

Cochlear Limited  
Investor Handbook

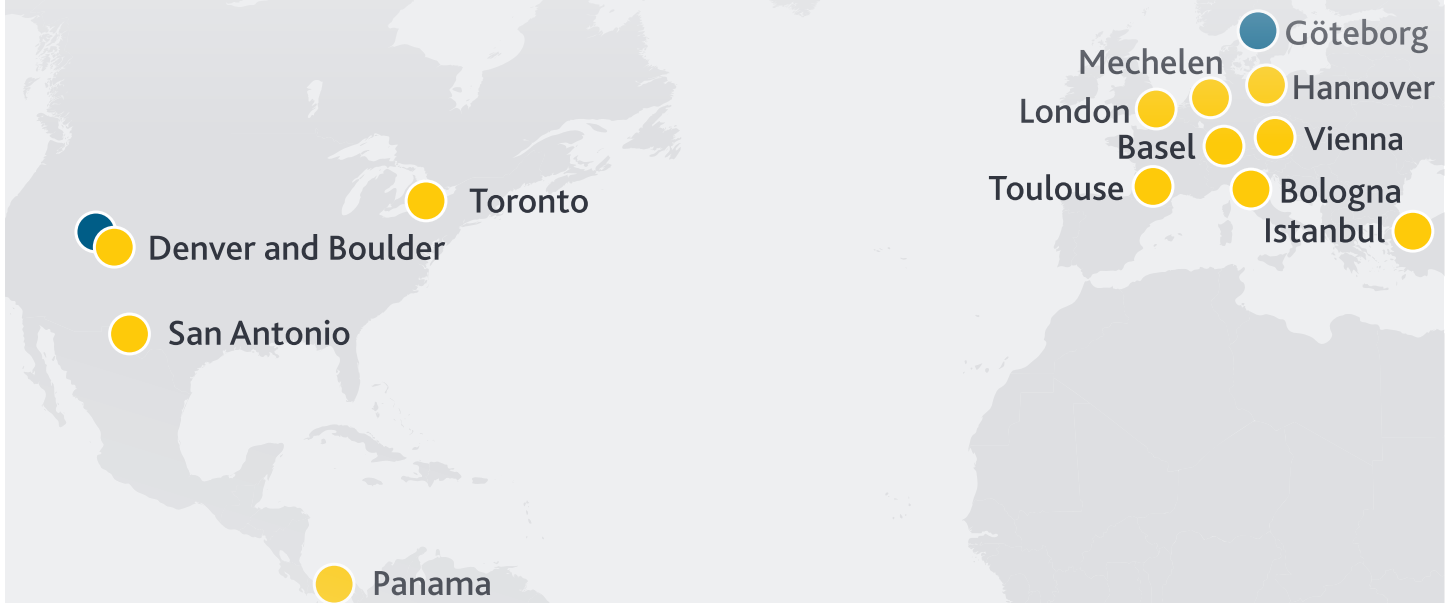
August 2018



*Hear now. And always*



# Global leader in implantable hearing solutions



**Cochlear is the global leader in implantable hearing solutions with products including cochlear implants, bone conduction implants and acoustic implants.**

Cochlear commenced operations in 1981 as part of the Nucleus group and in 1995, listed on the Australian Securities Exchange. Today, Cochlear is a Top 50 listed Australian company with a market capitalisation of over A\$10 billion.

Cochlear aims to support cochlear implantation becoming the standard of care for people with severe to profound hearing loss and provide bone conduction implants for patients with conductive hearing loss, mixed hearing loss and single sided deafness. The Company has provided more than 550,000 implant solutions to recipients who benefit from one – or two – of the Company's implantable devices. Whether these hearing solutions were implanted today or many years ago, Cochlear provides new technologies and innovations for all recipients. Cochlear invests more than \$160 million each year in R&D and currently participates in over 100 collaborative research programs worldwide.

Cochlear's global headquarters are on the campus of Macquarie University in Sydney, with regional headquarters in Asia Pacific, Europe and the Americas. Cochlear has a deep geographical reach, selling in over 100 countries, with a direct presence in over 30 countries and a global workforce of over 3,500 employees.

**550,000+**  
implants sold

**A\$160m+**  
in annual R&D investments

**A\$1.3b+**  
in annual sales revenue



**3,500+**  
employees around  
the world

**100+**  
countries where  
products are available

**100+**  
collaborative research  
programs worldwide

**5**  
key manufacturing  
sites

## 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.



Cochlear provides shareholders with a long-term opportunity to invest in the global leader in implantable hearing devices, in an industry that has the potential to grow over the long term.

Cochlear has a clear strategy to drive market growth and a strong financial position which enables it to fund its growth activities while rewarding shareholders along the way with a growing dividend stream.

