



Cochlear Limited  
**Investor Handbook**

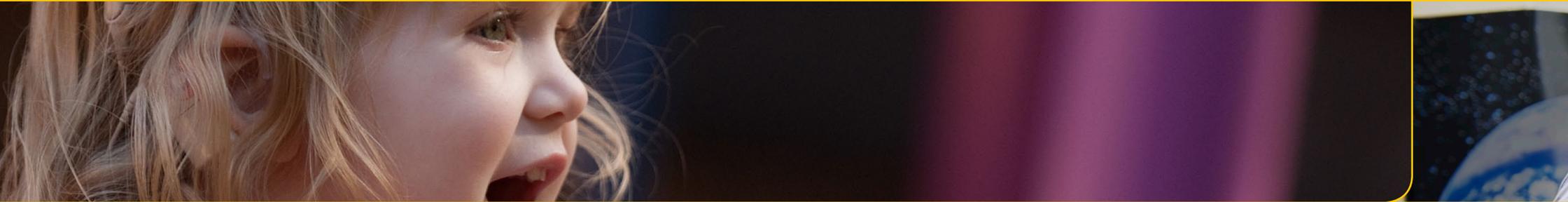
*Hear now. And always*



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# About Cochlear



## **Cochlear Limited is the global leader in implantable hearing solutions.**

Cochlear commenced operations in 1981 as part of the Nucleus group. In 1995, the company listed on the Australian Securities Exchange. Today, it is a global company with principal manufacturing facilities in Australia and Sweden. Cochlear has its global headquarters on campus at Macquarie University in Sydney, Australia, with regional headquarters in Asia Pacific, Europe and the Americas. Cochlear has direct operations in 20 countries and 2,800 employees.

Cochlear develops a range of products including cochlear implants, bone conduction implants and acoustic implants, which address different types of hearing loss. Whether these hearing solutions were implanted today or many years ago, Cochlear aims to provide new technologies and innovations to its recipients. The company invests more than AUS\$100 million each year in research and development and currently participates in over 100 collaborative research programs worldwide.

Over 400,000 people of all ages, across more than 100 countries, now hear because of Cochlear.



# Our mission



We help people hear and be heard.

We **empower** people to connect with others and live a full life.

We **transform** the way people understand and treat hearing loss.

We **innovate** and bring to market a range of implantable hearing solutions that deliver a lifetime of hearing outcomes.



# Why invest in Cochlear?



- Global leader in implantable hearing devices with hundreds of thousands of recipients and ~70% of the global installed cochlear implant base
- Long-term market growth opportunity with a significant, unmet and addressable clinical need for implantable hearing solutions and <5% market penetration
- Unrivalled commitment to product innovation, bringing innovative new products to market as well as upgrades for all generations of Cochlear's recipient base
- Growing annuity income stream from servicing of expanding recipient base
- Strong free cash flow generation provides funding for market growth activities and R&D as well as the ability to reward shareholders with a strong and growing dividend stream

# Global footprint



# Company history



1967

Inspired by his close relationship with his deaf father, Graeme Clark begins researching the possibilities of an electronic implantable hearing device.



1978

Rod Saunders was the world's first cochlear implant recipient to show the benefit of multi-channel stimulation.



1982

Graham Carrick, aged 37 years, was the first commercial Nucleus® cochlear implant recipient.



1984

Cochlear Americas office established in Denver, USA.



1989

Cochlear Japan office established.



1995

Cochlear listed on the Australian Securities Exchange.



2001

Cochlear acquires Philips Hearing Instruments, establishing research centre in Mechelen, Belgium.

Marije Meijer, at age four months, was one of the first Baha Softband recipients.

1977

Mona Andersson was the first recipient of a Baha® bone conduction implant, Gothenburg, Sweden.



1981

Cochlear established as a division of Nucleus Group (Sydney, Australia).



1983

Cochlear Limited established as a corporate entity with headquarters in Australia.



1987

Cochlear European office established in Basel, Switzerland. Holly McDonell, at the age of four, was the first paediatric recipient of a commercial Nucleus cochlear implant. She still has her original implant and has had five sound processor upgrades.



1997

Mengwen Kang, at age three, was the first paediatric recipient in China.



2002

Baha system introduced to treat single-sided deafness in the USA.





2005

Cochlear acquires Entific Medical Systems (Baha System) in Sweden, renamed Cochlear Bone Anchored Solutions.



