

# Assessing and Certifying Clinical Competency

Foundations of  
Clinical  
Practice for  
Audiology and  
Speech-  
Language  
Pathology  
(2004)



**CASLPA-ACOA**



# Foreword

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The Canadian Association of Speech-Language Pathologists and Audiologists (CASLPA) developed this 2004 edition of *Assessing and Certifying Clinical Competency: Foundations of Clinical Practice for Audiology and Speech-Language Pathology* following a two-year period of broad consultation with clinicians and university faculty. As our knowledge base and scope of practice evolve, periodic revisions of the Foundations of Clinical Practice will be made to ensure that it gives an accurate framework for the training of speech-language pathologists and audiologists. The Foundations of Clinical Practice is designed to be general and flexible, not prescriptive. While it provides a common framework, it allows each Canadian university program to create their own curriculum, building on the unique strengths and interests of their faculty and the network of clinicians that are part of each student's training. It also serves as the basis for the CASLPA certification program and national examinations.

The training of audiologists and speech-language pathologists is intensive and comprehensive. This document is intended for the entry-level clinician and does not list all knowledge and skills expected of experienced clinicians, directors and academic members. New graduates are expected to be generalists, not specialists and learning is ongoing as the professional works in different settings with various clients, supervisors, and management styles. Professionals must maintain open communication with clients and staff and apply client-centred, outcome-based treatment that is also evidence based.

"Communication disorders" in this document refer to disorders of swallowing as well as speech, language, fluency, and hearing. Communication disorders are complex and often do not occur in pure or isolated forms. Although there are descriptions of specific disorders by chapters, professionals must be aware that there is often cross-over between disorders. In an effort to avoid duplication, some items of a general nature were not repeated in each chapter. In all disorders "appropriate" assessment or "appropriate" treatment methods are understood to mean "appropriate in light of current evidence." Since the Foundations of Clinical Practice document is intended to stand as a general guide and is not changed every time new tests or treatment methods appear, the reader should substitute other examples for those cited when there is evidence supporting their validity or efficacy.

CASLPA recognizes that there are a number of national and international classification systems with terminology for communication disorders that change over time. Because of these differences and changes, the Foundations of Clinical Practice document does not adopt reference to any specific system. Terminology has been kept deliberately generic. It is important, however that professionals be aware of recommendations by international bodies regarding classification systems and terminology.

Readers are invited to submit comments and further proposed changes to:

CASLPA  
401 – 200 Elgin Street  
Ottawa, Ontario K2P 1L5  
[caslpa@caslpa.ca](mailto:caslpa@caslpa.ca) \* [www.caslpa.ca](http://www.caslpa.ca)

# Acknowledgements

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The many audiologists and speech-language pathologists who have contributed generously of their time and expertise to this revision of *Assessing and Certifying Clinical Competency: Foundations of Clinical Practice for Audiology and Speech-Language Pathology* are to be commended for their commitment and dedication to the professions and those they serve.

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# History and Progress

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Since its founding in 1964, the Canadian Speech and Hearing Association (CSHA), now the Canadian Association of Speech-Language Pathologists and Audiologists (CASLPA), aspired to a program of certification<sup>1</sup> for practitioners in the fields of speech-language pathology and audiology. In the early days of the organization, such a program was beyond the financial and personnel resources of the Association. However, as the number of practising audiologists and speech-language pathologists in Canada increased, so did resources for developing a program for assessing clinical competency, and the need to do so.

In 1982, CSHA (now CASLPA) participated in a task force with Health and Welfare Canada<sup>2</sup> and other recognized experts in health to produce a report entitled “Guidelines for the Practice of Language-Speech Pathology and Audiology.”<sup>3</sup> This report provided broad criteria for levels of competency.

A second report based on the earlier benchmarks followed in February, 1985 entitled “Guidelines for the Certification of Audiologists and Speech-Language Pathologists in Canada”<sup>4</sup>. This report provided the blueprint for the development of a certification system and recommended the establishment of a core curricula for Canadian university programs in speech-language pathology and audiology.

As a result of these reports, CASLPA formed an ad hoc committee whose mandate was: “To establish certification procedures for the Canadian Speech and Hearing Association, such procedures to involve examination methods and administrative structures, to be in place by May 1987.”

The ad hoc committee, together with over 90 other practising speech-language pathologists and audiologists throughout the country developed what was first called “The Curriculum,” then renamed the “Scopes of Practice.” It represented current state-of-the-art audiology and speech-language pathology as viewed by practising professionals and those involved in the education of these professionals and became the basis for the examination of knowledge essential to clinical competency.

Thanks to support from Health and Welfare Canada and the Sick Children’s Hospital in Toronto<sup>5</sup>, the ad hoc committee met in Toronto in April 1986 to discuss The Curriculum. At this meeting, members of the committee engaged in extensive debate of all aspects of submissions relating to curriculum which had been received at the time. Dr. E. Skakun of the McLaughlin Examination and Research Centre<sup>6</sup> in Edmonton served as advisor on the applicability of examination methods to the curriculum. Development and revision of examination procedures continue through collaboration with the Division of Studies in Medical Education, at the University of Alberta.

At the Toronto meeting, three subcommittees were established: audiology, speech-language pathology, and administration. The mandate of the first two committees included (a) completing the Scope of Practice (then renamed the Foundations of Clinical Practice) for each respective area, in cooperation with other ad hoc committee members and interested members of the association; and (b) setting the first examination in place. The mandate of the subcommittee on administration was to develop all of the procedures necessary for the development of a new standard-setting body whose first charge was to develop processes and procedures for the administration of examinations to assess clinical competency.

At a meeting of the CASLPA National Council and Executive in Toronto in October 1986, the ad hoc committee was replaced with a standing committee of the Association called the Committee on Examinations. This committee’s objectives included the establishment and maintenance of a set of standards by which individuals could be deemed competent to practise audiology or speech-language pathology. Although it was felt that there should be a clear delineation between the committee and the organization that represented the economic and social concerns of the professions (i.e., CASLPA), because the committee was concerned with standards for practice, it was not economically feasible. The committee was therefore responsible for development, implementation, and review of all certification requirements, including the examinations. To accomplish this six subcommittees were established: Audiology, Speech-Language Pathology, Eligibility, Continuing Competency, Liaison with the Universities, and Certification Information.



The work of the subcommittees resulted in working versions of the curriculum, published as *Assessing and Certifying Clinical Competency: Scopes of Practice for Audiology and Speech-Language Pathology*<sup>7</sup> in 1988. CASLPA certification examinations from 1987 to 1991 were based on this document. Questions for the examinations were written by qualified individuals identified by the subcommittee chairs.

The late Dr. Eve Kassirer, a medical sociologist from the Institutional and Professional Services Division of Health and Welfare Canada, played a pivotal role in working with members of the Association in producing all of these reports. An award for outstanding professional achievement has been named in her honour and is awarded annually to a member of the Association who has fostered the development and advancement of the professions.

The document underwent a further revision in 1992. The term “scopes of practice” was eliminated from the title and developed as a separate statement. It was felt that scopes of practice referred to all areas in which the professional practised after entering the profession, and that it may include specialized knowledge and expertise held by only some members of the profession. The CASLPA certification examinations from 1992-1998 were based on the 1992 edition of *Assessing and Certifying Clinical Competency: Foundations of Clinical Practice for Audiology and Speech-Language Pathology*<sup>8</sup>.

In 1995, CASLPA adopted a modified model for governance, called the Carver model. As a result the role of the board changed to one of policy setting, to answering “what” and “where” questions in terms of setting direction for the Association. Also more resources were committed to hiring staff to address operational issues, essentially addressing the “how” questions. The board structure was changed so that the ultimate power within CASLPA devolved to the board, with the executive committee becoming a servant of the board to facilitate operational issues. This change meant that the board made a significant and ongoing commitment to strategic planning. It also meant that the association became membership focussed, committing resources to conduct regular surveys of the CASLPA membership.

A number of committees were sunsetted and the publications and standards boards became advisory committees directed by staff. This change shifted responsibility for operations to the executive director and enabled the board to hold this individual accountable for operational results. This clear delineation of responsibility has enabled the Association to accomplish much and has empowered the board to monitor results effectively.

