INFORMATION TO PREPARE
for the
NATIONAL COMPETENCY EXAM

Study Guide

for the
Board Certification
In Hearing Instrument Sciences
EXAMINATION

Prepared by
National Board for Certification in Hearing Instrument Sciences

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- NBC-HIS Examination Committee for development of questions and responses
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Without their efforts the Study Guide would not have become a reality.

Purpose of this Study Guide….

Since the first National Competency Exam (NCE), hearing healthcare professionals who have taken the NBC-HIS Examination have expressed concern over the dearth of study material. This Study Guide was developed to meet this concern. It is based on the most recent Competency Model and the 2012 NBC-HIS Role Study.

The purpose of this guide is not to give the actual questions contained in recent National Competency Exams, but to familiarize you with the different question types and competency areas that will be tested. The questions are representative of the style and content of the questions used on the current National Competency Examination (NCE), and are based on the 2006 Competency Model of NBC-HIS.

Use this guide as a tool to help you succeed with the NCE. As with all examinations, be sure to read all instructions carefully before you read the sample questions. When you complete the questions, stop and check your responses. The purpose of this exercise is to give you the actual format of the NCE.

Please note: Use of this guide does not assure you a passing score on the NCE. The design and purpose of the National Competency Exam is to test your skill as a hearing health professional. NBC-HIS wants to help you become Board Certified in Hearing Instrument Sciences. The accomplishment of the designation rests upon your successful completion of the National Competency Examination.

NBC-HIS STUDY GUIDE
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Introduction

The unique professional preparation that a hearing health provider receives makes it difficult to judge the needed skills and expertise using the standard assessments used in classroom study. Individuals who dispense hearing instruments learn several needed skills through supervised "hands-on" training with the hearing impaired.

In the late 1970's, concerns were expressed for the measurement of the skills of the hearing healthcare professional. As a result of those concerns and subsequent discussions, a certifying body known as "The National Board for Certification in Hearing Instrument Sciences" (NBC-HIS) was formed. The purpose of this organization is to develop an unbiased exam, which measures the skills of hearing healthcare providers and awards certification to those candidates who successfully complete the examination.

Research involved in the development of the exam includes a series of Role Delineation Studies to determine the current skills needed to be a successful hearing professional. From this study of dispensing practice, skills are grouped into competency areas, thus creating the current Competency Model upon which the certification exam is based.

"Board Certified in Hearing Instrument Sciences" (BC-HIS), accredits the skills and competency achieved by a hearing healthcare provider. With the accomplishment of earning the BC-HIS designation they have proven their competency to their peers and other members of the hearing healthcare profession. The NBC-HIS National Competency Exam (NCE) is the only hearing healthcare examination approved by the National Commission for Certifying Agencies (NCAA), a nationally recognized organization that reviews and accredits international competency testing for health certifying organizations.

Role of the Hearing Health Professional

The hearing specialist plays an important and vital role within the community of hearing health care professionals. Through professional interventions with the hearing impaired, the hearing health provider has become a direct link to the hearing impaired person's enhanced quality of life. Without this assistance, the hearing impaired would be forced to live in a world of silence.

The expertise needed to enter this profession is not derived solely from textbooks or classroom study. The successful hearing health professional also relies upon skills that have been developed from years of actual "hands-on" work with the hearing impaired. The training and professional commitment needed for this profession has gained the hearing health provider one of the highest consumer satisfaction ratings within the health care industry.

A Professional Practice Profile for Hearing Health Professionals

Hearing instrument dispensing includes several professions that overlap. There are traditional hearing aid dispensers, board certified hearing health professionals, hearing aid practitioners, hearing instrument specialists, audioprosthologists, audiologists, doctors of audiology, otolaryngologists, and other doctors of medicine. This document summarizes the scope of dispenser services as defined by the 1999 NBC-HIS Role Delineation Study of Hearing Aid Dispensers (D'Costa, 1999). It does not replace or supersede current state and federal regulations governing the practice of hearing instrument dispensing, but is specific to the training and legitimate professional activities of those practitioners licensed in hearing instrument dispensing. A role study is similar to a job analysis, and is based on a national survey of the critical tasks and responsibilities performed by hearing instrument dispensers. The NBC-HIS Role Studies have provided the Competency Model used as the blueprint in the development of the International Institute for Hearing Instrument Studies (IIHIS) International Licensing Examination for hearing instrument dispensers and the NBC-HIS Board Certification Examination in the Hearing Instrument Sciences.

Simply put, the purposes of this document are twofold:

- To provide a ***model hearing instrument dispenser practice plan*** for state/provincial licensing boards, and
- To provide consumers, government agencies, and other interested parties, official information about the **specific services and understandings a patient has the right to expect** from a competent hearing health professional.

The NBC-HIS Role Delineation Study (D'Costa, 1999) found the vast majority (90%) of today's dispensers are college educated. Yet, this profession lacks the identity and definition usually provided by a formalized university program. Other professional disciplines that include hearing aid dispensing within their scope of practice are designed to cover many other areas as well. McSpaden (1994) noted that a major problem for the field arises from the fact that the three types of hearing health care providers – physicians, audiologists, and hearing aid dispensers, bring very different training perspectives to their practices. An educational program specializing in hearing instrument sciences is a necessity in order to meet the needs of the growing population of hearing impaired. The Canadian model started at Grant MacEwan College in Edmonton, Alberta has been the foundation on which other new programs around the US and Canada are being developed.

Hearing health professionals serve patients of all ages appropriate to their training and scope of licensed practice, regardless of their ethnicity, racial, religious, cultural, linguistic or socioeconomic status. They also recognize and respect the scope of practice and services provided by other professionals within the medical, clinical, rehabilitative and related hearing

healthcare professions. Furthermore, they work cooperatively with these professionals in the best interests of the hearing impaired consumer they serve.

The National Quality of Life Study (HIA-NCOA, 1999) estimated there are about 30 million persons in the USA (about 10% of the population) with some degree of hearing loss, and fewer than 6 million of these (less than one in five) wear a hearing instrument. McSpaden (1994) estimated there are approximately 2500 physician offices, 7000 audiologists, and 7000 hearing instrument dispensers currently practicing in the USA. While this workforce is numerically inadequate (1 dispenser for 1800 clients), and needs to increase ten-fold, the problem for consumers is compounded by a lack of standardized information about dispensing practice characteristics and expectations. Although the public excoriations of confusing dispensing claims and practices (AARP, 1983) are now relegated to history, the need for a public document presenting a national dispenser practice plan remains as critical as ever.

The following guiding principles and assumptions were used in the development of this Professional Practice Profile for Hearing Health Professionals:

- Only those professionals who hold professional licenses which allow hearing aid dispensing, and who have appropriate training and experience may provide specific procedures.
- Safety and health of the patient are the most important considerations in all practice decisions and actions.
- All dispensing procedures are performed in a manner as to prevent bodily injury and infection.
- Hearing aids may be only part of the answer for improved communication; therefore, it is important to recognize and to encourage the use of other assistive listening devices for patients.
- Hearing health care requires a team effort. Dispensers must work with other professionals, as needed, to maximize patient care and inter-professional collaboration.
- Dispensers form a partnership with each of their patients to help achieve total communication with their own world, thus enabling their development and participation in all aspects of their life.
- All equipment must be maintained according to the manufacturer's specifications and recommendations. Equipment must be properly calibrated and necessary records maintained.
- Decontamination, cleaning and disinfection of multiple-use equipment must be carried out according to facility-specific infection-control policies and manufacturer's guidelines.
- Ambient noise levels in the test environment must be appropriate to the practice setting.
- Documentation must be maintained in accordance with local regulations, and in keeping with good professional practice.

