

Primary Questionnaire for Oncologists

Section 1: Eligibility

1. Are you an oncologist working in a cancer care center in Saudi Arabia?

- Yes, I am a medical oncologist
 - Yes, I am a radiation oncologist
 - No
 - Other (please specify): _____
-

Section 2: Center Characteristics

2. In which geographical region is your cancer care center located?

- Central Region
- Eastern Region
- Western Region
- Southern Region
- Northern Region

3. What is the healthcare sector of your cancer care center?

- Ministry of Health
- Other Governmental Organization (please specify): _____

4. What patient population is served at your center?

- Adults only
- Adults and pediatrics

5. Does your center offer platinum-based chemotherapy and radiotherapy?

- Yes, both chemotherapy and radiotherapy
 - Offers only chemotherapy
 - Offers only radiotherapy
 - Other (please specify): _____
-

Section 3: Audiology Services Availability and Location

6. Are audiology services available in your facility?

- Yes
- No
- Not sure / Don't know
- Other (please specify): _____

If yes:

7. How far is the Audiology clinic from the cancer care center in your hospital?

- In the same building and on the same floor
- In the same building but on a different floor
- In a different building
- Not sure / Don't know
- Other (please specify): _____

Comments: _____

Section 4: Ototoxicity Monitoring Programs, Policies, and Implementation Stage

8. Is there an ototoxicity monitoring program in place for cancer patients receiving platinum-based chemotherapy or radiotherapy at your center?

- Yes
- No
- Not sure / Don't know
- Other (please specify): _____

9. Does your department or institution have any internal policies or clinical guidelines for ototoxicity monitoring?

- Yes
- No
- Not sure
- Other (please specify): _____

If yes:

10. What is the current stage of implementation of the program or the internal policy?

- Planning stage
- Early implementation
- Well-established
- Not sure / Don't know
- Other (please specify): _____

Comments: _____

Section 5: Real-World Practices in Ototoxicity Monitoring

Pre-treatment Counseling Practices

11. Are patients (or their caregivers) informed about potential ototoxic effects before starting chemotherapy or radiotherapy?

- Always
- Usually
- Sometimes
- Rarely
- Never
- Not sure / Don't know
- Other (please specify): _____

If yes:

12. Who conducts the pre-treatment counseling?

- Oncologists only
- Oncologists and audiologists
- Other (please specify): _____

Comments: _____

13. Are patients (or their caregivers) provided information about rehabilitative options such as hearing aids or communication strategies before starting chemotherapy or radiotherapy?

- Always
- Usually
- Sometimes
- Rarely
- Never
- Not sure / Don't know
- Other (please specify): _____

14. How is the information typically provided?

- Verbally only
- Verbally and in written format (e.g., handouts)
- Other (please specify): _____

Comments: _____

Referral to Audiological Evaluation

15. Is ototoxicity monitoring (referring to Audiology for hearing evaluation) a routine practice for patients receiving platinum-based chemotherapy and/or radiotherapy?

For pediatric patients

- Always
- Usually
- Sometimes (intended for all, but inconsistently applied)
- Rarely
- Never
- Referral to Audiology only occurs when symptoms are present or a patient complains
- Referral to Audiology only occurs for certain patients (please specify): _____
- Only for patients receiving radiotherapy
- Only for patients receiving cisplatin
- Other (please specify): _____

Comments: _____

For adult patients

- Always
- Usually
- Sometimes (intended for all, but inconsistently applied)
- Rarely
- Never
- Referral to Audiology only occurs when symptoms are present or a patient complains
- Referral to Audiology only occurs for certain patients (please specify): _____
- Only for patients receiving radiotherapy
- Only for patients receiving cisplatin
- Other (please specify): _____

Comments: _____

*If any level of ototoxicity monitoring was reported in Question 15, please proceed to answer Questions 16–23 before moving to Section 6.
If not, please skip directly to Section 6.*

16. Is a baseline audiological evaluation conducted around the first treatment for patients (either before or soon after)?