The Committee on Examinations was therefore disbanded and the Standards Board with Audiology and Speech Examination Committees became part of the Standards Advisory Committee. The examination committees meet once a year to review the exam results and monitor the content reliability and validity of the exam. An update of the 1992 foundations document was recommended to reflect the evolution of the professions, resulting in the current version.

In 1997, an agreement for mutual recognition of certification programs in speech-language pathology and audiology was signed with the American Speech-Language-Hearing Association (ASHA). This agreement, the result of collaboration over a number of years by professionals in both associations, is valued by certified professionals for reducing cross-border barriers to employment.

In developing and revising the Foundations of Clinical Practice, committees have attempted to bear in mind the complex nature of the communication process from its roots in a variety of academic disciplines to its realization in many different clinical forms. Committees have tried to satisfy the criterion that the human communication professions should be based on rigorous academic and clinical training. The ultimate goal is to serve the communicatively handicapped by setting standards that require specific academic and clinical training. Future revisions will occur as our knowledge and scopes of practice expand.

In 1999 The Foundations of Clinical Practice was updated and reprinted with an additional unit on dysphagia in the speech-language pathology section. This was developed after broad consultation with clinicians and university faculty in response to expansion of the scope of practice for speech-language pathologists.

# Certification Title

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Under a grandparenting clause, all audiologists and speech-language pathologists who were members of CASLPA as of May 31, 1987 were deemed eligible for grandparenting, and were awarded the certifying credential upon applying. Full members who qualified and applied for certification after this date were required to write the certification exam. The first examination in Canada to assess and certify audiologists and speech-language pathologists was held in April 1987.

Successful completion of the examination and the remainder of the certification requirements will bestow the right to use the following title indicating that the user is a CASLPA-certified audiologist or speech-language pathologist:

**Joanne Doe, Aud(C)**

**Joanne Doe, S-LP(C)**

Note: (C) denotes Canada (not “certification” or “certified”).

Further information on the CASLPA certification program can be obtained from the CASLPA Web site [www.caslpa.ca](http://www.caslpa.ca) or by contacting National Office at [caslpa@caslpa.ca](mailto:caslpa@caslpa.ca).

# Footnotes and References

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1. By “certification” is meant any process or program to assess the ability to perform competently in a designated area of clinical endeavor, in the present case, audiology or speech-language pathology.
2. This task force was established in 1982 at the request of CSHA (now CASLPA) to Health and Welfare Canada (now Health Canada). The active involvement of Eve Kassirer is gratefully acknowledged by CASLPA.
3. Health and Welfare Canada Task Force: Guidelines for the Practise of Language-Speech Pathology and Audiology, Ottawa, Health and Welfare Canada, 1982. (Out of print and unavailable.)
4. Health and Welfare Canada Task Force: Guidelines for the Certification of Audiologists and Speech-Language Pathologists in Canada, Ottawa, Health and Welfare Canada, 1985. (Out of print and unavailable.)
5. The generous financial support for this meeting provided by the Sick Children’s Hospital Foundation and Health and Welfare Canada is gratefully acknowledged by CASLPA.
6. CASLPA’s involvement with the McLaughlin Centre owes much to the work of a former CASLPA President, Judith Branch, who also chaired the Health and Welfare Canada Task Force on certification.
7. Assessing and Certifying Clinical Competency: Scopes of Practice for Audiology and Speech-Language Pathology, Ottawa, Health and Welfare Canada, 1988. (Out of print and unavailable.)
8. Assessing and Certifying Clinical Competency: Foundations of Clinical Practice for Audiology and Speech-Language Pathology, Hamilton, Canadian Association of Speech-Language Pathologists and Audiologists, 1992. (Out of print and unavailable.)





# UNIT ONE: BASIC REQUIREMENTS (AUDIOLOGY AND SPEECH-LANGUAGE PATHOLOGY)

## Section 1.1 ANATOMY AND PHYSIOLOGY

The audiologist and speech-language pathologist demonstrate basic knowledge of the gross anatomy and physiology of the following systems:

- i. Respiratory system (respiratory tract, chest wall, diaphragm, and abdominal wall).
- ii. Articulatory, phonatory, and resonatory systems (larynx, pharynx, mouth, and nose).
- iii. Auditory and vestibular systems (external, middle and inner ear, auditory pathways, and auditory cortex).

## Section 1.2 NEUROANATOMY AND NEUROPHYSIOLOGY

The audiologist and speech-language pathologist demonstrate basic knowledge of:

- i. The structure and function of the nervous system.
- ii. Maturation and development of the nervous system.
- iii. Neurological substrates of speech, language, cognition, memory, and hearing.
- iv. Hemispheric asymmetry and specialization.
- v. Methods of investigating the nervous system.

## Section 1.3 GENETICS AND HUMAN DEVELOPMENT

The audiologist and speech-language pathologist demonstrate basic understanding of:

- i. Normal human genetics and embryological development, and their relationship to congenital disorders which affect communication.
- ii. Infant, child, and adolescent development.
- iii. The aging process.

## Section 1.4 COUNSELLING AND APPLIED PSYCHOLOGY

The audiologist and speech-language pathologist demonstrate basic knowledge of:

- i. The role of communication in interpersonal relations.
- ii. The psychosocial effects of communication disorders on the client and significant others.
- iii. The psychosocial effects of disease processes that may include a communication disorder (e.g., stroke, cancer, cerebral palsy), including the implications of acute versus chronic illness, stable versus progressive conditions, and congenital versus acquired conditions.
- iv. Coping mechanisms used by clients/families.
- v. Interviewing and counselling methods for clients, their caregivers, and their significant others.
- vi. Cultural factors that may affect clinical relationships, assessment, and treatment outcomes.
- vii. Learning theory and behaviour modification.

## Section 1.5 PSYCHOLINGUISTICS AND LINGUISTICS

The audiologist and speech-language pathologist demonstrate basic knowledge of:

- i. Normal and abnormal communication behaviour throughout the lifespan in the following areas: phonetics and phonology, morphology and syntax, semantics, pragmatics, discourse, nonverbal communication, and sociolinguistics.
- ii. The nature and theories of second language development.
- iii. The nature and theories of reading and writing and their acquisition.
- iv. Methods of observation and analysis useful in the description of communicative behaviour in the following areas: phonetics and phonology, morphology and syntax, semantics, pragmatics, discourse, nonverbal communication, and sociolinguistics.



## UNIT TWO: PREVENTION, EVALUATION, AND DIAGNOSIS

### Section 2.1 PREVENTION

The audiologist demonstrates knowledge of:

- i. The concept of prevention of hearing disorders (e.g., epidemiological considerations, general types or preventive strategies [primary/secondary/tertiary prevention], and measures of program effectiveness and efficiency).
- ii. The strategies for prevention of hearing disorders in all age groups. These should include the following:
  - a) Designing and implementing screening/identification programs for speech, language, and hearing problems throughout the lifespan.
  - b) Public education (e.g., early signs of communication disorders, referral information, types of services).
  - c) Professional education (e.g., healthcare groups and educational personnel, regarding identification and intervention strategies as well as referral patterns).
  - d) Client/family/caregivers/institutional education to facilitate understanding of communication disorders; alternatives for intervention, and specific educational programs for parents/caregivers of children/adults at risk for communication disorders.

### Section 2.2 EVALUATION

The audiologist demonstrates the ability to:

- i. Obtain an accurate case history through an interview or other procedure which should include an account of the individual's past development, current status, and reason for referral. The following elements are included:
  - a) Name and other biographical data.
  - b) Developmental history with particular reference to speech, language, and auditory development, neurological signs, and results of other tests and/or medical evaluation or treatment.
  - c) The presence of known precipitative factors for hearing loss (e.g., medical and otologic history of infection, allergies, head trauma, ototoxic drugs, family history, occupational and recreational noise exposure).
  - d) Educational and occupational history.
  - e) Aural rehabilitation history.
  - f) Client's family and social environment.
  - g) Client's, family's, or caregiver's perception of problem (disability/handicap, general attitude, and motivation in the testing situation).
  - h) Client's physical environment (e.g., lighting, acoustics).
  - i) Information from other professionals who may be part of the multidisciplinary team.
- ii. Select appropriate physiological and behavioural evaluation procedures, recognizing the contribution and limitations of each procedure.
- iii. Apply principles, practices, and audiologic procedures (e.g., pure tone and speech audiometry, immittance measurements and special test procedures such as auditory evoked potentials, otoacoustic emissions, handicap assessment).
- iv. Administering, recording, reporting, and interpreting evaluative measures to determine if a hearing loss or deficit is present, to determine the degree and type of hearing loss or deficit and to assist the determination of the site of lesion along the auditory pathway. This may include an assessment of:
  - a) Status of external ear
  - b) Middle ear function
  - c) Cochlear function
  - d) Retrocochlear function
  - e) Central auditory function
  - f) Vestibular function

- v. Judging validity and reliability of results including understanding of sources of variance/test error.
- vi. Instrumentation used in the evaluation procedure, calibration, maintenance of equipment, and application of appropriate standards.

