

No.4-2 (8/2014/DD-I
Government of India
Ministry of Social Justice & Empowerment
Department of Disability Affairs

Shastri Bhawan, New Delhi
Dated the 20th October, 2014

OFFICE MEMEORANDUM

Subject: Guidelines approved for Hearing Impaired for financial assistance under revised ADIP Scheme-forwarding of.

The undersigned is directed to say that the Scheme of Assistance to Disabled Persons for purchase/fitting of aids/appliances (ADIP), administered by the Department of Disability Affairs has been revised with effect from 01.04.2014.

2. Para 7: Quantum of Assistance, sub-para (ii) of the Scheme is as under:

“For providing modern assistive devices for all categories of PwDs both physical and mental and multiple disability impaired groups, e.g. Daisy Book players and other Talking Devices, Net Book Laptop and Digital Magnifiers for visual impairment and Behind the Ear (hearing aid) for hearing impairment, the items will be decided by an Expert Committee constituted in the Department of Disability Affairs with the approval of Minister for Social Justice & Empowerment.....”.

3. In light of above, an Expert Committee was constituted in the Department under the Chairpersonship of Secretary (DA) vide Order dated 11.04.2014 to decide and list out modern assistive devices for all categories of Persons with Disabilities (PwDs) under the revised ADIP Scheme. In the first meeting of the Expert Committee held on 07.05.2014, inter-alia, a Core Group for Hearing Impaired was constituted for listing out assistive devices for Hearing Impaired and also to frame the guidelines.

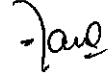
4. The Core Group for Hearing Impaired had held its meeting on 01.07.2014 and 22.08.2014. After deliberations, by inviting suggestions from hearing aid suppliers and based on the recommendations of Sub-Committee formed under the Core Group for Hearing Impaired for framing guidelines and listing out the aids/devices etc., the Core Group has finalized the following for financial assistance for Hearing Impaired under the revised ADIP Scheme:

(i) Guidelines for fitment and procurement of hearing aids/devices as at **Annexure-I.**

(ii) Guidelines for Cochlear Implantation and procurement of Cochlear Implant as at **Annexure II.**

5. Both the guidelines mentioned in para 4 above have been approved by the Ministry in consultation with the Integrated Finance Division of the Ministry for financial assistance under the revised ADIP Scheme. It is requested that this may be given wide publicity among Implementing Agencies in your State/UT.

Encl: As above



(S.K. Mahto)

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1. **All Principal Secretaries/Secretaries
Social Welfare/Social Justice Department in States/UTs**
2. **CMD, ALIMCO/Director (O), AYJNIHH**
3. **Prof. Dr. Arun Agarwal, Ex-Dean, Mulana Azad Medical College,
2-Bahadur Shah Zafar Marg, New Delhi-110 002.**
4. **All Implementing Agencies**

Copy to:


- I. PS to Hon'ble Minister (SJ&E)
- II. PS to Hon'ble MoS (SJ&E)
- III. PPS to Secretary (DA)
- IV. PS to JS (DA)
- V. PS to JS & FA

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Annexure - I

**GUIDELINES FOR FITMENT AND
PROCUREMENT OF HEARING AIDS / ASSISTIVE
LISTENING DEVICES UNDER ADIP SCHEME
(2014-2015)**

As per the recommendations of the expert committee
meeting held on 22-08-2014


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Hearing aids/Assistive listening devices under ADIP scheme

(A) Objective:

The main objective of the Scheme is to assist the hearing disabled persons in procuring durable, sophisticated and scientifically manufactured, modern, standard hearing aids/assistive listening devices to rehabilitation of Persons with Hearing Disabilities by reducing the effects of disabilities and at the same time enhance their economic potential.


The Scheme will be implemented through the Implementing Agencies. The Agencies will be given financial assistance for purchase, fabrication and distribution of such standard aids and appliances that are in conformity with objectives of the Scheme. The Implementing Agencies will take care of/make suitable arrangements for fitting and post-fitting care of the aids and appliances distributed under the Scheme. The Implementing Agencies will give wide publicity of the distribution of such aid and appliances to PwDs. Further, prior to the camp they will inform the District Collector, BDO, a local public representative, State Government and the Department of Disability Affairs at least one week in advance about the date and the location of the camp. After the camps, they shall provide a list of beneficiaries and the details of aids and assistive devices with the cost incurred to the State Government and the Department of Disability Affairs. The list of beneficiaries shall be prominently displayed in the website of the Implementing Agency.

(B) Eligibility of the Beneficiaries

A person with disabilities fulfilling the following conditions would be eligible for assistance under ADIP Scheme.

- i. An Indian citizen of any age.
- ii. Holds a 40% Disablement Certificate.
- iii. Has monthly income from all sources not exceeding Rs. 20,000/- per month.
- iv. In case of dependents, the income of parents/guardians should not exceed Rs 20,000/- per month.
- v. Who have not received assistance during the last 3 years for the same purpose from any source. However, for children below 12 years of age, this limit would be one year.

Note: - Income certificate of beneficiaries staying in orphanages and half-way homes etc. may be accepted on certification of District Collector or Head of the organization concerned. Such beneficiaries will be provided aids & appliances under this Scheme by the implementing agencies.


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(C) Quantum of Assistance

(i) For aids and appliances costing up to Rs. 10,000/-.

Aids/appliances which do not cost more than Rs. 10,000/- are covered under the Scheme for single disability. However, in the case of SwDs, students beyond IX class, the limit would be raised to Rs.12, 000/-

In the case of multiple disabilities, the limit will apply to individual items separately in case more than one aid/appliance is required.

(ii) For providing modern assistive devices for all categories of PwDs both physical and mental and multiple disability impaired groups, e.g. Daisy Book players and other Talking Devices, Net Book Laptop and Digital Magnifiers for visual impairment and Behind the Ear (hearing aid) for hearing impairment, the items will be decided by an Expert Committee constituted in the Department of Disability Affairs with the approval of Minister for Social Justice & Empowerment. The extent of financial support would be limited to Rs. 10,000 for each disability and Rs. 12,000 for students with disabilities in respect of devices costing up to Rs. 20,000. Further, all expensive items costing above Rs. 20,000, except cochlear implant, eligible for assistance under the scheme, subject to income ceiling, would be listed out. Government of India shall bear 50% of cost of these items thus listed by the Committee and the remainder shall be contributed by either the State Govt. or the NGO or any other agency or by the beneficiary concerned subject to prior approval of Ministry on case to case basis; limited to 20% of the Budget under the Scheme.

(iii) Cochlear implant

Ministry of Social Justice and Empowerment will recognize an Institute of national stature from each zone to recommend children eligible under the Scheme for cochlear implant, with a ceiling of Rs.6.00 lakh per unit to be borne by the Government. Ministry will also identify and recognize the Institutes in the zones wherein the surgery will be undertaken. Ministry will identify suitable agencies for providing cochlear implant (500 children per year) under the Scheme. Income ceiling for the beneficiaries will be same as for other aids/appliances.


Note: - Beneficiaries will be linked with Aadhaar number or Ration Card or Voter I-card from 2014-15 and with Aadhaar number from 2015-16.

(D) The amount of assistance will be as follows:

(i) Monthly Income up to Rs. 15,000/- per month: full cost of the hearing aid/assistive listening devices

(ii) Monthly Income Rs.15,001/- to Rs. 20,000/- per month: 50% of the cost of hearing aid/assistive listening devices




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(E) List of Hearing aids/assistive listening devices

1. Body level hearing aids
2. Analog/Non Programmable (Behind the ear(BTE), In the ear(ITE), In the canal (ITC), Completely in the canal(CIC))
3. Digital/Programmable (Behind the ear(BTE), In the ear(ITE), In the canal (ITC), Completely in the canal (CIC))
4. Personal FM Hearing Aids
5. Bluetooth neck loop for hearing aids
6. Vibratory Alarm
7. Baby-crying Alerting Wireless device
8. Door Bell Signaler
9. Fire Smoke Alarm
10. Telephone Signaler
11. Amplified Telephone
12. Telephone amplifier
13. Audio induction loop
14. Infrared system
15. Hearing aids with bone vibrator
16. Educational kit (Children up to 10 years of age can be provided with a choice of multiple assistive devices along with educational kit as per the recommendations of the rehabilitation professionals. However, the onetime quantum of assistance should not exceed an amount of Rs. 10,000/-)
 - a) Language (Vocabulary) book
 - b) Articulation drill book
 - c) Story book
 - d) Other materials (Family Hand Puppets, 5 Puzzles, Montessori equipments/toys, Shape sorter clock, One set of noise makers, Block sorter boxes, Set of verb cards, 5 soft toys)

Details of Quantum of Assistance for Hearing Impaired:

- i. Hearing Aids/Assistive Listening Devices costing up to Rs.10,000/- for persons with Hearing Impairment
- ii. Hearing Aids/Assistive Listening Devices costing up to Rs.12, 000/- for students with disabilities (HI) beyond IX Standard
- iii. Hearing Aids/Assistive Listening Devices costing up to Rs.20, 000/- for students with disabilities (HI) beyond IX standard wherein Rs. 12,000/- will be borne by the Govt. (Under ADIP) Scheme) and the remaining amount to be paid by the beneficiary/State Govt./NGO or any other agency.
- iv. Hearing Aids/Assistive Listening Devices costing above Rs.20,000/- except cochlear implant for students with disabilities (HI) beyond IX standard wherein 50% will be borne by the Govt. (limited to 20% of the budget under the ADIP scheme) and the remaining amount to be paid by the beneficiary/State Govt./NGO or any other agency.