The NBC-HIS 2012 Role Delineation Study analyzed the responses of survey participants to 100 tasks in terms of the "frequency" with which each task was performed, and in terms of the "level of supervision" occurring with each task performance. Sixteen broad procedures were identified using statistical clustering of the tasks and are listed below.

1. **Elicit patient/client case histories,** including medical, otological, pharmacological, previous amplification history, and patient attitudes and expectations.
2. **Administer otoscopy** for the purpose of identifying possible otological conditions, including, but not limited to, the FDA red flag conditions that may indicate the need for medical referral, or which may have a bearing on needed rehabilitative measures, outcomes, and/or recommendations.
3. **Administer cerumen management** in the course of examining ears, taking ear impressions and/or fitting of hearing instruments.
4. **Administer and interpret tests of human hearing,** including appropriate objective and subjective methodology and measures.
5. **Determine candidacy for hearing instruments**, assistive devices, or for referral for cochlear implant evaluation or other clinical/rehabilitative/medical intervention.
6. **Prescribe, select, and fit appropriate hearing instruments and assistive devices,** including appropriate technology, electroacoustic targets, programming parameters, and special applications as indicated.
7. **Assess hearing instrument efficacy** utilizing appropriate fitting verification methodology, including all available fitting validation methods.
8. **Take and prepare ear impressions for prosthetic adaptation** of hearing instruments, assistive devices, telecommunications applications, ear protection, and other related applications.
9. **Design and modify earmolds and auditory equipment** requisite to meet individual patient needs.
10. **Provide rehabilitative advice and counseling** in the use and care of hearing instruments, assistive devices, and in effectively utilizing communication coping strategies and other approaches to foster optimal patient rehabilitation. (See appendix for list of resources)
11. **Counsel family member and other interested parties relative to psychosocial and rehabilitative considerations** for optimal patient outcomes**.**
12. **Provide long-term patient care,** including periodic audiometric updates and recommendations for modifying rehabilitation programs to help meet patients' changing needs over time.
13. **Refer and cooperate with other allied professionals** in meeting the needs of the hearing impaired.
14. **Provide supervision and in-service training** of those entering the dispensing profession.

15. **Maintain and update knowledge and skills in current and future diagnostic and technological advancements** within the hearing industry.
16. **Consult with industry in the development of products and services** relating to aiding hearing impairment.

The sixteen procedures listed above were then grouped into 6 major areas as follows:

1. **Assess patient presenting problem and needs**
2. **Test and analyze patient hearing**
3. **Prescribe and analyze hearing aid**
4. **Fit, adjust, program, and service hearing aid**
5. ***Counsel and help rehabilitate patient**
6. *** Manage office and practice**

*** The current Competency Model only uses only five Competency Scales, scales 5 & 6 were combined into one scale.**

This Professional Practice Profile details expected outcomes, indications for procedures, and the procedures for each of the six areas outlined above. The Profile represents currently accepted practices in dispensing hearing instruments for hearing health professionals. As technology and education advance over time, new methods, skills, and services will be added thereto.

1. Expected Outcomes

- Although results vary from person to person and the outcome cannot be guaranteed, a reasonable statement of prognosis may be made to the patient, the family, and other professionals.
- While patient satisfaction is the ultimate determining factor in a successful fitting, measurement and monitoring of results should be done to ensure and/or improve the quality of service.
- Regularly scheduled follow-up services should be provided to assess the need for other services and to monitor the effectiveness of the fitting and/or the level of hearing.

2. Indications for Procedures

- Hearing screening may be used to identify individuals who may need further hearing evaluation and/or hearing rehabilitation.
- Services are provided when there is a reasonable prognosis of benefit to the patient.

3. Procedures

- All procedures are done in accordance with standard levels of practice.
- Counseling of the patient and family/caregiver is critical to the understanding of the nature of the communication problem and to the setting of reasonable expectations from services.
- When indicated by results of procedures, referrals are made to the appropriate medical and/or other professional.

- The lifestyle, preferences, special needs, and economic priorities of the patient are critical components of the products recommended by the dispenser.

PROFESSIONAL PRACTICE PROFILE

1. ASSESS PATIENT PRESENTING PROBLEM AND NEEDS

Expected Outcomes

- Identification of factors in the patient's background that may put him at risk for hearing problems
- Identification of FDA red flags that would require a referral for medical evaluation
- Identification of other medical problems that may have an impact on the methods used for procedures and/or expected outcomes of hearing aid fitting.
- Identification of family members' concerns regarding patient's hearing difficulties
- Exploration of patient attitudes and expectations of amplification
- Identification of problems with hearing and understanding
- Identification of daily activities and impact of hearing loss on lifestyle
- Identify impact of hearing loss on family, friends, and in the workplace

Indication for Procedure

- Individuals being seen for either hearing screening or hearing evaluation

Procedure Methods

- Typically consists of a combination of written answers to a series of questions, elaboration of those answers by oral questioning, and behavioral observation.
- Areas covered include but are not limited to: family history of hearing loss, incidence and duration of childhood hearing-related illnesses, information regarding dizziness, loss of balance, or tinnitus, current medication/drug history, history of noise exposure and acoustic trauma. In addition it is critical to elicit family members concerns about patient's hearing difficulties, the patient's attitudes and expectations regarding amplification, and the patient's own assessment of their hearing difficulties.

- Additional areas that must be covered include but are not limited to questions regarding history of ear surgeries, diseases and treatments, information regarding past experiences with amplification, questions and observation regarding ear deformity, pain, sudden hearing loss, ear infection, disease, drainage or blockage requiring medical referral.

2. TEST AND ANALYZE HEARING

Expected Outcomes

- Basic hearing evaluation is conducted to quantify and qualify hearing loss on the basis of perceptual responses to acoustic stimuli and to describe any associated communication disorders.
- Results of the evaluation may result in recommendations for more advanced testing, medical referral, amplification consultation, assistive listening device consultation, or follow-up recommendations.
- Speech discrimination tests are performed for additional information about a hearing loss.
- Evaluation may result in recommendation for a medical referral, amplification, aural rehabilitation, and/or counseling.
- Determine need for medical referral based on audiometric air-bone gap results.
- Determine degree, type, and configuration of hearing loss from test results.
- Hearing instrument efficacy will be determined by pre-post audiometric measures.

Indications for Procedures

- Hearing evaluation may be done when a hearing screening is failed.
- Hearing evaluation is generally prompted by self-referral, family referral, failure of an occupational hearing test, or referral from other professionals.