## **Section 2.3 INTERPRETATION OF DATA**

The audiologist demonstrates the ability to:

- i. Interpret data obtained to formulate a diagnostic statement based on referral information, case history, informal and formal evaluation procedures, and comparative analysis of any previous audiometric data.
- ii. Draw conclusions and make recommendations based on the information obtained from the evaluation, for example:
  - a) Determine if other medical and/or allied health consultations, and/or referral to other agencies are warranted.
  - b) Assess need for amplification.
  - c) Select and evaluate amplification devices and assistive listening devices.
  - d) Assess ability to use other sensory modalities (i.e., visual, tactile, and kinaesthetic) in the communicative process.
- iii. Counsel a patient and/or caregivers on the results of the evaluation and recommended follow-up.

## **Section 2.4 REPORTING**

The audiologist demonstrates the ability to:

- i. Produce an organized, informative, concise evaluation report with appropriate format and writing style according to the standards required by the employing agency. The following would be included:
  - a) Information obtained from case history.
  - b) Observations of client's behaviour and cooperation.
  - c) Procedures used.
  - d) Results of evaluation and formulation of a diagnostic statement.
  - e) Statement of the effects of the disorder on the client's communication function.
  - f) Formulation of recommendations.
  - g) Statement of testing reliability.
  - h) Formulation of a prognostic statement, when applicable.

## UNIT THREE: CLIENT MANAGEMENT

### Section 3.1 REFERRAL

The audiologist demonstrates knowledge in:

- i. The lines and ethics of referral.

### Section 3.2 AMPLIFICATION AND ASSISTIVE LISTENING DEVICES

The audiologist demonstrates knowledge in the following areas:

- i. Acoustic, electroacoustic, and electronic characteristics and measurements including:
  - a) Types, effectiveness, and application.
  - b) Components, circuits, controls, power sources, microphone types, and signal procession options.
  - c) Terminology and standards for amplification devices.
  - d) Systematic hearing aid examination (including electroacoustic analysis, listening check, and physical examination).
  - e) Use of instrumentation for electroacoustic and electronic measurements, real ear measurement systems, and mannequin systems.
  - f) Acoustic and electroacoustic modification.
  - g) Nature of the acoustical properties of ear-like couplers and ear simulators, in relation to real ear responses.
- ii. Current Principles and Methods of Selection and Fitting:
  - a) Assessment (e.g., use of case history, audiological assessment and self-assessment data).
  - b) Selection procedures for the physical and electroacoustic characteristics of hearing instruments.
  - c) Fitting and modification.
  - d) Verification strategies, including real ear measurements and sound field evaluation.
  - e) Validation of hearing aid benefits (outcome measures, self-assessment questionnaires).
  - f) Counselling and orientation (e.g., hearing instrument care and maintenance).
  - g) Cerumen management.
- iii. Earmoulds/Ear Impressions:
  - a) Ability to take a proper earmould impression.
  - b) Types, materials, and tubing.
  - c) Modifications and acoustics.
- iv. Environmental Acoustics
  - a) Effects of noise, reverberation, and distance on speech intelligibility.
  - b) Electroacoustical measurements.
  - c) Environmental modifications.

### Section 3.3 COUNSELLING

The audiologist demonstrates the ability to:

- i. Communicate diagnostic information, its implications and resulting (re)habilitative recommendations to client, caregivers, and referral sources.
- ii. Understand the effects of hearing loss in daily life and of emotional reactions to hearing handicap.
- iii. Understand the impact of hearing loss on significant others.

## Section 3.4 (RE)HABILITATIVE PROCEDURES

The audiologist demonstrates the ability to:

- i. Plan and conduct auditory, visual, and auditory-visual training.
- ii. Monitor hearing aid performance.
- iii. Counsel and orient regarding the use of auditory and nonauditory assistive devices in order to develop or increase auditory and auditory/visual abilities.
- iv. Administer and interpret self-assessment questionnaires and open-ended interviews.
- v. Assist in management of tinnitus.
- vi. Consider and apply information from other hearing health professionals.
- vii. Identify and assist in the training of communication skills, coping strategies, assertiveness, and problem-solving strategies.
- viii. Consult to self-help groups.
- ix. Work as an effective team member towards the development of optimal communication, academic, vocational, and interpersonal social skills in the client with hearing impairment.
- x. Recognize the special management needs of the multiply handicapped clients.

## UNIT FOUR: NEONATAL AND INFANT POPULATIONS

### Section 4.1 EARLY DETECTION/IDENTIFICATION

The audiologist demonstrates knowledge of:

- i. The benefits of early intervention.
- ii. Neonatal indicators for hearing loss.
- iii. Universal newborn hearing screening protocols and practices.
- iv. Risk factors requiring ongoing surveillance after the newborn period.

### Section 4.2 DIAGNOSTIC EVALUATION

The audiologist demonstrates knowledge of:

- i. Physiological and behavioural assessment procedures for evaluation of auditory function in infants (including otoacoustic emissions, auditory evoked potential audiometry, immittance testing, visual reinforcement audiometry, and behavioral observation audiometry).
- ii. Developmental milestones and implications of coexisting conditions when performing assessment procedures and differential diagnosis.

### Section 4.3 COUNSELLING

The audiologist demonstrates the ability to:

- i. Communicate diagnostic information, its implications, and resulting habilitative recommendations to caregivers and referral sources.
- ii. Understand the effects of hearing loss in daily life and of emotional reactions to hearing handicap.

### Section 4.4 (RE)HABILITATION

The audiologist demonstrates knowledge of:

- i. Appropriate habilitation teams.
- ii. Family and child-centred intervention programs.
- iii. Components in a comprehensive communication skills development program.
- iv. Auditory and visual training requirements and procedures for speech development.
- v. Auditory, visual, and manual approaches to language development.
- vi. Special considerations for selection, evaluation, and monitoring of hearing devices.

# UNIT FIVE: PRESCHOOL AND SCHOOL POPULATIONS

## Section 5.1 PREVENTION/IDENTIFICATION

The audiologist demonstrates knowledge of:

- Principles and applications of early identification hearing screening programs.
- Guidelines for referral procedures.
- Educational programs concerning hearing loss and hearing conservation.

## Section 5.2 DIAGNOSTIC EVALUATION

The audiologist demonstrates knowledge of:

- The application of the basic audiometric battery and central audiometry assessment procedures to these populations (e.g., play audiometry, auditory evoked potentials, otoacoustic emissions).

## Section 5.3 COUNSELLING

The audiologist demonstrates the ability to:

- Communicate appropriate information to students, parents, teachers, and other professionals concerning hearing loss and its implications.
- Understand the effects of hearing loss in daily life and of emotional reactions to hearing handicap.
- Describe communication/educational options (e.g., auditory/oral, ASL).
- Understand the effects of hearing loss on academic progress, including social skills and reading development.

## Section 5.4 (RE)HABILITATION

The audiologist demonstrates the ability to:

- Work as an effective team member toward the development of optimal communicative, academic, and psychosocial skills in the child with hearing impairment which may include:
  - Obtaining information regarding the child's educational or learning status in preschool and school settings.
  - Recommending amplification and assistive listening devices.
  - Effectively maintaining and troubleshooting amplification and assistive listening devices.
  - Explaining the use and care of amplification and assistive listening devices to the student and those involved in the student's care.
  - Classroom acoustics recommendations and seating plans appropriate for students with hearing impairments.
  - Recommending remediation strategies for auditory processing problems.
  - Recommending and/or teaching communication strategies for the student with a hearing impairment, fellow students, teachers, and family members.
  - Recommending and/or teaching other auditory (re)habilitation skills (e.g., speechreading).
  - Recommending effective teaching strategies for students with hearing loss or auditory processing difficulties (e.g., consulting on the student's Individualized Educational Plan [IEP]).
  - Identifying other possible handicapping conditions (speech and language, fine motor, gross motor, visual) and making appropriate referrals for evaluation.

