

# Cochlear implants essay sample



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Human beings have been gifted with five basic senses those of touch, sound, smell, sight and taste. Hearing is one of the very essential and treasured senses; any disruption causes us immense concern. However, some of us are most unfortunate to get affected by loss of hearing. The ear is divided into 3 parts (anatomically) as the Outer, Middle and Inner parts. “ The cochlea is the auditory portion of the inner ear. Its core component is the Organ of Corti, the sensory organ of hearing, which is distributed along the partition separating fluid chambers in the coiled tapered tube of the cochlea. The cochlea is divided into three different chambers, each of which is receptive to different frequencies of sound “(Jarvis 2004).

Cochlear damage means complete loss of hearing and it can be caused by various factors like exposure to loud noise, meningitis, acoustic tumors or even intake of certain strong antibiotics. “ A cochlear implant (CI) is a surgically implanted electronic device that provides a sense of sound to a person who is profoundly deaf or severely hard of hearing. The cochlear implant is often referred to as a bionic ear”. (Bio-Medicine. com, 2009)

History of Cochlear implant dates back to the late 18th century, with the first ever implant done by Dr. William House in 1961(Berke 2011). It was only in 1984 that the Food and Drug Administration (FDA) approved implantation for adults. A Cochlear implant has four basic parts: a microphone, a speech processor, a transmitter and receiver/stimulator, and electrodes, which collect the impulses from the stimulator and send them to the brain. Constant endeavours towards improvement is made and implemented. It has to be stated clearly that the implant is only a prosthetic substitute for hearing. Factors that have impact on an implant

Studies show that as of April 2009, around 188, 000 people including children across the world have received the implant (NIDCD 2010). That gives a very optimistic picture that the implants have been accepted and people have benefitted from it. Researchers now with the aid of advanced technology are considering improvising the implants, such that the individual can hear completely.

Cochlear has over 3000 clinics across 100 countries, stats that go one more step to prove the success rate of Cochlear Implants. Keeping the above data in mind, the immediate thought is what makes CI so popular and why is it becoming an invaluable resource for people suffering from loss of hearing. It is worth mentioning that as any other sophisticated technology comes with a high price tag, so does a single implant, which can be considered a delimiting factor for its usage.

There are numerous factors that affect the success of any implant. Hearing does not start immediately after the implant. It takes about 1-4 weeks for the brain to register new sounds and generally turn the implant into an active mode. Primary factors that accentuate the success of an implant are the recipient's immediate reaction (Snow & Wackym, 2009) and the period since when loss of hearing was detected. In some cases, depending on the pre implant levels of hearing and speech abilities, lip reading and communication modes have shown tremendous improvement.

The individual should be receptive to the changes and use intelligence and existing communicative pattern to accept the ability to hear. The individual

should have lived at least a little phase of his live without being able to hear, as that determines if at all an implant would be necessary.

The next most important factor for a recipient is the family support and commitment post implant towards the recipient. It becomes a huge responsibility of the family to encourage and motivate the recipient, especially in case of children. They should participate in spoken language development and encourage children to form words and try to communicate. Most cases the recipient needs professional speech therapist, audiologist and possibly professionals specialised in Oral Deaf Education.

Apart from the aforesaid, the other factor to determine the success post implant would be the age of the receiver. It makes a huge difference to the implant as studies state that younger recipients like infants and children have more successful implants ratio that the old and aging. The degree of actual cochlea damage would be another factor that needs to be considered. If the cochlea is damaged badly, then the implant will have no use at all.

Commitment of the recipient towards maximum usage of the device after the implant is another deciding factor for its success. If the individual is not making use of it due to some state of denial, the entire process is worthless. The other factors that help CI qualify as a very successful effort are facts that the devices and the concept used have been developed based on years of research and studies. The improvisation of the device and its implications are an on-going process.

Studies show that the implants have many advantages. One can listen to conversations and learn the language relatively faster than those with

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severe or total loss of hearing. Hearing from a distance is also improved and better as compared to hearing aids.

Implant benefits extend to an overall good quality of life with relevance increasing in education and employment opportunities. The recipient can enjoy many luxuries like sound awareness, learning to appreciate music, using the telephone and improved speech recognition like most normal human beings do.

The aforementioned are factors that influence the success of cochlear implants. However, there are some disadvantages as well like undergoing surgery, which could result in various other infections and health hazards. The FDA has data that shows most children who underwent surgery suffered from acute meningitis post-surgery. They concluded that these recipients have 30 times more probability of acquiring meningitis as compared to normal children.

The cost involved for an implant is on the higher side which again not all can afford. Physically adorning the device could be very fastidious and extra precautions are required for it to function properly. If in case the device malfunctions, then the only way to correct it would be to undergo another surgery, which is a high risk factor. The device needs to be maintained well and updated frequently to ensure smooth functioning. Conclusion

The debate continues about the use of hearing aids being a better option than cochlear implants. Major cochlear implant companies in the world are Cochlear Corporation, Advanced Bionics, US and MED EL, Austria. To give a panoramic view Cochlear implants are one possible solution for hearing

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impaired people. The implant has benefitted millions of people across the world and will continue to do so.