- **Global leader** in implantable hearing devices with more than 550,000 implants sold, supporting the majority of the global base of hearing implant recipients
- **Long-term market growth opportunity** with a significant, unmet and addressable clinical need for implantable hearing solutions and less than 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 the 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 growing dividend stream

# Hearing loss is prevalent and under-treated

Cochlear competes in the hearing loss category. The World Health Organization (WHO) estimates that there are over 460 million people worldwide – over 5% of the world's population – who experience disabling<sup>1</sup> hearing loss. By 2050, this is expected to rise to over 900 million people – or 1 in every 10 people.<sup>2</sup>

Hearing loss affects people of all ages and is particularly prevalent in people over the age of 65, with one in three people over 65 suffering a disabling hearing loss. It affects communication and can contribute to social isolation, anxiety, depression and cognitive decline.<sup>3</sup>

Cochlear estimates that more than 15 million people could benefit from a cochlear or bone conduction implant to treat moderate to profound hearing loss across its target segments of children globally and adults and seniors in the developed world.<sup>4</sup>

Cochlear's challenge, and opportunity, is that less than 5% of the people that could benefit from an implantable hearing solution are being treated.<sup>5</sup> There remains a significant, unmet and addressable clinical need that is expected to continue to underpin the long-term sustainable growth of the business.



**>460 million**

people globally with a disabling hearing loss.



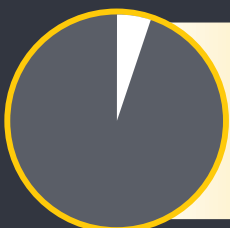
**1 in 3**

people over the age of 65 affected by disabling hearing loss.



**>15,000,000**

people could benefit from a cochlear or bone conduction implant.



**<5%**

market penetration of implantable hearing solutions.

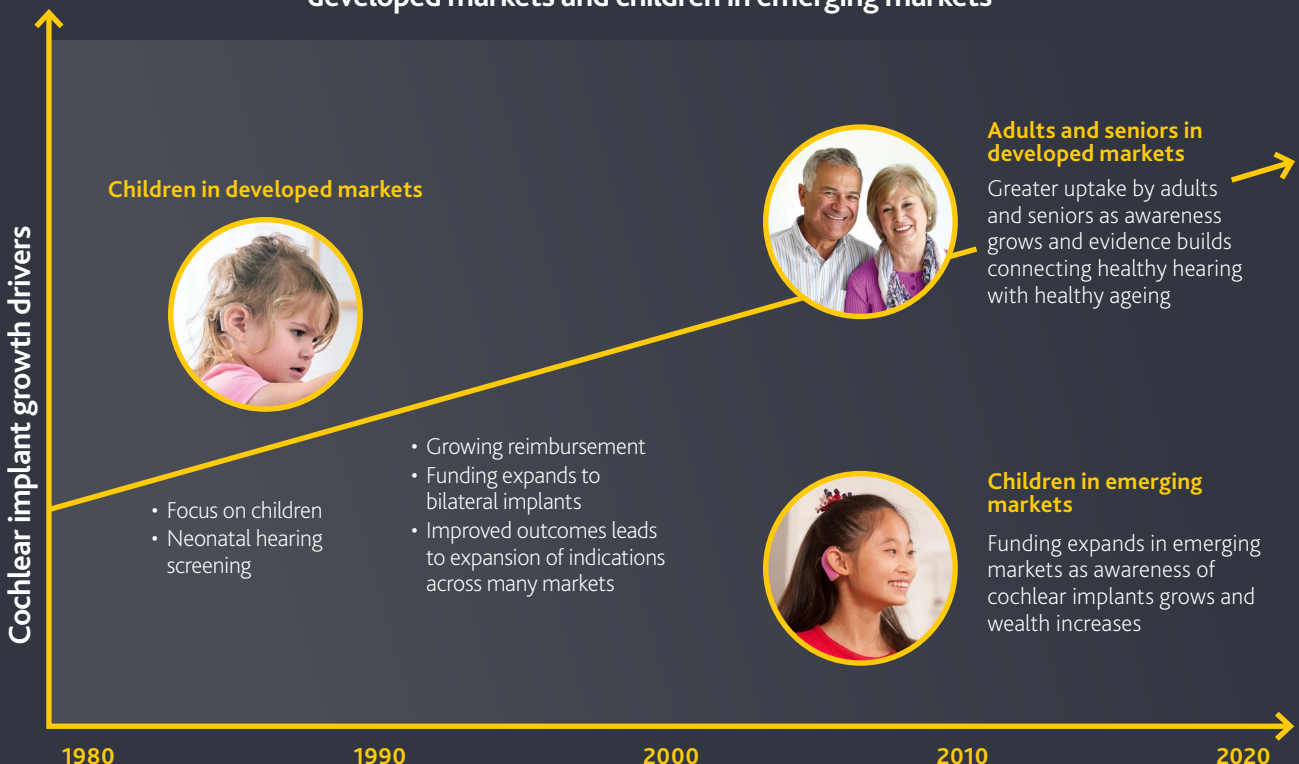
# Growing demand for cochlear implants

Cochlear implants started as a solution for people with a profound hearing loss, equivalent to a greater than 90 decibel (dB) hearing loss, almost 40 years ago. Adoption of cochlear implantation for children grew rapidly, driven by the wide spread implementation of neonatal screening which allowed for early detection of hearing loss in newborns. As a result, cochlear implantation has been established as the standard of care for newborns across many developed markets, with bilateral implants indicated across most markets as evidence supports the benefit of binaural hearing.

Cochlear's investment in innovation over many years has materially improved the hearing outcomes and quality of life of recipients and this has driven an expansion of the indications, as well as the addressable market, for cochlear implants. Today, while indications still vary by country, the US, Germany, Australia and, since December 2017, Japan effectively indicate cochlear implants for people with a severe to profound hearing loss, equivalent to a hearing loss of more than 70dB.