Specification for Hearing Aids/Assistive Listening Devices

I. Hearing Aids/Assistive Listening Devices costing up to Rs.10,000/- for persons with Hearing Impairment

1. Body level hearing aids costing up to Rs. 3,000/-

Justification:

1. As the size of hearing aid is large it would be easy to operate the controls by individuals having dexterity problems, visual problems (due to old age), and young children with multiple disabilities.
2. Minimized effect due to body perspiration
3. Withstands shocks, drops and other mechanical damages
4. Available for all degrees of losses and provides maximum gain for individuals with hearing loss >90dBHL
5. Body level aids with either audio input or telecoil to connect to external devices connecting to TV and MP3 players etc, to let clients enjoy recreational activities.

• Physical features:

a. Dimensions and Mass

Overall Height (max)	:	80 mm
Overall width (max)	:	65 mm
Thickness (max)	:	20 mm
Mass (max)	:	60 gms

(excluding batteries, cords & earplugs)

b. Controls

The hearing aid shall contain On/Off switch, Volume control, Telecoil, Tone control (L/N/H or N/H/HH), AGC / MPO trimmer control to manipulate the gain of the hearing aid.

c. Accessories

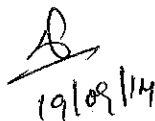
Earphone receiver – Air conduction type

Cord – 'S' or 'V' cord

Three sets of different sizes of Ear tips

Two rechargeable batteries and Solar Battery Charger for all types or 24 Non-rechargeable Pen-torch cells (Size 'AA' / R6 – 1.5V, IS: 9128) should be accommodated in hearing aid pack.




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• **Electro-acoustic features**

The body level hearing aids are available in mild, moderate, strong and extra strong classes.

BIS IS 10775: 1984

Sr. No	Parameters	Mild	Moderate	Strong	Extra strong*
1	Maximum SSPL	115 dB	125 dB	135 dB	>135 dB
2	Average OSPL 90	105 to 114 dB	115 to 124 dB	125 to 134 dB	> 130 dB
3	Full on acoustic gain	45dB(min)	55dB(min)	65dB(min)	>70dB
4	HF Avg. Full on Gain	40 dB (Min.)	50 dB (Min.)	60 dB (Min.)	> 60 dB
5	Frequency range	At least between 250 Hz to 3150 Hz for all categories			
6	Total Harmonic Distortion	should not exceed 7 % (at 1.5V) and 10 % (at 1V)			
7	Difference in gain between 1V & 1.5V	≤ 10dB for all classes of aids			
8	Battery Current	≤ 5 mA	≤ 10mA	≤ 15mA	≤ 20 mA
9	Equivalent I/P noise levels	≤ 30 dB SPL			
10	Tele coil	Min 75 dB	Min 85 dB	Min 95 dB	Min 95 dB

*BIS standards for extra strong hearing aids are not available. However, as these hearing aids are beneficial to individuals with severe to profound hearing loss, the expert committee has recommended the same.

2. Analog Hearing aids/non programmable Digital Behind The Ear (BTE), In the Ear(ITE), In the canal (ITC), Completely in the canal (CIC) hearing aids costing up to Rs. 10,000/-

Analog hearing aids/non programmable Digital Behind the Ear Hearing aid are of linear amplification in which the amount of output increased will be equal to the increase in the input until the hearing aid saturation is reached.

Justification:

1. As the hearing aid is at ear level provides better speech perception and better signal to noise ratio.
2. Various types and models are available for all degrees of losses and provides maximum gain for individuals with hearing loss >90dBHL.

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• **Physical features**

a. Color options such as cream/brown/black are available

b. **Controls**

The hearing aid shall contain On/Off switch, Volume control, Telecoil, Tone control (N-H) BTE/ITE. On/Off switch, volume control for ITC, CIC.

c. **Accessories**

Three sets of different sizes of Ear tips with tubes for BTEs

Two rechargeable batteries and Battery Charger for all types or 36 non chargeable Zinc air Button cells should be accommodated in hearing aid pack.

• **Electro-acoustic features (As there are no BIS standards for analog behind the ear (BTE) hearing aids the specifications are adopted from the Body-worn Hearing Aid standards).**

S.N	Parameters	Category I	Category II	Category III
1	Maximum SSPL	115 dB	125dB	135dB
2	Average OSPL 90	105 to 114dB	115 to 124 dB	125 to 134 dB
3	HF Avg. full on Gain	40 dB (Min.)	50 dB (Min.)	60 dB (Min.)
4	Frequency range	At least between 250 Hz to 3150 Hz for all categories		
5	Total Harmonic Distortion	should not exceed 7 % (at 1.4V)		
6	Battery Current	≤ 5 mA	≤ 10mA	≤ 15mA
7	Equivalent I/P noise levels	≤ 30 dB SPL		
8	Tele coil	Min 75 dB	Min 85 dB	Min 95 dB

*The analog BTE hearing aids which are not having BIS standards are also included as these are beneficial for individuals with hearing loss. The expert committee recommended the same and the proposed parameters are adopted from body worn hearing aid specifications.

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- **Electro-acoustic features (As there are no BIS standards for In the ear (ITEs), In the canal (ITC) the specifications are adopted from the Body-worn Hearing Aid standards).**

S.N	Parameters	Category I	Category II	Category III
1	Maximum SSPL	105 dB	115 dB	125dB
2	Avg. OSPL 90	95 to 104 dB	105 to 114 dB	115 to 124 dB
3	HF Avg. Full on Gain	30 dB (Min.)	40 dB (Min.)	50 dB (Min.)
4	Frequency range	At least between 250 Hz to 3150 Hz for all categories		
5	Total Harmonic Distortion	should not exceed 7 % (at 1.4V)		
6	Battery Current	≤ 5 mA	≤ 10mA	≤ 15mA
7	Equivalent I/P noise levels	≤ 30 dB SPL		

*The analog ITE and ITC hearing aids which are not having BIS standards are also included as these are beneficial for individuals with hearing loss. The expert committee recommended the same and the proposed parameters are adapted from body worn hearing aid specifications.

- **Electro-acoustic features (As there are no BIS standards for completely in the canal (CICs), the specifications are adopted from the Body-worn Hearing Aid standards).**

S.N	Parameters	Category I	Category II
1	Maximum SSPL	110 dB	120 dB
2	Average OSPL 90	100 to 109 dB	110 to 119 dB
3	HF Avg. Full on Gain	30 dB (Min.)	40dB (Min.)
4	Frequency range	At least between 250 Hz to 3150 Hz for all categories	
5	Total Harmonic Distortion	should not exceed 7 % (at 1.4V)	
6	Battery Current	≤ 5 mA	≤ 10mA
7	Equivalent Input noise levels	≤ 30 dB SPL	

*The analog CIC hearing aids which are not having BIS standards are also included as these are beneficial for individuals with hearing loss. The expert committee recommended the same and the proposed parameters are adapted from body worn hearing aid specifications. Committee recommended the same and the proposed parameters are adapted from body worn hearing aid specifications.

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4. Digital/Programmable/Adaptive automatic Digital ready to fit Hearing aids: Behind the Ear (BTE) hearing aids costing upto Rs.10, 000/-

Digital programmable or adaptive automatic Digital ready to fit hearing aids work with non linear amplification in which the amount of output is controlled using various compression circuits.

Justification:

1. They provide programmable gain which can be adjusted as per the configuration of the audiogram and number of channels present.
2. May contains up to 2 - 4 channels and 2 programs for different listening conditions (Eg: noise, feedback cancellation etc.) and have greater durability (optional).
3. As the hearing aid is at ear level it provides better speech perception and good signal to noise ratio.
4. Better signal to noise ratio for sloping hearing losses as low frequency gain can be reduced and has different channels (up to 2 - 4 channels) in the frequency range
5. Various types and models are available for all degrees of losses and provides maximum gain for individuals with hearing loss >90dBHL

• **Physical features:**

- a) Color options such as cream/brown/black are available
- b) Digitally programmable

c) **Controls**

The hearing aid shall contain On/Off switch, Volume control, Telecoil in BTE/ITE.
Digital Signal Processing amplifier
Hearing Level control / Volume Control (for adjustment of Gain and MPO)

Accessories

Three sets of Ear tip and tubes in different sizes for BTEs

Two rechargeable batteries and Battery Charger or 36 non Chargeable Zinc Air Button cells should be accommodated in hearing aid pack.