2006

Cochlear Korea office established.



2010

Cochlear opens new Global Headquarters at the Macquarie University campus in Sydney, and Asia-Pacific Headquarters. Cochlear India office established. Jack Walley is the oldest cochlear implant recipient (102 years old).



2014

Cochlear Dubai office established. Melbourne Cochlear Clinic opened.



2016

Cochlear Vienna office established to expand presence in Central and Eastern Europe.



2006

Cochlear acquires its key suppliers operations, Crystalaid in Brisbane, renamed Cochlear Brisbane Office.



2009

Faye Yarroll was the first Nucleus 5 upgrade recipient. She is also a bilateral cochlear implant recipient. Donna Brown is the first bilateral Cochlear™ Hybrid™ recipient.



2012

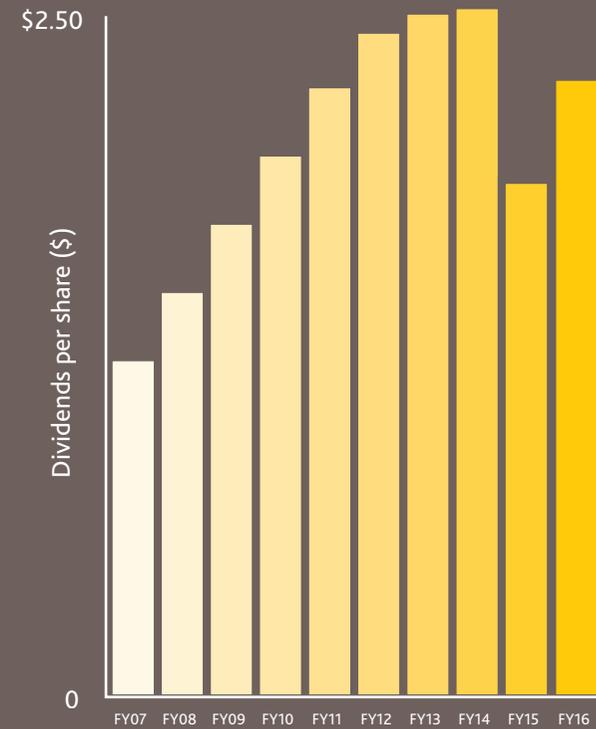
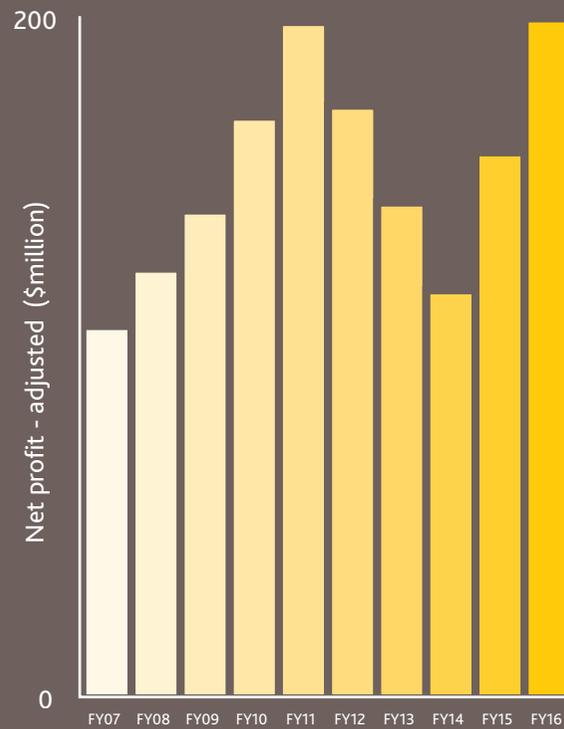
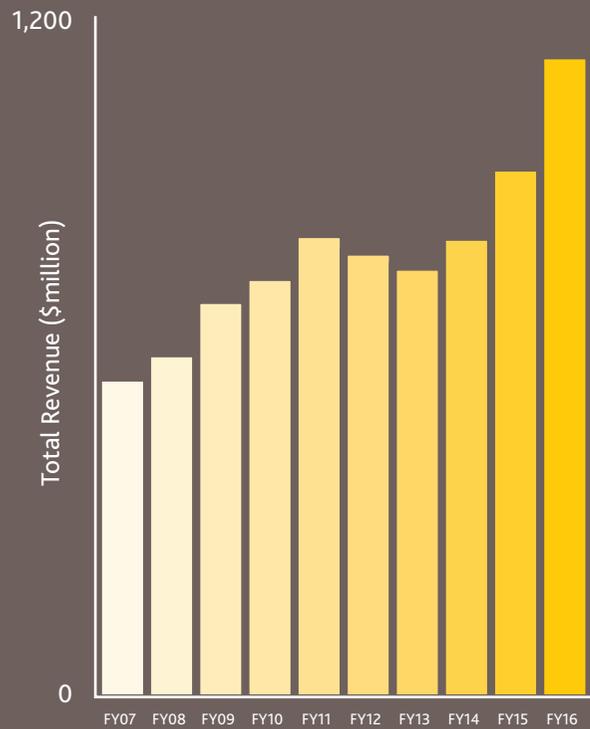
Cochlear Latin America office established in Panama. Cochlear acquires Otologics (middle ear implants) in Boulder, Col, USA, renamed Cochlear Boulder.