Procedure Methods

- Hearing evaluation is preceded by eliciting the hearing history and assessing the hearing problem. This is followed by examination of the external ear canal and cerumen management, if necessary.
- The standard audiometric tests consist of pure-tone air and bone conduction testing with appropriate masking using the TDH-39 standard. It is our recommendation that all providers move to the EAR-3 or equivalent insert earphones standard by July 1, 2005. Some professionals also choose to do loudness growth testing at this time.
- Speech testing includes speech awareness and/or speech reception threshold tests, speech discrimination tests, and establishing MCL and UCL thresholds (appropriate masking used as required). In addition further information can be gained by doing unaided and aided sound-field discrimination tests and by testing binaurally as well as monaurally.
- Special audiometric tests are performed for additional information about a hearing loss.
- Evaluation may result in recommendation for a medical referral, amplification, aural rehabilitation, and/or counseling.
- Procedures such as immittance audiometry (tympanometry and reflexes) are quite common.
- Procedures to assess cochlear versus retrocochlear (i.e., eighth cranial nerve, brainstem, or cortical) auditory disorders include:
    - Acoustic reflex threshold
    - Tone decay testing
    - PiPb rollover testing
- Special procedures for testing infants and children as appropriate to licensure or evaluating tinnitus are also sometimes called for.

- Evaluate the reliability and validity of the test results.
- Evaluate test results to determine the presence of collapsed ear canals.
- Evaluate aided sound field measures and/or real-ear aided performance measures or Live Speech Mapping.

3. PRESCRIBE AND ANALYZE HEARING AIDS

Expected Outcomes

- In consultation with the patient and family, taking into account their lifestyle, special needs, hearing aid style, technology, and price category preferences, selecting the hearing aid that will best fit their needs.
- Provide measurable results of improved hearing thresholds and ease of communication.
- The appropriate specifications for the hearing aid will be selected.

Indications for Procedure

- Individuals identified with hearing loss who have reached a level of acceptance regarding their loss that they are ready to seek help from amplification.

Procedure Methods

- Determine hearing aid needed for severity, type, and configuration of hearing loss, keeping in mind the patient's history, lifestyle, and audiogram.
- Discuss with patient the various levels of technology and their different price categories to aid in determination of hearing aid prescription.
- Identify physical limitations affecting hearing instrument selection.
- Prior to dispensing the hearing aid, verification of hearing aid performance is conducted via a listening check to rule out excessive circuit noise, intermittency, and/or poor sound quality.
- Perform electroacoustic analysis to determine if hearing aid is performing according to manufacturer's specifications.
- Confirm telecoil function.
- Programmable and digital hearing aids should be programmed prior to patient's arrival to ensure integrity of programming system and hearing aids.

4. FIT, ADJUST, AND SERVICE HEARING AIDS

Expected Outcomes

- Appropriate earmold/hearing aid shell configuration and material will be selected for maximum comfort and hearing aid performance.
- Alleviation of a problem with physical or acoustic comfort (i.e., occlusion, loudness, discomfort)
- Restore the aid to manufacturer's specifications.

Indications for Procedure

- Patient is being fitted for new amplification.

- Patient or family report a problem with the function, comfort, or benefit being received from the hearing aid.

Procedure Methods

- Assess ear canal for ear impression vis-à-vis size, length, and direction.
- Perform proper ear impression procedures, e.g. otoblock placement.
- Determine earmold/hearing aid shell configuration and material.
- Examine surface of earmold and instrument for damage and sharp edges.
- Perform physical fitting of coupler and instrument.
- Appropriateness of physical fit should be assessed through ease of insertion and removal, cosmetic appeal, comfort, absence of feedback, placement of microphone port/ports and ease of volume control use when present.
- Program selected hearing aids to patient's baseline audiometric data.
- Adjust/modify hearing instrument electronics based on patient feedback.
- Make venting modifications as needed for reduction of occlusion effect and or to control feedback. Modify shell or ear mold for improved, more comfortable fit.
- In the event the patient returns with a malfunctioning hearing aid, conduct in-office internal inspection of ear mold and instrument and take appropriate corrective action (suctioning wax and debris from receiver and microphone ports, cleaning corrosion from battery contacts, replace earmold tubing, etc.). Conduct electric current drain measurement of hearing aid. If in-office repair is not possible return aid to manufacturer for repair and offer the patient a loaner hearing aid to use while his is being repaired.
- If the hearing aid needs to go to the factory for repair, and it is out of warranty, inform the patient of the charges and repair warranty.
- Validation of fitting should be done either with sound field testing using frequency specific thresholds and/or aided speech discrimination and speech reception thresholds or with real ear aided measurements or with Live Speech Mapping.
- Reprogram hearing aids based on patient feedback.

5. COUNSELING AND AURAL REHABILITATION

Expected Outcomes

- Dispensers assist patients in coming to grips with the reality of their hearing loss and in the process of accepting amplification or other assistive listening devices.
- Dispensers educate the family and the patient in the ramifications of a hearing loss and what is a reasonable expectation for improved communication with amplification.
- To facilitate listening in various acoustic environments.
- To provide alerting systems.
- To augment the benefits of the hearing aids.
- To establish procedures for follow-up.
- To provide information to allied health-care professionals.

Indications for Procedure

- Individuals who have had their hearing evaluated.

- Individuals who are being fitted with amplification.
- Individuals who need more help than their hearing aids can provide in various situations.

Procedure Methods

- Explain otoscopic examination and audiometric assessment to patient.
- Discuss patient's reactions to hearing instruments.
- Discuss with patient various treatment options e.g., different levels of technology,
- different styles of hearing instruments.
- Provide patient with hearing rehabilitation exercises (several of the manufacturers have good programs for this as well as programs found in the literature).
- Explain hearing instrument use in different listening environments.
- Instruct patient on proper instrument insertion and removal techniques.
- Counsel patient on cerumen management.
- Counsel patient regarding care and use of instrument.
- Counsel patient on battery life and insertion/removal techniques.
- Counsel patient on telephone usage with hearing instruments, and assistive listening device coupling as necessary.
- A hearing aid usage schedule is determined.
- Counsel patient on amplification expectations and limitations.
- Discussion of appropriate expectations for amplification include: improved communication, freedom from unwanted feedback, minimization of the occlusion effect, and more auditory benefit in quiet than in noise.
- Patient is advised of their legal rights for hearing aid adjustment, replacement and return.
- Self-assessment tools that measure degree of hearing handicap, and/or pre- and post-fitting satisfaction are an appropriate tool for measuring patient satisfaction.
- Instruct patient/family in effective listening techniques with hearing aids.
- Counsel family members about patient's adjustment and use of hearing aids.
- Provide patient with information concerning environmental modifications that can ease communication.
- May provide patient with information on speechreading or other aural rehabilitation classes.
- May also include demonstration and information on devices to enhance:
    - telephone usage
    - listening to television
    - listening in church
    - listening in restaurants and other difficult listening environments
    - listening in the classroom or auditoriums
    - telephone, doorbell, smoke alarm alerting systems
- Formulate long-term treatment program
- Establish methods for recording care from treatment to rehabilitation.
- Counsel patient on importance of follow-up visits.

