DEAF BILINGUAL CHILDREN AND THEIR LANGUAGE DEVELOPMENT

A booklet by:
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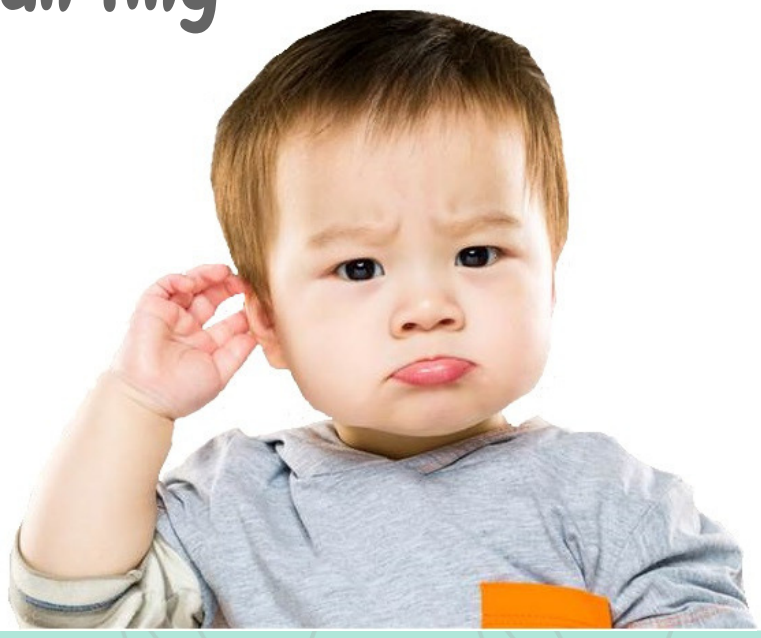


Dear Parents and Caregivers,

In recent years, many studies have looked into the language and bilingualism development in normal hearing children but little concern has been raised for deaf children, especially below the age of 5 years old. The Singapore Association for the Deaf has reported that for every 1,000 babies in Singapore, 1 is born with profound hearing loss and 5 have lesser degree of hearing loss [10]. Indeed, discovering your child is deaf or hard of hearing can be devastating. Hence, apart from raising awareness of the Deaf in Singapore, this information booklet aims to help you in making difficult decisions so that your child would not lose valuable time in language and communicative development.

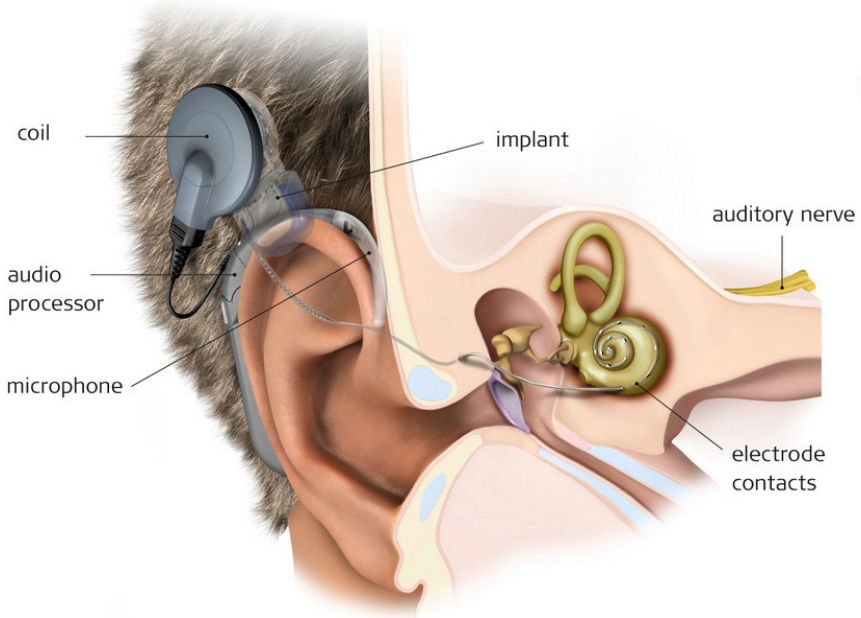
Sincerely,
Jamie Wong

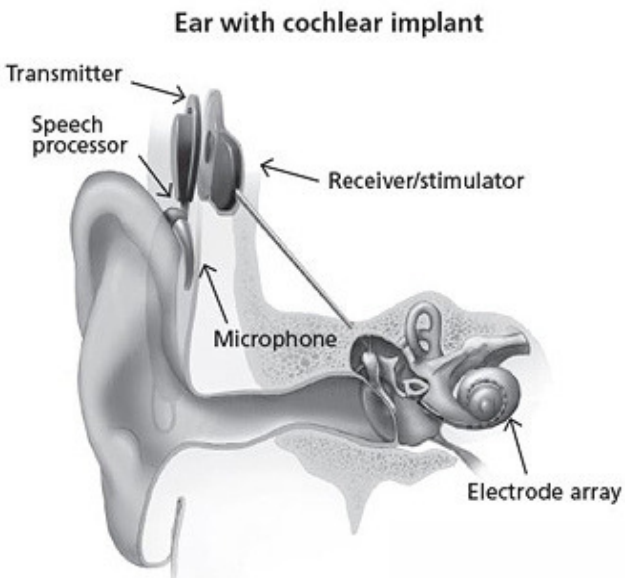
Are deaf bilinguals possible?

