Ear Tissue Spearing, Irrigation and Ear Drop Installation Procedure

1. Guiding Principles

Ear health care is to be delivered in accordance with the 2020 Otitis Media Guidelines for Aboriginal and Torres Strait Islander Children[1].

The aim of this document is to guide community health staff, including Aboriginal Health Workers, on the removal of pus/exudate, foreign objects/debris and softened wax from the external ear canal and instil ear drops as required.

The purpose of these procedures are to improve ear hygiene and administer wax softeners or medication in children affected by infection, excessive exudate, foreign bodies or wax impaction in the external ear canal.

Hearing loss can be caused by otitis media and its complications including otitis media with effusion and chronic suppurative otitis media. Hearing loss can also be caused by earwax obstruction and foreign objects lodged in the ear canal.

For topical antimicrobial medications to be effective, drops must be able to reach the skin surface of the ear canal or ear drum.[2] Therefore the ear canal must be clear and free of wax or exudate prior to instilling medications. In instances where the ear requires cleaning to visualise the ear canal or ear drum, tissue spearing with or without ear wax softeners, or ear irrigation is recommended.[3]

Ear wax serves important functions of protection, lubrication and antibacterial action. It is only to be removed as a last resort if impacted, affecting hearing, impeding an adequate view of the ear canal or ear drum, or to effectively instil medicated ear drops.

Inappropriate ear tissue spearing, or irrigation may result in unsuccessful removal of debris from the ear canal and ear trauma. Inappropriate instillation of ear drops may prevent the medication reaching the skin surface of the ear canal or ear drum resulting in medications being ineffective.

2. Procedure

Community health staff are to follow the WACHS Infection Prevention and Control Policy, including appropriate disposal of waste (as per the WACHS Waste Management Policy) and perform hand hygiene in accordance with the National Safety and Quality Health Service Standards (second edition) at all appropriate stages of the procedure.

Procedures are only to be performed by appropriately trained and skilled staff.

Involving Aboriginal Health Workers in the care of Aboriginal clients will maximise the effectiveness of the health care.

Preparation includes

- Explain the procedure to the child and parent/caregiver if present. Allow sufficient time for discussion of concerns.
- Encourage parent/caregiver support and involvement with the procedure where possible.
- Obtain consent as per local processes.

Health education

- Provide opportunistic health education for parents/caregivers and the child in addition to specific post-procedure instruction.

Documentation

- Community health staff will document relevant findings according to local processes.

Referral pathway

- Discuss any concerns with the parent /caregiver and obtain consent for referral to a medical practitioner.
- Use appropriate local area referral processes.

3. Definitions

Otitis Media	All forms of inflammation and infection of the middle ear.[1]
Chronic Suppurative Otitis Media	Persistent ear discharge through a perforation (hole) in the tympanic membrane lasting 2 weeks or more. Perforation is large enough to allow penetration of topical antibiotics into the middle ear space.[1]
Dry Perforation	Presence of a perforation (hole) in the tympanic membrane without any signs of discharge/fluid.[1]
Hearing loss	Any hearing threshold response outside the normal range that is detected by audiometry.[1]

4. Roles and Responsibilities

The clinician is to:

- Perform ear tissue spearing, ear irrigation and ear drop installation in accordance with these procedures.
- Document actions undertaken in the client medical record.
- Refer according to local guidelines when indicated.
- Teach the family how to correctly prepare tissue spears and mop ears.

5. Compliance

Failure to comply with this procedure may constitute a breach of the WA Health Code of Conduct (Code). The Code is part of the Employment Policy Framework issued pursuant to section 26 of the *Health Services Act 2016* and is binding on all WACHS

staff which for this purpose includes trainees, students, volunteers, researchers, contractors for service (including all visiting health professionals and agency staff) and persons delivering training or education within WACHS.

WACHS staff are reminded that compliance with all policies is mandatory.

6. Records Management

Electronic client records as applicable to region e.g. Community Health Information System (CHIS).