More recently, there has been a greater uptake of cochlear implantation by older adults, particularly seniors, as awareness of the intervention has grown and the body of evidence builds connecting healthy hearing with healthy ageing. At the same time, funding has expanded in emerging markets as awareness of cochlear implants grows and wealth increases, driving implantation of children across the emerging world.

## Growth has expanded to adults and seniors in developed markets and children in emerging markets



# Strategic priorities

To achieve its mission, Cochlear aims to support cochlear implantation becoming the standard of care for people with severe to profound hearing loss and provide bone conduction implants for patients with conductive hearing loss, mixed hearing loss and single sided deafness.

Cochlear's priorities are centred on the customer with activities aimed at growing awareness and access to the industry for implant candidates. And with a growing recipient base, the Company is actively strengthening its servicing capability to provide products, programs and services to support the lifetime relationship with recipients.

Cochlear is committed to being the technology leader in the industry by investing in R&D to improve hearing outcomes and expand the indications for implantable solutions.



## Retain market leadership

Market-leading technology | World-class customer experience



## Grow the hearing implant market

Awareness | Market access | Clinical evidence



## Deliver consistent revenue and earnings growth

Invest to grow | Operational improvement | Strong financial position





# Retain market leadership

Cochlear continues to be the global leader in implantable hearing solutions. The investment in R&D aims to strengthen our leadership position through the development of **market-leading technology**. And by delivering a **world-class customer experience**, we aim to empower our recipients to connect with others and live a full life.

## Market-leading technology

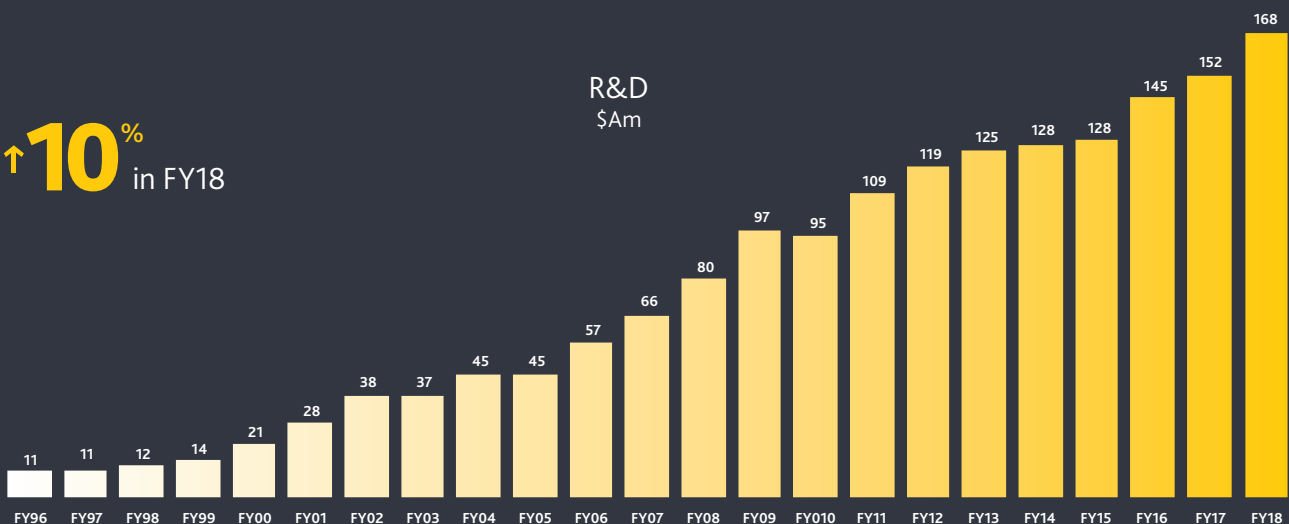
We **innovate** to bring to market a range of implantable hearing solutions that deliver a lifetime of hearing outcomes.

Cochlear has a global innovation network with over 350 R&D employees in international locations. Primary R&D is co-located with the Australian Hearing Hub in Sydney, with the Cochlear Technology Centre in Belgium focused on advanced innovation. The Company has over 100 research partners in over 20 countries and a global network of design partners and suppliers.

Product and service R&D spans implants and sound processors; sound coding; and clinical and surgical tools. R&D investment priorities are focused on hearing indications; hearing outcomes; lifestyle; and connected care. Over the past few years, Cochlear has launched market-leading products including:

- Nucleus® 7 Sound Processor, the world's first Made for iPhone cochlear implant sound processor;
- Nucleus Smart App for Android™ smartphone users, allowing recipients with a compatible Android device to control their hearing with the Nucleus Smart App;
- Baha® SoundArc, providing a non-surgical bone conduction solution that works together with all of Cochlear's Baha 5 sound processors;
- Nucleus Kanso® Sound Processor, our first off-the-ear sound processor;
- Nucleus Profile Slim Modiolar (CI532) electrode, the world's slimmest electrode; and
- Baha 5 Power and SuperPower sound processors, Made for iPhone and designed for people with greater levels of hearing loss.

Cochlear has invested over \$1.7 billion in R&D since listing in FY96 and currently invests more than \$160 million per annum, or 12% of sales revenue, on R&D.