## UNIT SIX: PROFOUNDLY HEARING IMPAIRED POPULATIONS

### Section 6.1 DIAGNOSTIC EVALUATION

The audiologist demonstrates knowledge of:

- i. Appropriate modifications to the basic test battery or to special tests appropriate for profoundly hearing-impaired persons (e.g., awareness of vibrotactile levels of response in air and bone conduction testing, accurate interpretation of physiological test results).
- ii. Current tools to diagnose profound hearing loss in early infancy (e.g., otoacoustic emissions, auditory evoked potentials).
- iii. The methodology of assessment of candidacy for hearing aids and special devices such as cochlear implants, assistive listening devices, and vibrotactile devices .

### Section 6.2 COUNSELLING

The audiologist demonstrates the ability to:

- i. Communicate knowledge of the psychosocial effects of hearing loss.
- ii. Understand the effects of hearing loss in daily life and of emotional reactions to hearing handicap.
- iii. Understand social stigma and misconceptions about hearing loss.
- iv. Address expectations of client and/or significant others that may affect involvement in and benefit from (re)habilitation.
- v. Modify counselling strategies depending on the client's prior life experience with hearing loss (e.g., newly diagnosed hearing loss, change in the degree of loss, familiarity with the deaf community).
- vi. Provide information about community support services and associations for individuals with profound hearing loss (e.g., educational, financial, mental health, recreational, vocational).

### Section 6.3 - (RE)HABILITATION

The audiologist demonstrates the ability to:

- i. Describe (re)habilitative options and philosophies underlying communication methods including (but not limited to) auditory-verbal, oral, speechreading, American Sign Language, Manual Coded English, Cued Speech, and how to access such methods in the community.
- ii. Understand cultural issues in the deaf community with respect to "difference" versus "disability," mode of communication, use of hearing aids, assistive listening devices, and cochlear implants.
- iii. Plan and conduct training in auditory, visual, auditory/visual, and tactile communication as well as problem-solving strategies based on hearing handicap, communication preferences, and individual capabilities.
- iv. Monitor performance of hearing aids, assistive listening devices, and cochlear implants via formal and informal evaluation procedures.
- v. Evaluate and recommend assistive devices for various communication functions (e.g., interpreting, real-time captioning, alerting devices such as fire alarm).
- vi. Address the special needs in the management of the multiply handicapped client.
- vii. Address the needs of significant others: informational, psychosocial support, coping strategies.
- viii. Identify the need to refer to other professionals and services (e.g., psychologists, social workers, vocational counselors, speech-language pathologists, cochlear implant team, literacy programs [ASL and Oral English], consumer groups).

# UNIT SEVEN: THE AGING ADULT POPULATION

## Section 7.1 IDENTIFICATION

The audiologist demonstrates knowledge of:

- i. The principles and applications of hearing screening in the community and in institutions for the aged.
- ii. Guidelines for referral.

## Section 7.2 DIAGNOSTIC EVALUATION

The audiologist demonstrates knowledge of:

- i. Appropriate standardized and nonstandardized procedures for evaluating auditory function (e.g., modifications to instructions and procedures to overcome memory deficits, attentional deficits, cautiousness in response criteria, and other factors that may affect testing).
- ii. The assessment of hearing-related communication handicap in activities of daily living.

## Section 7.3 COUNSELLING

The audiologist demonstrates the ability to:

- i. Communicate diagnostic information, its implications and resulting rehabilitative recommendations to referral sources, the client, family, and caregivers providing assistance in activities of daily living either in the home or in institutional settings.
- ii. Understand the effects of hearing loss in daily life and of emotional reactions to hearing handicap.

## Section 7.4 REHABILITATION

The audiologist demonstrates knowledge of:

- i. Appropriate rehabilitation teams.
- ii. Components in the comprehensive functional communication maintenance program.
- iii. Rehabilitation programs to promote self-care.
- iv. Educational and training program for the elderly and their communication partners, including family or caregivers providing assistance in activities of daily living either in the home or in institutional settings.
- v. Speech reading training requirements and procedures for maintenance of communication function.
- vi. Environmental modifications (e.g., modification of room acoustics to reduce noise and reverberation, lighting, seating arrangements, scheduling of activities).
- vii. Benefits and limitations of amplification.
- viii. Benefits and limitations of personal and institutional assistive devices for the client and their communication partners (e.g., telephone devices, television devices FM and infra-red systems, handheld amplification devices, signalling devices).

# UNIT EIGHT: OCCUPATIONAL HEARING LOSS

## Section 8.1 CONSERVATION/IDENTIFICATION

The audiologist demonstrates knowledge of:

- i. Current noise measurement instrumentation and procedures, and interpretation of noise measurement data and noise exposure surveys.
- ii. Principles and application of legal and scientific risk criteria for occupational noise and other risk factors for hearing loss.
- iii. Principles and application of hearing monitoring procedures and appropriate referral criteria including training and supervising support personnel.
- iv. Procedures for the assessment of hearing conservation program effectiveness (e.g., use of outcome measures recommended).

## Section 8.2 NOISE CONTROL

The audiologist demonstrates knowledge of:

- i. Principles of noise control (e.g., engineered, administrative).
- ii. Current technology related to types of hearing protection and interpretation of attenuation characteristics.
- iii. Current selection criteria for hearing protection devices, either for an individual, an occupation, firms, or industries.
- iv. Fit, use, care, and maintenance of hearing protection devices.

## Section 8.3 MANAGEMENT

The audiologist demonstrates knowledge of:

- i. Procedures for establishing a written hearing conservation program that addresses all relevant components.
- ii. Procedures for record-keeping and management of audiometric data, including procedures for maintaining confidentiality of information.

## Section 8.4 EDUCATION

The audiologist will be able to:

- i. Provide appropriate consultation and/or education programs to worker, management, and community groups.

## Section 8.5 LEGISLATION

The audiologist will be familiar with:

- i. Existing federal and provincial legislation regarding health, safety, and compensation relating to noise exposure and noise induced hearing loss.
- ii. Existing municipal bylaws related to noise.



# Foundations of Clinical Practice for Speech-Language Pathology

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# UNIT ONE: BASIC REQUIREMENTS (AUDIOLOGY AND SPEECH-LANGUAGE PATHOLOGY)

## Section 1.1 ANATOMY AND PHYSIOLOGY

The audiologist and speech-language pathologist demonstrate basic knowledge of the gross anatomy and physiology of the following systems:

- i. Respiratory system (respiratory tract, chest wall, diaphragm, and abdominal wall).
- ii. Articulatory, phonatory, and resonatory systems (larynx, pharynx, mouth, and nose).
- iii. Auditory and vestibular systems (external, middle and inner ear, auditory pathways, and auditory cortex).

## Section 1.2 NEUROANATOMY AND NEUROPHYSIOLOGY

The audiologist and speech-language pathologist demonstrate basic knowledge of:

- i. The structure and function of the nervous system.
- ii. Maturation and development of the nervous system.
- iii. Neurological substrates of speech, language, cognition, memory, and hearing.
- iv. Hemispheric asymmetry and specialization.
- v. Methods of investigating the nervous system.

## Section 1.3 GENETICS AND HUMAN DEVELOPMENT

The audiologist and speech-language pathologist demonstrate basic understanding of:

- i. Normal human genetics and embryological development, and their relationship to congenital disorders which affect communication.
- ii. Infant, child, and adolescent development.
- iii. The aging process.

## Section 1.4 COUNSELLING AND APPLIED PSYCHOLOGY

The audiologist and speech-language pathologist demonstrate basic knowledge of:

- i. The role of communication in interpersonal relations.
- ii. The psychosocial effects of communication disorders on the client and significant others.
- iii. The psychosocial effects of disease processes that may include a communication disorder (e.g., stroke, cancer, cerebral palsy), including the implications of acute versus chronic illness, stable versus progressive conditions, and congenital versus acquired conditions.
- iv. Coping mechanisms used by clients/families.
- v. Interviewing and counselling methods for clients, their caregivers, and their significant others.
- vi. Cultural factors that may affect clinical relationships, assessment, and treatment outcomes.
- vii. Learning theory and behaviour modification.

