

Hearing Aid Devices Market to 2018

Cosmetic and Audiological Advantages of Miniature Behind-the-Ear (BTE) Devices to Drive Market Growth



GBI Research Report Guidance

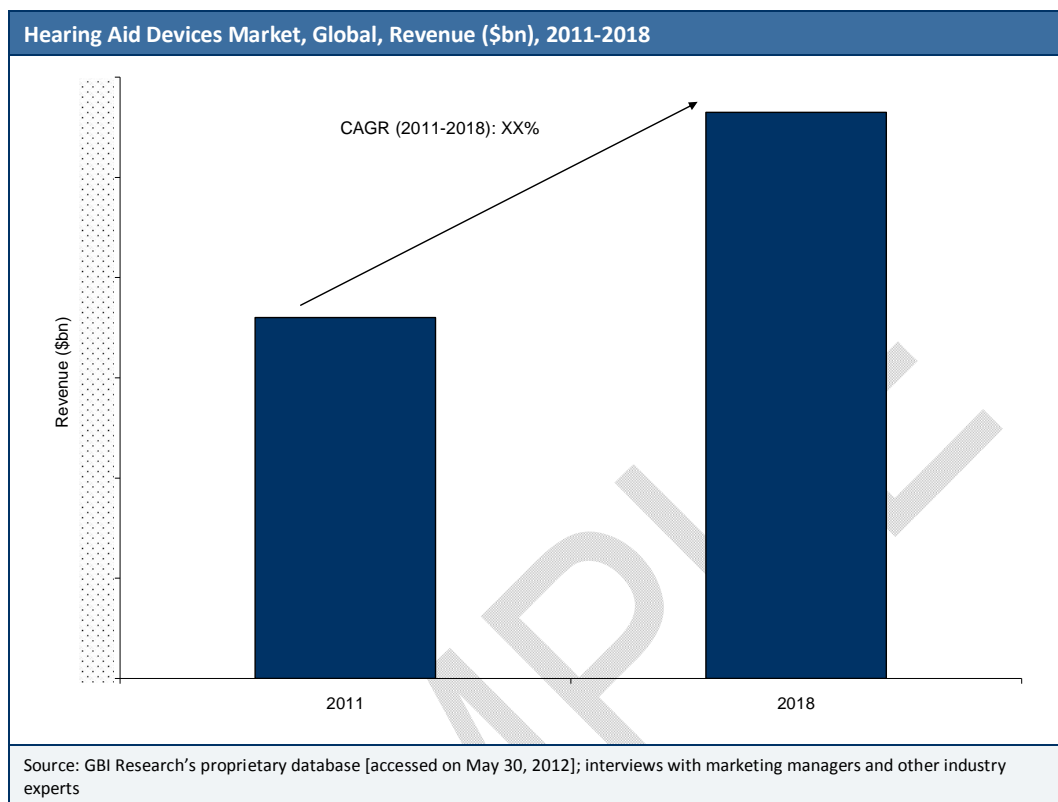
- Chapter two provides an introduction to hearing aid devices and an overview of the market.
- The Global Market Characterization chapter provides information on the historic size of the market between 2004 and 2011, and the expected market size during the forecast period to 2018. It also includes information related to market trends and dynamics. In the market dynamics section, comprehensive information is provided on market drivers and restraints, as well as the competitive landscape for the overall hearing aid devices market.
- The Category Analysis and Forecasts chapter includes details of the different categories in the hearing aid devices market. Market size information for the historic (2004-2011) and forecast (2011-2018) periods are discussed for each category, in addition to market dynamics and competition.
- The Country Analysis and Forecasts chapter provides historic (2004-2011) and forecast (2011-2018) information on the hearing aid devices market in the US, Canada, the UK, France, Germany, Italy, Spain, Japan, China, India, Australia and Brazil.
- The Key Market Participants chapter provides profiles of the leading hearing aid device companies and their product portfolios.
- The Pipeline Product Analysis chapter focuses on the pipeline products in the various categories. Key pipeline products are listed and discussed in detail, and product approval and expected launch dates are provided for a number of products.
- The Consolidation Landscape chapter discusses the consolidation landscape in the hearing aid devices industry. This chapter looks at the total number of deals that took place from 2007 to 2010

The global hearing aid devices market was valued at XX billion in 2011 and is forecast to grow to \$XX billion by 2018 at a Compound Annual Growth Rate (CAGR) of XX%

Executive Summary

Hearing Aid Devices Market Forecast to Increase at a CAGR of XX% from 2011 to 2018

The following figure gives the forecast revenues for the global hearing aid devices market.



The global hearing aid devices market was valued at \$XX billion in 2011 and is forecast to grow to \$XX billion by 2018 at a Compound Annual Growth Rate (CAGR) of XX%. The market is expected to be driven by a number of factors, including the introduction of innovative small-sized hearing aids, such as Completely-in-the-Canal (CIC) and Receiver-in-the-Ear (RITE) devices; a growing percentage of elderly people in the population; more government initiatives in emerging countries to provide high-quality healthcare; increasing healthcare expenditure; and a rise in the prevalence of acquired hearing loss.

Cosmetic Appeal of Miniaturized Hearing Aids to Drive their Adoption Rate

Small-sized hearing aids have high cosmetic appeal as they are nearly invisible. This helps to overcome the associated stigma, and as a result they are being readily adopted by patients around the world.

The size of hearing aids ranges from large to virtually invisible, but people with hearing impairments tend to prefer those that are discreet or hidden.