2015

San Antonio Cochlear Clinic opened. GN ReSound Partnership announced. Kuala Lumpur Global Repair Centre opened.

# Financial history



# Key highlights



	FY16	FY15	FY14	FY13	FY12	FY11	FY10	FY09	FY08	FY07
Cochlear implant system sales (units)	30,172	26,838	25,997	26,674	23,087	24,661	21,023	18,553	18,228	15,947
Total revenue (\$million)	1,131	926	805	753	779	810	735	695	602	559
R&D expenses (\$million)	143	128	128	125	119	109	95	97	80	66
EBITDA (\$million)	296	237	177 <sup>2</sup>	202	239 <sup>1</sup>	270	244	206	193	171
EBIT (\$million)	263	206	150 <sup>2</sup>	179	215 <sup>1</sup>	243	221	183	167	150
Net profit - adjusted (\$million)	189	146	110 <sup>2</sup>	133	158 <sup>1</sup>	180	155	131	115	100
Net profit - reported (\$million)	189	146	94	133	57	180	155	131	115	100
Basic EPS (\$)	\$3.31	\$2.56	\$1.65	\$2.33	\$1.00	\$3.18	\$2.76	\$2.34	\$2.08	\$1.83
Dividends per share (\$)	\$2.30	\$1.90	\$2.54	\$2.52	\$2.45	\$2.25	\$2.00	\$1.75	\$1.50	\$1.25
Closing share price as at 30 June (\$)	\$121.25	\$80.15	\$61.70	\$61.71	\$65.84	\$72.00	\$74.32	\$57.70	\$43.65	\$61.00
Market capitalisation as at 30 June (\$million)	6,935	4,565	3,513	3,512	3,744	4,081	4,198	3,230	2,423	3,341
Number of permanent employees	2,934	2,632	2,536	2,531	2,390	2,319	2,006	1,888	1,789	1,655