## Section 1.5 PSYCHOLINGUISTICS AND LINGUISTICS

The audiologist and speech-language pathologist demonstrate basic knowledge of:

- i. Normal and abnormal communication behaviour throughout the lifespan in the following areas: phonetics and phonology, morphology and syntax, semantics, pragmatics, discourse, nonverbal communication, and sociolinguistics.
- ii. The nature and theories of second language development.
- iii. The nature and theories of reading and writing and their acquisition.
- iv. Methods of observation and analysis useful in the description of communicative behaviour in the following areas: phonetics and phonology, morphology and syntax, semantics, pragmatics, discourse, nonverbal communication, and sociolinguistics.

## **Section 1.6 SPEECH PERCEPTION AND ACOUSTICS**

The audiologist and speech-language pathologist demonstrate basic knowledge of:

- i. The nature and theories of perceptual processes and their development with a special emphasis on speech perception.
- ii. The physics of sound.
- iii. Psychophysical methods.
- iv. Psychoacoustics.

## **Section 1.7 INSTRUMENTATION**

The audiologist and speech-language pathologist demonstrate basic knowledge of:

- i. The instrumentation relevant to clinical practice and its operation (e.g., amplification and assistive devices, audiometers, audio and video recorders, voice and speech synthesizers and analyzers).

## **Section 1.8 PHARMACOLOGY AND OTHER MEDICAL INTERVENTIONS**

The audiologist and speech-language pathologist demonstrate basic knowledge of:

- i. The effects of medical intervention on auditory function and communication (e.g., medication, surgery, radiation).

## **Section 1.9 RESEARCH METHODOLOGY**

The audiologist and speech-language pathologist demonstrate basic knowledge of:

- i. The scientific method.
- ii. Basic statistical concepts and theories.
- iii. Commonly used research designs.
- iv. How to critically evaluate research.
- v. Systematic evaluation of the reliability and validity of assessment procedures, and of treatment efficacy.

# UNIT TWO: PRINCIPLES OF CLINICAL PRACTICE AND PROFESSIONAL PRACTICE ISSUES

## Section 2.1 PREVENTION

The speech-language pathologist demonstrates knowledge of:

- i. Concepts and strategies for prevention of communication disorders across the age span (e.g., primary, secondary, and tertiary preventive strategies).
- ii. Risk factors (e.g., medical, social, developmental) for communication disorders.

## Section 2.2 EVALUATION

The speech-language pathologist:

- i. Uses principles of assessment to generate assessment plans based on available information about the client, the presenting disorder(s), and knowledge of normal and disordered communication; modifies the plan when appropriate.
- ii. Obtains a case history that is relevant to the diagnosis and management of each individual's communication disorder.
- iii. Demonstrates knowledge of principles underlying clinical assessment including standardized and nonstandardized procedures and their advantages, disadvantages, and limitations.
- iv. Demonstrates knowledge of test administration and scoring procedures.
- v. Interprets assessment data to formulate diagnostic and prognostic statements based on knowledge of normal and disordered communication, the assessment results, and knowledge of treatment efficacy.
- vi. Interprets assessment data to make recommendations based on the assessment information and available resources.
- vii. Communicates assessment information to the client and/or family when appropriate, and to the referring agency and other professionals in accordance with guidelines for maintaining client confidentiality.
- viii. Demonstrates knowledge of the roles of other health professions, when to refer clients, and how to collaborate effectively with them.

## Section 2.3 CLIENT MANAGEMENT

The speech-language pathologist:

- i. Employs a conceptual framework for client management decisions that is based on accepted philosophies, approaches and/or theories, and which considers the needs of the whole client, including communication contexts and partners.
- ii. Develops a management plan based on a rationale that considers the results of the assessment, knowledge of the nature of the communication disorder, theories of learning and available resources. The management plan includes selection of a service delivery model (e.g., regular review assessments, home/school program, individual or group therapy, consultation), and development of a specific program of intervention for optimal management of the client's communication disorder.
- iii. Formulates appropriate short-term and long-term goals; develops and implements appropriate clinical activities to meet these goals and to facilitate generalization and maintenance; evaluates progress towards goals and modifies them and the discharge criteria accordingly.
- iv. Monitors progress during treatment to obtain valid and reliable indicators of change using one or more appropriate methods (e.g., standardized tests, instrumental measures, counting behaviours, probes).
- v. Involves families, teachers, caregivers, and other appropriate people in the management process, as appropriate, keeping them informed of progress and current goals.
- vi. Provides information to family, caregivers, and team members about communication disorders in general and regarding communicating with specific clients.

## Section 2.4 REPORTING

The speech-language pathologist:

- i. Produces organized, grammatical, informative, and concise written assessment, treatment or progress reports meeting the standards of the employing agency and/or licensing body. Reports often include:
  - a) Case history information.
  - b) Observations about the client's behaviour and cooperation.
  - c) Description of assessment measures and rationale for their selection.
  - d) Description and interpretation of client's responses.
  - e) Diagnostic statement about the client's communication disorder(s).
  - f) Statement of the client's communication needs and motivation for improving communication.
  - g) Prognostic statement.
  - h) Recommendations.
  - i) Statement of treatment goals, methods, and progress.

## Section 2.5 PROFESSIONAL BEHAVIOUR

The speech-language pathologist will demonstrate knowledge of:

- i. The roles and functions of speech-language pathology and audiology professional associations and licensing bodies, and the qualifications required for practice.
- ii. The ethical considerations (e.g., in professional codes, canons of ethics, provincial laws) which affect the delivery of services and the practice of speech-language pathology including those concerning the use of support personnel and volunteers.
- iii. Responsibilities and legal requirements regarding confidentiality of client information, including informed consent.
- iv. Effective self-evaluation and evaluation of intervention outcomes.
- v. Personal responsibilities for continuing education.
- vi. Caseload management (selection of cases, referral, scheduling).
- vii. Problem-solving and conflict resolution strategies.

# UNIT THREE: DEVELOPMENTAL ARTICULATION/PHONOLOGICAL DISORDERS

## Section 3.1 NATURE

The speech-language pathologist demonstrates knowledge of:

- i. Normal phonological development and theories of the acquisition of normal phonology, including the relationship between normal and disordered articulation/phonological development.
- ii. How the factors and processes associated with the development of normal phonology (e.g., linguistic, motor, perceptual, cognitive, affective, environmental) apply to clinical practice.
- iii. The different theoretical frameworks relevant to articulation/phonological delays and disorders.
- iv. The characteristics of disordered articulation/phonology.
- v. The profiles of special populations (e.g., cleft palate and other structural disorders, hearing impairment, mental handicap) with respect to phonetic and phonological acquisition.
- vi. The psychosocial, educational, and vocational impact of developmental articulation/phonological disorders.
- vii. The impact of a first language on the development of English and/or French articulation and phonological skills in children whose first language is not English or French.

## Section 3.2 ASSESSMENT

The speech-language pathologist:

- i. Develops and implements an assessment plan based on background information about the client, known or suspected concomitant disorders, knowledge of normal and disordered articulation/phonological development, and principles of assessment, and modifies it when appropriate.
- ii. Uses appropriate standardized and/or nonstandardized procedures for assessing phonemic awareness, articulation, and/or phonology at the sound, syllable, words, sentence, and discourse levels.
- iii. Understands issues related to obtaining a representative and diagnostically useful sample of a client's speech.
- iv. Conducts an appropriate analysis of a sample of the client's speech (e.g., structural, traditional, and/or phonological approaches) to describe the child's errors.
- v. Applies specific procedures for examination of the speech production mechanism and judges its adequacy for normal speech production.
- vi. Assesses the impact of factors in the client's environment on his/her communication needs and effectiveness.
- vii. Demonstrates knowledge of specific procedures for assessing auditory/speech perception skills and understands the issues related to an adequate assessment of speech perception ability.
- viii. Formulates a diagnostic statement about the client's articulation/phonological skills.
- ix. Formulates a prognostic statement about the client's articulation/phonological skills.