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• **Electro-acoustic features for Behind the ear (BTEs) as per IS 16127 : 2013**

S.N	Parameters	Values
1	Maximum OSPL 90	105dB - 135dB
2	HF Avg. Full on Gain	Type I: 40 dB (min), Type II: 45 dB (min), Type III: 50 dB (min)
3	No. of Channels / (Optional) bands	Two or Four
4	Frequency range	200 Hz to 4500 Hz for OSPL of 105 to 115dB 200 Hz to 4000 Hz for OSPL of 115 to 135dB
5	Total Harmonic Distortion	should not exceed 7 % @ 500, 800 & 1600Hz at RTG position
6	Battery Current	≤ 10 mA
7	Equivalent I/P noise levels	≤ 30 dB SPL
8	Telecoil	75 dB(min)

Procedure for Procurement:

- Warranty period for 2 Years
- Children below 12 years are allowed two body level hearing aids or two behind the ear Hearing Aids (Binaural). However cost should not exceed more than ADIP limit of Rs. 10, 000/- for each hearing aids.
- Children up to 10 years of age are provided with a choice of multiple assistive devices along with educational kit. However, the onetime quantum of assistance should not exceed an amount of Rs. 10,000/-
- The implementing agencies need to carry out 1% of sample check for electro-acoustic characteristics (EAC) measurements for confirmation of satisfactory functioning. This procedure should be carried for orders placed on each occasion for each category hearing aids.
- The implementing agencies should send the randomly selected 1% of the sample for Electro acoustic Characteristics of Hearing aid for certification (EAC) to AYJNIHH and its regional centres (Secunderabad, Kolkata, New Delhi, Bhubaneswar depending upon availability of testing facility or All India Institute of Speech and Hearing (AIISH), Mysore.
- Procurement of hearing aids and assistive devices will be done by the implementing agencies by following procedural codes as per GFRs.
- The implementing agencies may follow the procedures adopted by government agencies.
- Dispensing of ITEs, ITCs and CICs are allowed only at National Institutes and their Regional Centres and Composite regional Centres.

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5. Other Assistive Listening Devices costing up to 10,000/-

Assistive technology helps people who are deaf and hard of hearing to live more independently. Technology is continuously improving and changing. Some of the assistive listening devices recommended include:

I. Communication devices

- a. Personal FM Hearing Aids,
- b. Bluetooth neck loop for hearing aids
- c. Amplified Telephone
- d. Telephone amplifier

II. Alerting devices

- a. Vibratory Alarm,
- b. Baby-crying Alerting Wireless device,
- c. Door Bell Signaler,
- d. Fire Smoke Alarm,
- e. Telephone Signaler,

I. Communication devices

a. FM systems - Personal body-worn FM device

Physical Features

- a. FM microphone
- b. Personal FM receiver attached to hearing aid worn by the listener.
- c. FM transmitter

Specifications

- FM systems broadcast across the frequency region between 72 to 76 MHz and 216 to 217 GHz
- Modulation type Analogue FM (narrowband)
- Range Up to 30 feet

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b. Bluetooth neck loop for hearing aids:

The bluetooth neck loop provides hands free cell phone conversation. Neck loops are compatible with wireless computer and communication apps such as Skype. They provide good signal strength with reduced background noise. They are telecoil compatible with BTE, ITE and ITC aids.

Features	Description
Frequency Band	2.4GHz ISM Spectrum
Modulation	GFSK (Gaussian Frequency Shift Keying)
RF Power	Class 2, -6-6dBm
Operating Range	Up to 10m/30ft (indoor)
Compatibility	Mobile phones supporting Bluetooth 1.1 (and above), Other Stereo Audio Devices supporting Bluetooth 1.1 (and above), Headset.
Dimension	30mmx60mmx20mm (approx)
Weight	15 gms (approx)
Loop Size	1000mm (approx)

c. Amplified Telephone:

Numerous telephones have built-in amplifiers that vary in range from 25 to 55 decibels. Many of these telephones have variable tone selectors and loud ringers.

Features	Description
Amplification	Up to 50 dB incoming
Power supply	Base input: 7.5 V, 300 mA
Base dimensions	200mm x 200mm x 40mm (variable)
Jacks	AUDIO NECKLOOP (Output): 3.5 mm (Headset) 2.5 mm (variable)
Vibrating pad	3.5 mm (approx)
Caller ID	FSK standard, DTMF signaling

d. Tele Phone Amplifier:

A light weight battery operated device with an adjustable volume control that fits over the listening end of the handset.

Features	Description
Amplification	40 dB (Can be made available with slider control)
Power	AC adapter or 9-volt battery
Size	100mmx 75mm x 50mm (approx)

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II. Alerting devices

Alerting devices use a loud tone, flashing lights or vibrations to alert people with a hearing loss to various environmental sounds. They respond to a variety of signals: the ring of a doorbell or telephone, the cry of a baby, and the sound of alarm clocks, fire/smoke alarms. Many of these systems transmit signals to receivers located throughout a home or office, activating a light to flash or a device to vibrate.

All these devices help the persons with hearing loss to remain alert in all problem arising situations. So, it is mandatory that all individuals with hearing loss are provided access to own such devices for self-protection and other needs without missing out the important sounds of day to day life

a. Vibration Alarm:

Signalers vary from portable alarm clocks with built-in strobe lights to alarm clocks with a built-in outlet where a lamp or vibrating alert can be plugged in.

Features	Description
Ring Volume	105-113 dB extra-loud alarm (with adjustable tone & volume control)
Power (Vibration)	12-volt bed shaker
Light Signal	flashing alert lights
Snooze time	1-10 minutes choice
Alarm duration	from 1-20 minutes
Power	Battery operated

b. Baby-crying Alerting Wireless device:

1. Enables people to be alerted to baby sounds.
2. Enables Hearing Impaired parents to be alerted to their babies cry
3. Gives them an indication even when they are not in the same room
4. It has an adjustable sensitivity dial to pick up the softest sound and send a signal.

Features	Description
Light Signal	flashing alert lights (flash patterns can be selected)
Power	Battery operated
Dimensions	125mm x 50mm x 75mm (approx)
Weight	500gms. (approx)

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c. Doorbell Signaler:

Works with or without an existing doorbell system to let people know that someone is at the door.

Features	Description
Light Signal	flashing alert lights (flash patterns can be selected)
Power	Battery operated
Dimensions	125mm x 50mm x 75 mm (approx)
Weight	500gms. (approx)

d. Fire/Smoke Alarm:

Alerts people who are deaf or hard of hearing that the smoke alarm has been activated. Some alarms have built in strobe lights.

Features	Description
Ring frequency	Low frequency
Power (Vibration)	10- 12-volt bed shaker
Light Signal	flashing alert lights
Power	Battery operated

e. Telephone Signaler:

One type of signaler plugs directly into the telephone line and electrical outlet. Another type can be attached to the side of the telephone to pick up the sound of the bell.

Features	Description
Light Signal	flashing alert lights (flash patterns can be varied)
Power	Battery operated
Dimensions	125mm x 50mm x 75mm (approx)
Weight	500 gm. (approx)

Procedure for Procurement:

- Warranty period for 2 Years
- As there are no BIS standards for above assistive listening devices and they are beneficial for clients, Committee recommends the same.
- The implementing agencies need to carry out 1% of sample check for testing for confirmation of satisfactory functioning. This procedure should be carried for orders placed on each occasion for each category assistive devices.

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- The implementing agencies should send the randomly selected 1% of the sample for testing of assistive devices for confirmation of satisfactory functioning to AYJNIHH Mumbai or its regional centres (Secunderabad, Kolkata, New Delhi, Bhubaneshwar depending upon availability of testing facility or All India Institute of Speech and Hearing (AIISH), Mysore.
- Procurement of assistive listening devices will be done by the implementing agencies by following procedures codes as per GFRs.
- The implementing agencies may follow the procedures adopted by government agencies.

II. Hearing Aids/Assistive Listening Devices costing up to Rs. 12,000/- for students with disabilities (HI) beyond IX Standard

1. Digital/Programmable Behind The Ear (BTE), In the Ear (ITE), In the canal (ITC), Completely in the canal (CIC)
2. Personal FM Hearing Aids
3. Bluetooth Neck Loop System (can be connected to laptops, mobile phones, TV & Audio systems etc.)
4. Video phone

1. Digital/Programmable Hearing aids: Behind the Ear (BTE), In the ear (ITE), In the canal (ITC) & Completely in the canal (CIC) hearing aids costing upto Rs.12, 000/-

Digital programmable hearing aids work with non linear amplification in which the amount of output is controlled using various compression circuits.

Justification:

1. They provide programmable gain which can be adjusted as per the configuration of the audiogram and number of channels present.
2. Contains up to minimum 2 programs for different listening conditions (Eg: noise, quiet, telecoil etc) and have greater durability.
3. As the hearing aid is at ear level it provides better speech perception and high signal to noise ratio.
4. Audio input or Bluetooth or wireless connectivity options with the hearing aid
5. Better signal to noise ratio for sloping hearing losses as low frequency gain can be reduced and has different channels (up to 4 channels) in the frequency range
6. Various types and models are available for all degrees of losses and provides maximum gain for individuals with hearing loss >90dBHL




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• **Physical features:**

a. Color options such as cream/brown/black are available

b. Controls

The hearing aid shall contain On/Off switch, Volume control, Telecoil in BTE/ITE.

Fixed Directionality

Noise Reduction

Feedback Management

2 configurable programs (min)

4 or 8 channels

Sound indicator for programs and low battery warning

Power On delay

c. Accessories

Three sets of Ear tip and tubes in different sizes for BTEs

Two rechargeable batteries and Battery Charger or 36 Zinc air non chargeable Button cells should be accommodated in hearing aid pack.