1. Excludes product recall costs of \$139 million before tax and \$101 million after tax.

2. Excludes patent dispute provision of \$23 million before tax and \$16 million after tax.

# Prevalence of hearing loss



**360,000,000**

people in the world with  
disabling hearing loss.<sup>1</sup>

**1 in 3**

people over 65 years are  
affected by hearing loss.<sup>1</sup>

**37,000,000**

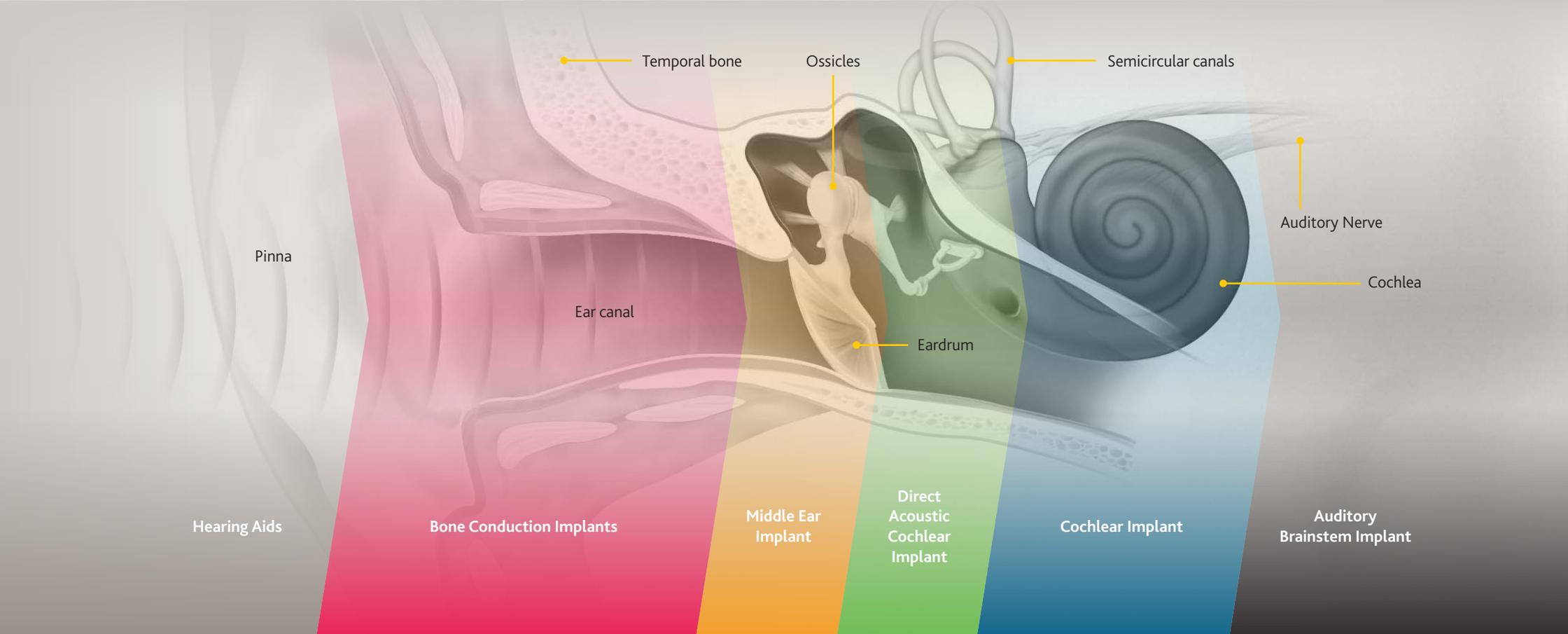
people who could benefit from  
a Cochlear product to treat  
severe to profound  
hearing loss.<sup>2,3</sup>

1. Deafness and hearing loss [Internet]. World Health Organization. 2016 [cited 26 April 2016]. Available from: <http://www.who.int/mediacentre/factsheets/fs300/en/>

2. Hearing Loss Prevalence in the United States [Internet]. Lin, Niparko, Ferrucci [cited 26 April 2016]. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3564588/>

3. The Severely to Profoundly Hearing-Impaired Population in the United States [Internet]. Blanchfield, Feldman, Dunbar, Gardner [cited 26 April 2016]. Available from: [http://studentacademyofaudiology.com/sites/default/files/journal/JAAA\\_12\\_04\\_03.pdf](http://studentacademyofaudiology.com/sites/default/files/journal/JAAA_12_04_03.pdf)

# Hearing solutions



# Cochlear's hearing solution portfolio



Cochlear provides a range of implantable hearing solutions\* for people with moderate to profound hearing loss.

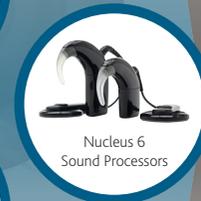
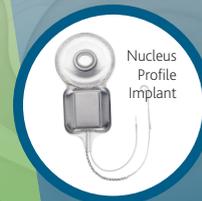
## Bone Conduction Implants