- Provide physician, with patient's permission according to HIPAA standards, your audiometric evaluation and recommendations. Communicate with other allied-health professionals as appropriate.

6. OFFICE AND PRACTICE MANAGEMENT

Expected Outcomes

- Equipment will be maintained according to sanitary guidelines and manufacturer's specifications.
- Records will be maintained in an organized and efficient manner.
- Clinical/ professional knowledge and skills will be current.

Indications for Procedure

- To standardize professional standards and practices.

Procedure Methods

- Maintain equipment to standards of sanitation and cleanliness.
- Supervise sanitization and cleanliness of office personnel.
- Maintain equipment according to manufacturer's specifications.
- Conduct biologic check of audiometric equipment.
- Perform cerumen management procedures using standard techniques/equipment.
- Recruit, train and develop professional and administrative staff.
- Establish supervisory procedures to ensure quality care.
- Develop marketing and advertising plans.
- Provide certification to patient to receive amplified telephone systems where appropriate.
- Identify sources of patient referrals.
- Establish and maintain quality assurance procedures.
- Adopt and follow a professional code of ethics.
- Maintain adequate professional liability protection.
- Design, implement, and monitor hearing care/conservation programs.
- Know governmental laws and guidelines affecting the dispensing profession.
- Update clinical/professional knowledge and skills.
- Attend professional seminars, conferences, and association conventions.
- Maintain patient records in accordance with governmental regulations including HIPAA privacy standards.
- Develop and maintain effective patient/business information systems.
- When billing electronically we must maintain and adhere to all HIPAA standards.
- Formulate short and long range business plans.
- Upgrade office computer systems (hardware and software).

*** The current Competency Model only uses only five Competency Scales, scales 5 & 6 were combined into one scale.**

Great strides have been made in raising the standard of care that hearing health professionals give their patients. It is vitally important to bring more professionals into this field as our population ages. It is hoped that the detailed "road map" provided in the Professional Practice Profile can help us provide a more professional and uniform level of service to our hearing impaired patients.

LIST OF REFERENCES

American Association of Retired Persons. (1983). A report on hearing aids: User perspectives and concerns. Washington, D.C.: Author.

D'Costa, Ayres (1999). NBC-HIS Role Delineation Study of Hearing Aid Dispensers.

Hearing Industries Association and National Council on the Aging. (1999). Report: Quality of life study. Washington, D.C: Author.

McSpaden, Jay (1994). Perspectives on hearing care providers. *Audecibel*, 443, 4, 20-25.

SECTION 1

Administrative Policies

POLICIES

Eligibility Requirements

Candidates must meet a minimum of two (2) years of actual dispensing experience in the last five (5) years and have a current State/Provincial License or Certificate of Registration (where applicable) to be eligible to take the National Competency Examinations (NCE). Eligibility is obtained by submitting:

1. State/Provincial license, Certificate of Registration (where applicable), or a diploma for the Grant MacEwan Hearing Aid Practitioner Program (or similar recognized two (2) year program) accompanied by a letter stating the candidate has fulfilled their dispensing experience.

2. Proof of two (2) years actual dispensing experience submitted by current or previous employer or individual(s) that supervised the two years of dispensing training.

Hearing Instrument Specialist who have completed fifteen (15) or more months of the two-years dispensing requirement are eligible to sit for the exam. However, upon successfully passing the exam, they will remain "Board Eligible" until such time that the two-year requirement is fulfilled and appropriate fees are paid.

Eligibility Appeal Process

In order to take the NCE you must have two (2) years of dispensing experience, within the last five (5) years and a current dispensing license, where applicable. If a candidate lives in a state that requires them to pass the NCE in order to receive their license, the license requirement is not applicable. If a candidate has been denied the opportunity to take the NCE and they feel they have met the aforementioned requirements, they may appeal to the National Board for Certification in Hearing Instrument Sciences (NBC-HIS), Executive Director, by writing a letter indicating the reason(s) they should not be denied. In the event a candidate is not satisfied with the decision of the Executive Director, they may appeal, in writing, to the Executive Council for further consideration. The appeal must be submitted to NBC-HIS within thirty (30) days of denial.

Application Process

If you have met the eligibility requirements outlined in this guide, you are qualified to take the exam. Contact the NBC-HIS office to obtain an application for certification. You may also download an application from the NBC-HIS website, www.nbc-his.com. Complete and return the application with a copy of the following items:

- Your state/provincial license, certificate of registration, or diploma from Grant MacEwan or other recognized two year program.
- A recent photograph (head shot only)
- A letter from the individual or hearing related institution that supervised your training
- The applicable application and exam fees, which are indicated on the exam application

Forward your completed application and necessary documentation to the NBC-HIS office for processing. Your submitted application and documentation are reviewed for eligibility. When the application is approved the applicant is then determined to be an Examination Candidate and will remain a candidate until successfully passing the NCE or expiration of the application time limit. Once you are determined to be an Examination Candidate, your application will remain valid and on file for a period of two (2) years.

Exam Site Registration

Exam site information is available from the NBC-HIS office or the NBC-HIS website. When your application has been approved, the staff at the NBC-HIS office will contact you to schedule your exam. When your exam is scheduled you will receive an email confirmation with the date, time and location of your exam. This confirmation will also have your exam launch code, which will be required for the exam administrator at the exam site to access the exam for you. It is highly recommended that you print this email confirmation notice and take it with you to the exam. The examination fee must be paid each time you sit for the exam.

Non-Discrimination Policy

No applicant shall be denied eligibility to the NCE because of age, sex, marital status, national origin, sexual preference, religious preference, race, or physical disability. (Except when a physical disability affects the level of professional service that must be provided to the patients). Any individual who wishes to question any of the eligibility requirements of the National Board for Certification in Hearing Instruments Sciences shall submit these concerns in writing to the NBC-HIS office.

Exam Fee Refunds

If you are unable to take the NBC-HIS Exam on your scheduled date or at the scheduled location, you are entitled to a refund of your exam fee if your request is received and acknowledged by NBC-HIS staff at least four (4) business days prior to the scheduled exam date.

An exam date may be rescheduled for another date and/or time if necessary. An additional exam fee will be assessed for any schedule changes made less than four (4) business days prior to the exam date.

DAYS FROM SCHEDULED EXAM---------- EXAM REFUND*

Four business days prior to exam..... ……100 percent
Less than four business days..... 0 percent
No Show on exam day.....0 percent

NBC-HIS recognizes that emergencies do occur which prohibit taking the scheduled exam. In these instances, the paid exam fee will be applied to a future exam. The transfer will only occur under the following circumstances:

1. Death of an immediate family member.

2. Sudden illness (you must submit a letter from your doctor).

3. Extreme emergency over which you have no control.

You must submit, in writing, a statement detailing the circumstances which prohibited you from taking the scheduled exam.

The NBC-HIS Executive Council or Executive Director shall exercise reasonable judgment to determine whether the circumstances warranted failure to appear for the scheduled exam. Decisions rendered by the Executive Council or Executive Director are final.