To meet the growing demand for invisible hearing aids, companies have invested in the R&D of CIC and Invisible-in-the-Canal (IIC) hearing aids, which have attracted customer attention as they meet the need for better speech intelligibility, improved sound quality and enhanced aesthetics, as well as other lifestyle preferences such as robustness and comfort.

A wide range of deep-fitting, invisible hearing aids offering aesthetic benefits are available in the market, such as the iMini by Siemens, the Lyric and Phonak nano by Phonak, and the Oticon Intiga by Oticon.

1 Table of Contents

1	Table of Contents.....	6
1.1	List of Tables.....	8
1.2	List of Figures.....	9
2	Introduction.....	10
3	Hearing Aid Devices - An Overview	11
3.1	Types of Hearing Aids.....	11
3.1.1	Analog Hearing Aids.....	11
3.1.2	Digital Hearing Aids	12
4	Global Hearing Aid Devices Market - Market Characterization.....	13
4.1	Global Hearing Aid Devices Market, Revenue (\$m), 2004-2011	13
4.2	Global Hearing Aid Devices Market, Revenue (\$m), 2011-2018	14
4.3	Global Hearing Aid Devices Market, Key Company Share (%), 2011	15
4.4	Global Hearing Aid Devices Market, Key Market Trends	16
4.4.1	Miniaturization of Hearing Aid Devices is a Growing Technology Trend.....	16
4.4.2	Wireless Technology in Hearing Aid Devices to be a Major Technology Trend.....	19
4.4.3	Consolidation for Inorganic Sales Growth Is a Major Trend in the Hearing Aid Devices Industry	20
4.5	Global Hearing Aid Devices, Market Dynamics	21
4.5.1	Global Hearing Aid Devices, Market Drivers	21
4.5.2	Market Restraints	28
5	Global Hearing Aid Devices Market - Category Analysis and Forecasts	30
5.1	Digital Signal Processing Hearing Aids Market, Global, Revenue (\$m), 2004-2011.....	30
5.2	Digital Signal Processing Hearing Aids Market, Global, Revenue (\$m), 2011-2018.....	32
5.3	Analog Hearing Aid Devices Market, Global, Revenue (\$m), 2004-2011.....	33
5.4	Analog Hearing Aid Devices Market, Global, Revenue (\$m), 2011-2018.....	34
6	Global Hearing Aid Devices Market - Country Analysis and Forecasts.....	35
6.1	Hearing Aid Devices Market: Cross-Country Analysis.....	35
6.2	Revenue Forecasts, by Country, 2004-2018	36
6.2.1	Hearing Aid Devices Market, the US, Revenue (\$m), 2004-2011.....	36
6.2.2	Hearing Aid Devices Market, the US, Revenue (\$m), 2011-2018.....	38
6.2.3	Hearing Aid Devices Market, Canada, Revenue (\$m), 2004-2011	39
6.2.4	Hearing Aid Devices Market, Canada, Revenue (\$m), 2011-2018	40
6.2.5	Hearing Aid Devices Market, the UK, Revenue (\$m), 2004-2011.....	41
6.2.6	Hearing Aid Devices Market, the UK, Revenue (\$m), 2011-2018.....	42
6.2.7	Hearing Aid Devices Market, Germany, Revenue (\$m), 2004-2011.....	43
6.2.8	Hearing Aid Devices Market, Germany, Revenue (\$m), 2011-2018.....	44
6.2.9	Hearing Aid Devices Market, France, Revenue (\$m), 2004-2011.....	45
6.2.10	Hearing Aid Devices Market, France, Revenue (\$m), 2011-2018.....	46
6.2.11	Hearing Aid Devices Market, Italy, Revenue (\$m), 2004-2011	47
6.2.12	Hearing Aid Devices Market, Italy, Revenue (\$m), 2011-2018	48
6.2.13	Hearing Aid Devices Market, Spain, Revenue (\$m), 2004-2011.....	49
6.2.14	Hearing Aid Devices Market, Spain, Revenue (\$m), 2011-2018.....	50
6.2.15	Hearing Aid Devices Market, Japan, Revenue (\$m), 2004-2011.....	51
6.2.16	Hearing Aid Devices Market, Japan, Revenue (\$m), 2011-2018.....	52
6.2.17	Hearing Aid Devices Market, China, Revenue (\$m), 2004-2011	53
6.2.18	Hearing Aid Devices Market, China, Revenue (\$m), 2011-2018	54
6.2.19	Hearing Aid Devices Market, India, Revenue (\$m), 2004-2011	55
6.2.20	Hearing Aid Devices Market, India, Revenue (\$m), 2011-2018	56
6.2.21	Hearing Aid Devices Market, Australia, Revenue (\$m), 2004-2011	57
6.2.22	Hearing Aid Devices Market, Australia, Revenue (\$m), 2011-2018.....	58