## Acoustic Implants



## Cochlear Implants



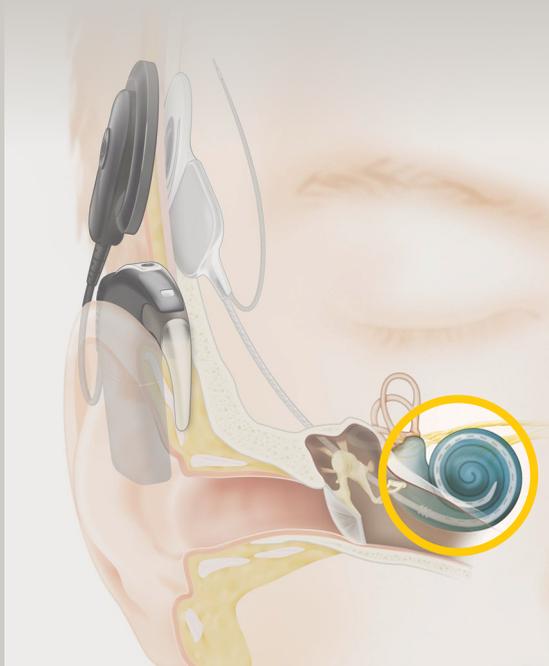
## ABI541 Electrode



# How our products work



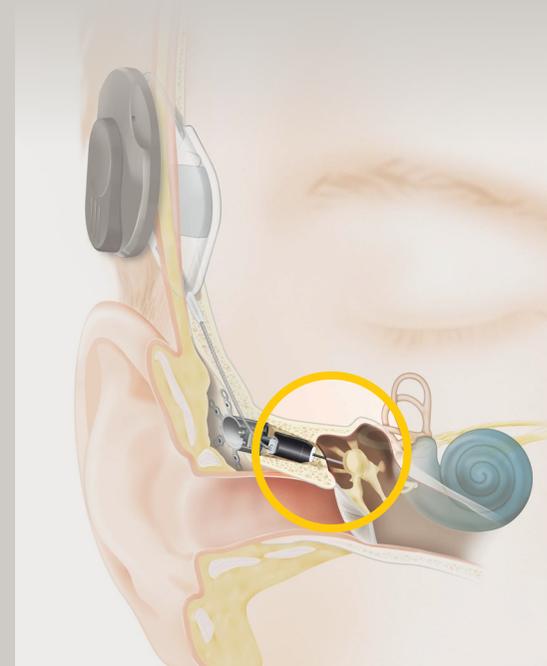
**Cochlear implants** stimulate the cochlea by electrically stimulating the nerves.



**Bone conduction implants** stimulate the cochlea by mechanically vibrating the skull.



**Acoustic implants** stimulate the cochlea by mechanically vibrating the delicate bones or cochlea.



# Cochlear implants



For over 30 years people of all ages have been connected to a world of sound through cochlear implants.

## How it works

Surgically implanted, the Cochlear Nucleus Implant contains a computer chip, removable magnet and electrode array. The external magnet attaches to the coil on the sound processor that is located outside the skin. The electrode array follows the natural curve of the cochlea and directly stimulates the hearing nerve to provide sound.

This behind-the-ear device uses tiny microphones to convert sound into digital signals, and its lightweight coil is held in place with a magnet that connects with the magnet in the implant under the skin. The Nucleus 6 Sound Processor is our most advanced sound processor yet.



**Nucleus Cochlear Implant**



**Nucleus Sound Processors**

# Nucleus 6 System



## The most popular implant in the world

The Nucleus CI24RE Series has helped to improve hearing in more than 115,000\* ears around the world, and its reliability rating of 99 per cent within 10 years is the best in the industry.



## The thinnest implant in the world

Our latest generation of implants - the Nucleus Profile Series - is the thinnest implant in the world, designed to better conform to the natural shape of the head.



## Use natural hearing

Nucleus 6 is the only system with the fully integrated capability to operate both as a hearing aid and a cochlear implant simultaneously, allowing recipients to make the most of their natural hearing.



## Superior hearing performance

Nucleus 6 comes with SmartSound® iQ which has the widest range of advanced sound processing technologies designed to deliver a superior hearing experience.

## True wireless freedom

Nucleus 6 is the only truly wireless solution that streams audio directly to a sound processor from a TV, phone, or MP3 player, without the need for any intermediary neck-worn devices.



## Smallest sound processor

As our technology advances, we have worked to make our sound processors even smaller. With Nucleus 6, recipients now have the choice of the smallest sound processor on the market – the Nucleus CP920 – or Kanso, the smallest and lightest off-the-ear sound processor.

\* Registered implants only

# Bone conduction implants



For more than 35 years, people all over the world have connected to sound through a Baha bone conduction implant. The Baha System uses the body's natural ability to conduct sound through bone conduction, and has the potential to make an immediate and positive impact on how well people hear and communicate.

## How it works

While a hearing aid tries to push sound through the damaged area, a Baha System uses the beauty of bone conduction to send clear, crisp sound directly to the inner ear. Today there are two types of connections between the implant and the sound processor. Both offer unique Cochlear technology designed to help recipients hear and communicate with confidence.