For pediatric patients

- Always
- Usually
- Sometimes
- Rarely
- Never
- Other (please specify): _____

Comments: _____

For adult patients

- Always
- Usually
- Sometimes
- Rarely
- Never
- Other (please specify): _____

Comments: _____

17. Is monitoring maintained consistently throughout patient treatment?

For pediatric patients

- Always
- Usually
- Sometimes
- Rarely
- Never
- Monitoring tests are undertaken infrequently
- Other (please specify): _____

Comments: _____

For adult patients

- Always
- Usually

Supplementary material: two versions of the questionnaire

- Sometimes
- Rarely
- Never
- Monitoring tests are undertaken infrequently
- Other (please specify): _____

Comments: _____

18. Are post-treatment hearing assessments conducted for patients?

For pediatric patients

- Always
- Usually
- Sometimes
- Rarely
- Never
- Only when symptoms are present or rehabilitation is necessary
- Other (please specify): _____

Comments: _____

For adult patients

- Always
- Usually
- Sometimes
- Rarely
- Never
- Only when symptoms are present or rehabilitation is necessary
- Other (please specify): _____

Comments: _____

19. Are patients provided with long-term follow-up Audiology appointments?

- No
- Yes up to 12 months after treatment
- Yes up to 24 months after treatment
- Only if the patient is referred for further rehabilitative intervention
- Not sure
- Other (please specify): _____

Comments: _____

20. Is there a tracking or follow-up system in place to ensure continued follow-up?

- No
- Yes
- Not sure
- Other (please specify): _____

Comments: _____

Location

21. Where are patients tested?

- Patients are tested at the Audiology department only
- Patients considered behaviorally responsive are sent to the Audiology department; patients with limited responsiveness are tested at the Oncology treatment unit
- Unsure / Don't know
- Other (please specify): _____

Comments: _____

Access and Scheduling

22. Who has access to patients who should undergo ototoxicity monitoring?

- Oncology clinics only
- Audiologist as well
- Multidisciplinary clinics
- Other (please specify): _____

23. Who is responsible for scheduling ototoxicity monitoring tests for patients?

- Audiology clinic is responsible
- Audiology, shared with Oncology
- Other (please specify): _____

Comments: _____

Section 6: Challenges and Barriers

21. In your opinion, what are the most prominent challenges currently affecting ototoxicity monitoring practices?

(Select all that apply)

Supplementary material: two versions of the questionnaire

- Unavailability of audiology services
 - Shortage of audiologists
 - Compromised status of cancer patients
 - High patient load
 - Ineffective referral system
 - Patient time and scheduling constraints
 - Inconvenient audiology clinic locations
 - Lack of multidisciplinary teamwork / insufficient collaboration
 - Absence of care coordinators
 - Other (please specify): _____
- Comments:** _____
-

Section 9: Oncologists' Perspectives

Please indicate your level of agreement or disagreement with the below statements.

22. A national ototoxicity monitoring program involving a multidisciplinary team (oncologists, audiologists, and pharmacists) would improve current practices.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree
- Other (please specify): _____

24. The initiative for establishing a national ototoxicity monitoring program should be led by audiologists as part of a multidisciplinary collaboration.

- Strongly disagree
 - Disagree
 - Neither agree nor disagree
 - Agree
 - Strongly agree
 - Other (please specify): _____
- Comments:** _____

25. Audiologists should raise awareness among healthcare providers, patients, and caregivers about ototoxic symptoms (e.g., hearing loss, tinnitus, imbalance) and available rehabilitation options.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree
- Other (please specify): _____

Comments: _____

26. Audiologists should participate in pre-treatment counseling to discuss the potential risk of ototoxicity and provide information about its effects and rehabilitation options.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree
- Other (please specify): _____

Comments: _____

Parallel Questionnaire for Audiologists

Section 1: Eligibility

1. Are you an audiologist working in a facility that hosts a cancer care center in Saudi Arabia?

- Yes
- No
- Other (please specify): _____

Note: The name and characteristics of the cancer center will be cross-checked with the responses from the oncologist version of the questionnaire to confirm eligibility as the designated audiology representative for the same center.

Section 2: Audiology Services Location

2. How far is the audiology clinic from the cancer care center in your hospital?

- In the same building and on the same floor
- In the same building but on a different floor
- In a different building
- Not sure / Don't know
- Other (please specify): _____

Comments: _____

Section 3: Ototoxicity Monitoring Programs, Policies, and Implementation Stage

3. Is there an ototoxicity monitoring program in place for cancer patients receiving platinum-based chemotherapy or radiotherapy at your center?

