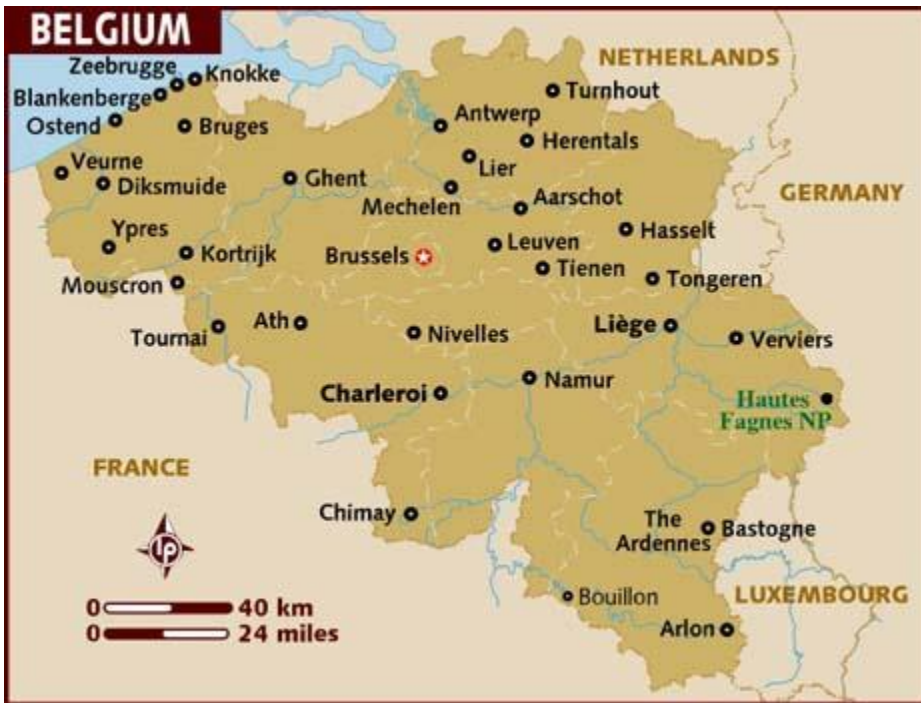
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DEMOGRAPHIC INFORMATION



The Kingdom of Belgium is a sovereign state in Western Europe bordered by France, the Netherlands, Germany, Luxembourg and the North Sea. It is a small, densely populated country. Belgium is home to two main linguistic groups: the Dutch-speaking, mostly Flemish community, which constitutes about 60% of the population, and the French-speaking, mostly Walloon population, which comprises 40% of all Belgians. Additionally, there is a small group of German-speakers who live in the East Cantons located around the High Fens area, and bordering Germany.

Historically, Belgium, the Netherlands and Luxembourg (along with parts of Northern France and Western Germany) were known as the Low Countries; it once covered a somewhat larger area than the current Benelux group of states. From the 16th century until the Belgian Revolution in 1830, when Belgium seceded from the Netherlands, the area of Belgium served as the battleground between many European powers, causing it to be dubbed the "Battlefield of Europe" a reputation strengthened by both world wars.

Today, Belgium is a federal constitutional monarchy with a parliamentary system of governance. It is divided into three regions and three communities that exist next to each other. The King (Philippe I) is the head of state, though with limited prerogatives.

Belgium's strongly globalized economy and its transport infrastructure are integrated with the rest of Europe. Its location is at the heart of a highly industrialized region.

Since the country's independence, Roman Catholicism, counterbalanced by strong free-thought movements, has had an important role in Belgium's politics.

Basic education is situated between 3 and 18 years of age for Belgians - compulsory from 6 to 18 years. Among the Organisation for Economic Co-operation and Development countries (OECD) in 2002, Belgium had the third highest proportion of 18- to 21-year-olds enrolled in postsecondary education, at 42%.

Today's Belgium has seen the flourishing of major artistic movements that have had tremendous influence on European art and culture.

Some famous painters: Jan van Eyck, Peter Breughel, Peter Paul Rubens, James Ensor, René Magritte, Luc Tuymans

Some famous architects: Victor Horta, Henry van de Velde

Some famous musicians: Jacques Brel, Adolphe Sax, Toots Thielemans, Stromae, dEUS

Some famous authors: Hendrik Conscience, Georges Simenon, Amélie Nothomb

Some famous comic books: The Adventures of Tintin by Hergé, The Smurfs by Peyo, Lucky Luke

Folklore plays a major role in Belgium's cultural life: the country has a comparatively high number of processions, cavalcades, parades (nearly always with an originally religious or mythological background).