- The sound processor captures sounds in the air.
- The sound processor turns the sound into vibrations and sends them through the abutment or magnetic connection to the small implant.
- The implant transmits the vibrations through the bone directly to the inner ear.



# Baha 5 System



## The smallest sound processor

20% smaller than comparable sound processors.\*



## The smart sound processor

Stream sound directly from iPhone, iPad or iPod touch.



## Baha 5 Smart App

Optimise hearing experience directly from an iPhone.



## Effortlessly adapting to the world

Designed to let recipients enjoy their listening experience and help them hear better, even in noisy environments.

## True Wireless freedom

A range of wireless accessories can extend recipients hearing experience and improve the ability to hear and enjoy their hearing everyday.



## Baha SuperPower

Combines Baha and Nucleus technology.

\* Flynn MC. Smart and Small – innovative technologies behind the Cochlear Baha 5 Sound Processor. Cochlear Bone Anchored Solutions AB, 629761, 2015.

# Acoustic implant solutions



When conventional hearing aids no longer provide sufficient hearing benefit, an acoustic implant has the potential to make an immediate impact on how well recipients hear, and on the lifestyle they lead.

## How it works

Today's sophisticated hearing aids provide an effective solution for millions of people who do not hear well. However, for many people with moderate to profound hearing loss, this solution may no longer be sufficient.

Fortunately, science has not stood still. Acoustic implant solutions transmit tiny mechanical vibrations that bypass the damaged parts of the middle ear and/or inner ear, stimulating the parts of the ear that are still functioning. This makes it possible to register subtle differences in intensity, pitch and timbre, which results in more natural hearing.



# Acoustic Implant Systems



## Cochlear MET System

**A discreet and effective hearing solution.**

It relies on an external Button® audio processor, worn on the head, to capture sound and send it to the implant. The ear canal remains free.



## Cochlear Carina System

**A fully implantable, invisible hearing solution**

The microphone under the skin captures sound and sends it to the implant, without requiring the use of an external audio processor. This means the device does not restrict active lifestyles, allowing all-day hearing.



## Cochlear Codacs System

**Our most powerful acoustic hearing solution**

The Cochlear Codacs Implant is our most powerful acoustic hearing solution, as it is connected directly to the cochlea.



# True Wireless technology



No neck loops, no wires, no strings. Only the Cochlear True Wireless range offers true wireless freedom, taking hearing to the next level and letting recipients live life to the fullest.

Cochlear True Wireless builds on the innovations and hearing performance of Cochlear Nucleus 6 and Baha 4 and Baha 5 sound processors. It allows sound to be wirelessly streamed direct to a sound processor for improved hearing in a range of situations and over distance.

With Cochlear True Wireless, recipients can also bring their passions to life. From music to sport, there's a wireless device to make the most of life.

## Mini Microphones

Boost hearing over distances and in noisy situations.

## Phone Clip

Stream phone calls and music direct to a sound processor – hands-free.

## TV Streamer

Get the highest-quality sound from a TV and similar devices direct to a sound processor.



Mini Microphone 2 and 2+

# Aqua+



Being able to play in and around water is one of life's joys - that's why we designed the Cochlear Nucleus Aqua+. The Aqua+ transforms the Nucleus 6 Sound Processor into the only waterproof behind-the-ear solution on the market.

There's so much recipients can do with the Aqua+, including swimming in the pool, soaking in the bathtub, splashing at the beach, taking a walk in the rain or even enjoying water aerobics.

## **Swimsuit for a processor**

The Aqua+ is a soft, flexible silicone sleeve that fits over the Nucleus 6 Sound Processor. When used with the Aqua+ Coil, it allows recipients to enjoy water activities where additional protection is needed.

Featuring a water protection rating of IP68, the Aqua+ gives recipients the ability to swim with their sound processor without the need for any cumbersome cables, cases or a special sound processor specifically for water activities.



# Sound processor history of innovation



**1982**  
**WSP – Wearable  
Speech Processor**

This body worn processor was launched as part of the first commercial Nucleus cochlear implant system.



**1989**  
**MSP – Mini  
Speech Processor**

Speech processor allowing recipients even more mobility than previously.



**1994**  
**Spectra  
processor  
introduced**

Utilising SPEAK, an improved speech coding strategy.