6.2.23	Hearing Aid Devices Market, Brazil, Revenue (\$m), 2004-2011	59
6.2.24	Hearing Aid Devices Market, Brazil, Revenue (\$m), 2011-2018	60
7	Global Hearing Aid Devices Market - Key Market Participants	61
7.1	William Demant Holding	61
7.1.1	Marketed Products.....	61
7.2	Sonova Holding.....	61
7.2.1	Marketed products.....	61
7.3	Widex.....	61
7.3.1	Marketed products.....	61
7.4	Siemens Healthcare	62
7.4.1	Marketed Products.....	62
7.5	Starkey Hearing Technologies.....	62
7.5.1	Marketed products.....	62
7.6	GN ReSound	62
7.6.1	Marketed products.....	62
8	Global Hearing Aid Devices Market - Product Pipeline Analysis.....	63
8.1	Hearing Aid Devices Market: Pipeline Product Summary.....	63
8.2	Hearing Aid Devices Market: List of Pipeline Products.....	63
8.3	Hearing Aid Devices: Profiles of Key Pipeline Products	64
8.3.1	Tooth Phone Auditory Device.....	64
8.3.2	ClearVoice - Pediatric Use.....	64
8.3.3	Auditory Training System.....	65
8.3.4	EarLens Photonic Hearing System.....	65
8.3.5	Hearing Enhancement Device.....	66
8.3.6	Situational Listening Device.....	66
8.3.7	Next Generation Neptune Sound Processor.....	67
8.3.8	Next Generation Chip Platform for Hearing Instrument	67
9	Global Hearing Aid Devices Market - Consolidation Landscape	68
9.1	Hearing Aid Devices Market: Deals by Volume, 2008 -2011	68
9.2	Hearing Aid Devices Market: Key Deals, 2008-2011.....	69
9.2.1	Audiology Distribution's Acquisition of HearUSA for \$71 Million	69
9.2.2	William Demant's Acquisition of Otix Global	69
9.2.3	Sonova Holding's Acquisition of InSound Medical.....	69
9.2.4	Derwood S. Chase's Acquisition of Zounds.....	70
9.2.5	Trivaris' Acquisition of VitaSound from Sonomax Hearing.....	70
9.2.6	Technitrol's Acquisition of Sonion	70
10	Appendix.....	71
10.1	Definitions.....	71
10.1.1	Hearing Aid Devices.....	71
10.1.2	Analog Hearing Devices.....	71
10.1.3	Digital Signal Processing Hearing Aids	71
10.1.4	Behind the Ear (BTE).....	71
10.1.5	Completely in the Canal (CIC).....	71
10.1.6	In the Canal (ITC).....	71
10.1.7	In the Ear (ITE)	71
10.2	Acronyms	71
10.3	Sources.....	72
10.4	Research Methodology	73
10.4.1	Secondary Research	73
10.4.2	Primary Research.....	73
10.4.3	Models	74
10.4.4	Forecasts	74

10.4.5	Expert Panels	74
10.5	Contact Us.....	74
10.6	Disclaimer.....	75

1.1 List of Tables

Table 1:	Hearing Aid Devices Market, Global, Revenue (\$m), 2004-2011.....	13
Table 2:	Hearing Aid Devices Market, Global, Revenue (\$m), 2011-2018.....	14
Table 3:	Hearing Aid Devices Market, Global, Key Company Revenue (\$m), 2011.....	15
Table 4:	Hearing Aids, Small-Sized Products - List One.....	17
Table 5:	Hearing Aids, Small-sized Products - List Two.....	18
Table 6:	Major M&A Deals, Hearing Aid Devices, 2006-2011	20
Table 7:	Major Acquisitions	21
Table 8:	Breakdown of Global Digital Sales by Hearing Aid Style, Units Sold, 2011.....	22
Table 9:	List of Advanced Hearing Aids	25
Table 10:	Digital Signal Processing Hearing Aids Market, Global, Revenue (\$m), 2004-2011.....	31
Table 11:	Digital Signal Processing Hearing Aids Market, Global, Revenue (\$m), 2011-2018.....	32
Table 12:	Analog Hearing Aid Devices Market, Global, Revenue (\$m), 2004-2011.....	33
Table 13:	Analog Hearing Aid Devices Market, Global, Revenue (\$m), 2011-2018	34
Table 14:	Hearing Aid Devices Market, Global, Cross-Country Analysis, CAGR (%), 2004-2018.....	35
Table 15:	Hearing Aid Devices Market, the US, Revenue (\$m), 2004-2011	37
Table 16:	Hearing Aid Devices Market, the US, Revenue (\$m), 2011-2018	38
Table 17:	Hearing Aid Devices Market, Canada, Revenue (\$m), 2004-2011	39
Table 18:	Hearing Aid Devices Market, Canada, Revenue (\$m), 2011-2018	40
Table 19:	Hearing Aid Devices Market, the UK, Revenue (\$m), 2004-2011.....	41
Table 20:	Hearing Aid Devices Market, the UK, Revenue (\$m), 2011-2018.....	42
Table 21:	Hearing Aid Devices Market, Germany, Revenue (\$m), 2004-2011	43
Table 22:	Hearing Aid Devices Market, Germany, Revenue (\$m), 2011-2018	44
Table 23:	Hearing Aid Devices Market, France, Revenue (\$m), 2004-2011	45
Table 24:	Hearing Aid Devices Market, France, Revenue (\$m), 2011-2018.....	46
Table 25:	Hearing Aid Devices Market, Italy, Revenue (\$m), 2004-2011.....	47
Table 26:	Hearing Aid Devices Market, Italy, Revenue (\$m), 2011-2018.....	48
Table 27:	Hearing Aid Devices Market, Spain, Revenue (\$m), 2004-2011.....	49
Table 28:	Hearing Aid Devices Market, Spain, Revenue (\$m), 2011-2018.....	50
Table 29:	Hearing Aid Devices Market, Japan, Revenue (\$m), 2004-2011.....	51
Table 30:	Hearing Aid Devices Market, Japan, Revenue (\$m), 2011-2018.....	52
Table 31:	Hearing Aid Devices Market, China, Revenue (\$m), 2004-2011.....	53
Table 32:	Hearing Aid Devices Market, China, Revenue (\$m), 2011-2018.....	54
Table 33:	Hearing Aid Devices Market, India, Revenue (\$m), 2004-2011.....	55
Table 34:	Hearing Aid Devices Market, India, Revenue (\$m), 2011-2018.....	56
Table 35:	Hearing Aid Devices Market, Australia, Revenue (\$m), 2004-2011.....	57
Table 36:	Hearing Aid Devices Market, Australia, Revenue (\$m), 2011-2018.....	58
Table 37:	Hearing Aid Devices Market, Brazil, Revenue (\$m), 2004-2011	59
Table 38:	Hearing Aid Devices Market, Brazil, Revenue (\$m), 2011-2018.....	60
Table 39:	Hearing Aid Market, Global, Pipeline Products Analysis, 2012	63
Table 40:	Tooth Phone Auditory Device, Product Status, 2012	64
Table 41:	ClearVoice - Pediatric Use, Product Status, 2012.....	64
Table 42:	Auditory Training System, Product Status, 2012.....	65
Table 43:	EarLens Photonic Hearing System, Product Status, 2012	65
Table 44:	Hearing Enhancement Device, Product Status, 2012	66
Table 45:	Situational Listening Device, Product Status, 2012	66
Table 46:	Next Generation Neptune Sound Processor, Product Status, 2012	67
Table 47:	Next Generation Chip Platform For Hearing Instrument, Product Status, 2012.....	67
Table 48:	Hearing Aid Devices Market, Mergers and Acquisitions, Number of Deals, Global, 2008-2011...68	