Exam Date/Site Changes

Exam Candidates may transfer an exam reservation to another scheduled exam date or location by contacting the NBC-HIS office at least 5 days prior to the originally scheduled exam date. Please note, once an exam reservation is transferred to another date or location, the exam fee is no longer refundable.

National Competency Exam Schedule

The National Competency Exam is conducted through computer test centers worldwide. The time and date of the exam is now flexible enough to fit almost any schedule. Contact the NBC-HIS office or check the website www.NBC-HIS.com to find the locations nearest you.

National Competency Exam Rules

On the day of your scheduled exam, please allow yourself ample time to locate the examination room and check in at least 20 minutes before your scheduled time. When you check in, present your exam Confirmation Notice. Plan to be at the exam site for three (3)

hours. A maximum of two (2) hours is provided for completion of the NCE which begins at the conclusion of registration and instructions. **Late arrival may result in cancellation of your scheduled exam time and forfeiture of your exam fees**.

You may not carry any papers, briefcases, calculators or other personal belongings to the exam site. This restriction also includes cell phone calculators. Blank paper and a pencil/pen will be provided by the exam administrator to use for any required calculations.

Exam Composition and Scoring

The NBC-HIS Exam Committee, which is composed of experienced and currently practicing Board Certified hearing instrument practitioners, develops items for the National Competency Exam. These individuals volunteer their time to research and draft items based upon the NBC-HIS Role Delineation Study results and performance objectives required to be considered a competent, professional hearing health provider.

During the developmental stages of this examination in 1981, 1991, 1999 and 2006 a Role Delineation Survey was distributed within the hearing instrument dispensing profession. From these studies a Competency Model was developed. Each competency area is weighted based on its weight of importance to the overall performance of the hearing healthcare provider's day-to-day activities. The percentage of importance determines the approximate number of questions in each area used in the National Competency Exam (NCE).

The NCE consists of 100 multiple choice questions with the best answer solution. Questions from each competency area are distributed though the exam. This allows all Exam Candidates an opportunity to answer questions from each of the competency areas. A successful Exam Candidate should be familiar with the following areas of competency.

<u>Competency Areas</u>

1. Assess patient presenting problem and needs
   10%
2. Test and analyze patient hearing
   20%
3. Prescribe and analyze hearing instruments
   25%
4. Fit, adjust, program and service hearing instruments and equipment
   25%
5. Counseling, rehabilitation and professional practice
   20%

The NCE has one best answer for each item. The item is scored as either correct or incorrect, there is no partial credit given for any items. Even though the NCE has five competency areas, it is scored as a single exam with the percentages associated with the competency areas reflecting only the approximate number of items pertaining to that competency area that will be on the Exam.

Your exam results will be reported to you when your exam is submitted. The results will list either a Pass or Fail for the entire exam. Actual number of correct answers or percentages will be disclosed only if you Fail. The additional instructions based on Pass or Fail results will also be provided immediately after you complete and submit your exam.

Passing the Exam

A passing score for the entire exam is required to become Board Certified in Hearing Instrument Sciences (BC-HIS). Individual scores for each area of competency are not provided. Enclosed with a passing score report is an invoice covering the annual revalidation fee along with a press release for local media, and the Criteria Sheet explaining proper usage of the BC-HIS designation.

Upon payment of the revalidation fee you will receive a wall certificate, and be able to request NBC-HIS logos for your letterhead, business cards, websites and other advertisements. Members of the International Hearing Society (IHS) will have the BC-HIS designation recognized in all printed materials, including *The Hearing Professional*.

Failing the Exam

To successfully complete the National Competency Exam, candidates must receive an overall passing score. When a failing score is achieved, you will be notified of your score for each of the competency areas tested.

Upon receiving a Fail report, the exam candidate may retake the NCE after a 30 day waiting period. You must submit the examination fee , an application fee is **not** required at this time. After submitting your exam fee, contact the NBC-HIS office to schedule the exam. If the exam is failed a second time, you must wait six (6) months before retaking the exam.

If the exam candidate does not pass the National Competency Exam within two years from the initial exam date, they must file a new application for approval and at this time candidates will be required to pay both an application fee and examination fee. The new application must be accompanied with the appropriate fees and a current copy of candidate's license or registration. This requirement will depend on the laws and regulation currently in effect by the applicant's state or province.

Exam Score Review and Appeal

An exam appeal will only be considered if there was a problem at the exam center that caused a problem in taking the exam. There will be no appeals for a rescore of exam since the chance of a scoring mistake is virtually nonexistent. **Requests for exam appeals** must be submitted in writing by registered mail within **sixty days** of the **exam date,** and must be accompanied by a payment of **$75.00**. A candidate may appeal an exam score for the following reasons:

1. Excessive noise or confusion during the examination which inhibited concentration
2. Exam room conditions (lighting, temperature, etc.)
3. Faulty computer operation

If the review is found in your favor, you will be issued a refund of the appeal fee.

Responsibilities of Board Certification

As an individual who is Board Certified in Hearing Instrument Sciences (BC-HIS), you will be expected to deal with your patients and peers in a professional manner as required by the NBC-HIS Code of Ethics.

All certificates issued by the National Board for Certification in Hearing Instrument Sciences remain the property of NBC-HIS.

Those Board Certified in Hearing Instrument Sciences must register their certificate each year by payment of an annual revalidation fee.

In addition to the annual revalidation fee, all Board Certified individuals must recertify their credentials at the completion of each third-year by:

1. Payment of recertification fee

2. Submitting proof of current licensure status

3. Submitting proof of having obtained a minimum of twenty-four (24) hours of continuing education credits* during the defined three (3) year period **OR** retaking and passing the National Competency Exam (including payment of appropriate fees)

4. Sign and date statement in the area indicated on your statement before returning it to the NBC-HIS office

*If your annual statement indicates you have obtained less than the 24 required continuing education units, and you have obtained credits that are not indicated on your statement, submit a copy of any certificates you have received from the sponsor(s) to the NBC-HIS office.

Failure to comply with the revalidation or recertification requirements outlined above, will result in a revocation of your Board Certified credentials.

The Study Guide Purpose

The purpose of this Study Guide is to help you prepare for the NCE. Use this opportunity to become familiar with some of the various question formats utilized in the exam.

Code of Ethics
of the
National Board for Certification in
Hearing Instrument Sciences

Revised January 2010

PREAMBLE

This Code of Ethics is for those engaged as hearing health professionals, which consists of, but not limited to: hearing testing, counseling, selecting, fitting, dispensing and maintaining hearing instruments. These individuals have met the requirements for certification by the National Board for Certification in Hearing Instruments Sciences (NBC-HIS). This Code sets standards of professional integrity and practice, including relationships with patients/clients, other hearing health care professionals and the general public.

Strict adherence to this Code is required to maintain Board Certification as awarded by NBC-HIS. The purpose of this Code is to ensure the public that they can have confidence in the integrity of the services provided by a Board Certified hearing health professional.

Responsibility and Relationship with Patient/Client

The hearing health professional, as a practitioner in the hearing health care profession, shall hold paramount the welfare of the patient/client.

A. REFERRAL

The hearing health professional shall utilize all resources available, including referral to other professionals, as needed, to provide the best possible service to the patient/client.