• **Electroacoustic features for behind the ear (BTE) hearing aid as per IS 16127: 2013**

S.N	Parameters	Values
1	Maximum OSPL 90	105dB - 135dB
2	HF Avg. Full on Gain	Type I: 40 dB (min), Type II: 45 dB (min), Type III: 50 dB (min),
3	No. of Channels/bands	Four / Eight
4	Frequency range	200 Hz to 4500 Hz for OSPL of 105 to 115dB 200 Hz to 4000 Hz for OSPL of 115 to 135dB
5	Total Harmonic Distortion	should not exceed 7 % @ 500, 800 & 1600Hz at RTG position
6	Battery Current	≤ 10 mA
7	Equivalent I/P noise levels	≤ 30 dB SPL
8	Programs	2(min)
9	Dynamic characteristics of AGC	(+/- 5 ms or +/- 50 % of the values specified by the manufacturer)
10	Telecoil	75dB(min)

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- Electroacoustic features (As there are no BIS standards for In the ear (ITEs) & In the canal (ITC) hearing aids the specifications are adopted from the specification IS 16127: 2013 digital BTE standards).

S.N	Parameters	Values
1	Maximum OSPL 90	105dB - 125dB
2	HF Avg. Full on Gain	Type I: 30 dB (min), Type II: 40 dB (min), Type III: 50 dB (min),
3	No. of Channels / bands	Four / Eight
4	Frequency range	200 Hz to 4500 Hz for OSPL of 105 to 115dB 200 Hz to 4000 Hz for OSPL of 115 to 135dB
5	Total Harmonic Distortion	should not exceed 7 % @ 500, 800 & 1600Hz at RTG position
6	Battery Current	≤ 5 mA
7	Equivalent I/P noise levels	≤ 30 dB SPL
8	Programs	2(min)
9	Dynamic characteristics of AGC	(+/- 5 ms or +/- 50 % of the values specified by the manufacturer)

- Electroacoustic features (As there are no BIS standards for completely in the canal (CIC) hearing aid the specifications are adopted from the specification 16127: 2013 digital BTE standards).

S.N	Parameters	Values
1	Maximum OSPL 90	105dB - 120dB
2	HF Avg. Full on Gain	Type I: 30dB (min), Type II: 40dB (min)
3	No. of Channels / bands	Four/Eight
4	Frequency range	200 Hz to 4500 Hz for OSPL of 105 to 115dB 200 Hz to 4000 Hz for OSPL of 115 to 135dB
5	Total Harmonic Distortion	should not exceed 7 % @ 500, 800 & 1600Hz at RTG position
6	Battery Current	≤ 5 mA
7	Equivalent I/P noise levels	≤ 30 dB SPL
8	Programs	2(min)
9	Dynamic characteristics of AGC	(+/- 5 ms or +/- 50 % of the values specified by the manufacturer)

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Procedure for Procurement:

- Warranty period for 2 Years
- Mono-aural only
- There are no BIS standards for ITE, ITC & CIC hearing aids however these hearing aids are beneficial to individuals with hearing loss the above specifications were adopted from digital BTE standards and Committee recommended these hearing aids.
- The implementing agencies need to carry out 1% of sample check for electroacoustic characteristics (EAC) measurements for confirmation of satisfactory functioning. This procedure should be carried for orders placed on each occasion for each category hearing aids.
- The implementing agencies should send the randomly selected 1% of the sample for Electro acoustic Characteristics of Hearing aid for certification (EAC) to AYJNIHH, Mumbai or its regional centres (Secunderabad, Kolkata, New Delhi, Bhubaneshwar depending upon availability of testing facility or All India Institute of Speech and Hearing (AIISH), Mysore.
- Procurement of hearing aids and assistive devices will be done by the implementing agencies by following procedural codes as per GFRs.
- The implementing agencies may follow the procedures adopted by government agencies.
- Dispensing of ITEs, ITCs and CICs are allowed only at National Institutes and their Regional Centres and Composite regional Centres.

2. Other Assistive Listening Devices costing up to 12,000/-

Assistive technology helps people who are deaf and hard of hearing to live more independently. Technology is continuously improving and changing. Some of the assistive listening devices recommended include:

I. Communication devices

- a) Personal FM Hearing Aids,
- b) Bluetooth neck loop for hearing aids
- c) Video phone

a. Personal FM systems

Consists of
Microphone
Transmitter
Receiver

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• **Features**

Receiver

- i. DAI –Direct Audio Input – connects to BTE hearing aid
- ii. LED indicator confirms that the child is receiving a clear signal
- iii. Simple, on-the-spot programming – no need for PCs and extra cables
- iv. Discreet receivers that stay in place
- v. Clear, authentic sound quality for optimum speech understanding
- vi. Fully compatible with hearing aids
- vii. attack and release times as fast as 30 and 600 ms respectively
- viii. DAI/FM + HA (default)
- ix. Also available with neck loop
- x. DAI cords – monaural & binaural

Transmitter

- i. Transmitter and programmer in one
- ii. Covers World FM Band
- iii. Bandwidth 8.5 kHz
- iv. Digital Signal Processing
- v. External antenna built into microphone cord
- vi. FM Channel Wizard - Monitor FM channels

b. Bluetooth neck loop for hearing aids:

The Bluetooth neck loop provides hands free cell phone conversation. Neck loops are compatible with wireless computer and communication apps such as Skype. They provide good signal strength with reduced background noise. They are telecoil compatible with BTE, ITE and ITC aids.

Features	Description
Frequency Band	2.4GHz ISM Spectrum
Modulation	GFSK (Gaussian Frequency Shift Keying)
RF Power	Class 2, -6-6dBm
Operating Range	Up to 10m/30ft (indoor)
Compatibility	Mobile phones supporting Bluetooth 1.1 (and above), Other Stereo Audio Devices supporting Bluetooth 1.1 (and above), Headset.
Dimension	30 x 60 x 18 mm. approx
Weight	15 gms (approx)
Loop Size	1000mm (approx)

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c. Video Phone:

Using video phones, two people who know sign language can communicate directly with each other, or a person who is deaf and knows sign language can call a non-signing person through the video relay service (VRS). An interpreter at VRS facilitates communication between the person who uses sign language and the person who does not use sign language.

Justification:

Video phones are helpful for individuals who communicate through sign language

Features

Specification	Description
Fully Integrated Unit Including	LCD screen, camera, microphone, loudspeaker, keypad and handset Delivered with power supply/cable and Ethernet cable
Bandwidth	1152 kbps
Video Standards	H.264, H.263+, H.263
Video Features	Native 16:9 Widescreen Picture in Picture (PIP)
Audio Standards	MPEG4 AAC-LD, G.729ab, G.722, G.722.1, G.711
Audio Features	1. Ultra wideband 20 kHz speaker phone 2. Wideband 10 kHz handset 3. Automatic Gain Control (ACG) 4. Automatic Noise Reduction 5. Active lip synchronization
Privacy Features	Camera with integrated privacy shutter
User Interface	On-screen graphic user interface
Internet Connectivity	YES
Captioned Telephony (Optional)	TTY (Telephone Text) support via handset

Procedure for Procurement:

- Warranty period for 2 Years
- There are no BIS standards for the above assistive devices; however these devices are beneficial to individuals with hearing loss the above are recommended.
- The implementing agencies need to carry out 1% of sample check for testing for confirmation of satisfactory functioning. This procedure should be carried for orders placed on each occasion for each category assistive devices.

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- The implementing agencies should send the randomly selected 1% of the sample for testing of assistive devices for confirmation of satisfactory functioning to AYJNIHH Mumbai or its regional centres (Secunderabad, Kolkata, New Delhi, Bhubaneshwar depending upon availability of testing facility or All India Institute of Speech and Hearing (AIISH), Mysore.
- Procurement of assistive listening devices will be done by the implementing agencies by following codal procedures as per GFRs.
- The implementing agencies may follow the procedures adopted by government agencies.

III. Hearing Aids/Assistive Listening Devices costing up to Rs.20, 000/- for students with disabilities (HI) beyond IX standard wherein Rs. 12,000/- will be borne by the Govt. (Under ADIP) Scheme) and the remaining amount to be paid by the beneficiary/State Govt./NGO/any other Agency

1. Digital/Programmable Behind The Ear (BTE), In the Ear (ITE), In the canal (ITC), Completely in the canal (CIC)
2. Personal FM Hearing Aids
3. Audio induction loop
4. Infrared system


1. Digital/Programmable Hearing aids: Behind The Ear (BTE), In the ear(ITE), In the canal(ITC) & Completely in the canal(CIC) hearing aids costing up to Rs.20, 000/-

Digital programmable hearing aids work with non linear amplification in which the amount of output is controlled using various compression circuits.

Justification:

1. They provide programmable gain which can be adjusted as per the configuration of the audiogram with 4/ 8/ 12 channels / bands.
2. Contains 3 programs (min) for different listening conditions (Eg : noise, quiet, telecoil, speech mode etc.) and have greater durability.
3. As the hearing aid is at ear level it provides better speech perception and high signal to noise ratio.
4. Better signal to noise ratio for sloping hearing losses as low frequency gain can be reduced
5. Various types and models are available for all degrees of losses and provides maximum gain for individuals with hearing loss >90dBHL




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- **Physical features:**

a. Color options such as cream/brown/black are available

b. **Controls**

- The hearing aid shall contain On/Off switch, Volume control, Telecoil in BTE/ITE.
- Bandwidth upto 8 kHz for ITEs. For BTEs, as per BIS standard
- Directionality (both Omni & Uni)
- Noise Management
- Automatic Feedback Cancellation facility
- 3 user programs(min)
- 4/ 8/ 12 channels / bands
- Direct audio input(DAI) or FM or wireless compatible (optional)
- T-coil/ Auto Phone program
- Battery Low warning
- Sound indicators for program shifts
- Power on delay

c. **Accessories**

Three sets of Ear tips of different sizes with tubes for BTEs

Two rechargeable batteries and Battery Charger or 36 Zinc Air non chargeable Button cells should be accommodated in hearing aid pack.