**1997**  
**SPrint™ speech  
processor**

Provides recipients with four user programs, fully digital LCD and ADRO® speech coding that automatically balances loud and soft sounds in the environment for easier and more comfortable listening.



**1998**  
**ESPrin™ speech  
processor**

The first multi-channel behind the ear (BTE) speech processor.



**2001**  
**ESPrin 22 speech  
processor**

Offers the same capabilities as the ESPrin but made for CI22M implant recipients.



**2002**  
**ESPrin 3G speech  
processor**

Is the first speech processor with an in-built telecoil, making phone use more accessible.



**2005**  
**Nucleus  
Freedom®  
featuring  
SmartSound®**

Offers input processing technologies designed to mimic natural hearing and is the industry's first water resistant sound processor.



**2005**  
**Baha Divino**

The world's first digital bone conduction sound processor utilises advanced digital sound processing to shape sound signals to suit recipients' unique needs.



**2007**  
**Baha Intenso**  
**Sound Processor**

World's first high-powered head-worn bone conduction sound processor, suitable for those with a more severe hearing loss. Baha Intenso utilises advanced digital sound processing for improved sound clarity and protects the recipient from sudden unexpected loud noises.



**2008**  
**Cochlear Hybrid**  
**sound processor**

Combines both cochlear implant and hearing aid technologies to overcome high frequency loss. High frequency sounds are sent to the cochlea via the implant. Simultaneously, low frequency sounds are amplified and sent through the ear canal via the acoustic (hearing aid) component.



**2009**  
**Nucleus 5**  
**Sound Processor**  
**(CP810)**

Is 36% smaller than the Freedom sound processor and offers an average hearing improvement of 30% in noisy environments. Includes AutoPhone, the industry's first automatic phone detection ability. Winner of the prestigious red dot award: product design 2010.



**2009**  
**Nucleus 5**  
**Remote Assistant**  
**(CR110)**

Is the world's first bi-directional Remote Assistant and enables recipients to easily manage, control and monitor their hearing with the touch of a button. Can be used for one or two processors. Winner of the prestigious red dot award: product design 2010.



**2009**  
**Baha 3 Sound**  
**Processor**  
**(BP100)**

As the world's first moisture resistant and fully programmable multi-channel bone conduction sound processor, the BP100 delivers more than 25% improved speech understanding in noise compared with previous Baha sound processors.<sup>1,2</sup>



**2011**  
**Baha 3 Power**  
**Sound Processor**

The industry's most powerful programmable bone conduction hearing solution is introduced.



**2013**  
**Nucleus 6 Sound**  
**Processors**  
**(CP910 & CP920)**

Contains a number of world firsts including an automatic scene classifier, integrated Hybrid component and data logging to help clinicians improve their recipients' hearing performance. All in the smallest BTE available.



**2014**  
**Baha 4 Sound**  
**Processor**

The world's first sound processor with wireless capabilities. By utilising several innovative technologies, the Baha 4 Sound Processor seamlessly selects the best setting for the environment, so recipients can focus on fully enjoying life's finer moments.



**2015**  
**Baha 5 Sound**  
**Processor**

The Baha 5 Sound Processor utilised new BCDrive transducer technology to make it the industry's smallest. It is the world's first Made for iPhone Hearing Device in the implantable hearing industry.

# Implant history of innovation



**1982**  
**First commercial multi-channel cochlear implant**

Featuring the first titanium casing technology and with 22 electrodes for the best possible hearing performance.



**1986**  
**First Nucleus cochlear implant (CI22M)**

Developed with a smaller receiver-stimulator device.



**1997**  
**Nucleus 24 implant (CI24M)**

Providing two extra electrodes and is the world's first implant with a removable magnet for MRI safety.



**1998**  
**Nucleus 24 Auditory Brainstem Implant (ABI)**

First generation implant with Auditory Brainstem electrode.  
World's first FDA approved implant with 21 electrodes for patients with NF2 (Neurofibromatosis).



**1999**  
**Nucleus 24 Double Array implant**

First generation implant with Double Array electrode.  
World's first FDA approved implant with 22 electrodes for patients with ossified cochleae.



**2000**  
**Nucleus CI24R with Contour™ electrode**

Is the first self-curling, perimodiolar electrode that positions the electrode's contacts closer to the hearing nerve. Cochlear was honoured with the 2001 Medical Design Excellence Awards in New York City for the Nucleus CI24R with Contour™ electrode design.