# Retain market leadership

## World-class customer experience

Providing a world-class customer experience empowers people to connect with others and live a full life and creates a brand halo for candidates. Cochlear is focused on providing its recipients with convenience and confidence, direct engagement and a commitment to providing an ongoing pipeline of market-leading products and services.



### Convenience and confidence

- Wireless connectivity;
- Easy to use products and services;
- Ease of access for support; and
- Rehabilitation tools.



### Engagement

- Cochlear Family connecting recipients with Cochlear;
- Growing volunteer network building awareness and increasing candidate confidence; and
- Recipient engagement improves upgrade penetration.



### Market-leading products and services

- Improving technology with each generation of sound processor; and
- Backward compatibility of sound processors with prior generation implants.

# Grow the hearing implant market

## Awareness and market access

There is a significant, unmet and addressable clinical need for cochlear and acoustic implants with less than 5% global market penetration.

As the global leader, Cochlear is focused on meeting this long-term market growth opportunity by transforming the way people understand and treat hearing loss through its awareness and access activities.

Three key market segments have been prioritised with strategies to improve awareness and access tailored by segment. The segments comprise:



### Adults and seniors in developed markets

- Biggest market potential and the most challenging to penetrate
- Current penetration<sup>6</sup>: ~3%



### Children in developed markets

- Cochlear implants have been established as the standard of care for newborns<sup>7</sup> across many developed markets
- Current penetration<sup>6</sup>: ~60%



### Children in emerging markets

- Long-term growth potential as wealth increases
- Current penetration<sup>6</sup>: ~10%

# Grow the hearing implant market

## Adults and seniors in developed markets

Adults and seniors in the developed markets provide the biggest opportunity for Cochlear given the large, and growing, market size as the population ages. The segment is however challenging to penetrate as most candidates suffer from a progressive hearing loss and, together with their care providers, either do not know about cochlear and bone conduction implants or do not understand the indications for them.

While penetration rates are currently very low, at around 3%, the seniors segment has been the fastest growing segment for Cochlear over the past few years as awareness begins to improve.

The key priority for the adult and seniors segment is to continue to build awareness and market access. This includes initiatives to:

- Support cochlear implants becoming the standard of care for adults and seniors with severe to profound hearing loss by demonstrating:
  - Hearing is an essential part of healthy ageing;
  - Effectiveness of implantable solutions relative to hearing aids; and
  - Treating age related hearing loss creates economic value;
- Increase referrals via direct-to-consumer marketing activities and through the hearing aid channel; and
- Expand indications and reimbursement in some markets.



## Children in developed markets

Cochlear implants started as a solution for children with a profound hearing loss. Over the last 30 years, neonatal screening has been successfully established across the developed world. Today, cochlear implantation has been established as the standard of care for newborns across many developed markets, with bilateral implants indicated across most markets as evidence supports the benefit of binaural hearing.

The key priority for this segment is to maintain our leadership position while aiming to deepen our penetration in a few markets where rates of implantation for profoundly deaf newborns, and uptake of bilateral implantation, are below average.

There is also an opportunity to strengthen the treatment pathway for acquired or progressive hearing loss in older children. Poor screening rates for hearing loss in older children mean that intervention for children who lose hearing after birth is materially lower than that of newborns.



# Grow the hearing implant market

## Children in emerging markets

Cochlear's emerging markets business has been growing rapidly as wealth grows across many of the countries. China has been a leading market with a continuing commitment from the government to fund implants for children.

Cochlear's priorities for this segment are focused around market expansion with activities targeted at:

- Building awareness – public education campaigns, direct-to-consumer marketing and hearing screening;
- Expanding funding – driven by the compelling health economics of implantation in children;
- Expanding our presence – distributor relationships combined with an expanding direct presence;
- Developing professional capability – surgeon training and audiology education; and
- Maximising penetration through a tiered product offering.



## Clinical evidence

The adults and seniors segment is a key growth segment for Cochlear, and forms a major part of Cochlear's business in developed markets like Australia, North America and Western Europe. Over the past decade, we have experienced a shift in these markets to cochlear implantation in seniors – the over 65 year olds – driven in part by the ageing population and the higher incidence of hearing loss in this age group.

Cochlear implantation for seniors is an important trend, especially as we begin to better understand the link between high levels of hearing loss and cognitive decline, social isolation and depression. There is also a growing body of evidence of the superior outcomes of cochlear implants over hearing aids for many people with a severe hearing loss (>70dB).<sup>8</sup>

We have been increasing our investment in health economics, our market access capability and the collaborative partnerships we have with the medical research community to build on the clinical evidence that demonstrates the effectiveness of our products, particularly for seniors. Over the past 12 months, Cochlear has pledged funds to the Johns Hopkins Bloomberg School of Public Health to establish the 'Cochlear Center for Hearing and Public Health'. The Center will be a first of its kind at any academic institution focused on addressing hearing loss as a global public health priority.