- Yes
- No
- Not sure / Don't know
- Other (please specify): _____

4. Does your department or institution have any internal policies or clinical guidelines for ototoxicity monitoring?

- Yes
- No

Supplementary material: two versions of the questionnaire

- Not sure
- Other (please specify): _____

If yes:

5. What is the current stage of implementation of the program or the internal policy?

- Planning stage
- Early implementation
- Well-established
- Not sure / Don't know
- Other (please specify): _____

Comments: _____

Section 4: Real-World Practices in Ototoxicity Monitoring

Pre-treatment Counseling Practices

6. Are you, as an audiologist, involved in pre-treatment counseling for cancer patients?

- Yes
- No
- Other (please specify): _____

Comments: _____

7. Do you have written materials available that provide information about ototoxicity symptoms and rehabilitative options to support counseling?

- Yes
- No
- Other (please specify): _____

Comments: _____

Referral to Audiological Evaluation

8. Is ototoxicity monitoring (referring to Audiology for hearing evaluation) a routine practice for patients receiving platinum-based chemotherapy and/or radiotherapy?

For pediatric patients

- Always
- Usually
- Sometimes (intended for all, but inconsistently applied)
- Rarely

Supplementary material: two versions of the questionnaire

- Never
 - Referral to Audiology only occurs when symptoms are present or a patient complains
 - Referral to Audiology only occurs for certain patients (please specify): _____
 - Only for patients receiving radiotherapy
 - Only for patients receiving cisplatin
 - Unsure; referral decisions depend on oncologists
 - Other (please specify): _____
- Comments:** _____

For adult patients

- Always
- Usually
- Sometimes (intended for all, but inconsistently applied)
- Rarely
- Never
- Referral to Audiology only occurs when symptoms are present or a patient complains
- Referral to Audiology only occurs for certain patients (please specify): _____
- Only for patients receiving radiotherapy
- Only for patients receiving cisplatin
- Unsure; referral decisions depend on oncologists
- Other (please specify): _____

Comments: _____

*If any level of ototoxicity monitoring was reported in Question 8, please proceed to answer Questions 9–24 before moving to Section 5.
If not, please skip directly to Section 5.*

9. Is a baseline audiological evaluation conducted around the first treatment for patients (either before or soon after)?

For pediatric patients

- Always
- Usually
- Sometimes
- Rarely
- Never

Supplementary material: two versions of the questionnaire

Other (please specify): _____

Comments: _____

For adult patients

Always

Usually

Sometimes

Rarely

Never

Other (please specify): _____

Comments: _____

10. Is monitoring maintained consistently throughout patient treatment?

For pediatric patients

Always

Usually

Sometimes

Rarely

Never

Monitoring tests are undertaken infrequently

Other (please specify): _____

Comments: _____

For adult patients

Always

Usually

Sometimes

Rarely

Never

Monitoring tests are undertaken infrequently

Other (please specify): _____

Comments: _____

11. Are post-treatment hearing assessments conducted for patients?

For pediatric patients

Supplementary material: two versions of the questionnaire

- Always
 - Usually
 - Sometimes
 - Rarely
 - Never
 - Only when symptoms are present or rehabilitation is necessary
 - Other (please specify): _____
- Comments:** _____

For adult patients

- Always
 - Usually
 - Sometimes
 - Rarely
 - Never
 - Only when symptoms are present or rehabilitation is necessary
 - Other (please specify): _____
- Comments:** _____

12. Are patients provided with long-term follow-up Audiology appointments?

- No
 - Yes up to 12 months after treatment
 - Yes up to 24 months after treatment
 - Only if the patient is referred for further rehabilitative intervention
 - Not sure
 - Other (please specify): _____
- Comments:** _____

13. Is there a tracking or follow-up system in place to ensure continued follow-up?

- No
 - Yes
 - Not sure
 - Other (please specify): _____
- Comments:** _____
-

Location

14. Where are patients tested?

- Patients are tested at the Audiology department only
- Patients considered behaviorally responsive are sent to the Audiology department, while patients with limited responsiveness are tested at the Oncology treatment unit
- Other (please specify): _____

Comments: _____

Access and Scheduling

15. Who has access to patients who should undergo ototoxicity monitoring?

- Oncology clinics only
- Oncology and Audiology
- Multidisciplinary clinics
- Other (please specify): _____