1.2 List of Figures

Figure 1: Difference between Analog and Digital Hearing Aids.....	11
Figure 2: Hearing Aid Devices Market, Global, Revenue (\$m), 2004-2011.....	13
Figure 3: Hearing Aid Devices Market, Global, Revenue (\$m), 2011-2018.....	14
Figure 4: Hearing Aid Devices Market, Global, Key Company Shares (%), 2011.....	15
Figure 5: Breakdown of Global Digital Sales by Hearing Aid Type, Percentage (%), 2011.....	22
Figure 6: Increase in Percentage of Elderly Population, Global, 2010-2050.....	26
Figure 7: Adoption Rate of Hearing Aid Devices by Age, Germany, France, the UK and the US, 2009.....	27
Figure 8: Hearing Aid Devices, Factors Affecting Adoption Rate.....	29
Figure 9: Hearing Aid Devices Market, Market Categorization and Segmentation.....	30
Figure 10: Digital Signal Processing Hearing Aids Market, Global, Revenue (\$m), 2004-2011.....	30
Figure 11: Digital Signal Processing Hearing Aids Market, Global, Revenue (\$m), 2011-2018.....	32
Figure 12: Analog Hearing Aid Devices Market, Global, Revenue (\$m), 2004-2011.....	33
Figure 13: Analog Hearing Aid Devices Market, Global, Revenue (\$m), 2011-2018.....	34
Figure 14: Hearing Aid Devices Market, Global, Cross-Country Analysis, CAGR (%), 2004-2018.....	35
Figure 15: Hearing Aid Devices Market, the US, Revenue (\$m), 2004-2011.....	36
Figure 16: Hearing Aid Devices Market, the US, Revenue (\$m), 2011-2018.....	38
Figure 17: Hearing Aid Devices Market, Canada, Revenue (\$m), 2004-2011.....	39
Figure 18: Hearing Aid Devices Market, Canada, Revenue (\$m), 2011-2018.....	40
Figure 19: Hearing Aid Devices Market, the UK, Revenue (\$m), 2004-2011.....	41
Figure 20: Hearing Aid Devices Market, the UK, Revenue (\$m), 2011-2018.....	42
Figure 21: Hearing Aid Devices Market, Germany, Revenue (\$m), 2004-2011.....	43
Figure 22: Hearing Aid Devices Market, Germany, Revenue (\$m), 2011-2018.....	44
Figure 23: Hearing Aid Devices Market, France, Revenue (\$m), 2004-2011.....	45
Figure 24: Hearing Aid Devices Market, France, Revenue (\$m), 2011-2018.....	46
Figure 25: Hearing Aid Devices Market, Italy, Revenue (\$m), 2004-2011.....	47
Figure 26: Hearing Aid Devices Market, Italy, Revenue (\$m), 2011-2018.....	48
Figure 27: Hearing Aid Devices Market, Spain, Revenue (\$m), 2004-2011.....	49
Figure 28: Hearing Aid Devices Market, Spain, Revenue (\$m), 2011-2018.....	50
Figure 29: Hearing Aid Devices Market, Japan, Revenue (\$m), 2004-2011.....	51
Figure 30: Hearing Aid Devices Market, Japan, Revenue (\$m), 2011-2018.....	52
Figure 31: Hearing Aid Devices Market, China, Revenue (\$m), 2004-2011.....	53
Figure 32: Hearing Aid Devices Market, China, Revenue (\$m), 2011-2018.....	54
Figure 33: Hearing Aid Devices Market, India, Revenue (\$m), 2004-2011.....	55
Figure 34: Hearing Aid Devices Market, India, Revenue (\$m), 2011-2018.....	56
Figure 35: Hearing Aid Devices Market, Australia, Revenue (\$m), 2004-2011.....	57
Figure 36: Hearing Aid Devices Market, Australia, Revenue (\$m), 2011-2018.....	58
Figure 37: Hearing Aid Devices Market, Brazil, Revenue (\$m), 2004-2011.....	59
Figure 38: Hearing Aid Devices Market, Brazil, Revenue (\$m), 2011-2018.....	60
Figure 39: Hearing Aid Devices Market, Pipeline Assessment, by Development Stage.....	63
Figure 40: Hearing Aid Devices Market, Mergers and Acquisitions, Number of Deals, Global, 2008-2011.....	68