Many hearing parents believe that deaf children are naturally bound to not hear. Their only means of communication is sign language. The truth is no one is able to identify the native language of the deaf population in Singapore [23] and deaf bilinguals are possible. When a deaf child learns **sign language (manual route)** as his/her first language (L1), and acquires a **listening or spoken language (oral route)** such as English, after surgical implantation as his/her second language (L2), he/she becomes a deaf bilingual child.

What is a cochlear implant?

A cochlear implant system consists of an audio processor worn behind the ear and an implant surgically fixed under the skin. Following, the environmental sounds are captured by a microphone and selected by a speech processor. A transmitter and stimulator receive the signals from the processor and convert them to electric impulses. These impulses are then collected by an electrode array to be sent to different regions of the auditory nerve [5]. With cochlear implants, deaf children gain access to sounds [12]. Hence, they would have an increased potential to acquire language and develop speech normally. An average of 50 to 60 implantations is performed in Singapore annually [10].





Pros and cons of cochlear implants

Today, most implants are different from conventional hearing aids because they provide the user with a sense of sound directly stimulating the hearing nerves [10]. With technology advancements, new implants have visually discreet designs such as the Cochlear™ Wireless Phone Clip that can wirelessly connect mobile phones and music players [25]. However, with extensive functionality comes a higher price. They are approximately $30,000 to $35,000 with an additional fitting cost [10]. Another crucial point to note is that such implants may fail to function and your child may run the risk of not being able to acquire English or any other spoken languages due to the missed critical period. In such cases, he/she may subsequently face the underdevelopment of cognitive activities such as literacy and memory organization that relies on the language [12].

When should my child get the implant?

New researches have suggested that infants have the potential to develop as normally as normal-hearing children and are better in comprehending sound and music [5] when they have their cochlear implantations before turning 1 or 1.5 years old [5,10].

Language acquisition & development after implantation

While the above age criteria for effective language acquisition stays true, your child may still experience significant disadvantages when acquiring a spoken language.

According to numerous studies, hearing children are able to distinguish sounds right after birth [8] and subsequently learn which phonemes belong to their native language [3]. As they turn 1-year-old, they are able to see how sounds in their language go together to form meanings and explains the emergence of their first meaningful word [8]. From 2 years onwards, they will learn how to place words in basic grammatical order [3] and form complex sentences [8]. In addition, having joint attention with their interlocutors throughout the language acquisition process is a key factor for them to acquire novel words and to understand the language.

With that, the significant differences of deaf children include their inability to produce typical tones and speech sounds such as their erroneous articulation of consonants and vowels. Also, they may not be able to smoothly combine phonemes in connected sentences, resulting in speech incomprehensibility. As compared to hearing children, their vocabulary and grammatical knowledge are greatly reduced too. Last but not least, they acquire fewer nominals (words that are used to name objects), which mean they are less likely to share focus of an object with their interlocutors or more technically, there is a lack of joint attention between them [8].

Allow your child to participate in auditory-verbal therapy which is a specialised type of therapy that is designed to teach him/her how to better use the hearing provided by the cochlear implant for understanding speech and learning to talk [24].

What are the varieties of sign language used in Singapore?

While the deaf in Singapore still engage with Signing Exact English (SEE-II) [23], more of them have incorporated the Singapore Sign Language (SgSL) as their primary means to communicate [2].

Manually Coded English (MCE) – Signing Exact English (SEE-II)

Manually coded English (MCE) is a collection of sign systems that is artificially created to represent the English language in a manual way. It is not a language on its own [23]. Deaf children are able to improve in their English through MCE because it allows them to sign word-for-word while following the language structure [11] apart from just learning through the sounds and lip-reading patterns of spoken English.

As hearing parents are usually not exposed to sign languages, it would be much easier for them to learn MCE that has the same grammatical structure as English, rather than the American Sign Language (ASL) [18]. In Singapore, the deaf population practices a type of MCE known as Signing Exact English (SEE-II). It incorporates many ASL signs and likewise, it is used to represent the English language on hand [2].