## Section 3.3 INTERVENTION

The speech-language pathologist:

- i. Demonstrates knowledge of different approaches to articulation/phonological intervention, their theoretical bases, advantages, disadvantages, and limitations.
- ii. Chooses an appropriate service delivery model (e.g., periodic review, home/school program, direct individual therapy, direct group therapy, referral to a multidisciplinary program) for treatment of the client's articulation/phonological disorder.
- iii. Selects and applies an appropriate approach for treatment of the client's articulation/phonological disorder.
- iv. Formulates appropriate short-term and long-term goals for treatment of the client's articulation/phonological disorder which takes into account other linguistic, cognitive, or motor deficits.
- v. Develops and implements appropriate clinical activities for meeting treatment goals and facilitating generalization and maintenance.
- vi. Demonstrates knowledge of procedures to stimulate phoneme and syllable production.
- vii. Evaluates progress towards articulation/phonological goals and modifies the management plan and discharge criteria accordingly.

## UNIT FOUR: NEUROLOGICALLY BASED SPEECH DISORDERS

### Section 4.1 NATURE

The speech-language pathologist will demonstrate knowledge of:

- i. The neurological basis for normal speech production and how damage to the central and peripheral nervous systems affects speech.
- ii. Different theoretical frameworks for neurologically based speech disorders (e.g., dysarthria, apraxia).
- iii. Characteristics of the dysarthrias including their respiratory, phonatory, resonatory, articulatory, and prosodic features.
- iv. Characteristics of apraxia of speech.
- v. Etiological factors related to neurologically based speech disorders and their impact on prognosis (e.g., stable vs. degenerative conditions).
- vi. Disorders that may accompany neurologically based speech disorders (e.g., aphasia) and their impact on communication.
- vii. The impact of neurologically based speech disorders on speech intelligibility, as well as their psychosocial, educational, and vocational impact.

### Section 4.2 ASSESSMENT

The speech-language pathologist:

- i. Develops and implements an assessment plan based on background information about the client, knowledge of normal and disordered speech, known or suspected concomitant disorders, and principles of assessment; modifies this plan when appropriate.
- ii. Assesses physiological support for speech production (including assessment of the respiratory, laryngeal, velopharyngeal, and oral mechanisms) using instrumental and noninstrumental procedures as appropriate, and judges the adequacy of each mechanism for speech production.
- iii. Assesses phonation, resonance, articulation, and prosody, using perceptual and acoustic measures.
- iv. Assesses speech intelligibility and identifies factors that influence it.
- v. Assesses the impact of factors in the client's environment on his/her communication needs and effectiveness.
- vi. Formulates a diagnostic statement about the client's speech disorder.
- vii. Formulates a prognostic statement about the client's speech disorder.

### Section 4.3 INTERVENTION

The speech-language pathologist:

- i. Demonstrates knowledge of different approaches to the treatment of neurologically based speech disorders, their theoretical bases, advantages, disadvantages, and limitations.
- ii. Chooses appropriate service delivery model(s) (e.g., regular review assessments, home program, individual therapy, group therapy, referral to a multidisciplinary program) for treatment.
- iii. Selects and applies an appropriate approach for treatment of the client's speech disorder.
- iv. Formulates appropriate short-term and long-term goals for treatment of the client's speech disorder.
- v. Develops and implements appropriate clinical activities for meeting communication treatment goals and facilitating generalization and maintenance.



# UNIT SIX: ACQUIRED LANGUAGE DISORDERS

## Section 6.1 NATURE

The speech-language pathologist demonstrates knowledge of:

- i. Normal changes in language function throughout the life-span, related factors and processes (e.g., motor, sensory, perceptual, cognitive, affective, cultural) and their application to clinical practice.
- ii. The neurology and neurophysiology of acquired language disorders including aphasia, cognitive communication disorders associated with dementia, head trauma, and right hemisphere pathology.
- iii. The factors associated with recovery or dissolution of language and communication.
- iv. Theoretical frameworks relevant to acquired language disorders.
- v. The clinical and functional characteristics of acquired language disorders.
- vi. The associated perceptual, motor, cognitive, and affective problems and their impact on communication.
- vii. The psychosocial, educational, and vocational impact of acquired language disorders.

## Section 6.2 ASSESSMENT

The speech-language pathologist:

- i. Develops and implements an assessment plan based on background information about the client, knowledge of normal language and acquired language disorders, known or suspected concomitant disorders, and principles of assessment; modifies this plan when appropriate.
- ii. Uses appropriate standardized and/or nonstandardized procedures for assessing language (phonology, orthography, morpho-syntax, semantics, pragmatics, discourse), gestural communication, and complex cognitive functioning relating to language (e.g., aspects of memory, organizational processes, and verbal reasoning).
- iii. Assesses the impact of factors in the client's environment on his/her communication needs and effectiveness.
- iv. Assesses the impact of the language disorder on the client's daily activities, and his/her social, psychological, educational, and/or vocational needs.
- v. Formulates a diagnostic statement about the client's communication disorder.
- vi. Formulates a prognostic statement about the client's communication disorder.

## Section 6.3 INTERVENTION

The speech-language pathologist:

- i. Demonstrates knowledge of different approaches to language intervention, their theoretical bases, advantages, disadvantages, and limitations.
- ii. Chooses an appropriate service delivery model (e.g., regular review assessments, home/school program, direct individual therapy, direct group therapy, referral to a multidisciplinary program) for treatment of the client's communication disorder.
- iii. Selects and applies an appropriate approach for treatment of the client's communication disorder.
- iv. Formulates appropriate short-term and long-term goals for the treatment of the client's communication disorder.
- v. Develops and implements appropriate clinical activities for meeting specified goals and facilitating generalization and maintenance.
- vi. Evaluates progress towards goals and modifies the management plan and discharge criteria accordingly.
- vii. Educates the family/caregivers and other team members about the language disorder and its impact.

## UNIT SEVEN: VOICE DISORDERS

### Section 7.1 NATURE

The speech-language pathologist demonstrates knowledge of:

- i. The anatomy, neuroanatomy, and physiology of the larynx and of normal voice production across the lifespan, and application of this knowledge to clinical practice.
- ii. Normative data for each dimension of voice across the lifespan (e.g., loudness, pitch, fundamental frequency, resonance, quality) and their application to clinical practice.
- iii. The differences between normal and pathological voice production.
- iv. Factors and processes which may impact on voice production (e.g., removal of larynx, hearing loss, neuromuscular involvement, musculoskeletal tension, vocal fold pathology, systemic conditions, affective states, environmental factors).
- v. The physiological basis, the perceptual and acoustical characteristics of alaryngeal speech and speech produced via esophageal means, tracheoesophageal prostheses, and/or mechanical devices.
- vi. The characteristic profiles of clients with a diagnosis of organic or nonorganic vocal pathology.
- vii. The psychosocial, educational, and vocational impact of voice disorders.

### Section 7.2 ASSESSMENT

The speech-language pathologist:

- i. Develops and implements an assessment plan based on background information about the client, including any previous medical investigation, knowledge of normal language and abnormal voice production, known or suspected concomitant disorders, and principles of assessment; modifies this plan when appropriate.
- ii. Uses appropriate perceptual, physiologic, and acoustic measures for assessing voice production and for making a differential diagnosis.
- iii. Evaluates options for alaryngeal sound production when appropriate.
- iv. Assesses the impact of physical, emotional, vocational, and environmental factors that influence the client's voice production.
- v. Formulates a diagnostic statement about the normalcy of the client's voice.
- vi. Formulates a prognostic statement based on the medical diagnosis and voice assessment, referring the patient for further ENT examinations as required.

### Section 7.3 INTERVENTION

The speech-language pathologist:

- i. Demonstrates knowledge of different approaches to voice intervention, and alaryngeal voice production, their theoretical bases, advantages, disadvantages, and limitations.
- ii. Chooses an appropriate service delivery model (e.g., regular review assessments, home/school program, direct individual therapy, direct group therapy, referral to a multidisciplinary program) for treatment of the client's voice disorder.
- iii. Selects and applies an appropriate approach for treatment of the client's voice disorder.
- iv. Formulates appropriate short-term and long-term goals for the treatment of the client's voice disorder.
- v. Develops and implements appropriate clinical activities for meeting specified goals and facilitating generalization and maintenance.
- vi. Evaluates progress towards goals; modifies the management plan and discharge criteria accordingly.