2 Introduction

Hearing aids are devices that amplify and modulate sound for the wearer. A hearing aid receives sound, amplifies it, and transmits the amplified sound down the ear canal into the ear. In hearing-impaired people, sound may reach the inner ear without a hearing device, but without enough amplification, the impulses reaching the brain may be weak. Hearing aids are used by people with hearing loss.

There are two types of hearing aid - analog and digital. In analog hearing aids, sound waves are converted into electrical signals for amplification, and in digital signal processing hearing aids, sound waves are converted into numeric codes for amplification. Analog hearing aids do not have all of the features that come with advanced digital aids, but they are less expensive. People who use traditional analog hearing aids often complain that they find it difficult or impossible to follow conversations in noisy places. Many digital aids are designed to reduce steady background noises, such as traffic noise. This makes listening more comfortable. Some digital signal processing hearing aids also have circuitry to protect whatever hearing is left. If a sound is detected above the XX to XX decibels (dB) range (which can cause damage), dampening circuitry cuts out the sound.

The hearing aid devices market is dominated by six major companies. Many innovative products are being launched by manufacturers, which will drive the market growth. Other growth factors include the growing aging population, increasing noise pollution leading to hearing disorders, and advances in device design and technology, which make hearing aids more appealing to people.

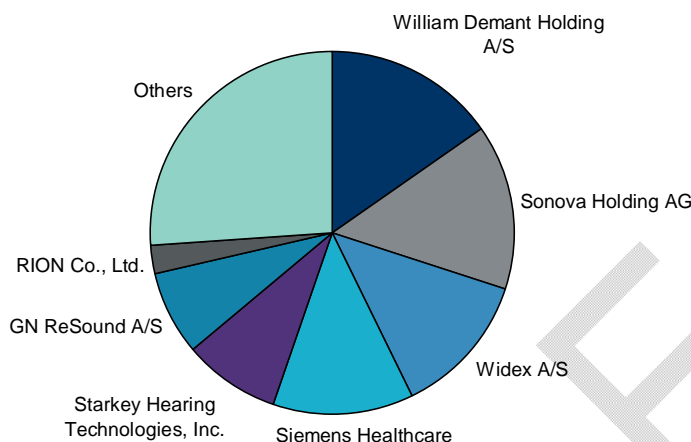
SAMPLE

The hearing aid devices market is dominated by XX major players, which hold more than XX% of the market

4.3 Global Hearing Aid Devices Market, Key Company Share (%), 2011

The following figure gives the percentage market shares in 2011 for key hearing aid device companies.

Figure 4: Hearing Aid Devices Market, Global, Key Company Shares (%), 2011



Source: GBI Research's proprietary database [accessed on May 30, 2012]; interviews with marketing managers and other industry experts

The table below gives the market shares in 2011 for key hearing aid companies.

Table 3: Hearing Aid Devices Market, Global, Key Company Revenue (\$m), 2011

Company Name	Revenue (\$m)
William Demant Holding	
Sonova Holding	
Widex	
Siemens Healthcare	
Starkey Hearing Technologies	
GN ReSound	
Rion	
Others	
Total	

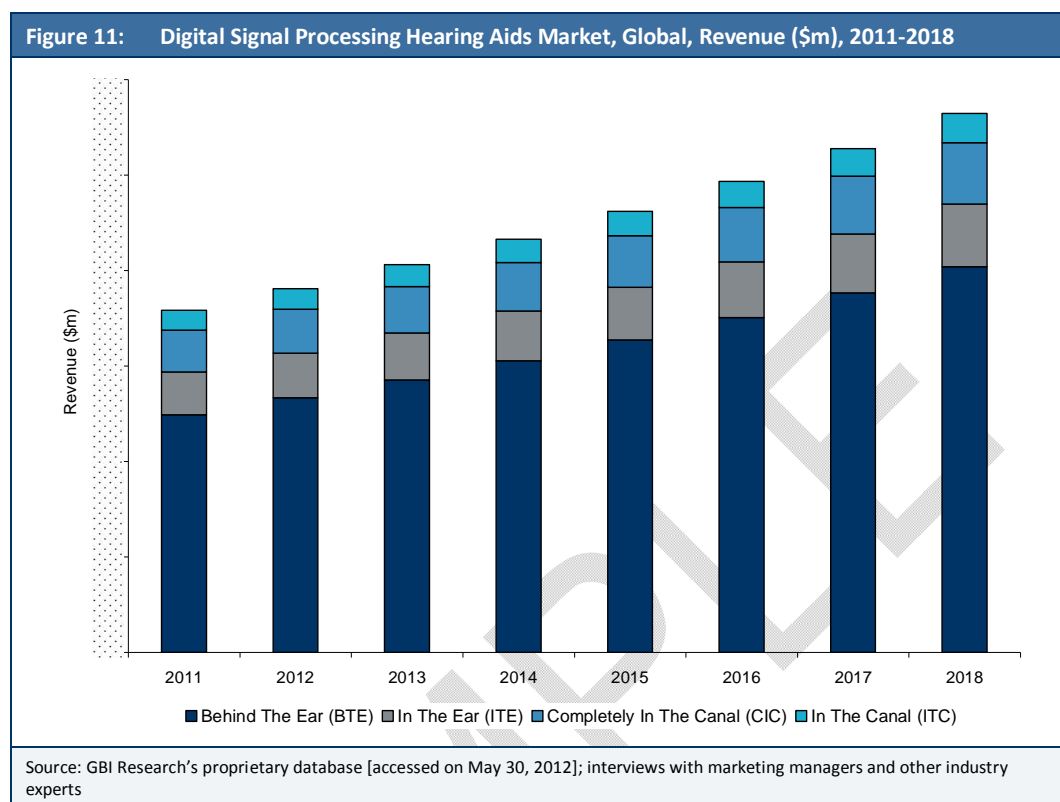
Source: GBI Research's proprietary database [accessed on May 30, 2012]; interviews with marketing managers and other industry experts