If you are particular over how your child needs to acquire the English language, communication via SEE-II alone may not be ideal. Your child gains exposure to grammatical features of English but it does not necessary allows him/her to understand the whole language [27]. Hence, you may want to consider getting a cochlear implant for your child and adopt the oral route for him/her to effectively acquire English instead.

Singapore Sign Language (SgSL)

The Deaf community in Singapore recognised and approved Singapore Sign Language (SgSL) as their native sign language with its own grammar and linguistic structure [2]. SgSL is made up of Shanghainese Sign Language (SSL) used in China; American Sign Language (ASL) used in the United States, Signing Exact English (SEE) and locally developed signs [2]. SgSL is not only restricted to English words, it can also be used to express the Chinese, Malay or Tamil words. For example, the sign for "chair" is the same across these languages [11].

However, the Deaf community in Singapore is constantly producing signs by themselves which are not necessarily indexed. For instance, they have invented the sign for Marina Bay Sands in which three fingers of one hand are used to represent the three hotel towers, and the index finger of another hand is placed on the top to represent the rooftop SkyPark [11]. There are also signs for local food such as nasi lemak, common Singlish terms like shiok, and terms that entered the English lexicon in more recent years, such as Facebook and GrabTaxi [11]. Often, these invented signs are to be updated, but it is difficult to draw inputs and understanding from the deaf population themselves. Moreover, the government does not have sufficient resources and funding to conduct research for SgSL [23]. Hence, the signs may remain ambiguous in their expressions [23] for most people.

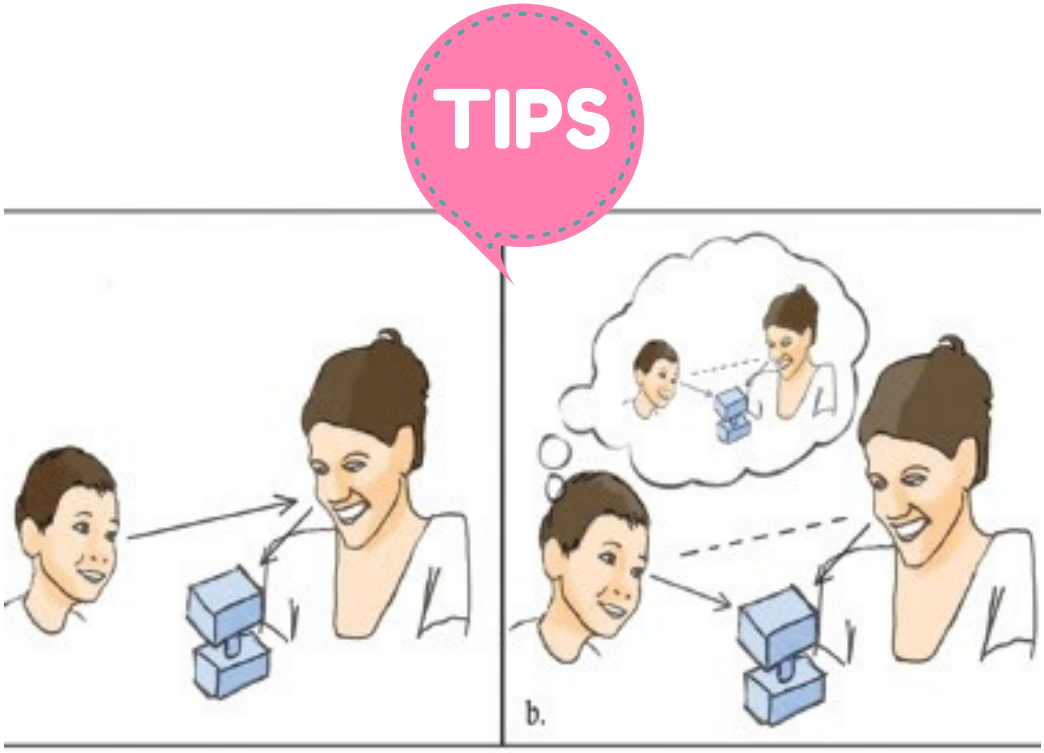
By default, your child should acquire the SgSL as it is the most common means of communication among the Deaf population in Singapore. However, it is also important to know that the signs are not very well understood among the Sign Language Interpreting community and the general society. If you are concerned with the ambiguity of this variety of sign language and the possible negative impacts it may bring to your child's language development, you can explore the option of getting a cochlear implant for your child to acquire language orally as well.

Sign language acquisition and development

A deaf child that acquires sign language goes through the same stages of language development as a hearing child that acquires a spoken language [22].