Electroacoustic features for behind the ear (BTE) hearing aid as per IS 16127: 2013

S.N	Parameters	Values
1	Maximum OSPL 90	105dB - 135dB
2	HF Avg. Full on Gain	Type I: 40dB (min), Type II: 45dB (min), Type III: 50dB (min)
3	No. of Channels / bands	Four / Eight / Twelve
4	Frequency range	200 Hz to 4500 Hz for OSPL of 105 to 115dB 200 Hz to 4000 Hz for OSPL of 115 to 135dB
5	Total Harmonic Distortion	should not exceed 7 % @ 500, 800 & 1600Hz at RTG position
6	Battery Current	≤ 10 mA
7	Equivalent I/P noise levels	≤ 30 dB SPL
8	Programs	3(min)
9	Dynamic characteristics of AGC	(+/- 5 ms or +/- 50 % of the values specified by the manufacturer)
10	Telecoil	75dB(min)

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- **Electroacoustic features (As there are no BIS standards for In the ear (ITEs) & In the canal (ITC) the specifications are adopted from the IS 16127: 2013 digital BTE hearing aid standards).**

S.N	Parameters	Values
1	Maximum OSPL 90	105dB - 125dB
2	HF Avg. full on Gain	Type I: 30dB (min), Type II: 40dB (min), Type III: 50dB (min)
3	No. of Channels / bands	Four / Eight / Twelve
4	Frequency range	200 Hz to 4500 Hz for OSPL of 105 to 115dB 200 Hz to 4000 Hz for OSPL of 115 to 135dB
5	Total Harmonic Distortion	should not exceed 7 % @ 500, 800 & 1600Hz at RTG position
6	Battery Current	≤ 5 mA
7	Equivalent I/P noise levels	≤ 30 dB SPL
8	Programs	3(min)
9	Dynamic characteristics of AGC	(+/- 5 ms or +/- 50 % of the values specified by the manufacturer)

- **Electroacoustic features (As there are no BIS standards for completely in the canal (CIC) the specifications are adopted from the IS 16127: 2013 of digital BTE hearing standards).**

S.N	Parameters	Values
1	Maximum OSPL 90	105dB - 120dB
2	HF Avg. Full on Gain	Type I: 30 dB (min), Type II: 40 dB (min)
3	No. of Channels / bands	Four / Eight / Twelve
4	Frequency range	200 Hz to 4500 Hz for OSPL of 105 to 115dB 200 Hz to 4000 Hz for OSPL of 115 to 135dB
5	Total Harmonic Distortion	should not exceed 7 % @ 500, 800 & 1600Hz at RTG position
6	Battery Current	≤ 5 mA
7	Equivalent I/P noise levels	≤ 30 dB SPL
8	Programs	3(min)
9	Dynamic characteristics of AGC	(+/- 5 ms or +/- 50 % of the values specified by the manufacturer)

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Procedure for Procurement:

- Warranty period for 2 Years
- Mono-aural only
- There are no BIS standards for ITE, ITC & CIC hearing aids however these hearing aids are beneficial to individuals with hearing loss the above specifications were adopted from digital BTE standards and Committee recommended these hearing aids.
- The implementing agencies need to carry out 1% of sample check for electroacoustic characteristics (EAC) measurements for confirmation of satisfactory functioning. This procedure should be carried for orders placed on each occasion for each category hearing aids.
- The implementing agencies should send the randomly selected 1% of the sample for Electro acoustic Characteristics of Hearing aid for certification (EAC) to AYJNIHH, Mumbai and its regional centres (Secunderabad, Kolkata, New Delhi, Bhubaneswar depending upon availability of testing facility or All India Institute of Speech and Hearing (AIISH), Mysore.
- Procurement of hearing aids and assistive devices will be done by the implementing agencies by following procedural codes as per GFRs.
- The implementing agencies may follow the procedures adopted by government agencies.
- Dispensing of ITEs, ITCs and CICs are allowed only at National Institutes and their Regional Centres and Composite regional Centres.

2. Other Assistive Listening Devices costing up to 20,000/-

Assistive technology helps people who are deaf and hard of hearing to live more independently. Technology is continuously improving and changing. Some of the assistive listening devices recommended include:

I. Communication devices

- a) Personal FM Hearing Aids,
- b) Audio induction loop
- c) Infrared system

a. Personal FM systems

Consists of

Microphone

Transmitter

Receiver attached to child's own FM compatible hearing aid




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- **features**

Receiver

- xi. DAI –direct audio input or tele Neck loop / Bluetooth streaming – connections to BTE hearing aid
- xii. LED indicator confirms that the child is receiving a clear signal
- xiii. Simple, on-the-spot programming – no need for PCs and extra cables
- xiv. Discreet receivers that stay in place
- xv. Clear, authentic sound quality for optimum speech understanding
- xvi. Fully compatible with hearing aids
- xvii. attack and release times as fast as 30 and 600 ms respectively
- xviii. DAI or FM / Neck loop + HA (default)
- xix. Also available with neck loop or Bluetooth streamer
- xx. DAI cords – monaural & binaural (Optional)
- xxi. has multiple frequency bands

Transmitter

- i. Transmitter and programmer in one
- ii. Covers World FM Band
- iii. Bandwidth 8.5 kHz
- iv. Digital Signal Processing
- v. External antenna built into microphone cord
- vi. FM Channel Wizard - Monitor FM channels

b. Audio Induction Loop:

1. Consists of a microphone, an amplifier, and a length of properly sized wire or cable which encircles the seating area.
2. To pick up the signals, listeners who are deaf and/or hard of hearing must have their hearing aids turned to the Telecoil switch and sit within or near the loop or encircled seating area.

Features	Description
Frequency response	100-5000Hz \pm 3dB relative to 1000Hz
Field strength	400mA/m peak response
S/N ratio	40- 45dB approx
Magnetic field	1.2m (Seating) - 1.7m (Standing)
Microphone	Omni directional
Loop cable Size	Adjustable (up to 100m reels)
Power consumption	20w
Dimensions	300 x 250 x 100 mm. (approx)
Coverage area	1.2-1.5 Sq. m (approx.)

c. Infrared System:

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1. This wireless system transmits sound via invisible light beams.
2. The receiver must be in direct line of sight of the light beam from the transmitter.
3. These systems can only be used indoors and are generally located in churches, theaters and auditoriums.
4. There are infrared devices made for home television listening. The transmitter is placed on the TV and plugs into an electrical outlet.
5. The user wears a headset (receiver) operated by batteries. The volume is controlled from the headset rather than from the TV; the volume of the TV can then be set at a comfortable volume for other listeners.

Modulation	FM
Nominal deviation	+/- 50 kHz
Carrier frequency	2.3 MHz
Output impedance	50 Ohm
IR diodes	10 to 70
Coverage area	80 m ² to 400 m ²
Effective radiated power	0.5W to 2 W
Operating voltage	24 V DC to 29 V DC
Radio microphone system	Channels- up to 16 with Range- 25m (approx.)

Procedure for Procurement:

- Warranty period for 2 Years
- Even though there are no BIS standards for above assistive listening devices and they are beneficial for clients, Committee recommends the same.
- The implementing agencies need to carry out 1% of sample check for testing for confirmation of satisfactory functioning. This procedure should be carried for orders placed on each occasion for each category assistive devices.
- The implementing agencies should send the randomly selected 1% of the sample for testing of assistive devices for confirmation of satisfactory functioning to AYJNIHH Mumbai or its regional centres (Secunderabad, Kolkata, New Delhi, Bhubaneswar depending upon availability of testing facility or All India Institute of Speech and Hearing (AIISH), Mysore.
- Procurement of assistive listening devices will be done by the implementing agencies by following codal procedures as per GFRs.
- The implementing agencies may follow the procedures adopted by government agencies.

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IV. Hearing Aids/Assistive Listening Devices costing above Rs.20,000/- for students with disabilities (HI) beyond IX standard wherein 50% will be borne by the Govt. (Limited to 20% of the budget under ADIP) Scheme) and the remaining amount to be paid by the beneficiary/State Govt./NGO/any other Agency

1. Digital/Programmable Behind The Ear (BTE), In the Ear (ITE), In the canal (ITC), Completely in the canal (CIC)
2. Personal FM Hearing Aids

1. Digital/Programmable Hearing aids: Behind The Ear (BTE), receiver in the ear(RITE), In the ear(ITE), In the canal(ITC) & Completely in the canal(CIC) hearing aids costing above Rs.20, 000/-

Digital programmable hearing aids work with non linear amplification in which the amount of output is controlled using various compression circuits.