### Growing understanding of the link between healthy hearing and healthy ageing

#### Cognitive decline

Hearing loss associated with accelerated cognitive decline and dementia in older adults<sup>9</sup>



#### Social isolation

Hearing loss linked to withdrawal from social interactions, which can have a significant impact on psychological well-being and physical health<sup>13-14</sup>



#### Depression

Significant association between hearing impairment and moderate to severe depression<sup>10-12</sup>



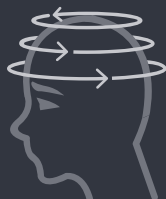
#### Ability to work

Hearing loss can affect the ability to work or stay in the workforce<sup>15-17</sup>



#### Falls

Higher risk of dizziness causing falling<sup>11</sup>



#### Loss of independence

Seniors with hearing loss less likely to be able to self-care<sup>12</sup>



# Deliver consistent revenue and earnings growth

Cochlear has achieved growth across all business units over time and expects each business unit to contribute to growth in the coming years.

The key revenue growth drivers for each business unit include:

## Cochlear implants

- Awareness and uptake by adults and seniors; and
- Emerging market expansion.

## Services

- Growing recipient base; and
- Upgrade penetration.

## Acoustics

- Market expansion; and
- Upgrade penetration.

To meet Cochlear's objectives of driving market growth while maintaining market leadership, Cochlear is investing operating cash flows into sales, marketing and R&D activities. Investment priorities are focused around:

## Investing to grow

- Building awareness and access to our products requires multi-year investment in sales, marketing and R&D activities; and
- Through disciplined investment, we will aim to maintain the net profit margin.

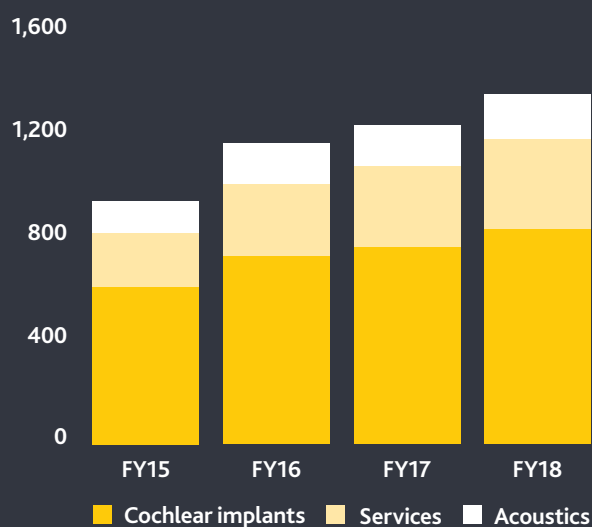
## Delivering operational improvement

- Optimising cost of production strengthens our competitive position; and
- We will reinvest efficiency gains into market growth activities.

## Maintaining the strong financial position

- Strong cash flow generation funds growth; and
- We aim to maintain the strong balance sheet position and continue to target a dividend payout of 70% of net profit.

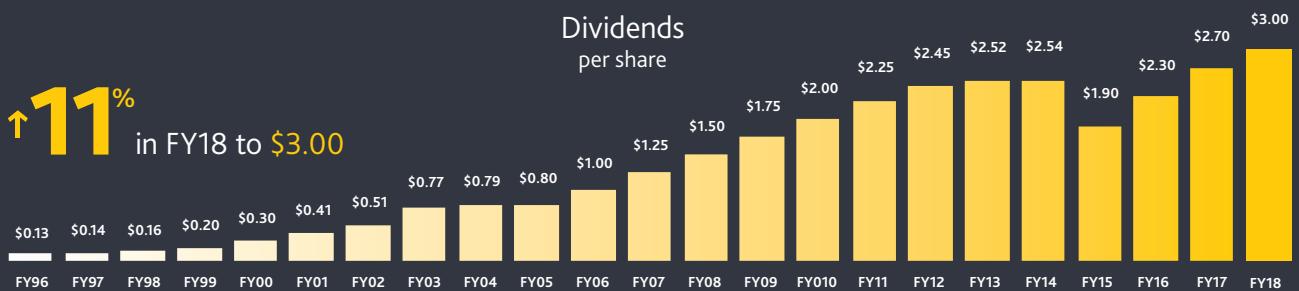
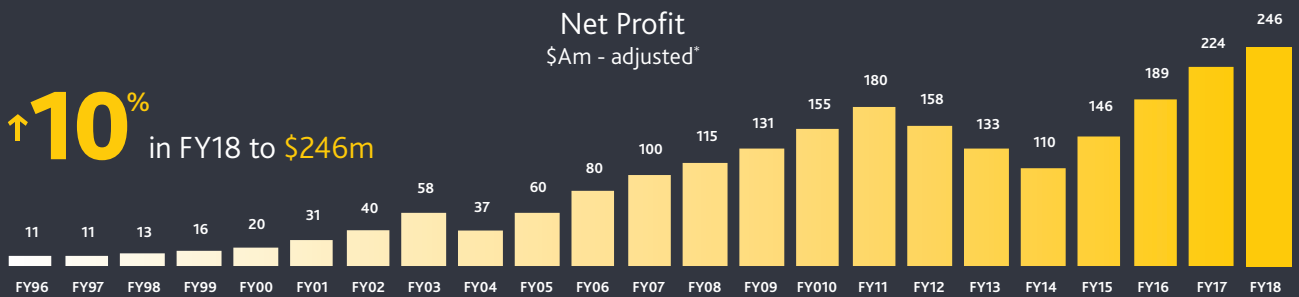
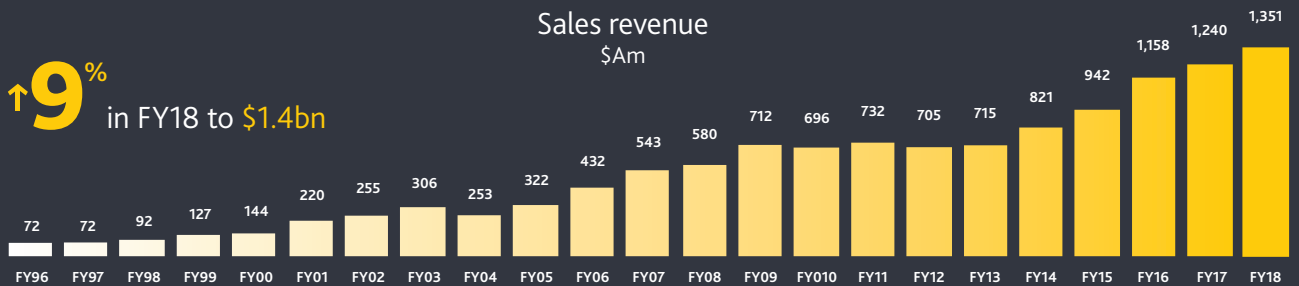
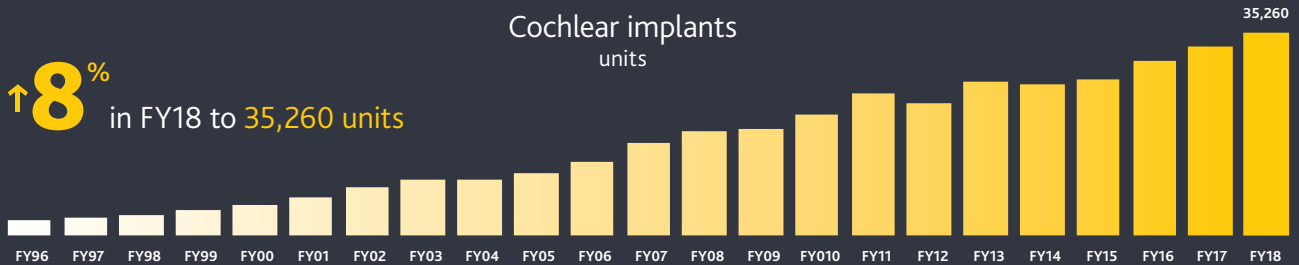
Growing revenue across all business units  
Sales revenue (\$ million)