In 2011, William Demant Holding (WDH), Sonova Holding, Widex, Siemens Healthcare and Starkey Hearing Technologies were the top five players in the hearing aid devices market, occupying more than a XX% combined market share. WDH and Sonova Holding were the market leaders, each with a XX% market share.

WDH's leading position can be attributed to its technologically advanced hearing aids, wide geographical presence, and supply to US and UK government agencies. The introduction of advanced products - such as the mid-priced product Oticon Acto launched in autumn 2010, the launch of the basic product Oticon Ino in February, and the design product Oticon Intiga in September - has helped the company gain revenues. In March 2012, the launch of Oticon Intigai in the UK added yet another cosmetically attractive member to the Intiga family, which will result in the increased adoption of hearing aids due to high cosmetic appeal.

5.2 Digital Signal Processing Hearing Aids Market, Global, Revenue (\$m), 2011-2018

The following figure gives the annualized global digital signal processing hearing aids market revenues from 2011 to 2018.



The below table gives the annualized global digital signal processing hearing aids market revenues and CAGRs from 2011 to 2018.

Table 11: Digital Signal Processing Hearing Aids Market, Global, Revenue (\$m), 2011-2018

	2011	2012	2013	2014	2015	2016	2017	2018	CAGR 2011-2018
BTE									
ITE									
CIC									
ITC									
Total									

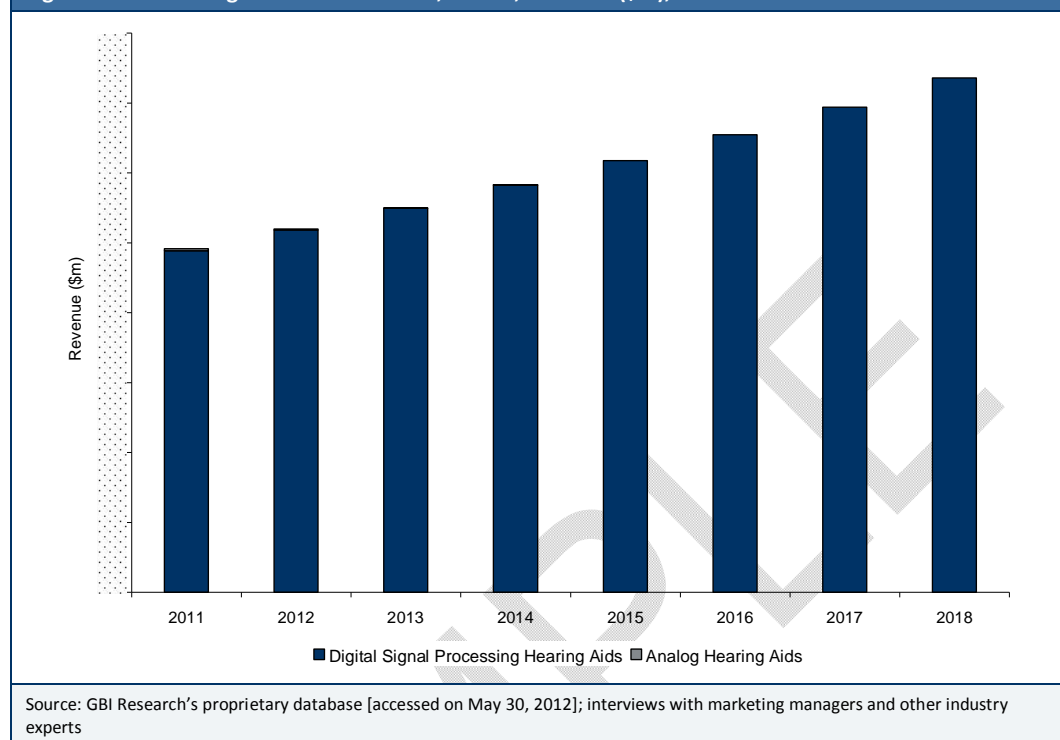
Source: GBI Research's proprietary database [accessed on May 30, 2012]; interviews with marketing managers and other industry experts

The digital signal processing hearing aids market is expected to grow at a CAGR of XX% between 2011 and 2018. The BTE devices segment will be the fastest growing category, with a CAGR of XX% from 2011 to 2018. The adoption of BTE hearing aid devices will be driven by features such as their improved design, which is similar to some models of Bluetooth earphone headsets and less noticeable than previous models, giving them high cosmetic appeal. The BTE aids are available for all age groups with severe to profound hearing loss. Better battery life and programmable BTE devices with automatic sound control resulting in improved sound quality are some of the features that will drive the growth of the overall digital hearing aid devices market.