Justification:

1. They provide programmable gain which can be adjusted as per the configuration of the audiogram.
2. Contains 4 programs for different listening conditions (Eg: noise, quiet etc) and have greater durability.
3. As the hearing aid is at ear level it provides better speech perception and high signal to noise ratio.
4. Better signal to noise ratio for sloping hearing losses as low frequency gain can be reduced and has different channels (up to 16 gain channels) in the frequency range.
5. Various types and models are available for all degrees of losses and provides maximum gain for individuals with hearing loss >90dBHL.

• **Physical features:**

a. Color options such as cream/brown/black are available

b. **Controls**

- The hearing aid shall contain On/Off switch, Volume control, Telecoil in BTE/ITE.
- Bandwidth upto 8 kHz for ITEs. For BTEs, as per BIS standard
- Automatic / Adaptive Directionality
- Noise Management (modulation)
- Adaptation Manager
- Feedback Management

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- Wind noise protection
- Multiple Memory (4 programs)
- DAI or FM (Optional)
- Twin Mic technology
- Real ear measurement(Optional)
- T-coil/ Auto Phone program
- Battery Low warning
- Sound indicators for program shifts
- Power On delay

c. Accessories

Three sets of Ear tip of different sizes with tubes for BTEs

Two rechargeable batteries with charger should be accommodated in hearing aid pack for all types or 36 button cells should be supplied

- **Electroacoustic features for behind the ear (BTE) hearing aid as per IS 16127 : 2013**

S.N	Parameters	Values
1	Maximum OSPL 90	105dB - 135dB
2	HF Avg. full on Gain	Type I: 40dB (min), Type II: 45dB (min), Type III: 50dB (min),
3	No. of Channels / bands	12(min)
4	Frequency range	200 Hz to 4500 Hz for OSPL of 105 to 115dB 200 Hz to 4000 Hz for OSPL of 115 to 135dB
5	Total Harmonic Distortion	should not exceed 7 % @ 500, 800 & 1600Hz at RTG position
6	Battery Current	≤ 10 mA
7	Equivalent I/P noise levels	≤ 30 dB SPL
8	Programs	4(min)
9	Dynamic characteristics of AGC	(+/- 5 ms or +/- 50 % of the values specified by the manufacturer)
10	Telecoil	75dB (min)

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- **Electroacoustic features for Receiver in the ear (RITEs) aid as per IS 16127 : 2013 (since RITE fitting is a variant of BTE hearing aid with receiver in the ear canal)**

S.N	Parameters	Values
1	Maximum OSPL 90	105dB - 135dB
2	HF Avg. Full on Gain	Type I: 40 dB (min), Type II: 45 dB (min), Type III: 50 dB (min),
3	No. of Channels / bands	12 (Min.)
4	Frequency range	200 Hz to 4500 Hz for OSPL of 105 to 115dB 200 Hz to 4000 Hz for OSPL of 115 to 135dB
5	Total Harmonic Distortion	should not exceed 7 % @ 500, 800 & 1600Hz at RTG position
6	Battery Current	≤ 10 mA
7	Equivalent I/P noise levels	≤ 30 dB SPL
8	Programs	4(min)
9	Dynamic characteristics of AGC	(+/- 5 ms or +/- 50 % of the values specified by the manufacturer)
10	Telecoil	75dB(min)

- **Electroacoustic features (As there are no BIS standards for in the ear (ITEs) & in the canal (ITC) the specifications are adopted from the IS 16127: 2013 digital BTE hearing aid standards).**

S.N	Parameters	Values
1	Maximum OSPL 90	105dB - 125dB
2	HF Avg. Full on Gain	Type I: 30 dB (min), Type II: 40 dB (min), Type III: 50 dB (min)
3	No. of Channels / bands	12 (Minimum)
4	Frequency range	200 Hz to 4500 Hz for gain of 105 to 115dB 200 Hz to 4000 Hz for gain of 115 to 135dB
5	Total Harmonic Distortion	should not exceed 7 % @ 500, 800 & 1600Hz at RTG
6	Battery Current	≤ 5 mA
7	Equivalent I/P noise levels	≤ 30 dB SPL
8	Programs	4(min)
9	Dynamic characteristics of AGC	(+/- 5 ms or +/- 50 % of the values specified by the manufacturer)

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- Electroacoustic features (As there are no BIS standards for completely in the canal (CIC), the specifications are adopted from the specification of IS 16127: 2013 of digital BTE hearing aid standards).

S.N	Parameters	Values
1	Maximum OSPL 90	105dB - 120dB
2	HF Avg. Full on Gain	Type I: 30 dB (min), Type II: 40 dB (min)
3	No. of Channels/ bands	12 (Minimum)
4	Frequency range	200 Hz to 4500 Hz for OSPL of 105 to 115dB 200 Hz to 4000 Hz for OSPL of 115 to 135dB
5	Total Harmonic Distortion	should not exceed 7 % @ 500, 800 & 1600Hz at RTG position
6	Battery Current	≤ 5 mA
7	Equivalent I/P noise levels	≤ 30 dB SPL
8	Programs	4(min)
9	Dynamic characteristics of AGC	(+/- 5 ms or +/- 50 % of the values specified by the manufacturer)

Procedure for Procurement:

- Warranty period for 2 Years
- Mono-aural only
- There are no BIS standards for ITE, ITC & CIC hearing aids however these hearing aids are beneficial to individuals with hearing loss the above specifications were adopted from digital BTE standards and Committee recommended these hearing aids.
- The implementing agencies need to carry out 1% of sample check for electroacoustic characteristics (EAC) measurements for confirmation of satisfactory functioning. This procedure should be carried for orders placed on each occasion for each category hearing aids.
- The implementing agencies should send the randomly selected 1% of the sample for Electro acoustic Characteristics of Hearing aid for certification (EAC) to AYJNIHH, Mumbai and its regional centres (Secunderabad, Kolkata, New Delhi, Bhubaneshwar depending upon availability of testing facility or All India Institute of Speech and Hearing (AIISH), Mysore.
- Procurement of hearing aids and assistive devices will be done by the implementing agencies by following procedural codes as per GFRs.

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- The implementing agencies may follow the procedures adopted by government agencies.
- Dispensing of ITEs, ITCs and CICs are allowed only at National Institutes and their Regional Centres and Composite regional Centres.

2. Other Assistive Listening Devices costing above 20,000/-

Assistive technology helps people who are deaf and hard of hearing to live more independently. Technology is continuously improving and changing. Some of the assistive listening devices recommended include:

I. Communication devices

a) Personal FM Hearing Aids,

a. Personal wireless FM systems

Consists of

Microphone cum Transmitter

Button Receiver attached to child's own FM compatible hearing aid

• Features

Receiver

- DAI – direct audio input / Tele Neck loop / Bluetooth streamer– connects to child's own BTE hearing aid
- Discreet receivers that stay in place
- Clear, authentic sound quality for optimum speech understanding
- Fully compatible with hearing aids
- attack and release times as fast as 30 and 600 ms respectively
- Also available with neck loop
- has multiple frequency bands
- can be attached to hearing aids, cochlear implant and bone anchored hearing aids

Transmitter

- Transmitter and programmer in one
- Covers World FM Band
- Bandwidth 8.5 kHz
- Digital Signal Processing
- External antenna built into microphone cord
- FM Channel Wizard - Monitor FM channels

Procedure for Procurement:

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- Warranty period for 2 Years
- The cost of the FM device should not be more than Rs.40,000/-
- Even though there are no BIS standards for above assistive listening devices and they are beneficial for clients, Committee recommends the same.
- Procurement of assistive listening devices will be done by the implementing agencies by following codal procedures as per GFRs.
- The implementing agencies may follow the procedures adopted by government agencies.

6. Hearing aid with Bone Vibrator:

Cost: within the ceiling limit of the scheme (Rs. 10,000/-)

Justification:

1. Effective in transmitting sounds to individuals with absence of external auditory canal (Atresia), absence of the pinna, chronic middle ear infections.
2. Non-surgical and noninvasive.
3. Helps in auditory stimulation for individuals when there is no provision for surgery or delay in surgery (especially in children as early intervention is crucial).
4. Less cost compared to bone anchored hearing aid (BAHA) and other surgical procedures concerned with Atresia.

Specifications:

- a) The specifications for the hearing aid are same as of traditional body worn hearing aids.
- b) The bone vibrator general specifications are as follows:

Dimensions: 30 X 15 X 15 mm approx

Weight: 20 gm Approx.

Contact pressure: 5.4N across contact area of 2.0 cm².

Impedance Range: 10 - 300 ohms

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7. Educational Kit (Children from 2 to 5 years, Pre-school going children)

Justification:

1. To improve the vocabulary
2. To improve the language from word to sentence level
3. Helps in improving the speech intelligibility
4. Guide the parents regarding the speech and language stimulation to be done at home.
5. Helps in developing the school readiness in children with HI

To develop communication

- a) Language book
- b) Articulation book
- c) Story book

Specifications:

a) Language Book:

Paper Quality: 300 GSM

No. of pages: 60 approx.

Content: Pictorial with written representation

Age group: 2 - 5 years

b) Articulation Book:

Paper Quality: 300 GSM

No. of pages: 90 approx.

Content: Pictorial with written representation.

Age group: 2 - 5 years

c) Story Book:

Paper Quality: 300 GSM

No. of pages: 60 approx.

