INTRODUCTION:

Internal auditory canal computed tomography (CT) is a unique study performed for problems such as conductive hearing loss, chronic otitis media, mastoiditis, cholesteatoma, congenital hearing loss and cochlear implants. It is a modality of choice because it provides 3D positional information and offers a high degree of anatomic detail. It is rarely used for evaluation of VIIth or VIIIth nerve tumors.

Initial Clinical Reviewers (ICRs) and Physician Clinical Reviewers (PCRs) must be able to apply criteria based on individual needs and based on an assessment of the local delivery system.

INDICATIONS FOR INTERNAL AUDITORY CANAL CT:

- For evaluation of acoustic neuroma or other lesion of the VIIth or VIIIth cranial nerve in patients unable to undergo an MRI.
- For evaluation of documented conductive hearing loss.
- For evaluation of chronic otitis media.
- For evaluation of mastoiditis.
- For evaluation of cholesteatoma.
- For evaluation of congenital hearing loss.
- For evaluation of cochlear implants.
- A follow-up study may be needed to help evaluate a patient’s progress after treatment, procedure, intervention or surgery. Documentation requires a medical reason that clearly indicates why additional imaging is needed for the type and area(s) requested.

ADDITIONAL INFORMATION RELATED TO INTERNAL AUDITORY CANAL CT:

Conductive Hearing Loss – Conductive hearing loss can have multiple causes but is often caused by fluid in the middle ear resulting from otitis media or from eustachian tube obstruction. CT scans may demonstrate underlying problems due to its visualization of the middle ear and the mastoid bone.

Chronic Otitis Media – When the eustachian tube is blocked for long periods of time, the middle ear may become infected with bacteria. The infection sometimes spreads into the...
mastoid bone behind the ear. Chronic otitis media may be due to chronic mucosal disease or cholesteatoma and it may cause permanent damage to the ear. CT scans of the mastoids may show spreading of the infection beyond the middle ear.

**Mastoiditis** – CT is an effective diagnostic tool in determining the type of therapy for mastoiditis, a common complication of acute otitis media leading to infection in the mastoid process.

**Cholesteatoma** – A cholesteatoma is a cyst-like mass occurring most commonly in the middle ear and mastoid region. CT scanning may help to determine the extent of the disease process. It can determine the extent of cholesteatoma by showing the combination of a soft tissue mass and associated bone erosion.

**Congenital Hearing Loss** - Genetic factors and factors present either in utero or at time of birth may cause congenital hearing loss in children. High-resolution CT provides the examination of choice furnishing anatomic detail for planning a surgical approach

**Cochlear Implants** – Cochlear implants provide an opportunity to restore partial hearing. The electronic device, surgically implanted, converts sound to an electrical signal. CT allows the visualization of cochlear anatomy and provides 3D positional information. CT also offers contrast for different tissue types and may be used even when the implant is in place.
REFERENCES


Reviewed/Approved by Michael Pentecost, MD, Chief Medical Officer