Belgium is famous for beer, chocolate, waffles and fries with mayonnaise.

Popular sports in Belgium are soccer, cycling, tennis, swimming, judo and basketball.

Some famous athletes: Eddy Merckx, Philippe Gilbert and Tom Boonen (cyclists); Jean-Marie Pfaff (goal keeper); Kim Clijsters and Justine Henin (tennis); Jacky Ickx (rally); Stefan Everts (motor cross).

Table 1: Country information (source Wikipedia)

Country name	Belgium
Population	11,379,840 (2016 Estimate)
Area	11,690 Sq. miles
GDP (PPP)	\$494.620 billion (2015 estimate)
Languages	Dutch, French, German

HISTORY OF AUDIOLOGY/ AURAL CARE

Summarized and translated from (Verstraete, 2016)

History of Education and Rehabilitation of Deaf Children in Belgium

The so-called 'Institute for deaf girls' in Ghent, the first Belgian school for deaf girls from 10 until 18 years, was founded in 1820 by Canon Triest (1760-1836). He sent a novice to Paris to study and learn the method of Abbé de l'Epee (sign language). In 1867, David Hirsch (Rotterdam, the Netherlands) taught the novices the German Method, based on articulation and lip-reading. In 1868, the Mixed Method was introduced, which combined sign language and speech. Later, the institute became convinced that the oral method had the most benefits in educating deaf children (1881).

In the early years of the 20th centuronal education majorly improved by the introduction of the Belgian method (Alexandre Herlin). This method was inspired by the educational principles of Ovide Decroly and was the ground for the elaboration of the 'Reflective Native Language Method' by priest-psychologist Antoon van Uden. The Belgian method is a global method, in which words, sentences, and conversations are the baseline. The long and tedious, analytical and alphabetical exercises were abolished.

With the installation of the 'radio' (an amplifier and a connection microphone combined with various helmets) in 1936, a new era had begun: it meant the introduction of an aural component in oral education.

As quoted above, from 1947 to 1966, the 'Reflective Native Language Method' of Antoon van Uden was used. The method is based on the everyday language and tries to combine it with learning language rules.

Mid '50's, a kindergarten for deaf boys and girls and an institute for higher economic education for the deaf was founded.

In 1965 the 'Laboratory for Voice, Speech and Language Research' was founded, which, in 1968, turned into a rehabilitation center.

Meanwhile the verbotonal method by linguist Petar Guberina (Zagreb, Yugoslavia) made its introduction in Flanders. This method starts from the optimal hearing spectrum and the reinforcement of the residual hearing of the child. Perception encourages speech, hearing is the basic condition for speech. The verbotonal method includes four disciplines: individual therapy with hearing training and speech and language development, corporal rhythm, musical rhythm and group therapy with audiovisual and structuroglobal components.

In the late '60's, kindergartens and elementary schools for deaf children were established, (sometimes) combined with (semi) boarding schools; in the early '70's day nurseries with a mix of deaf and hearing babies were opened.

Different rapid successive evolutions can be determined in the following years:

- Good audiometry lead to better diagnostics, which resulted in the differentiation between 'hearing impaired' and 'deaf'.
- Class amplification systems were introduced in 1966, FM systems in 1974.
- In 1979, the Ministry of Education introduced the first integration project for deaf children in the regular educational system.
- A universal early hearing screening of babies or toddlers between 9 and 13 months was installed in 1980. Initially, the distraction-test (based on the orientation reflex on familiar sounds), also known as Ewing's test, was used. Since 1998 'Child and Family uses the highly reliable AABR-test, in the first 4 to 5 weeks after birth. A successful structured follow-up system is in place.

These developments, in particular the early screening and rehabilitation, the use of wireless FM equipment and the integration projects, stimulated school integration of deaf and hearing impaired children. In different rehabilitation centers (geographically spread) aural rehabilitation was offered, completed with an offer of parental, and environmental guidance and counseling.