Content: Pictorial with written representation

Age group: 2 - 7 years

- Total cost for the above items not exceeding Rs.1000/-

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d) Other materials:

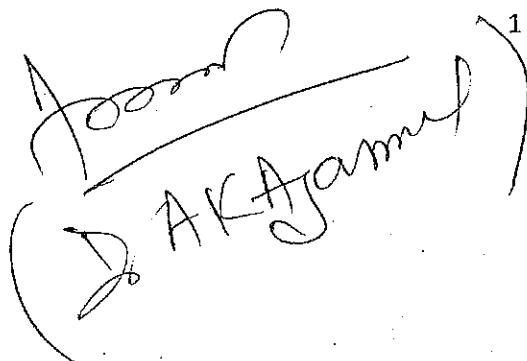
S.N	Material	Description	Cost
1	Family hand puppets	Set thumbkin finger/hand puppets	Rs. 500/-
2	5 Puzzles	Puzzles age /activity appropriate	Rs. 1000/-
3	Montessori equipments/toys	Sets Like fruit and vegetable play set , capital alphabets with knobs, vegetable set knobbed , body parts girls, body parts boys	Rs. 400/-
4	Shape sorter clock	Tidlo Sorting and Teaching Clock - For undertaking multipurpose activities based on colors, shapes, size, time	Rs. 2000/-
5	One set of noise makers	Funkskool Pip squeaks Or any other noise makers	Rs. 200/-
6	Block sorter boxes	For undertaking multipurpose activities based on colors, shapes, size	Rs 600/-
7	Set of verb cards	Language development	Rs. 200/-
8	5 Soft toys	Language development	Rs. 1000/-

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**Guidelines for Cochlear Implantation and Procurement
of Cochlear Implant under ADIP Scheme (2014-2015),
Department of Disability Affairs, Ministry of Social
Justice and Empowerment, Govt. of India**

**As per the recommendations of the expert committee
meeting held on 22-08-2014**

**Guidelines for Cochlear Implantation and Procurement
of Cochlear Implant under ADIP Scheme (2014-2015),
Department of Disability Affairs, Ministry of Social
Justice and Empowerment, Govt. of India**


(D. AK Ajam)¹

Objective

The objective of inclusion of cochlear implantation under ADIP scheme is to provide cochlear implantation to children and support for auditory verbal habilitation to operated children through empanelled rehabilitation centers.

Quantum of Assistance

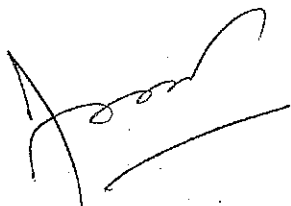
Ministry of Social Justice and Empowerment will recognize an Institute of national stature from each zone to recommend children eligible under the Scheme for cochlear implant, with a ceiling of Rs. 6.00 lakh per unit to be borne by the Government. Ministry will also identify and recognize the Institutes in the zones wherein the surgery will be undertaken. Ministry will identify suitable agencies for providing cochlear implant (500 children per year) under the Scheme. Income ceiling for the beneficiaries will be same as for other aids/appliances.

- a) The cost of the surgery should not exceed the amount specified in the CGHS norms (Initial phase only CGHS approved/recognized and State Government nominated hospitals will be considered.
- b) Post-operative auditory habilitation services will be charged as per AYJNIHH norms or not exceeding the amount specified by CGHS norms.
- c) Travel/Boarding/lodging expenses of Rs 200/- per visit may be provided during post-operative rehabilitation under the scheme for a period of one year.
- d) If the cost of the implant including surgery and post-operative auditory habilitation exceeds ceiling amount covered under ADIP scheme, the remainder shall be contributed by the State Government/NGO/any other agencies/by the beneficiary concerned subject to prior approval of the committee.

I. Guidelines for Candidate Selection**A. Eligibility of the Beneficiaries-General**

A person with disabilities fulfilling following conditions would be eligible for assistance under ADIP Scheme.

1. An Indian citizen as per criteria specified below.
2. Holds a 40% Disablement Certificate or as defined in the PWD act.
3. Has monthly income from all sources not exceeding Rs. 20,000/- per month.
4. In case of dependents, the income of parents/guardians should not exceed Rs. 20,000/- per month.



Note: - Beneficiaries will be linked with Aadhar number or Ration Card or Voter I- card from.

B. Audiological and Medical Criteria

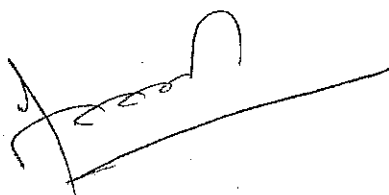
1. There are a number of factors that determine the degree of success to expect from cochlear implant. AYJNIHH and its regional centers will determine the candidates for cochlear implantation on an individual basis and take into account a person's hearing history, cause of hearing loss, amount of residual hearing, speech recognition ability, health status and family commitment to aural habilitation/rehabilitation.

B-1) Pre-lingual - before acquiring speech (1 to 5 years): Implantation in this age range will help the child to achieve maximum overall benefit as this age range is considered as critical period for overall development.

B-2) Post-lingual - after acquiring speech (up to 12 years): Post lingual deafness can have detrimental effects on speech and language, and overall development. These children will get maximum benefit as they were already exposed to critical period.

B-1) Pre-lingual (1 to 5 years):

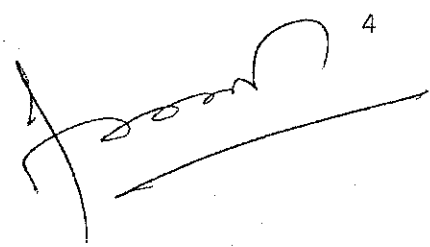
1. The child should be in the age group of 1-5 years as on 31st Dec of the financial year. Age of the beneficiary shall be cross checked with the birth certificate issued by the competent authority for verification (However the Screening Committee would be empowered to make exceptions beyond 3 years up to 6 years of age on a case to case basis, where the committee feels that a high possibility of success exists or if there are other compelling technical reasons warranting or making an exception).
2. Bilateral severe-to-profound sensorineural hearing loss.
3. All the children must be habituated to using behind the ear/body level hearing aids for about 3 to 6 months to assess utility of usage of hearing aids. Proof of having used conventional hearing aids along for sufficient time before advising cochlear implantation with details of process of speech therapy that they underwent from accredited rehabilitation personnel may be produced.
4. Little or no benefit from conventional hearing aids either in terms of better hearing or acquisition of speech and language skills and comprehension of spoken language.



5. There should not be any medical contradictions to surgery and or implantation. Children with abnormal cochlea/malformed cochlea are not considered for cochlear implantation.
6. These children should be free from any developmental delays and other sensory and oro-facial defects. These children should not have stubborn behavior and autistic tendencies.
7. No retro cochlear pathology (no agenesis of auditory nerve)/central deafness.
8. Children with active middle ear infection may be considered for cochlear implantation only after middle ear pathology is resolved.
9. Vaccination against H Influenza and Pneumococcus.
10. Motivated parents to attend auditory verbal habilitation. The parents of the child should be prepared to undergo a mandatory training on speech therapy and post operative care.
11. Child should not suffer from Mental Retardation/ Development delay.
12. Child may need to be assessed by clinical psychologist in case of suspected abnormal psychological behaviour.

B-2) Post-Lingual (below 12 years)

1. Children having severe-to-profound sensorineural hearing loss. .
2. All the children must be habituated to using behind the ear hearing aids for about 3 to 6 months to assess utility of usage of hearing aids. Proof of having used conventional hearing aids along for sufficient time before advising cochlear implantation with details of process of speech therapy that they underwent from accredited rehabilitation personnel may be produced.
3. Little or no benefit from conventional hearing aids either in terms of better hearing or acquisition of speech and language skills and comprehension of spoken language.
4. Other conditions applicable for pre-lingual (1-5 years) are also included.

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II. Pre-implant Candidacy evaluation

A. Audiological Investigation Protocol:

The children must undergo following essential diagnostic tests at the centre with qualified Audiologist/Speech Language Pathologist with Minimum MASLP qualification:

1. Pure-tone audiometry (PTA)
2. Behaviour Observation Audiometry (if not cooperative for PTA)
3. Impedance audiometry
4. Oto-acoustic Emission
5. ABR and/or ASSR
6. Aided Audiogram
7. Assessment of speech and language development.

AYJNIHH, Mumbai and its regional centers will carry out pre-operative audiological evaluation for selection of suitable candidates for cochlear implantation. The charges for evaluation are as per AYJNIHH norms.

B. Radiological Investigation Protocol:

The following radiological investigations should be done to these children before sending for pre- authorization.

- a. HRCT temporal bone for bony cochlea and middle ear cleft
- b. 3D MRI for membranous cochlea/neural bundle and MRI brain

The cost of radiological evaluation has to be borne by the parents.

C. Pre-implant Family Counseling

1. Candidates for cochlear implantation need to be informed of the potential risks and benefits of cochlear-implantation and the impact it may have on their life.
2. The surgical procedure and its risks should be described along with a physical description and, preferable demonstration, of the internal and external portions of the device.
3. The post surgical programming and rehabilitation procedures should be charted out and informed to the parents.
4. The most important aspect here is to give a realistic expectation regarding performance outcome with the implant.



D. Parent Declaration

1. The parents or legal guardians of the implantee will give an undertaking saying that they will undergo post-implant rehabilitation program as recommended by AYJNIHH for a minimum period of 12 months.
2. The parents or legal guardians of the implantee will also give an undertaking saying that AYJNIHH and its regional centre(s) will not be held responsible for any surgical and/or post-surgical complications.