# Financial history

since listing in 1995



\* Excludes FY12 product recall costs of \$101 million after tax and FY14 patent dispute provision of \$16 million after tax.

# Cochlear implant systems

For almost 40 years people of all ages have been connected to a world of sound through cochlear implants.

## Implant range

### Nucleus Profile Series

Our latest generation of implants are the thinnest implant in the world, designed to better conform to the natural shape of the head. Commercially released in 2014, the Profile Series sets a new standard in implant reliability with a 99.94% combined cumulative survival percentage within three years.



### Nucleus® CI24RE

Launched in 2005, the Nucleus® CI24RE Series has helped to improve hearing in around 170,000<sup>1</sup> ears around the world, and its reliability rating of 99% within 12 years is the best in the industry.



1. Registered implants as at 30th January 2017.

## Electrode portfolio

Cochlear offers the widest range of electrode options including the Slim Modiolar, Contour Advance®, Slim Straight and Hybrid™ L24 electrodes.

### Slim Modiolar Electrode (CI532)



The Slim Modiolar Electrode is the world's thinnest full length perimodiolar electrode<sup>1</sup> designed for consistent scala tympani placement<sup>2</sup> and sits closest to the hearing nerve to deliver optimal hearing performance<sup>3</sup>. It combines the unique benefits of a thin electrode with the perimodiolar positioning closer to the spiral ganglion cells.

### Contour Advance® Electrode (CI512)



The Contour Advance is the perimodiolar electrode that gets closer to the hearing nerve through its unique design. Proximity to the spiral ganglion cell population has been proven to provide targeted stimulation and minimise physiological factors correlated to the distance from the modiolus.<sup>4-5</sup>

### Slim Straight Electrode (CI522)



The industry's thinnest full length electrode. A soft tip combined with thin diameter, apical flexibility, and smooth lateral wall surface facilitates an easy single stroke insertion designed to protect the delicate cochlear structures.

### Hybrid™ L24 Electrode



Industry's only electrode for high frequency losses and preservation of apical structures. The Hybrid™ L24 Electrode provides electrical stimulation in the basal section of the cochlea, while protecting the apical section to provide benefit from acoustic stimulation. This combination of stimulation is indicated in patients with mild to moderate hearing loss in the low frequencies and severe to profound hearing loss in the high frequencies.

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# Cochlear implant systems

## Sound processors

### Nucleus 7 Sound Processor

Launched in 2017, the Nucleus 7 Sound Processor is the smallest and lightest behind-the-ear cochlear implant sound processor from Cochlear. It is the world's first Made for iPhone cochlear implant sound processor, allowing recipients to make phone calls, listen to music in high-quality stereo sound, watch videos and have FaceTime® calls streamed directly to their cochlear implant.