Health Record Management Policy

7. Evaluation

Monitoring of compliance with this document is to be carried out by the Program Manager, Population Health, every three years using the following means or tools:

- Current national and state ear health guidelines
- Expert advice from service providers
- Consultation with WACHS Population Health, Senior Nurses Best Practice Group
- Consultation with WACHS Population Health, Staff Development and Clinical Nurse Specialists

8. Standards

National Safety and Quality Health Service Standards (second edition 2017) – 1.7, 1.8, 1.15, 1.27, 2.13, 3.8, 5.3, 5.5, 5.12

9. Legislation

Public Health Act 2016

10. References

1. Menzies School of Health Research, Otitis Media Guidelines for Aboriginal and Torres Strait Islander children (version 1.1). Northern Territory; 2020.
2. Betsic J. CARPA Standard Treatment Manual. 6th ed. Alice Springs, NT, Australia: Centre for Remote Health; 2010.
3. World Health Organization. Primary ear and hearing care training resource. Switzerland: WHO Press; 2006.
4. Edwards K. Tissue spears: do it right! [DVD] Darwin, NT: Community Paediatrician Centre for Disease Control Northern Territory; 2008.
5. Kimberley Aboriginal Health Planning Forum. Kimberley Clinical Protocols: Ear Problems in Children; 2020.
6. CARPA Standard Treatment Manual. 6th ed. Alice Springs, NT, Australia: Centre for Remote Health; 2014.

7. Coates H, Vijayasekaran S, Mackendrick A, Leidwinger L, Kong K, Lannighan F, Aboriginal Ear Health Manual. Perth, WA; 2012.
8. Capriotti K, Capriotti J. Topical iodophor preparations: Chemistry, microbiology, and clinical utility. Dermatology Online Journal [Internet]. 2012 [cited 2013 Mar 6]; 18 (11): 1.
9. Jaya C, Anand J, Mathai E, Antonisamy B. Evaluation of Topical Povidone-Iodine in Chronic Suppurative Otitis Media. Archives of Otolaryngology Head and Neck Surgery [Internet]. 2003 [cited 2016 April 1]; 129(10):1098-1100.

11. Related Forms

The following forms are accessible via the CAHS Community Health intranet (Forms/Aboriginal Health)

CHS719 Consent for Ear Health School Screening
CHS423 Ear Health Assessment
CHS423A Ear Health Assessment – results for parents

12. Related Policy Documents

CAHS Hearing and Ear Health Guideline
CAHS Otoscopy Procedure
WACHS Infection Prevention and Control Policy
WACHS Waste Management Policy

13. Related WA Health System Policies

MP0134/20 National Safety and Quality Health Service Standards Accreditation Policy

14. Policy Framework

Clinical Governance, Safety and Quality

15. Appendices

Appendix 1: Tissue Spearing
Appendix 2: Ear Irrigation
Appendix 3: Ear Drops Installation

This document can be made available in alternative formats on request for a person with a disability

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Appendix 1: Ear Tissue Spearing

Tissue spearing (also known as dry mopping) is one of a range of techniques used to clean and dry the ear canal. It may be used to remove pus, exudate, wax or other debris from the ear canal. It may also be used to dry the ear canal after ear irrigation is performed, and prior to instillation of antimicrobial ear drops or wax softening drops. It can also be used after wax softening drops to remove the ear wax.

Key Points

- To be performed only by staff with appropriate assessment and skills training.
- Otoscopy is always to be conducted prior to commencing the procedure. If the child reports pain during the procedure, stop and consider referral to a medical practitioner.
- Cleaning of the ear canal using tissue spears is to be conducted in preference to ear irrigation if there is:
  - History of recent ear trauma
  - Ear discharge is due to acute otitis media (AOM)
  - Presence of a confirmed or suspected ear drum perforation*

Ear irrigations (as per WACHS guidelines) can still be performed safely in patients with ear discharge or with suspected ear drum perforation such as in patients with chronic suppurative otitis media. Refer to Ear Drop Instillation.

*It is important to note that local processes can vary, and staff must adhere to local guidelines in conjunction with this procedure.

Procedure

Equipment

- Otoscope
- Disposable otoscope tips – the largest size that will comfortably fit in the external ear canal
- Tissues

Process for making a tissue spear

- Staff must follow the organisation's overarching Infection Control Policies and perform hand hygiene in accordance with WA Health guidelines at all appropriate stages of the procedure.
- Twist a square of tissue (avoid using toilet paper) spirally into a 'rat's tail' using the thumb and forefinger of both hands. Continue to twist until tight.
- You can break off or cut the tip (which may become floppy) and the remaining tissue from the other end, so that it does not impede the procedure. If tissue spear is too fat or too floppy, it may be difficult to insert.

Position

- Ensure the child is in a comfortable and supported sitting position.
- For younger children it is preferable for the child to be on the parent/caregivers' lap with the head turned to one side.
- Infants and toddlers must be held securely to prevent unexpected movement. This may include wrapping infants.
- Ask the parent/caregiver to hold the child's head against their chest and use

their other arm to secure the child's arms and body to stop any sudden movement.