History of Sound Amplification and Hearing Aids in Belgium

In the 19th century, mechanical hearing aids as the horn were 'sold' on the Belgian market. At the beginning of the 20th Century carbon microphones were introduced. In 1947, the transistor was invented, a revolutionary step in hearing aid technology. Mid-1960, body-worn hearing aids made an entry. A milestone in the evolution of the use of hearing aids was the use of FM.

From that moment on, remarkable and steady improvements in the sound reinforcement and hearing aid technology were visible: developments in the miniaturization, digital techniques (from 1988), evolution in fitting possibilities, in signal processing, the CROS-fittings, open fits, developments of the aesthetics of hearing aids and other aids, cochlear (1988) and other implants, Bluetooth, evolution of hearing aids to hearing solutions, etc. The adaptation of hearing aids and other assistive listening devices is much more than just a technical adjustment. This is seen as a part of a comprehensive approach, in relation to the individual and environment-oriented aspects of the person with a hearing loss.

History of Medical Audiology in Belgium

Medical Audiology (hearing and balance) knew the same rapid and continuous evolution as the hearing aid technology, in subjective and semi-objective techniques as well as in objective audiometry.

History of the Education / Profession of the Audiologist in Belgium

Throughout the years, the role of the audiologist changed and expanded. Nowadays, the audiologist is the health care professional who works in prevention of and screening for Noise Induced Hearing Loss (NIHL), clinical / diagnostic audiology, hearing aid and implant fitting, rehabilitation and tinnitus management. For further details: see *Role of the Audiologist*.

HEARING LOSS INCIDENCE AND PREVALENCE

Unfortunately there are no clear general figures on the incidence and prevalence of hearing loss in Belgium. There are only general estimations of hearing loss in Belgium.

Congenital hearing loss

Kind en Gezin (Child and Family) is a governmental agency that works actively in the 'Public Health, Welfare and Family' policy area. This Flemish agency focuses on preventive treatment and guidance of young children geared to good outcomes in the future. This agency is, among other things, is responsible for the newborn hearing screening. At the general assembly of 2016, Dr. Kristel Boelaert presented figures on the incidence of congenital hearing loss in newborns screened by 'Kind en Gezin' (also published in the annual report 2015). The table below shows that in 2015 congenital deafness or hearing impairment was determined in 1.85 of 1000 newborns.

	Incidence of neurosensory hearing loss / mixed hearing loss	Incidence of neurosensory hearing loss / mixed hearing loss > 40 dBnHL best ear
2010	2.06	1.10
2011	2.20	1.15
2012	2.14	1.23
2013	1.73	0.82
2014	2.11	0.93
2015	1.85	0.88

Table 2: incidence of congenital hearing loss in newborns

Hearing aids

Results of studies by the European Association of Hearing Aid Professionals (AEA) in 2014, show that the number of people with hearing loss who wear hearing aids is lower in Belgium than the European average.

	2007	2011
Europe	16%	18%
Belgium	9%	14%

Table 3: persons with hearing loss wearing hearing aids

There is a moderate growth that has stagnated in 2013.

In absolute figures: the number of devices reimbursed by the National Institute for Health Insurance in Belgium in 2013 is 80,486, while in 2006 there were only 46,242.

The growth potential in selling hearing aids remains relatively high, taking into account that the Belgian population grows older and the demand for a hearing aid increases with age (Ministry of Economics, 2014).

INFORMATION ABOUT AUDIOLOGY

EDUCATION

In Belgium, there is a Professional Bachelor Programme and a Master Programme in Audiology. Both lead to the same protected title of Audiologist.

Professional Bachelor in Audiology

There are 5 institutes for higher education that offer a Professional Bachelor Programme in Audiology.

For the Flemish speaking part:

- Artevelde University College, Ghent www.arteveldehogeschool.be
- HOGent, Ghent www.hogent.be
- Thomas More, Antwerp www.thomasmore.be
- Vives, Bruges www.vives.be

For the French speaking part

- Institut Libre Marie Haps (Leonardo da Vinci), Brussels www.vinci.be – www.ilmh.be

These programmes cover 180 European Creditation Transfer System (ECTS)-credits, spread over 3 years.

In the Flemish speaking part, all the audiology programmes are (more or less) connected with the programme of the Professional Bachelor Programmes in Speech and Language Therapy (at least 60, at most 120 ECTS-credits are in common).