B. SERVICES RENDERED

The hearing health professional shall fully inform the patient/client of the nature and possible results of the services rendered.

The hearing health professional shall not guarantee results from the use of a hearing instrument(s), product(s), service or counseling. A reasonable statement of prognosis may be in order, but caution must be exercised in order to assure the patient/client is not led to expect results that cannot be accurately predicted.

C. RELEASE OF INFORMATION

All information relating to the condition of the patient/client, regardless of the source, shall be held confidential at all times.

The hearing health professional shall not release any information on a patient/client regarding their condition to anyone, except referring professional or agency, without prior consent from the patient/client.

D. DISCUSSION OF THE PATIENT/CLIENT
The fundamental obligation of the hearing health professional is to advance the welfare of the patient/client. This obligation requires all deliberate care in the manner the hearing health professional discusses findings and recommendations with the patient/client.

The hearing health professional shall never make any statement to persons, members of the family, or any other individual which would cast doubt as to the credibility of other professionals rendering professional services to the patient/client.

In the event the hearing health professional has questions and/or reservations about the recommendations of other professionals, he/she shall communicate them to the professional involved.

E. MAINTENANCE OF RECORDS
A fundamental factor in the delivery of professional services is the continuing knowledge of the patient's/client's condition. Such knowledge can effectively exist only if the hearing aid specialist initiates, secures and maintains as their property, records to specifically include the professional services he/she provides to the patient/client.

F. FEES FOR PRODUCTS AND SERVICES RENDERED
The hearing health professional shall provide full disclosure of the ultimate cost of the hearing instrument(s), products(s) and/or services rendered at the earliest possible time.

G. DELAY IN PROVIDING SERVICE
The hearing health professional shall provide services to the patient/client in the most expeditious manner possible.

H. DISCONTINUANCE OF SERVICE
The hearing health professional shall only discontinue service to the patient/client after providing reasonable notice and after all contractual agreements between the parties have been met.

Responsibility to the Profession and Colleagues

The hearing health professional's conduct at all times shall be in a manner, which will enhance the status of the profession. The hearing aid specialist shall be supportive of individuals and organizations with whom they are associated for their mutual benefit.

A. The hearing health professional shall not criticize—by action or inference—the character, qualifications, services, fees or products of another professional to the patient/client.

B. The hearing health professional shall inform the NBC-HIS Executive Council of violations of this Code of Ethics.

C. The hearing health professional shall cooperate fully with the NBC-HIS Executive Council's inquiries regarding professional conduct related to this Code of Ethics.

D. No person holding an official position in NBC-HIS shall use such a position for self-aggrandizement.

E. It shall be unethical to offer for sale any hearing aids when a direct face-to-face contact has not been established, i.e. by internet or mail order.

Advertising

A. The hearing health professional shall engage in no representation which is false, misleading, deceptive or unfair.

B. The hearing health professional shall use the NBC-HIS Board Certification only in the manner designated by the NBC-HIS Executive Council.

Standards

High standards are in the best interest of the patient/client, the hearing health professional and the profession.

A. The hearing health professional shall meet the standards established by the NBC-HIS Board of Directors.

B. The hearing health professional shall abide by the laws, rules and regulations of any legal authority governing the conduct of the profession.

C. The hearing health professional shall not engage in activities which jeopardize the well-being of the patient/client, including, but not limited to:

1. Perform professional services while under the influence of alcohol or narcotics.
2. Assault, verbally or physically, the patient/client.
3. Endanger the physical or mental health of the patient/client.
4. Engage in sexual abuse of the patient/client.

Discrimination

The hearing health professional shall not discriminate in the delivery of professional services on the basis of sex, marital status, age, religious preference, nationality or race.

Those holding Board Certification awarded by the NBC-HIS pledge themselves to observe and support the NBC-HIS Code of Ethics. By violating any part, Board Certification may be revoked. This Code of Ethics is interpreted and enforced by the NBC-HIS Executive Council.

Tips for Taking the NBC-HIS Examination

The NCE is based upon what you do every day in your practice of fitting and dispensing hearing instruments. Nonetheless, there is no substitute for knowing the subject matter. Some candidates may experience difficulty even on questions assessing their greatest competency. This occurs when a person becomes nervous and at time even angry and upset about the exam.

Format - Become familiar with the type of questions on the exam. You will find examples of different types of questions in the following pages.

Arrive Early – Most exam candidates will be able to take the exam at a location near them. However in the event that you have to travel to an exam site, it is advisable to travel the day before and opt to stay at a nearby hotel. It could be one of the best investments you ever made! You should arrive at the test site at least 20 minutes prior to your scheduled start time to allow sufficient time for check-in.

Get a Good Night's Sleep – Go into the Exam well rested. You will be able to concentrate better.

Be Sure you Understand the Instructions, the exam instructions will be provided at the start of the exam. If you have any questions ask the administrator at the exam site.

Develop a Timetable - You will have two (2) hours to complete the Exam consisting of 100 questions with the best answer solution. Some candidates do not finish the Exam because they did not pace their time. Always answer the **easier** questions first. Never spend too much time on any one question. The computer will allow you to go back to questions that you skip.

Keep Cool, Calm and Collected – Do not fight the exam. Select what is, in your opinion, the best answer listed. Read carefully questions that contain the words:
BEST, MOST, SHOULD, LEAST.

Draw a Blank – DON'T PANIC! – If you "freeze" on a question, don't hit the panic button! This happens to all of us in an exam. Merely go to the next question and come back to it later. There are times, when another question will "trigger" the answer to that difficult question. As a rule when you panic you diminish your ability to think clearly.

Changing Your Answers – As a rule it is not advisable to change an answer. However, if you misread or misinterpreted a question originally or remember some information not

previously considered, or another question jogs your memory, then you may improve your score by changing your answer.

Be Practical – No one ever made a perfect score on a standardized certification exam. Everyone will miss some questions. The certifying exam can only sample the many subjects and procedures addressed in the fitting and dispensing of hearing instruments. Don't get upset. Remember, a calm positive attitude will permit you to continue without apprehension or interference with questions that follow.

In Summary - There is no substitute for knowing what the exam entails and a good understanding of the process involved in taking an exam. Your ability to take the NCE successfully is greatly improved if you will study the materials provided to you in this study guide.

SECTION II

STUDY GUIDE
EXAM

Development of the NBC-HIS Competency Model

Throughout this Guide you have read about the Role Competency Model. This model was first developed in 1981 and revised in 1991, 1999 and 2006. Role delineation studies ask a national sample of hearing health professionals to rate "how often" various dispenser tasks are performed and "how important" these tasks are in the daily performance questions on the National Competency Examination are linked to a dispenser's practice as defined by this Model.