	Hearing child acquiring spoken language [8]	**Deaf child acquiring sign language** [22]
6-8 months	**Babble** and express features such as stress patterns, pitch and intonational contours	Use their hands to **"babble"** and mimic others
1 year	First meaningful word / **first word stage**	First sign / **one sign stage**
2 years	**Two words stage** / telegraphic stage	**Two sign combinations**
2 years+	Multiword stage / **language develops rapidly to complex sentences** / most children are able to produce vowels or diphthongs by 3 years old	**longer sentences, complex grammar, negation and questions produced by headshakes or signs** by 2.5 years old
By 5 years	Most morphology and syntactic skills are fully developed	Most grammatical skills are developed
By 8 years	Grammatical skills are fully developed	

However, as emphasized, deaf children may experience a lack of joint attention, a crucial component in their language development [13]. They have to first switch their vision attention between stimuli and develop understanding of their environments before they can respond to their interlocutors with appropriate signs [15].



In order to better involve your child in conversations, you can use non-verbal communications such as facial expressions and body movements to break or attract his/her gaze [15]. Also, be mindful in keeping your sentences short so that he/she will not be easily distracted.

To learn or not to learn sign language?

With or without cochlear implant, **LEARN** sign language!

Members of the Deaf community do not regard themselves as disabled or deficient in any way. Sign language is their common language, one which gives them a sense of belonging that binds them as a cohesive whole [6]. Cochlear implants may seem to be a natural solution for deaf children, but some parents may find them too costly. Even when parents are able to afford them, these implants may produce side effects and deaf children run the risks of losing their residual hearing, or hearing sounds differently [26]. The implants do not necessarily provide them with access to language.

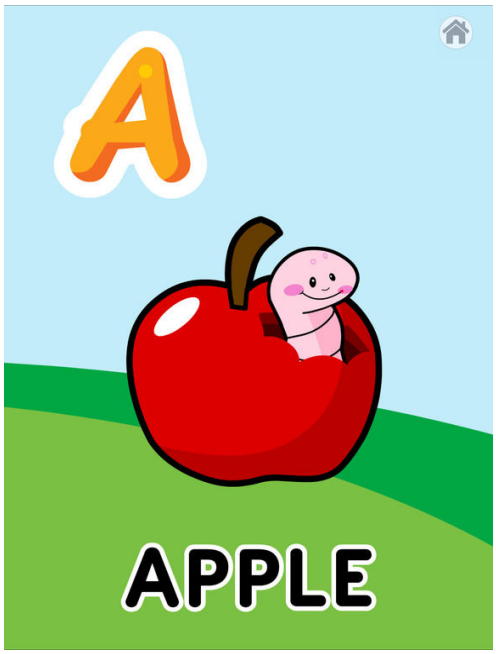
In the case when they have missed the critical period in acquiring a spoken language, not only would they be linguistically deprived but they would also have to face multiple personal and societal harms such as the cost for medicine and being unable to participate in the hearing world [12]. Hence, with or without cochlear implant, parents should allow their deaf child to pick up sign language as his/her natural language.

Rely on cochlear implant, **DO NOT LEARN** sign language!

Reliance on sign language over a long period of time may negatively affect the child's capacity to learn spoken language after cochlear implantation [4]. Some parents rather want their child to depend on cochlear implants or other auditory-verbal approach to effectively adopt oral communication. Moreover, parents can save up time to learn sign language which they probably find it challenging and burdensome [4].

Short Activity

For 3 to 5 years old child who is exposed to English language in signed and spoken forms



1. Present pictures of simple items (e.g. chair, apple etc.) to child
2. Each time your child is able to sign the item (e.g. apple) or vocalise the item (e.g. ‘apple’), a point is rewarded
3. Collate the total number of points that your child can achieve within 10 minutes. Of course, the more the better, as it reflects his/her bilingual efficiency

Time to make your decision

Below is a summary of the respective pros and cons of choosing the oral route (getting a cochlear implant and acquiring a spoken language) and the manual route (acquiring sign language). If time and money permits, the **final TIP** is to expose your child with both options so that he/she has the opportunity to achieve bilingualism in both spoken and sign language.

	Cochlear implant	Sign language
Pros	Deaf children gain access to sounds	Fundamental and most common way for deaf children to communicate
Cons	Deaf children are unable to acquire a spoken language as effectively as normal-hearing children do	Sign language may have ambiguous expressions. Deaf children may not be able to fully grasp the English language and may face difficulties in connecting to the hearing world

Indeed, your choice is personal, but it will impact over your family lives and child's language and bilingual development eventually. Should you need more information before making a decision, you can always explore the Singapore Association for the Deaf, Singapore School for the Deaf, Deaf and Hard of Hearing Federation Singapore, National Council of Social Service or even seek help from speech therapists and other experienced hearing parents with deaf children.

Lastly, thank you for giving this booklet a read and hopefully, it has provided some useful guidance and support for you and your child.

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