16. Who is responsible for scheduling ototoxicity monitoring tests for patients?

- The Audiology clinic
- Audiology with Oncology
- Other (please specify): _____

Comments: _____

Protocols and Testing

17. What tests do you include in the baseline assessment?

(Select all that apply)

- Standard air-conduction pure-tone audiometry (PTA) up to 8 kHz
- Extended high-frequency (EHF) PTA up to 12 kHz
- EHF PTA up to 16 kHz
- EHF PTA up to 20 kHz
- Sensitive range for ototoxicity (SRO)
- Bone-conduction PTA
- Distortion-product otoacoustic emissions (DPOAEs) up to 10 kHz
- DPOAEs up to 8 kHz
- Transient-evoked otoacoustic emissions (TEOAEs)
- Auditory brainstem response (ABR)

Supplementary material: two versions of the questionnaire

- Tympanometry
- Acoustic reflexes
- Speech reception thresholds (SRT)
- Word recognition testing
- Self-report measures for hearing, tinnitus, or quality of life
- Other (please specify): _____

Comments: _____

18. What tests do you include in monitoring assessments?

- Same test list as baseline
- Same as baseline preferred, but sometimes abbreviated due to schedule or tolerance
- Shortened screening only, then comprehensive testing if changes are detected
- Shortened screening only unless rehabilitation is a focus
- Other (please specify): _____

Comments: _____

19. Do you monitor for ototoxicity-related tinnitus or balance disorders?

- No
- Yes for both
- Yes, but only for tinnitus
- Yes, but only for balance disorders
- Other (please specify): _____

Comments: _____

20. What tests do you include in post-treatment evaluations?

- Same test list as baseline
- Shortened screening only, then comprehensive testing if changes are detected
- Shortened screening only unless rehabilitation is a focus
- Other (please specify): _____

Comments: _____

21. Is there a standard definition for an ototoxic hearing shift used in your clinic?

- No
- Yes (please specify): _____
- Unsure / Don't know
- Other (please specify): _____

Comments: _____

22. Do you use a validated grading scale in your clinic?

- No
- Yes, the International Society of Pediatric Oncology Boston Ototoxicity Scale (SIOP Boston)
- Yes, the Common Terminology Criteria for Adverse Events (CTCAE)
- Other (please specify): _____
- Unsure / Don't know

Comments: _____

23. Is there a unified plan of action when a shift is detected?

- No clear action plan
- Yes (please specify): _____
- Not sure
- Other (please specify): _____

Comments: _____

24. Which of the following is usually done if changes in hearing occur?

(Select all that apply)

- Conduct a validating retest within 24–48 hours
- Provide follow-up appointments
- Counsel on rehabilitative options (e.g., hearing aids, communication strategies)
- Report findings in audiology notes for oncologist review
- Other (please specify): _____

Comments: _____

Section 5: Equipment Availability

25. Is the essential equipment for comprehensive ototoxicity monitoring available in your clinic (e.g., extended high-frequency audiometer, diagnostic DPOAE systems)?

- Yes
- No
- Unsure / Don't know
- Other (please specify): _____

26. Is portable equipment available for bedside testing to support comprehensive ototoxicity monitoring when needed?

- Yes
- No

Supplementary material: two versions of the questionnaire

- Unsure / Don't know
- Other (please specify): _____

27. What barriers exist to testing patients at the Oncology treatment unit, when necessary?

(Select all that apply)

- Equipment limitations
- Environmental noise
- Audiologist availability
- Other (please specify): _____

Comments: _____

Section 6: Challenges and Facilitators

28. In your opinion, what are the most prominent challenges currently affecting ototoxicity monitoring practices?

(Select all that apply)

- High audiology workload and patient load
- Staff shortages (e.g., insufficient number of audiologists)
- Equipment limitations
- Lack of ototoxicity monitoring guidelines or internal policies
- Lack of clarity regarding test frequency, time-efficient protocols, grading scales, reporting standards, or defining actionable ototoxic changes
- Inefficient or unclear referral system
- Lack of multidisciplinary teamwork/poor coordination between departments
- Limited collaboration with Oncology or pharmacy
- Patient scheduling constraints/limited appointment availability
- Compromised status of cancer patients
- Inconvenient location of audiology services within or outside the hospital
- Other (please specify): _____

Comments: _____