The Role Competency Model is periodically reviewed and updated by the NBC-HIS Examination Committee. The model was updated in 1984, 1986, 1988, 1991, 2000, 2004 and 2006. This Study Guide is based on the 2006 revised Competency Model as follows:

Revised Competency Model for Hearing Health Professional

NBC-HIS 2006

Competency Model for Hearing Health Professionals

1. ASSESS PATIENT PRESENTING PROBLEM AND NEEDS (10%)

- 1.1 Explore childhood hearing history and related otological problems
- 1.2 Elicit current health history (medications, illness, and handicaps)
- 1.3 Investigate hearing loss impact on family, work and social life
- 1.4 Explore family history of hearing loss
- 1.5 Explore patient/family amplification concerns and expectations
- 1.6 Evaluate medical condition and need for referral
- 1.7 Evaluate patients past experience with amplification

2. TEST AND ANALYZE PATIENT HEARING (20%)

- 2.1 Perform standard audiometric tests
- 2.2 Understand special audiometric tests
- 2.3 Conduct sound field tests
- 2.4 Interpret hearing/audiometric data

3. PRESCRIBE AND ANALYZE HEARING INSTRUMENTS (25%)

- 3.1 Specify hearing correction needed, or medical referral
- 3.2 Select specifications to order appropriate hearing instrument
- 3.3 Conduct hearing instrument analysis
- 3.4 Analyze instrument/battery performance, including real-ear tests
- 3.5 Maintain knowledge of technical advances in hearing sciences

4. FIT. ADJUST, PROGRAM AND SERVICE HEARING INSTRUMENTS AND EQUIPMENT (25%)

4.1 Select and fit type/style of earmold, coupler and instrument
4.2 Conduct otoscopic assessment, otoblock placement and impression techniques
4.3 Program and adjust hearing instrument to patients needs
4.4 Identify physical fit problems and modify instrument
4.5 Troubleshoot, inspect and repair hearing instruments
4.6 Upgrade, maintain and monitor equipment

5. COUNSELING, REHABILATION AND PROFESSIONAL PRACTICE (20%)

5.1 Explain test results to patient
5.2 Explain amplification expectations, options and limitations to patient
5.3 Explain hearing instrument use, care and follow-up program
5.4 Counsel family on patients use and adjustment to hearing instruments
5.5 Monitor patient satisfaction and usage of hearing instrument
5.6 Inter-professional relations and promotion or hearing healthcare
5.7 Office management and patient records
5.8 Maintain professional ethics, NBC-HIS Code of Ethics, government rules and continuing education

SAMPLE BOARD CERTIFICATION EXAM

These questions are indicative of the type of questions you will find on the NCE. Although there is only one correct answer, some questions may have multiple options that must be chosen to answer the question correctly. If more than one option may be chosen, it will be pointed out in the question. If more than one option is asked for, you must answer with all the correct options to get credit for the question (no partial credit is given). Be sure to read the question carefully and pay special attention to words like: **NOT**, **FALSE**, **TRUE**, **SELECT ALL**, **MOST** and **LEAST.** This sample contains items from each of the competency areas.

1. If a patient has the following symptoms: aural fullness, tinnitus, fluctuating sensorineural heaing loss and intermittent vertigo, the **MOST** likely cause is:
    A. fluid behind the typmpanic membrane
    B. barotrauma
    C. cholesteatoma
    D. Meniere's disease

2. Upon doing otoscopy, a perforation in the lower left quadrant of the right eardrum is observed. In the referral to the doctor, which of the following is the **BEST** way to describe the findings?
    A. Anterior lower perforation
    B. Anterior inferior perforation
    C. Posterior inferior perforation
    D. Posterior lower perforation

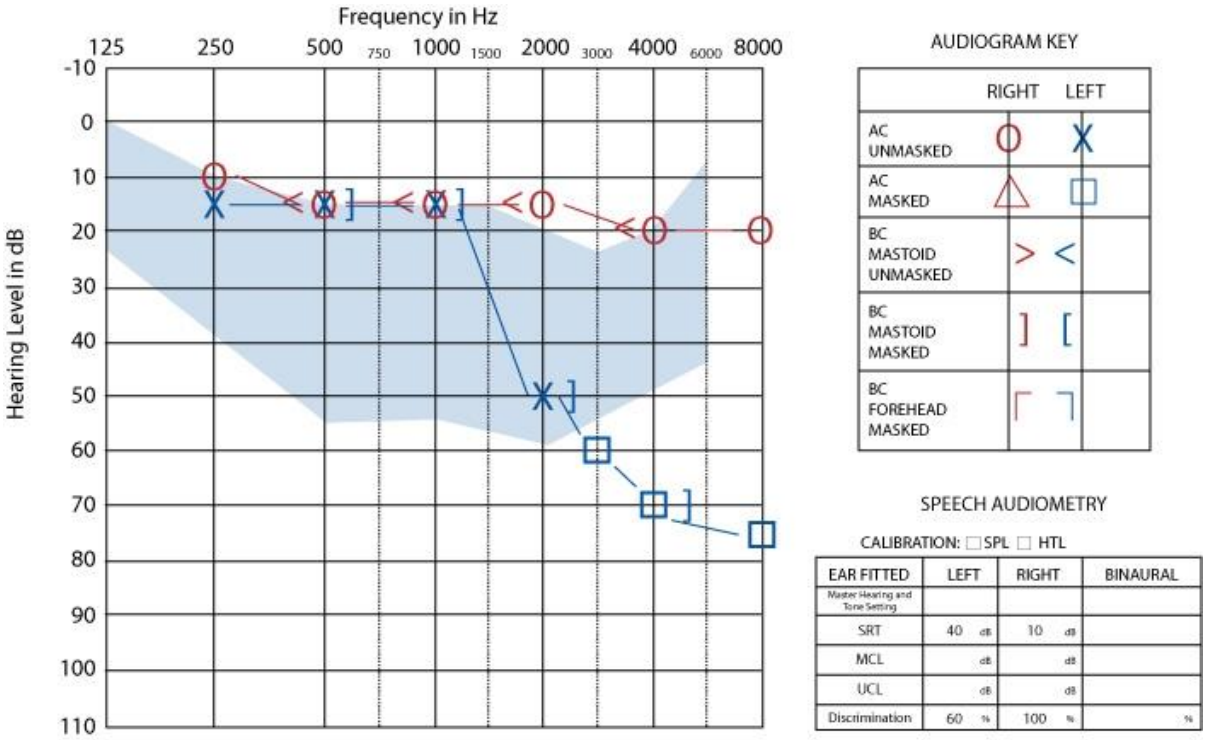
3. A 67-year old patient/client has been referred by his physician for hearing instruments. He reports recent significant changes in hearing and is upset about not hearing his family as well as he thinks he should.

    What case history information would be **MOST** pertinent to this patient's concerns?