### Nucleus Kanso® Sound Processor

Launched in 2016, the Nucleus Kanso® Sound Processor is the industry's smallest and lightest off-the-ear sound processor, providing hearing performance equivalent to the Nucleus 6 Sound Processor.



### Nucleus 6 Sound Processor

Launched in 2013, the Nucleus 6 Sound Processor offers superior hearing performance with SmartSound® iQ and SCAN technology, wireless connectivity with True Wireless™ accessories, data logging and water proofing with the Aqua+ accessory.

Nucleus 6 Sound Processor  
with acoustic component  
for Hybrid Hearing



### Nucleus 5 Sound Processor

Launched in 2009, the Nucleus CP802 Sound Processor is popular in many of our emerging markets.



## Accessories

### True Wireless™ devices

True Wireless™ devices allow sound to be wirelessly streamed direct to a sound processor from the Phone Clip, Mini Mic or TV Streamer for improved hearing in a range of situations and over distance. The devices allow recipients to watch TV without disturbing others, help them hear speech in noisy or crowded environments and can connect to all types of electronic devices.



### Aqua+

The Aqua+ is a soft, flexible silicone sleeve that fits over the Nucleus Sound Processors. Featuring a water protection rating of IP68, the Aqua+ gives recipients the ability to swim with their sound processor without the need for any additional cables or cases.



### Nucleus Smart App

The Nucleus Smart App allows iPhone and Android smartphone users to control their hearing with a compatible device.



# Bone conduction implant systems

For more than 35 years, people all over the world have connected to sound through a Baha® bone conduction implant.

## Implantable and non-surgical systems

### Baha Connect System

The Baha® Connect System transmits vibrations through an abutment which connects the sound processor to the implant. When using the DermaLock™ technology, the skin is left intact round the abutment. The major benefit is the efficient transmission of vibrations, providing maximum amplification.



### Baha Attract System

The Baha Attract System transmits sound vibrations to the inner ear through a magnetic connection between the sound processor magnet and a magnet attached to the implant under the skin. The benefit is that there is no skin penetrating abutment, providing a good aesthetic outcome with no need for daily care.



### Baha SoundArc

The Baha SoundArc is a non-surgical behind-the-head band that works together with all of Cochlear's Baha 5 Sound Processors.



## Sound processors

### Baha 5 Sound Processor

The Cochlear Baha 5 Sound Processor is the industry's smallest sound processor with fitting ranges up to 45 dB sensorineural hearing loss. It is the first sound processor that can stream sound directly from an iPhone, iPad and iPod touch. The Baha 5 Sound Processor also connects to Cochlear's True Wireless accessories.



### Baha 5 Power Sound Processor

The more powerful Cochlear Baha 5 Power Sound Processor has a fitting range up to 55 dB sensorineural hearing loss.



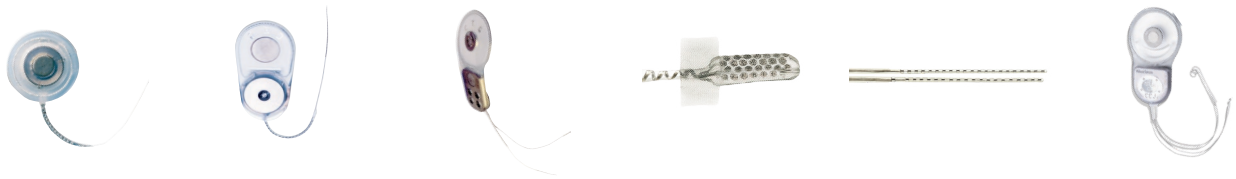
### Baha 5 SuperPower Sound Processor

The Cochlear Baha 5 SuperPower Sound Processor merges Baha and Nucleus technology to make it the first ear-level sound processor for bone conduction. It is the most powerful head-worn sound processor and has a fitting range up to 65 dB sensorineural hearing loss.



# Cochlear's history of innovation

## Implants



1982	1986	1997	1998	1999	2000
First commercial multi-channel cochlear implant	First Nucleus cochlear implant (CI22M)	Nucleus 24 implant (CI24M)	Nucleus 24 Auditory Brainstem Implant (ABI)	Nucleus 24 Double Array implant	Nucleus CI24R with Contour® electrode



2000	2002	2005	2008	2009	2010
Nucleus CI24R with Straight electrode	Nucleus CI24R with Contour Advance electrode	Nucleus CI24RE Series implants with Contour Advance or Straight electrodes	Hybrid L24 implant	Nucleus 5 implant (CI512)	Baha 3 implant (BI300)



2011	2013	2014	2014	2015	2016
Nucleus CI422 Implant (Slim Straight electrode on the CI24RE receiver/stimulator)	Baha DermaLock Abutment	Baha Attract System	Nucleus Profile implant with Contour Advance electrode	Nucleus Profile implant with Slim Straight (CI522) and Auditory Brainstem (ABI541) electrodes	Nucleus Profile implant with Slim Modiolar (CI532)



## Sound Processors



1982	1989	1994	1997	1998	2001	2002
WSP – Wearable Speech Processor	MSP – Mini Speech Processor	Spectra Processor introduced	SPrint™ Speech Processor	ESprit™ Speech Processor	ESprit 22 Speech Processor	ESprit 3G Speech Processor