## UNIT EIGHT: RESONANCE DISORDERS

### Section 8.1 NATURE

The speech-language pathologist demonstrates knowledge of:

- i. The anatomical and neurophysiological basis of normal and abnormal velopharyngeal function (e.g., hypernasality, hyponasality, mixed nasality, and cul-de-sac resonance) and its application to clinical practice.
- ii. The perceptual characteristics of normal and abnormal resonance (hypernasality, hyponasality, cul-de-sac resonance) and factors influencing the perception of abnormal resonance characteristics.
- iii. Organic conditions/syndromes and nonorganic factors associated with abnormal resonance.
- iv. The articulatory, vocal, phonological, linguistic, and psychosocial factors associated with abnormal resonance.
- v. Communication profiles of subgroups of clients with resonance disorders.
- vi. The psychosocial, educational, and vocational impact of resonance disorders.
- vii. The impact of resonance disorders on other speech subsystems (e.g., respiratory, laryngeal, articulatory).

### Section 8.2 ASSESSMENT

The speech-language pathologist:

- i. Develops and implements an assessment plan based on background information about the client, knowledge of normal and abnormal resonance, known or suspected concomitant disorders, and principles of assessment; modifies the plan when appropriate.
- ii. Demonstrates knowledge of specific procedures by which speech-language pathologists and other professionals assess velopharyngeal adequacy including instrumental (e.g., multiview videofluoroscopy, naso/endoscopy, aerodynamic, and acoustic measures) and perceptual means (e.g., speech production tasks).
- iii. Assesses the impact of physical, emotional, developmental, and environmental factors on the client's resonance pattern(s).
- iv. Determines the need for further consultation (e.g., genetics, otolaryngologist, multidisciplinary team).
- v. Demonstrates the ability to distinguish the following: hypernasal resonance, hyponasal resonance, mixed hyper-hyponasal resonance, and nasal air emission.
- vi. Formulates a diagnostic statement about the client's resonance disorder.
- vii. Formulates a prognostic statement about the client's resonance disorder.

### Section 8.3 INTERVENTION

The speech-language pathologist:

- i. Demonstrates understanding of the roles of other professions in team care for clients with cleft palate and cranio-facial disorders. Demonstrates an understanding of the surgical, prosthetic, and nonsurgical management approaches for velopharyngeal dysfunction, their advantages, disadvantages, and limitations.
- ii. Chooses an appropriate service delivery model (e.g., regular review assessments, home program, individual therapy, group therapy, referral to/collaboration with other professionals) for management of the client's resonance disorder.
- iii. Formulates appropriate short-term and long-term goals for the treatment of the client's resonance disorder.
- iv. Develops and implements appropriate clinical activities for meeting specified communication goals and facilitating generalization and maintenance.
- v. Evaluates progress towards communication goals; modifies the management plan and discharge criteria accordingly.

# UNIT NINE: FLUENCY DISORDERS

## Section 9.1 NATURE

The speech-language pathologist demonstrates knowledge of:

- i. The characteristics of normal and abnormal disfluency across the lifespan.
- ii. The cause and predisposing factors in developmental stuttering, neurogenic stuttering, psychogenic stuttering, and in cluttering.
- iii. The psychosocial, educational, and vocational impact of fluency disorders.
- iv. Similarities and differences between developmental and acquired fluency disorders.

## Section 9.2 ASSESSMENT

The speech-language pathologist:

- i. Develops and implements an assessment plan based on background information about the client, knowledge of normal and disordered fluency, known or suspected concomitant disorders and principles of assessment; modifies this plan when appropriate.
- ii. Uses appropriate standardized and/or nonstandardized procedures for describing patterns and frequency of disfluencies, rate of speech, and secondary characteristics.
- iii. Understands issues related to obtaining representative and diagnostically useful samples of a client's speech.
- iv. Uses appropriate standardized and/or nonstandardized procedures for measuring the client's attitudes toward disfluency and speaking situations.
- v. Assesses the impact of factors in the client's environment on his/her communication needs and effectiveness.
- vi. Assesses the psychosocial, educational, and/or vocational impact of the fluency disorder.
- vii. Formulates a diagnostic statement about the client's disfluency.
- viii. Formulates a prognostic statement about the client's disfluency.

## Section 9.3 INTERVENTION

The speech-language pathologist:

- i. Demonstrates knowledge of different approaches to fluency intervention, their theoretical bases, their advantages, disadvantages, and limitations.
- ii. Chooses an appropriate service delivery model (e.g., parent counselling, parent training, home/school program, individual therapy, group therapy) for treatment of the client's disfluency.
- iii. Selects and applies an appropriate approach for treatment of the client's disfluency and for improving the client's attitudes toward speech and speaking situations.
- iv. Formulates appropriate short-term and long-term goals for treatment of the client's disfluency.
- v. Develops and implements appropriate clinical activities for meeting specified communication goals and facilitating generalization and maintenance.
- vi. Evaluates progress towards communication goals; modifies the management plan and discharge criteria accordingly.
- vii. Refers clients to other professionals (e.g., psychology or social work) if appropriate.

# UNIT TEN: AUGMENTATIVE AND ALTERNATIVE COMMUNICATION

## Section 10.1 NATURE

The speech-language pathologist demonstrates knowledge of:

- i. The symbols, aids, strategies, and techniques that are components of an augmentative and alternative communication (AAC) system.
- ii. Profiles of clients who are appropriate candidates for an AAC system.
- iii. Factors associated with normal language, phonological, and literacy development and their application to AAC.
- iv. The social, pragmatic, educational, vocational, and technical impact of augmentative and alternative methods of communication, and their application for face-to-face and written communication.
- v. Handicapping conditions (e.g., cognitive, linguistic, sensory, motor, visual, and hearing) which impact on AAC use in effective and efficient oral and written communication.

## Section 10.2 ASSESSMENT

The speech-language pathologist:

- i. Develops and implements an assessment plan based on background information about the client, knowledge of normal language development, current and previous communication methods and needs, client's level of language/cognition, vision, and motor skills.
- ii. Uses appropriate standardized and nonstandardized procedures for assessing the communication skills of potential AAC users, including language, speech, symbol knowledge, and literacy potential.
- iii. In collaboration with other team members, ensures that there is an appropriate access method for an AAC system including consideration of eye gaze, direct selection, and scanning.
- iv. Assesses the impact of factors such as the client's behaviour, motivation, endurance, communication partners, living/school/work environment, seating, and mobility on the client's communication needs and effectiveness.
- v. Understands the role of the speech-language pathologist with respect to the other members of the AAC team.
- vi. Formulates a diagnostic statement about the client's communication disorder.
- vii. Formulates a prognostic statement about the client's communication disorder.

## Section 10.3 INTERVENTION

The speech-language pathologist:

- i. Selects an appropriate AAC system/device in collaboration with the client, caregivers, and team members, taking into consideration the client's environment, skills and needs, advantages/disadvantages of high versus low tech systems, and funding sources.
- ii. Chooses an appropriate service delivery model (one-to one, facilitator training, consultation) for implementation of the AAC system.
- iii. Formulates appropriate long-term and short-term goals.
- vi. Develops and implements appropriate clinical activities for meeting specified goals which include communication partners who are able to facilitate generalization and/or maintenance of gains, and enhance the independence of the user.
- v. Evaluates progress toward achieving AAC goals; modifies the management plan and discharge criteria accordingly.

# **UNIT ELEVEN: HEARING DISORDERS AND RELATED SPEECH-LANGUAGE DISORDERS**

## **Section 11.1 NATURE**

The speech-language pathologist will demonstrate knowledge of:

- i. Anatomical, physiological, and environmental conditions contributing to hearing disorders.
- ii. Symptoms of hearing disorders, including associated speech, language, and voice profiles for prelingual and postlingual onset.
- iii. Different theoretical frameworks relevant to the speech and language problems of people with hearing impairments.
- iv. Incidence and prevalence of hearing impairment in specific populations.
- v. Acoustics of speech and its role in speech perception.
- vi. The psychosocial, educational, and vocational impact of hearing impairment.