    A. history of noise exposure
    B. family history of hearing loss
    C. balance problems
    D. medication use

4. Which of the following would be the MOST likely cause of this audiometric configuration?

PURE TONE AUDIOGRAM



A. acoustic trauma due to gunfire
B. noise exposure in industrial setting
C. barotrauma
D. acoustic neuroma

5. Properly administered speech discrimination testing requires:
A. white noise masking
B. an evenly monitored presentation
C. a taped presentation
D. the use of the NU-6 list

5. Properly administered speech discrimination testing requires:
    A. white noise masking
    B. an evenly monitored presentation
    C. a taped presentation
    D. the use of the NU-6 list

6. A patient with a PTA of 60 dB, binaurally accompanied by a conductive component of 35 dB would be **LEAST** likely to exhibit which of the following?
    A. good speech discrimination
    B. MCL above 65 dB HTL
    C. the patient will speak loudly when unaided
    D. good tolerance to loud sounds

7. The primary function of the middle ear is to match the impedance of the outer ear to the inner ear by:
    A. increasing the pressure at the stapes footplate
    B. decreasing the pressure at the oval window
    C. equalizing the pressure at the stapes footplate
    D. increase the pressure on the long process of the malleous

8. The articulation index scale can be used for:
    A. an effective counseling tool
    B. measuring recruitment
    C. estimating unaided and aided word recognition based on pure tone audiometry
    D. measuring functional gain for a hearing instrument set at MCL

9. Which of the following frequencies would be **MOST** affected by a head cold?
    A. 250, 500
    B. 1000, 2000
    C. 4,000, 6000
    D. all will be affected equally

10. The patient/client has a prolapsed canal. How **BEST** should the hearing health professional proceed with the hearing evaluation?

    A. request physician's recommendation
    B. utilize sound field testing
    C. proceed with TDH39 headphones
    D. proceed with insert headphones

11he patient/client has a prolapsed canal. How **BEST** should the hearing health professional proceed with the hearing evaluation?

E. request physician's recommendation
F. utilize sound field testing
G. proceed with TDH39 headphones
H. proceed with insert headphones

12. Which of the following tests would best predict the signal-to-noise ratio necessary for a hearing impaired person to understand speech normally in noise?
    A. Quick SIN
    B. SRT
    C. OAE
    D. APHAB

13. Smaller ID (inside diameter) tubing will:
    A. move peak to lower frequencies
    B. increase effective gain
    C. increase height of original peak
    D. increase low frequency

14. One hearing instrument uses a size 10 battery and has a 0.25 mA current drain. Another hearing instrument uses a size 13 battery and has a 1.8 mA current drain. Which of the following statements is **TRUE**?
    A. the size 10 battery will last longer
    B. the size 13 battery will last longer
    C. both batteries should last the same length of time
    D. unable to determine which will last longer

15. A disadvantage of WDRC and DSP processing is patient complaints of hearing noises where there are no sounds. Which of the following is used to correct this problem?
    A. input compression
    B. output compression
    C. multiple microphones
    D. expansion

16. The articulation index puts the greatest value to speech intelligibility at which frequency?
    A. 800 Hz
    B. 1500 Hz
    C. 2000 Hz
    D. 4000 Hz

17. What would be the **BEST** way to prevent an intermittency in the hearing instrument from showing up in the delivery process?
    A. 2 cc couplet N.A.L. target matching
    B. real ear testing
    C. biological check of the instrument
    D. A.N.S.I. test of the instruments

18. Which condition of the human ear has **NO** effect on real ear-probe tube measurements?
    A. length of canal
    B. stiffness of T.M.
    C. physical shape
    D. diameter of canal

19. The typical difference between real ear insertion gain and 2 cc coupler response is:
    A. REIG has more gain above 3000 Hz
    B. REIG is less due to insertion loss
    C. REIG will have less high frequency response with C.I.C.'s
    D. REIG has less gain at 500 Hz

20. The function of an acoustic coupler is:
    A. noise reduction
    B. retention and sealing
    C. reducing insertion loss
    D. acoustic transparency

21. Which of the following procedures would **MOST** likely be associated with fitting problems?
    A. Stapedectomy
    B. Fistula repair
    C. Myringotomy
    D. Mastoidectomy

22. When considering different digital hearing instruments, open platform technology is generally considered:
    A. more complicated to program
    B. software driven
    C. hardware based
    D. less flexible for programming

23. When troubleshooting a hearing instrument, you discover the electrical signal cannot be converted into acoustical energy. Which component is **MOST** likely defective?
    A. microphone
    B. amplifier
    C. receiver
    D. power source

24. In troubleshooting a high-end digital ITC hearing instrument, it is discovered that there is no gain. An electrical noise and hissing can be heard when examining the hearing instrument. What is **MOST** likely wrong with this hearing instrument?
    A. receiver is not functioning
    B. vent is blocked
    C. microphone is not functioning
    D. receiver is plugged with wax

25. A C.I.C. hearing instrument that has a lot of circuit noise but very little amplification would **MOST** likely have which of the following?
    A. plugged microphone
    B. plugged receiver
    C. faulty gain control
    D. not enough gain

26. An earmold problem that might contribute to feedback or whistling is:
    (choose **ALL** that apply)
    A. a loose mold
    B. hardened tubing
    C. a hole in the tubing
    D. thick wall instead of thin wall tubing

27. What **BEST** describes the effect on the patient if you continue to lower a hearing instrument's kneepoint and increase the compression ratio? Choose **ALL** that apply.
    A. a lot of gain for soft sounds
    B. very few speech cues in a crowded party
    C. little or no gain for moderately loud sounds
    D. too much amplification in a crowded party

28. In counseling a patient about the use and care of a hearing instrument, the patient should be told that the **MOST** common cause of hearing instrument failure is:
    A. wax in the ear canal
    B. moisture in the amplifier
    C. weak or dead battery
    D. patient misunderstanding

29. When discussing benefits of multi-channel digital hearing instruments which of the following does **NOT** apply?
    A. Increased capacity for aid to change with hearing changes
    B. Increased hearing benefit in noise
    C. Exact fit to the patient's hearing loss
    D. More "natural" sound reproduction

30. A patient comes in for his follow-up visit wearing automatic multi-memory digital hearing instruments and is not very happy because the patient is confused by too many options. The next step should be to: Choose **ALL** that apply
    A. disable user controlled options
    B. change his instrument to a analog programmable hearing instrument
    C. give patient another instruction booklet
    D. re-counsel patient on the use of his hearing instrument

Note: Audiograms, tympanograms, live speech mapping print outs, ANSI performance sheets or similar charts may also be present in some questions. It is critical that you read the entire question to be sure what is being asked before you answer.

Answers

1. D. Meniers disease
2. C. Posterior inferior perforation
3. D. medication use
4. D. acoustic neuroma
5. B. an evenly monitored presentation
6. C. the patient will spread loudly when unaided
7. A. increasing the pressure at the stapes footplate
8. C. estimating unaided and aided work recognition based on pure tone audiometry
9. A. 250,500
10. D. proceed with insert headphones
11. A. quick SIN
12. A. move peak to lower frequencies
13. A. the size 10 battery will last longer
14. D. expansion
15. C. 2000 Hz
16. C. biological check of the instrument
17. B. stiffness of T.M.
18. B. REIG is less due to insertion loss
19. B. retention and sealing
20. D. Mastoidectomy
21. B. software driven
22. C. receiver
23. C. microphone is not functioning
24. A. plugged microphone
25. A,B, & C
26. A,B, & C
27. C. weak or dead battery
28. C. exact fit to patient's hearing loss
29. A & D

End of Study Guide Exam

Thank you for participating in the NBC-HIS ***Study Guide Exam.*** Exam items contained herein are intended for informational purposes only as a guide to candidates, and do not appear in the actual ***National Competency Exam.***