

## AUDITORY BRAINSTEM IMPLANT INFORMATION SUMMARY

The following is a summary of the potential benefits and limitations of the Auditory Brainstem Implant (ABI). This information will be reviewed with you during your evaluation as a candidate for an ABI. Please feel free to ask any questions about this information. You may email questions to: [Audiology\\_CI@meei.harvard.edu](mailto:Audiology_CI@meei.harvard.edu)

- The ABI was designed for patients who have lost all remaining hearing in an ear after the removal of an auditory nerve tumor. The purpose of the ABI is to stimulate an area in the brainstem that had once received information from the now missing auditory nerve in an attempt to give the some sensations of sound.
- There are two components to the ABI system:
  - The Internal component: The ABI is a 21-electrode neural stimulator that is generally implanted during the surgery to remove an auditory nerve tumor, or in some cases, at a later date. The internal electrode will have a receiver just under the skin on the side of the head.
  - The External component: External equipment must also be worn. This equipment contains a microphone, a sound processing unit and a transmission coil (which communicates with the internal component). For the transmitter coil to stay in place over the internal ABI, a quarter-sized area must be kept shaved over the ABI and a small adhesive retainer disk placed directly on the scalp. This retainer disk must be replaced frequently.
- ABI recipients must be able to meet the time commitments necessary to complete the multiple programming sessions.
  - After the ABI surgery, patients must wait 2-3 months before the ABI can be activated and programmed. This will be the first time that we will know if the ABI produces hearing sensations. This first session will take several hours and may be spread over 2 days.
  - During the first year you will need to return for programming several times to optimize your hearing and processor programs.
  - After the first year, you will need to return to our clinic once a year for monitoring.
- About 8% of ABI recipients do not receive any hearing sensation. Some of the ABI electrodes produce non-auditory or side-effects when activated. These may include tingling sensations, dizziness or mild jittering of vision. Side-effects can usually be eliminated, but not always.
- If the ABI works as planned, it can provide some new and often useful hearing sensations. However, the hearing sensation produced by the ABI will not be “normal” sounding. It may sound muffled, like “beeps and boops”, chimes or wind blowing.
- Only a small percentage of ABI users are able to understand words using just the ABI sound alone. **The ABI sound is always most beneficial when it is combined with speechreading. Therefore, patients with poor vision may find the ABI of limited benefit.**
- It takes time, use and experience to improve with the ABI. Performance can improve for several years after surgery, though the greatest amount of improvement occurs in the first year.
- The ABI works best in a quiet room with one person talking. Background noise will make it more difficult to hear and understand speech or other sounds of interest.
- Most ABI recipients report that music sounds noisy and non-musical though some users report being able to follow the rhythm of music.