6.2.2 Hearing Aid Devices Market, the US, Revenue (\$m), 2011-2018

The following figure gives the annualized hearing aid devices market revenues for the US from 2011 to 2018.

Figure 16: Hearing Aid Devices Market, the US, Revenue (\$m), 2011-2018



The table below gives the annualized hearing aid devices market revenues and CAGRs for the US from 2011 to 2018.

Table 16: Hearing Aid Devices Market, the US, Revenue (\$m), 2011-2018

	2011	2012	2013	2014	2015	2016	2017	2018	CAGR 2011-2018
Digital signal processing hearing aids									
Analog hearing aids									
Total									

Source: GBI Research's proprietary database [accessed on May 30, 2012]; interviews with marketing managers and other industry experts

The US market for hearing aid devices was valued at \$XX billion in 2011 and is expected to grow at a CAGR of XX% to reach \$XX billion by 2018. The digital signal processing hearing aids category will continue to be the largest segment, and is expected to grow at a CAGR of XX%, reaching almost \$XX billion by 2018. The hearing aid devices market will be driven by demand from both the private and public sectors.

10 Appendix

10.1 Definitions

10.1.1 Hearing Aid Devices

A hearing aid is an electronic device that amplifies and transmits sound, used by people with impaired hearing. Analog hearing aids and digital signal processing aids have been tracked under this category.

10.1.2 Analog Hearing Devices

Analog hearing aid devices make sound waves larger to amplify and to transmit them. Analog hearing aid devices include miniature devices, such as microphones, amplifiers, and resistors to alter the acoustic signal electronically. Both programmable and non-programmable analog hearing aids are included in this category.

10.1.3 Digital Signal Processing Hearing Aids

The digital signal processing hearing device breaks (digitizes) sound into very small, discrete units, amplifies and then delivers, which enables the user to hear more clearly than with an analog device. It includes miniature devices, such as microphones, amplifiers, and resistors to alter the acoustic signal electronically. Both programmable and non-programmable digital signal processing hearing aids are included in this category.

10.1.4 Behind the Ear (BTE)

Behind-the-Ear (BTE) hearing aids fit comfortably behind the ear and are attached to a soft customized ear mold. This category also includes open fit BTE. One unit consists of a microphone, an amplifier, and a receiver.

10.1.5 Completely in the Canal (CIC)

Completely-in-the-Canal (CIC) hearing devices are the smallest type of hearing aid, practically invisible to the observer. CIC hearing aids are meant for people with ear canals large enough to accommodate the insertion depth of the device into the ear and for people with mild-to-moderate hearing loss. One unit consists of a microphone, an amplifier and a receiver.

10.1.6 In the Canal (ITC)

In-the-Canal (ITC) hearing aids fit into the ear canal. They are only slightly larger than the CIC hearing aid. The ITC style is available in the programmable, digital, and conventional hearing aids. One unit consists of a microphone, an amplifier and a receiver.

10.1.7 In the Ear (ITE)

In-the-Ear (ITE) hearing aids can be used for a wide range of hearing losses. Due to their size, ITE hearing aids allow for larger sound amplifiers and more features such as a telephone switch. One unit consists of a microphone, an amplifier and a receiver

10.2 Acronyms

BAHA: Bone Anchored Hearing Aids

BTE: Behind the Ear

CAGR: Compound Annual Growth Rate

CAMISHA: Computer Aided Manufacturing of Individual Shells

CI: Cochlear Implants

CIC: Completely In the Canal

DACS: Direct Acoustic Cochlear Stimulation

FDA: Food and Drug Administration

FM: Frequency Modulation

HMEs: Heat and Moisture Exchangers
IIC: Invisible in the Canal
ITC: In the Canal
ITE: In the Ear
MIC: Microphone in Canal
R&D: Research and Development
RIC: Receiver in the Canal
RITE: Receiver in the Ear
WDH: William Demant Holding