Master in Audiological Sciences

There are 2 universities that offer a Master Programme in Audiological Sciences, both in the Flemish speaking part of Belgium:

- University of Ghent www.ugent.be
- University of Leuven www.kuleuven.be

These programmes cover 300 ECTS-credits, spread over a 3 years Academic Bachelor Course followed by a 2 year Master Study.

These Master Programmes are (more or less) connected with the Master Programmes in Speech and Language Therapy.

Both Bachelor and Master Programmes contain essentials such as psychology, communication, health care, physics-acoustics, (electro)technology, anatomy, neurology, pathology, geriatrics,

speech and language development, (neuro- and psycho-)linguistics, ethics, law, organization, management and marketing, mathematics, statistics and IT. It also covers the necessary knowledge and skills needed to practice clinical audiology and vestibulometry, hearing aid fitting and (cochlear) implantation, aural and vestibular rehabilitation and counseling, sound measurements and prevention of hearing loss. Students work on a scientific research project and a compulsory 600 hours of practical training. All of this is prescribed in the law protecting the profession of audiology.

(http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=nl&la=N&cn=2004070454&table_name=wet)

Where the aim of the Professional Bachelor Programmes is to offer the theoretical knowledge, the practical skills and the essential attitudes needed to function as an audiologist in the 4 main domains of audiology, the Master Programmes complementary focuses on management skills and research.

AUDIOLOGY PRACTICE: PUBLIC VS PRIVATE

Clinical audiology, aural and vestibular rehabilitation and cochlear implantation are considered public services. Main costs are covered by the National Institute for Health Insurance. The assessment, fitting and therapy needs to be covered on prescription of an ENT-specialist and conducted in a recognized clinic / rehabilitation center / implant center.

The hearing aid fitting is also a public service. A prescription of the ENT-specialist is needed in order to get partial coverage of patient costs; the reimbursement rates are fixed. There are guidelines and obligations concerning assessment, trial period and condition of hearing aids. However, in this domain, the audiologist can either work in a recognized audiological center or in a private practice.

Sadly, at this moment, tinnitus assessment and therapy is not covered by the general social health care system.

Services offered by Otolaryngologists

Otolaryngologists are in charge of the medical and surgical management and treatment of patients with diseases and disorders of the ear, nose, throat (ENT), and related structures of the head and neck.

On the domain of ear disorders, otolaryngologists are trained in both the medical and surgical treatment of external and middle ear disorders, perceptive hearing loss, balance disorders, tinnitus, with all possible causes.

AUDIOLOGICAL SERVICES

Clinical / Diagnostic Audiology

- screening for hearing loss
- objective and subjective audiometric evaluation of auditory, vestibular and oto-neurological functions, including auditory processing disorders
- assessment of tinnitus / hyperacusis

Hearing Aid Fitting

- amplification of mechanical, electroacoustic and electronical devices (hearing aids, technical / aided devices and implants) in people with all different types of hearing loss (and multiple/complex needs). This also includes advising and guiding family and environment

Rehabilitation

- aural rehabilitation. This includes hearing, communication and social skills training, counseling, guidance
- vestibular rehabilitation
- rehabilitation / management of tinnitus / hyperacusis
- management of auditory processing disorders

Prevention / Noise Management

- prevention of and sensibilisation for noise induced hearing loss
- noise measurements (sonometry, dosimetry)
- amplification of noise protection systems

Educational Audiology – Services for School Children

- screening for minimal / unilateral hearing loss
- classroom amplification
- maintenance of hearing aids
- set-up and maintenance of assistive listening devices (e.g. FM-systems)
- education and guidance of teachers / school environment

Audiologists in Belgium work in different settings (see overview):

1. (University) clinics, hospitals and otolaryngology offices
2. Private audiology practices
3. Rehabilitation centers
4. Educational institutions
5. Industry

	University	Private Practice	Rehabilitation Centers	Educational Institutions	Industry
Clinical / medical audiology	X		X		
Hearing aid fitting / Implant	X	X	X		
Rehabilitation			X		
Noise management		X			X
Educational audiology				X	

PROFESSIONALS

Professionals	Approximate number	Ratio to the population
Audiologists (*)	1,055	1/10,426
Hearing Aid Specialists (*)	1,658	1/6634
Otolaryngologists (**)	722	1/15,235
Physicians (**)	16,416	1/670
Speech-Language Pathologists (**)	13,233	1/831

(*) These numbers are the audiologists granted visa by the Federal Public Service for Health, Food Chain Safety and Environment. In most cases, the audiologist is the same person as the hearing aid specialist. See X. *Professional and Regulatory Bodies*

(**) Source: Federal Public Service Health, Food Chain Safety and Environment, 31th of December 2015

PROFESSIONAL AND REGULATORY BODIES

Regulating Bodies in Audiology

All persons holding an audiology degree (Bachelor or Master) which meets the requirements of the Royal Decree of 2004 need a *ratification* and a *visa* in order to work as an audiologist.