E. Procedure for selection of Candidates:

1. Notifications will be issued by AYJNIHH inviting applications from the eligible/perspective cochlear implantee in leading newspapers and also will be in the official website of AYJNIHH with a clause that AYJNIHH reserves the right to accept or reject any application without any reason thereof.
2. A preliminary screening committee consisting of Director-ADIP, Director-AYJNIHH, Director-CRC, HOD-Audiology, Assistant Directors, one internal expert and one external expert will scrutinize the received applications and prospective candidates will be referred to the nearest centers of AYJNIHH for detailed candidacy evaluations.
3. The respective centers after carrying out detailed candidacy evaluation, the list of eligible/suitable candidates for cochlear implantation will be forwarded to AYJNIHH, Mumbai for necessary approval.
4. If the number of eligible candidates exceeds the limit of the number of beneficiaries to be covered under the ADIP scheme during particular ear, a lottery system will be drawn for final selection of candidates.
5. Only unilateral cochlear implantation will be covered under this scheme.
6. Reservation for SC/ST/OBC beneficiaries under the Scheme as per the Government norms and at least 25% of the overall beneficiaries need to be girl child.

III. Empanelment of Hospitals and Surgeons:

AYJNIHH, Mumbai will empanel hospitals and doctors considering their facilities for cochlear implantation surgery. Initially it is proposed that the surgeries will only taken up in government hospitals where ENT departments are only running successful cochlear implant programmes and have done a minimum of 25+ C.I. Surgeries. These hospitals will

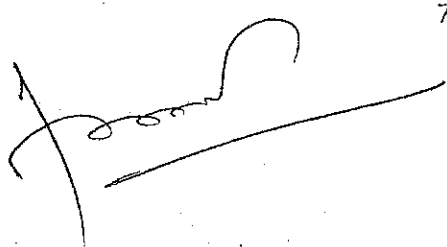


have to sign MOU with AYHNIHH. If it is required to enlist the private hospitals in absence of the govt. hospitals not having the program, the following guidelines shall be applicable:

A. Guidelines for empanelment of Hospitals and Surgeons:

1. Initial phase of implementation only CGHS approved and State Government nominated hospitals will be considered.
2. Hospital should have services of experienced ENT Surgeon in cochlear implant surgery. Any ENT surgeon who had performed a minimum of 25 cochlear implant surgeries independently, with CE Marked (European Certification) or FDA (Food and drug administration) of USA approved implants or Drug Control General of India (DCGI) which controls the quality regulation through organization for Central Drugs Standard Control Organization (CDSCO), will be considered as surgeon with adequate experiences.
3. Hospital should have services of well trained Audiologist and Speech Language Pathologist. Audiologist and Speech Language Pathologist should have minimum qualification of M. Sc (speech & hearing) or equivalent.
4. Hospital should have well equipped theatre facility with following equipment:
 - a) Operating microscopes with adequate illumination- two numbers
 - b) High Speed drill for drilling/cochleostomy together with micro motor
- two numbers (with straight and contra hand pieces)
 - c) Irrigation facility
 - d) Micro-ear surgery instruments including mastoid surgery set-two sets
Micro Instruments – cutting and diamond burrs and cochleostomy burrs, suction tips, crocodile and cup forceps, sickle knife, micro scissors, straight and curve picks, electrode guide (Skeeter – Optional)
 - e) Facial nerve monitor – one number
 - f) Telemetric equipment, dummy implant etc. to be provided by the manufacturer at time of surgery
5. Inspection team will visit the hospital for physical verification of facilities and records. They will recommend empanelment considering all the three basic requirements for cochlear implant surgery, i.e. cochlear implant surgeon with adequate experiences, adequate infrastructure, instruments, equipments and facilities for implantation surgery.
6. AYJNIHH, Mumbai will prepare a format for Memorandum of Understanding (MOU) with the empanelled hospitals with other terms and conditions essential for smooth and successful implementation of the project. Empanelled hospitals should sign MOU with the Director, AYJNIHH, Mumbai.

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7. Empanelment should be reviewed every two years or in the event of empanelled Doctor leaving the Hospital. However, the responsibility of already operated children for any post operative medical issues/complications rest with the empanelled Doctor performed surgery. He should arrange further follow up of children either in same hospitals or another empanelled hospital.
8. AYJNIHH, Mumbai and its regional centers will be responsible for post-operative auditory verbal habilitation for one year which includes mapping.

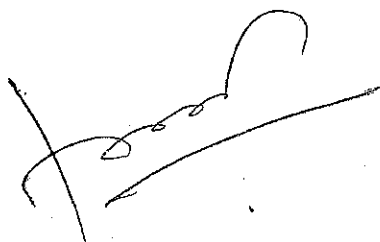
B. Cochlear Implant Surgery:

1. The empanelled hospital will do the surgery according to the selection list prepared by AYJNIHH, Mumbai.
2. Implants will be supplied to concerned hospitals by selected cochlear implant companies according to the supply orders issued by AYJNIHH, Mumbai.
3. After completion of surgery, the concerned hospitals should submit Delivery chalan, operative note and a copy of implant registration form.
4. AYJNIHH, Mumbai will release the payment to concerned cochlear implant companies after obtaining above documents and invoice from concerned companies.
5. Empanelled private hospitals will be permitted to charge an amount fixed by AYJNIHH for surgery from time to time. No other charges should be collected from parents for surgery and post operative care.
6. As and when required, empanelled private hospitals should permit two Audiologists from AYJNIHH and its empanelled rehabilitation centers as observers during each intra-operative monitoring.

The choice of Hospitals for surgery and Rehabilitation centers for post-operative auditory habilitation services will be done by AYJNIHH, Mumbai.

IV. Procedure for empanelment of Hospitals and Surgeons:

1. Initially it is proposed that the surgeries will only be taken up in CGHS approved / recognized and State Government nominated hospitals will be considered.
2. Preference will be given in the location where the Institute headquarters and its regional centers are located for wider coverage.



3. A committee constituted by AYJNIHH will scrutinize the expression of interest received as per the guidelines formulated and recommend suitably for entering into an MOU.


V. Post-operative rehabilitation

1. AYJNIHH, Mumbai and its regional centers will be responsible for post-operative auditory verbal habilitation for one year which includes mapping.
2. The post-operative rehabilitation services will be charged as per the AYJNIHH norms or not exceeding the amount specified by CGHS norms.
3. In case of expansion of activities, the services will be outsourced through open advertisement with leading dailies through DEAP for inviting expression of interest.
4. The centers should have experience of minimum 2 years in providing post-operative rehabilitation services to such children nearly to 50.
5. The centre should have the expertise manpower in the area of post-operative auditory habilitation services.
6. The center should have one audiologist/speech therapist with MASLP and two special educators with AVT specialization and mapping facilities.
7. The committee constituted by AYJNIHH will scrutinize the responses received and recommend the centers fitting into criteria prescribed by the Institute.

VI. Schedule for post-operative aural rehabilitation:

A. Mapping Schedule

1. Switch on (Three weeks after surgery. Also involves kit counselling i.e. showing caregivers how to handle device-basics)
2. 4th Day (includes showing caregivers basic troubleshooting)
3. 1 week post switch on
4. 2 weeks post switch on
5. 4 weeks post switch on
6. 6 weeks post switch on
7. 10 weeks post switch on
8. 14 weeks post switch on
9. 18 weeks post switch on
10. Follow up once in two months or three months depending on an individual recipient



11. At the end of 1 year post switch on, bi-annual follow up normally suffices for older children but follow up needs to be more frequent for young children and toddlers (quarterly)
12. Each mapping session involves checking electrodes, fine tuning T and C levels, confirming care and maintenance practices from the caregivers and troubleshooting as needed.

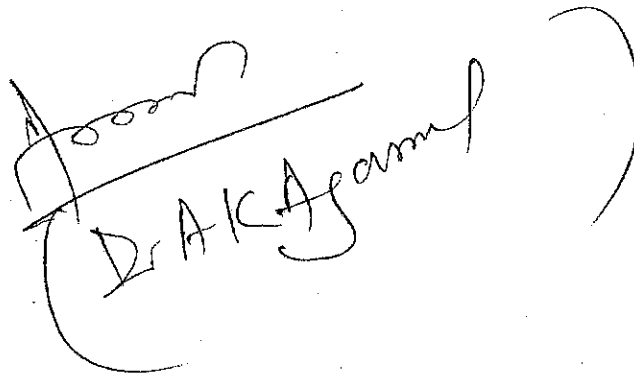
B. AVT Schedule:

1. A minimum of one hour sessions for at least twice or thrice a week for a span of one year.

VII. Procedure for Procurement of Cochlear Implant:

1. The cochlear implant should be duly approved by CE Marked (European) US-FDA or Drug Control General of India (DCGI) which controls the quality regulation through organization for Central Drugs Standard Control Organization (CDSCO). The procurement of cochlear implant will be done by ALIMCO as per the specifications recommended by the core committee.

The cochlear implant program requires a complete monitoring of the progress of each patient very closely through various audiological, technical support and habilitation issues and thus it is recommended that AYJNIHH act as Nodal Agency.


Dr. A. K. Agarwal