## **Section 11.2 ASSESSMENT**

The speech-language pathologist will demonstrate knowledge of:

- i. The basic processes and procedures used to assess unaided and aided hearing.
- ii. Application of audiometric information to the speech-language assessment, including recognizing the type and degree of hearing loss from an audiogram (sensorineural, conductive, mixed); procedures for basic audiometric screening; hearing aid and cochlear implant information.
- iii. The need for further investigation and referral of clients with hearing impairments.
- iv. Compensating mechanisms for hearing loss and speech-language difficulties.
- v. Modification in speech and language assessment procedures to accommodate varying degrees of hearing loss.
- vi. Prognostic factors.

## **Section 11.3 INTERVENTION**

The speech-language pathologist will demonstrate knowledge of:

- i. Approaches to the prevention of speech and language difficulties including early identification and referral, education of, parents, teachers, and the public.
- ii. The philosophical underpinnings of sign language (e.g., American Sign Language, Langue des signes québécoise) and other communication methods used by the hearing impaired (e.g., Manually Coded English, Signed Exact English).
- iii. Approaches to habilitation and rehabilitation of speech and language (e.g., oral, manual, total, aural, visual communication), and their advantages and disadvantages.
- iv. The use, care, and maintenance of hearing aids, assistive listening devices, and amplification systems.
- v. Modifying management plans to accommodate varying degrees of hearing loss.

# UNIT TWELVE: DYSPHAGIA

## Section 12.1 NATURE

The speech-language pathologist:

- i. Applies knowledge of normal anatomy, physiology, and neurophysiology of the upper aerodigestive tract to clinical practice.
- ii. Applies knowledge of the factors and processes associated with dysphagia<sup>1</sup> to clinical practice.
- iii. Demonstrates knowledge of different theoretical frameworks related to swallowing<sup>2</sup> and/or feeding<sup>3</sup> assessment and rehabilitation.
- iv. Demonstrates knowledge of the profiles of special populations who may present with dysphagia (developmental disorders, neurogenic disorders, surgical, etc.).
- v. Demonstrates knowledge of the social, cultural, ethical, and vocational impact of dysphagia.
- vi. Demonstrates knowledge of the relationship between the characteristics of the dysarthrias<sup>4</sup> and dysphagia and the effect of apraxia<sup>5</sup> on feeding and swallowing.
- vii. Demonstrates knowledge of cranial nerve functioning and of the interrelationship between the respiratory, laryngeal, pharyngeal, and oromotor systems.
- viii. Demonstrates knowledge of the risk factors associated with dysphagia and the consequences for the patient/client.

## Section 12.2 ASSESSMENT

The speech-language pathologist, in conjunction/collaboration with physicians and health professionals integral to the dysphagia assessment process:

- i. Demonstrates knowledge in the identification of persons at risk for feeding and swallowing disorders including knowledge of previous and current medical history, significant medical conditions, pharmacologic effects, pulmonary/ respiratory and nutritional sequelae related to dysphagia, methods of oral-nonoral nutritional intake, and the contributions of cognitive-linguistic, or behavioural deficits to the feeding-swallowing process.
- ii. Demonstrates knowledge of methods to evaluate feeding-swallowing including physiologic sensori-motor examinations, instrumental, and noninstrumental clinical evaluations of swallowing function.
- iii. Demonstrates proficiency in the selection and administration of age and developmentally appropriate assessment/evaluation methods and procedures that are functionally relevant, culturally sensitive, ethical, and theoretically grounded.
- iv. Demonstrates knowledge in the identification of normal-abnormal anatomy and physiology of the oral, pharyngeal, laryngeal, and respiratory mechanisms related to swallowing, and of the functional skills related to safe, efficient nutritional intake.
- v. Demonstrates knowledge in the use and application of instrumental techniques for screening/diagnosis of oropharyngeal dysphagia. These techniques may include, but are not limited to videofluoroscopy<sup>6</sup>, fiberoptic endoscopy<sup>7</sup>, ultrasonography<sup>8</sup>, and electromyography<sup>9</sup>. Competency in the use of these techniques is based on demonstrated education and supervised training in instrumental operations, examination methods and procedures, appropriate selection for use in specified patient groups, advantages and limitations, interpretation of results, knowledge of risk factors, and safety procedures. Use of any instrumental technology is undertaken within the limitations/licensure of existing institutional policies or regulatory boards.
- vi. Demonstrates knowledge in the formulation of assessment reports including documentation of pertinent background information, interpretation of results, determination of capacity and safety for oral feeding, determination of presence and severity of risks associated with dysphagia, recommendation for intervention, prognostic indicators, and the need for repeated assessment or monitoring.
- vii. The speech-language pathologist makes appropriate referrals and communicates the evaluation results and recommendations.

## Section 12.3 INTERVENTION

The speech-language pathologist:

- i. Demonstrates knowledge of different approaches to the management and treatment of feeding and swallowing disorders, their theoretical bases, their impact on other functions of the upper aerodigestive tract, the ethical aspects involved, and their relative value for specific cases. Included among these approaches are therapeutic and postural manoeuvres, manipulation of bolus texture/temperature/taste/presentation variables, alternative routes to provision of nutrition/hydration, and education, training, and supervision of caregivers who participate in feeding the client.
- ii. Recommends selection of an appropriate service delivery model (referral to other professionals, selection and implementation of treatment strategies, frequency and mode of direct intervention, education/training and supervision of mediator caregivers for indirect treatment) for the treatment and management of the client's feeding or swallowing disorder.
- iii. Selects and recommends appropriate treatment and management approaches for the client's feeding or swallowing disorder.
- iv. Formulates appropriate short-term and long-term treatment or management goals.
- v. Develops and implements appropriate clinical activities for meeting and facilitating maintenance of specific treatment and management goals related to a client's feeding or swallowing disorder.
- vi. Regularly reviews and evaluates the outcome of the interventions selected for a client's feeding or swallowing disorder, and modifies the treatment plan accordingly.

## GLOSSARY

1. **Dysphagia.** Impairment of any stage or component in the process of swallowing.
2. **Swallowing.** The process of ingesting food or liquid, beginning immediately following placement of a bolus into the mouth and ending when that bolus has entered completely into the stomach.
3. **Feeding.** The process of transferring food or liquid from a container to the mouth for swallowing.
4. **Dysarthria.** Neuromuscular impairment of the resonatory, oral motor, laryngeal, and respiratory components of speech production.
5. **Apraxia.** The inability to voluntarily execute a learned sequence of motor actions. Motor functions may remain intact for involuntary or reflexive actions.
6. **Videofluoroscopy.** A videofluorographic study of oral and pharyngeal swallowing, incorporating modifications in bolus variables, patient positioning, volitional control of swallowing technique, and radiographic focus to facilitate optimum visualization of the oral-pharyngeal-laryngeal structures and their function during swallowing. This procedure is also commonly referred to as a modified barium swallow (MBS), oral-pharyngeal motility study, or videofluoroscopic swallowing study (VFSS) or examination.
7. **Fiberoptic Endoscopy.** Use of a fiberoptic nasopharyngolaryngoscope to assess several components of abnormal oropharyngeal swallowing included premature spillage of a bolus into the hypopharynx or laryngeal vestibule before swallowing; incomplete vocal fold adduction during coughing, breath holding and swallowing; presence of residue in the hypopharynx or laryngopharynx after swallowing; and presence of laryngo-pharyngeal sensation in response to delivery of calibrated oxygen pulses through the endoscope is sometimes included.
8. **Ultrasonography.** Use of an ultrasound transducer, which emits and receives sound waves at frequencies over 20 kHz, to provide real time imaging of the movement of the tongue, floor of mouth musculature, hyoid bone, palate, and epiglottis during oral preparation and transport of a food or liquid bolus from the mouth to the upper pharynx.
9. **Electromyography.** A procedure used to record electrical activity of a muscle or muscle group during certain behaviours such as swallowing, which provides information on the onset and offset of muscle activity, the frequency of motor neuron firing, and some indication of muscle strength.

# Notes

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Canadian Association of  
Speech-Language Pathologists and Audiologists  
200 Elgin Street, Suite 401  
Ottawa, Ontario K2P 1L5

tel. 613.567.9968 tel. 1.800.259.8519  
fax 613.567.2859 caslpa@caslpa.ca

[www.caslpa.ca](http://www.caslpa.ca)