10.3 Sources

- ASHA (2012) Hearing Loss and the Audiologist. Available from: <http://www.asha.org/careers/professions/hla.htm>, [Accessed July 08, 2012].
- Hearing Central LLC (2012), Hearing Aid Technology. The Technology of Hearing aids: Analog vs. Digital. Available from: <http://www.hearingcentral.com/hearingAidTech.asp>. [Accessed July 08, 2012].
- Hearing Review (2008). Specifics of the Hearing Aid Tax Credit Legislation and Obstacles to Its Passage. Available from: <http://www.hearingreview.com/podcast/files/8182008.asp>. [Accessed June 28, 2012].
- Hearing Review (2010). A Market Update and the Top-20 Trends in Hearing Care, Part 1 Available from: http://www.hearingreview.com/issues/articles/2010-05_01.asp. [Accessed June 28, 2012].
- Hougaard S and Ruf S (2009). EuroTrak: New survey of the market for hearing aids in Germany, France and the U.K. Available from: http://www.ehima.com/ehima2/euha_eurotrak_oct_2010_final.pdf.
- Hougaard S and Ruf S (2011). EuroTrak I: A Consumer Survey About Hearing Aids in Germany, France, and the UK. Available from: http://www.political.hear-it.org/multimedia/Hearing_Review_EuroTrak_MarHR11_hr1.pdf.
- Hougaard S and Ruf S (2011a). EuroTrak I: A Consumer Survey About Hearing Aids in Germany, France, and the UK. Available from: http://www.political.hear-it.org/multimedia/Hearing_Review_EuroTrak_MarHR11_hr1.pdf.
- Kirkwood DH (2009). Resilient hearing aid industry records rising sales despite a troubled economy. *Hearing Journal*; 62(12):11-16.
- Kochkin S (2005) Prevalence of Hearing Loss Available from: http://www.betterhearing.org/hearing_loss/prevalence_of_hearing_loss/index.cfm [Accessed June 21, 2012].
- Kochkin S (2007). MarkeTrak VII: Obstacles to adult non-user adoption of hearing aids. *Hearing Journal*; 60(4): 24-51.
- Kochkin S (2009). MarkeTrak VIII: 25-Year Trends in the Hearing Health Market. Available from: http://www.hearingloss.org/sites/default/files/docs/Kochkin_MarkeTrak8_OctHR09.pdf.
- Neilsen S (2010). Dynamics of the hearing aid market. Oticon/William Demant Holding. Available from: http://files.shareholder.com/downloads/ABEA-4C7PH1/1380134182x0x392115/e0be1288-fbc0-4ece-aa15-96d5a0432ec5/CMD3_1.pdf.
- NIDCD (2012) Cochlear Implants Available from: <http://www.nidcd.nih.gov/health/hearing/pages/coch.aspx> [Accessed June 21, 2012].
- PRB (2012) World Population Aging: Clocks Illustrate Growth In Population Under Age 5 And Over Age 65. Available from: <http://www.prb.org/Articles/2011/agingpopulationclocks.aspx> [Accessed June 27, 2012].
- Srinivasan S and Brinker AC den (2009). Rate-Constrained Beamforming in Binaural Hearing Aids. *EURASIP Journal on Advances in Signal Processing* (10).1155-2009.

- US Census (2012). World Population by Age and Sex. Available from: http://www.census.gov/population/international/data/worldpop/tool_population.php. [Accessed on May 15, 2012].

10.4 Research Methodology

GBI Research's dedicated research and analysis teams consist of experienced professionals in marketing and market research with consulting backgrounds in the medical devices industry and advanced statistical expertise.

GBI Research adheres to the codes of practice of the Market Research Society (www.mrs.org.uk) and the Strategic and Competitive Intelligence Professionals (www.scip.org).

All GBI Research databases are continuously updated and revised. The following research methodology is followed for all databases and reports.

10.4.1 Secondary Research

The research process begins with exhaustive secondary research on internal and external sources being carried out to source qualitative and quantitative information relating to each market.

The secondary research sources that are typically referred to include, but are not limited to:

- Company websites, annual reports, financial reports, broker reports, investor presentations and SEC filings.
- Industry trade journals, scientific journals and other technical literature.
- Internal and external proprietary databases.
- Relevant patent and regulatory databases.
- National government documents, statistical databases and market reports.
- Procedure registries.
- News articles, press releases and web-casts specific to the companies operating in the market.

10.4.2 Primary Research

GBI Research conducts hundreds of primary interviews a year with industry participants and commentators in order to validate its data and analysis. A typical research interview fulfills the following functions:

- It provides first-hand information on the market size, market trends, growth trends, competitive landscape and future outlook.
- It helps in validating and strengthening the secondary research findings.
- It further develops the analysis team's expertise and market understanding.

Primary research involves email correspondence, telephone interviews and face-to-face interviews for each market, category, segment and sub-segment across geographies.

The participants who typically take part in such a process include, but are not limited to:

- Industry participants: CEOs, VPs, marketing/product managers, market intelligence managers and national sales managers.
- Hospital stores, laboratories, pharmacies, distributors and paramedics.
- Outside experts: investment bankers, valuation experts, research analysts specializing in specific medical equipment markets.
- Key opinion leaders: physicians and surgeons specializing in different therapeutic areas corresponding to different kinds of medical equipment.

10.4.3 Models

Where no hard data is available GBI Research uses modeling and estimates in order to produce comprehensive data sets. The following rigorous methodology is adopted:

Available hard data is cross referenced with the following data types to produce estimates:

- Demographic data: population, split by segment.
- Macro-economic indicators: Gross Domestic Product, Inflation rate. .
- Healthcare Indicators: health expenditure, physicians base, healthcare infrastructure and facilities.
- Selected epidemiological and procedure statistics.

Data is then cross-checked by the expert panel.

All data and assumptions relating to modeling are stored and are available to clients on request.

10.4.4 Forecasts

GBI Research uses proprietary forecast models. The following four factors are utilized in the forecast models:

- Historic growth rates.
- Macro indicators such as population trends and healthcare spending.
- Forecast epidemiological data.
- Qualitative trend information and assumptions.

Data is then cross-checked by the expert panel.

10.4.5 Expert Panels

GBI Research uses a panel of experts to cross verify its databases and forecasts.

GBI Research's expert panel comprises marketing managers, product specialists, international sales managers from medical device companies; academics from research universities, KOLs from hospitals, consultants from venture capital funds and distributors/suppliers of medical equipment and supplies.

Historic data and forecasts are relayed to GBI Research's expert panel for feedback and adjusted in accordance with this feedback.

10.6 Disclaimer

All Rights Reserved.

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publisher, GBI Research.

SAMPLE