Procedure

- The least affected ear is to be examined first.
- Gently insert the speculum into the ear canal.
- Pull the back of the pinna gently away from the head to straighten the ear canal.
    - For **older children** pull pinna back and up.
    - For **infants**, gently pull back and down on the ear lobe.
- Inspect the ear canal using the otoscope.
- Refer to the CAHS Otoscopy procedure for more information.
- While holding the otoscope, it is important to brace your little finger against the child's head or cheek to prevent ear trauma in the event of a sudden movement.[3]
- Inspect the ear canal using the otoscope.
- Gently push the tissue spear into the ear canal.
- Carefully rotate the spear while inserting it.
- Insert to about 2 – 3 cm, or until the child blinks, coughs or cries.
- The spear is to be inserted into the outer ear canal. If the spear is not inserted far enough it may not reach the ear drum and so ineffective cleansing will result
- Use professional judgement to determine how long the spear remains in situ. If left in situ loo long, the spear may become too soppy to remove.
- The waiting time can be used to make additional spears and teach children/parents how to make the spears correctly
- Remove the spear slowly and discard.
- The pus will adhere to the spear when removed.
- Where bilateral tissue spearing is indicated, spearing both ears concurrently where possible may save time and promote compliance.
- Repeat the process with a new tissue spear until the tissue is dry when it emerges from the ear canal.
- Re-inspect the ear canal using the otoscope with a clean tip.
- The tympanic membrane may look pink, as blood vessels may be dilated.
- Instill ear drops as indicated/prescribed.
- Refer to Appendix 3: Ear drops instillation for more information.

Parent Education

- If a child has a chronically discharging ear (Chronic Suppurative Otitis Media) the parent/caregiver may be taught to perform tissue spearing several times a day before instilling ear drops.
- Procedure to continue until the ear has been dry for at least 3 days.
- Parents/caregivers to be encouraged to keep the outer ear clean to avoid contamination of the child's face which may lead to additional infection.

Appendix 2: Ear Irrigation

Key points
*It is important to note that local processes can vary, and staff must adhere to local guidelines in conjunction with this procedure.

Ear irrigation should **not** be performed in the following situations:

- Acute otitis media (AOM) within the past 6 weeks[5]
- Recent ear trauma
- Evidence of acute otitis externa (with a narrow ear canal, and pain on movement of the pina) or suspected malignant otitis externa
- Cleft palate (repaired or not)
- Hypersensitivity to iodine preparations
- If the child is unwilling or uncooperative
- Dry ear drum perforation* – water can enter the perforation and initiate an infection in the middle ear. It is to be noted that if the middle ear is already infected and discharging pus, then gentle syringing can be used to remove the pus, although tissue spearing or suctioning is preferred.[7,4]
- Any form of ear surgery, with the exception of grommets that have extruded at least 18 months previously.

When foreign objects are lodged within the ear canal the following points must be observed:

- Forceps are never to be used to remove foreign objects from the ear canal (unless the person is trained to do so using a microscope, headlight or endoscope).
- Live insects are to be drowned by instilling a few drops of oil into the ear canal. However, further consultation is to be sought where perforation is suspected.[2]
- Foreign items such as cotton buds, seeds or other vegetable matter which may absorb water are not to be irrigated, as they may swell and become more difficult to remove.
- If a foreign object is not easily removed using syringing, then the child is to be referred to a medical practitioner for further ENT specialist advice and guidance.
- Follow local guidelines for further advice and support.

Procedure

Equipment

- Otoscope
- Disposable otoscope tips - the largest size that will comfortably fit in the ear canal
- Irrigation solution as indicated/ recommended
- 20ml syringe with a leur-lock connector tip
- Plastic tubing from a scalp vein needle (or butterfly cannula) with needle end removed
- Kidney dish or other fluid receptacle
- Absorbent towel
- Tissues and tissue spears

**Equipment can vary between sites. Check local endorsed practices in the event that equipment differs from that listed above.*

Position

Ensure the child is in a comfortable and supported sitting position.

- For younger children, it is preferable for the child to be on the parent/caregivers' lap with the head turned to one side.
- Infants and toddlers must be held securely to prevent unexpected movement. This may include wrapping infants.

Procedure

- The least affected ear is to be examined first.
- Pull the back of the pinna gently away from the head to straighten the ear canal
    - For **older children**, pull pinna back and up.
    - For **infants**, pull pinna back and down.
- This will straighten the ear canal and promote good visibility.
- While holding the otoscope it is important to brace your little finger against the child's head or cheek to prevent ear trauma in the event of a sudden movement.[4]
- Refer to CAHS Otoscopy procedure for more information.
- Inspect the ear canal using the otoscope.
- Place the towel over the child's shoulder.
- Place the kidney dish or similar under the pinna to collect solution as it drains out of the ear.
- Parent or child may assist by holding the kidney dish.

