

Cochlear Implant Surgery Assessment Tool (CISAT)					
Trainee:		Procedure number:		Date:	
	Performed by supervisor's	Performed with guidance's	Performed by trainee with no or minimal guidance		
Final product	1. Posterior tympanotomy Posterior wall of auditory canal	☐	☐	1 Substantial damage to vital structure (e.g. facial nerve), many remaining cells, holes in posterior wall. 2 3 Few remaining cells, few holes in posterior wall, minor exposure of facial nerve 4 5 Facial nerve just visible through layer of bone, no holes in posterior wall, no remaining cells	
	2. Posterior tympanotomy: Initiating posterior tympanotomy	☐	☐	1 Drilling at incorrect position, damaging facial nerve or tympanic cord 2 3 Drilling near correct position and/or very minor nerve exposure 4 5 Drilling close to incus buttress, ~2 mm fine diamond drill, no exposure of vital structures	
Drilling video	3. Posterior tympanotomy: Drilling technique	☐	☐	1 Uncoordinated drill movement, inappropriate drill type/size 2 3 Minor irrelevant movement and/or incorrect drill type/size 4 5 Perfectly coordinated movement using correct drill type/size	
	4. Posterior tympanotomy: Bone orientation for drilling	☐	☐	1 No view of incus or lateral semicircular canal 2 3 Partial overview and/or moderately incorrect viewing angle 4 5 Incus buttresses and lateral semicircular canal visible	
Final product	5. Posterior tympanotomy: Widening	☐	☐	1 Insufficient widening or damage to adjacent structures 2 3 Acceptable widening with minor nerve exposure 4 5 Perfect widening laterally and anteriorly to facial nerve	
	6. Posterior tympanotomy: Round window	☐	☐	1 No round window membrane exposure 2 3 Insufficient (<1 mm) or excessive round window membrane exposure; 4 5 Appropriate removal of round window bony overhang, ≥1 mm round window membrane exposure	
Insertion video	7. CI-insertion: Bone orientation at insertion	☐	☐	1 No view of round window membrane 2 3 Partial view of round window membrane 4 5 Maximum view of round window membrane	
	8. CI-insertion: Approach	☐	☐	1 Electrode collisions, irregular movement, incorrect forceps grasp or path 2 3 Few collisions, mostly fluid movement, partly correct grasp and path 4 5 Deliberate movement with no collisions, perfect forceps grasp and path	
	9. CI-insertion: Insertion vector	☐	☐	1 Incorrect direction/vector of insertion 2 3 Partly correct insertion vector 4 5 Anterior, slightly lateral direction (avoiding hook region)	
	10. CI-insertion: Movement	☐	☐	1 Insertion duration <5 s and/or abrupt, partially fast insertion 2 3 5–15 s insertion duration and/or moderately smooth 4 5 Continuous, smooth insertion, ≥15 s duration	
	11. CI-insertion: Insertion result			1 No insertion into cochlea 2 3 Partial insertion (<3/4), electrode in scala tympani 4 5 Complete scala tympani insertion	
Overall assessment		Fail ☐		Borderline ☐	
				Pass ☐	
§: Performed by supervisor = 1 point; §: Performed with guidance = 2 points; s = seconds					