2005	2005	2007	2008	2009	2009	2011
Nucleus Freedom featuring SmartSound®	Baha Divino Sound Processor	Baha Intenso Sound Processor	Cochlear Hybrid Sound Processor	Nucleus 5 Sound Processor (CP810)	Baha 3 Sound Processor (BP100)	Baha 3 Power Sound Processor



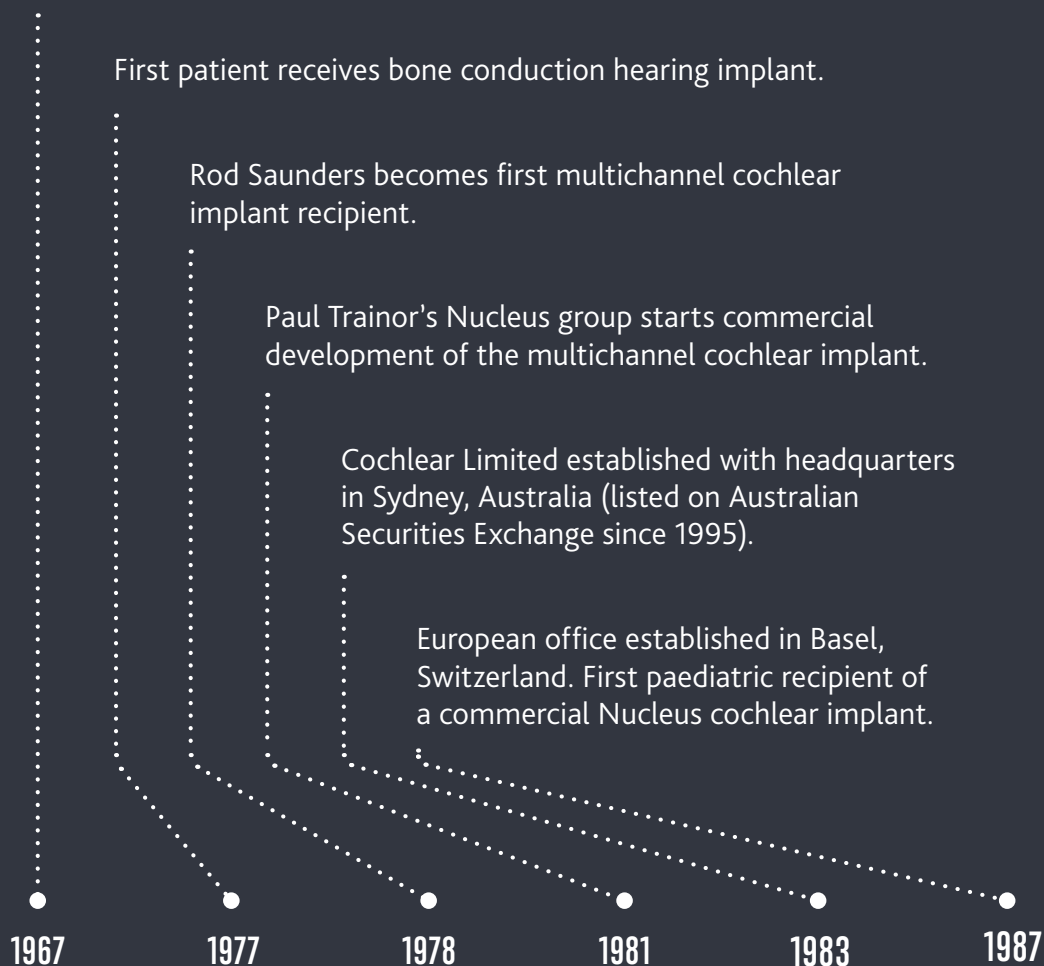
2013	2014	2015	2016	2016	2017	2018
Nucleus 6 Sound Processors (CP910 & CP920)	Baha 4 Sound Processor	Baha 5 Sound Processor	Baha 5 Power Sound Processor Baha 5 SuperPower Sound Processor	Kanso Sound Processor	Nucleus 7 Sound Processor	Baha SoundArc

# Company milestones

**For almost 40 years, Cochlear has been shaping the future of hearing restoration by pushing the limits of technology while maintaining the strictest quality standards.**

With a strong focus on product and service innovation, a pipeline full of products and opportunities, visionary leaders and dedicated employees, Cochlear is determined to maintain its leadership in providing the best possible hearing outcomes to people of all ages with moderate to profound hearing loss.

Professor Graeme Clark, University of Melbourne, begins research into implantable hearing solutions for people suffering from sensorineural hearing loss.



• 2018

Establishment of the Cochlear Center for Hearing and Public Health at John Hopkins University and The Cochlear Chair in Hearing and Healthy Ageing at Macquarie University.

• 2017

Acquisition of Sycle, the global leader in audiology practice management software.

• 2016

Smart Hearing Alliance with GN ReSound announced.

Melbourne Cochlear Care Clinic opened.

• 2015

Australian Hearing Hub is opened at Macquarie University, Sydney, with Cochlear as a partner.

• 2014

Cochlear acquires the hearing related assets of Otologics LLC in the USA, extending its portfolio to middle ear implants.

• 2013

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

• 2012

Cochlear acquires Entific Medical Systems, extending its portfolio to Baha bone conduction hearing solutions.

• 2005

• 2001

# 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 provided more than 550,000 implantable devices to recipients of all ages, helping them 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.

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