Wax softening/solutions

- Wax is to be softened prior to removal by irrigation.
- Recommended solutions for short acting wax softening action include: warmed water, warmed 0.9% normal saline or a 5% sodium bicarbonate solution*.[3] *(*not safe to use with a perforation)*.
- Oil or water-based wax softening drops are also available but may require instillation over several days for effect.
- Solution use is dependent on local orders.
- Refer to Appendix 3: Ear drops instillation procedure.
- All solution must be warmed to 37°C prior to the procedure.
- Hot or cold solutions may cause vertigo.
- The process may need to be repeated if the wax is not sufficiently softened.

Irrigation

- Fill the ear canal with solution.
- Press the tragus repeatedly to squeeze the water into the ear canal.
- **After 20 minutes** proceed to ear irrigation.
- Fill the syringe with pre-warmed solution, connect the cannula tubing, and gently position the tip of the tubing inside the ear canal.
- Ensure air is removed from the syringe and tubing prior to placement into ear.
- Use the child's cheek bone as a support to stabilise hands and equipment.
- Pipette or eye dropper may be used as an alternative for very young children.
- Povidine Iodine (10% diluted in 20 parts normal saline or water for irrigation) may be indicated if an antiseptic agent is required, particularly in cases of Chronic suppurative Otitis Media (CSOM).[6]
- Povidine iodine is a broad spectrum, resistance-free biocidal agent which can kill a range of micro-organisms including bacteria, viruses, yeasts, moulds, fungi, and protozoa. Its topical use has been evidenced to facilitate significant improvement in CSOM with no ototoxic or allergic effects. [6] [7]
- Gently instill solution into the ear canal. Ensure the tubing is directed up and back towards the roof of the ear canal, not towards the tympanic membrane.[1]
- Never aim towards the tympanic membrane.
- If the angle used is ineffective, it may be changed so the tip aims towards the wall of the ear canal.
- Use smooth, firm pressure on the syringe plunger. It will spiral around the canal and gradually flush out any debris.
- Repeat above steps until the solution removed is clear, checking the canal at least after every 5 syringes of solution.
- Carefully dry the ear canal using tissue spears.
- Refer to Ear tissue spearing procedure for use of tissue spears.
- Repeat procedure in other ear if required.
- Cotton buds should not be used to clean ear canals.[2]

Post irrigation

- Re-inspect the ear using the otoscope with a clean tip.
- After syringing, the tympanic membrane often looks pink and blood vessels are dilated.
- Instill ear drops as indicated and/or prescribed

Appendix 3: Ear Drop Instillation

Key points

- To be performed only by staff with appropriate training.
- The prescribed ear drops must be suitable for use where ear perforation is suspected. Some drops are ototoxic and may result in permanent damage and /or hearing deficit. Seek further medical review for up- to date guidance where necessary.
- If instilling ear drops to treat middle ear infection where perforation exists, the eardrops must pass through the perforation in the eardrum into the middle ear. The ear drops may track down the eustachian tube so the child can taste them.[2] The child's parent/guardian should be made aware of this.
- Ensure the topical medication is suitable for use and relative to the condition of the child's ears at the time of examination. Seek medical advice to provide clarity if any concerns.

Procedure

Equipment

- Otoscope
- Disposable speculae – largest size to fit comfortably in child's ear canal
- Ear drops as prescribed and/or indicated
- Equipment for tissue spearing or ear irrigation, as required.

Position

- Sit the child comfortably with their head tilted horizontally or lay them on their side.
- The child may prefer to sit or lie on the parent/caregiver's lap.
- A horizontal angle assists with drainage of the drops into the ear canal.

Procedure

- Pull the back of the pinna gently away from the head to straighten the ear canal.
    - For **older children**, gently pull pinna back and up.
    - For **infants**, gently pull back and down on ear lobe
- Refer to Appendix 1: Tissue spearing or Appendix 2: Ear irrigation procedures as required prior to instillation of drops, depending on the condition of the ear.

Instillation of drops

- Gently instill the prescribed or recommended drops into the ear canal.
- To avoid contamination of the dropper and subsequently the bottle, take care not to allow the tip to touch the ear.
- Immediately follow instillation with gentle pressure to the tragus pressing several times in a pumping action.
- Pumping promotes deep penetration of the drops down the ear canal, and where perforation exists, into the middle ear.
- Leave the child with head tilted on this side for 2-5 minutes prior to moving them.
- This allows time for the medication to be absorbed so that minimal loss will occur with position change.
- Dry excess fluid as necessary.
- Leave ear canal open if possible. Plugging the canal is not recommended.