Technically, there are two separate ratifications, which is historically grown: ‘audiologist’ and ‘hearing aid fitter’ (in Belgium known as ‘audicien’). In the past, a person could be a hearing aid fitter but not an audiologist. For all new applicants who covered the same compulsory educational Bachelor or Master training since 2004, these two will always be granted at the same time.

First, a ratification as a paramedic is required. In Flanders, the ratification is provided by the *regional* Agency of Care and Family. Ratification committees will give negative or positive advice on the application. In Wallonia, the Ministry of Education is responsible. After the

ratification, the Agency/Ministry will communicate with the *Federal* Public Service Health, Food Chain Safety and Environment, who administers the actual visa.

In addition, audiologists working in hearing aid fitting need a ratification from the National Institute for Health Insurance and Invalidity.

Professional Organizations in Audiology

The UCBA/CEUPA is the Executing Committee of Audiology Unions in Belgium, established in 1989. 6 audiology unions are associated in this UCBA/CEUPA.

- UBDA (Union Belge des Audiologues)
- BGV-ABA (Belgische Vereniging Gehoorprothesisten)
- UNAS-NUAS (Nationale Unie Audio Specialisten)
- BVA –UPA (Beroepsvereniging van Audiciens)
- VBA (Vlaamse Beroepsvereniging Audiologen)
- VOAA (Vereniging Onafhankelijke Audiologen en Audiciens)

The UCBA/CEUPA is member of the AEA, Association Européenne d’Audioprothésistes.

All of the unions mentioned above try to unify audiologists in Belgium, in order to defend the professional concerns

- Suggest the government on regularizations, law, decrees
- Advise educational institutes concerning professional and educational profile of the audiologist
- Guide over an ethical / deontological code
- Guide over a scientific approach of the profession

The VBA (Vlaamse Beroepsvereniging Audiologen) developed the ethical code mentioned above (2016), which is recognized by the UCBA/CEUPA and the AEA. (<http://www.vbaudiologen.be/UCBA-CEUPA-Deontologische-code-voor-Audiologen-en-Audiciens.pdf>)

Next to these unions, B-audio is a Belgian audiological society with main focus on scientific research and that is affiliated with the Royal Belgian Scientific Society for ENT-ORL. The most important objective of B-Audio is the promotion of information exchange in audiology, with the following activities:

- gather the critical mass, and stimulate discussion and collaboration in the field of audiology in Belgium, across the different related disciplines (ENT, hearing aid professionals, audiologists, researchers, teachers, etc.);
- regular organization of (sessions at) a scientific congress;
- organization of training and education;
- maintain relations with international audiology-organizations.

(Information from: http://b-audio.eu/index.php/Public:Main_Page)

AUDIOLOGY CHARITIES

- ONICI – independent information center on cochlear implants - www.onici.be
- AHOSA - www.ahosa.be
- Association of Menière patients – www.meniere.be
- VLOK-CI – Flemish parents of children with cochlear implants - www.vlok-ci.be
- Fevlado – Federation of Flemish Associations for the Deaf - www.fevlado.be
- Onder ons - Association for adult hearing impaired persons - www.onder-ons.be
- De tuut van tegenwoordig – platform for youth with tinnitus - detuutvantegenwoordig.be
- Meniere.be - Association for persons with Menière's disease - www.meniere.be

CHALLENGES, OPPORTUNITIES AND NOTES

Challenges:

- The rapid technological evolution forces audiologists, especially in hearing aid fitting and (cochlear) implantation, to lifelong learning.
- More audiologists should be more comprehensively trained in tinnitus management, since there are long waiting lists for patients.
- There should be more sensibilization on the developed guidelines on hygiene in the audiological practice. The guidelines should be applied in all settings.
- The role of the school audiologist has to find a stronger base, possibly through supportive educational agencies.

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