**2000**  
**Nucleus CI24R with Straight electrode**

Is the same design as the Nucleus CI24R with Contour electrode but with a straight electrode for use in abnormal anatomies.



**2002**  
**Nucleus CI24R with Contour Advance® electrode**

Includes the Softip designed to protect the delicate structures of the cochlea and simplify surgery with the Advance Off-Stylet® (AOS) technique.



**2005**  
Nucleus CI24RE  
Series implants  
with Contour  
Advance  
or Straight  
electrodes

Introduction of the next generation microelectronics platform and with 50% greater impact resistance than the previous generation, CI24R.



**2008**  
Hybrid L24  
implant

Specifically designed for patients with high frequency hearing loss. The Hybrid implant provides electrical stimulation in the high frequency section of the hearing zone to provide access to sounds which are vital for understanding speech in noise.



**2009**  
Nucleus 5  
implant (CI512)

Is the world's thinnest cochlear implant, measuring just 3.9mm deep. In fact, it is 40% thinner, and 2½ times more impact resistant than the CI24RE receiver/stimulator. Winner of the prestigious red dot award: product design 2010.



**2010**  
Baha 3 implant  
(BI300)

First bone conduction implant to utilise an advanced surface technology (TiOblast™), which can reduce the time it takes for the implant to bond with bone. This allows the recipient to access sound sooner.



**2011**  
Nucleus  
CI422 Implant  
(Slim Straight  
electrode on the  
CI24RE receiver/  
stimulator)

The next generation straight electrode on the CI24RE receiver is introduced for conventional cochlear implant patients as well as those with residual hearing. The design of Slim Straight sets a new industry benchmark in this category.



**2013**  
Baha DermaLock  
Abutment

Building on Baha 3 system benefits, the new DermaLock Abutment is specifically designed to allow for a surgical technique with minimally invasive surgery and soft tissue preservation. This will give recipients advanced stability with the bone and the soft tissue.



**2014**  
Baha Attract

The first magnetic Baha bone conduction hearing device for patients who want to enjoy the benefits of the Baha System without a skin penetrating abutment.



**2014**  
Nucleus Profile  
implant with  
Contour Advance  
electrode

Introduction of the latest and thinnest cochlear implant body on the market, available with Contour Advance electrode.



**2015**  
Nucleus Profile  
implant with Slim  
Straight (CI522)  
and Auditory  
Brainstem  
(ABI541)  
electrodes

The slim straight is the thinnest full-length straight electrode array, designed to minimise trauma insertion and maximise hearing preservation. The Auditory Brainstem electrode is designed to restore a degree of hearing sensation to patients who have bilateral dysfunction of the auditory nerve.

# Hear now. And always

As the global leader in implantable hearing solutions, Cochlear is dedicated to bringing the gift of sound to people with moderate to profound hearing loss. We have helped over 400,000 people of all ages live full and active lives by reconnecting them with family, friends and community.

We aim to give our recipients the best lifelong hearing experience and access to innovative future technologies. For our professional partners, we offer the industry's largest clinical, research and support networks.

That's why more people choose Cochlear than any other hearing implant company.

 **Cochlear Ltd** (ABN 96 002 618 073) 1 University Avenue, Macquarie University, NSW 2109, Australia Tel: +61 2 9428 6555 Fax: +61 2 9428 6352

[www.cochlear.com](http://www.cochlear.com)

#### Disclaimer

Please seek advice from your medical practitioner or health professional about treatments for hearing loss. They will be able to advise on a suitable solution for the hearing loss condition. All products should be used only as directed by your medical practitioner or health professional.

Not all products are available in all countries. Please contact your local Cochlear representative.

ACE, Advance Off-Stylet, AOS, AutoNRT, Autosensitivity, Beam, Button, Carina, Cochlear, コクレア, Codacs, Contour, Contour Advance, Custom Sound, ESPrit, Freedom, Hear now. And always, Hugfit, Hybrid, inHear, Invisible Hearing, MET, MP3000, myCochlear, NRT, Nucleus, 科利耳, Off-Stylet, SmartSound, Softip, SPrint, True Wireless, the elliptical logo and Whisper are either trademarks or registered trademarks of Cochlear Limited. Ardium, Baha, Baha SoftWear, BCDrive, DermaLock, EveryWear, Vistafix and WindShield are either trademarks or registered trademarks of Cochlear Bone Anchored Solutions AB.

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