4.15

RESNA Guidelines for Basic Curriculum Development and Credentialing for Assistive Technology Providers

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Quality Assurance Committee

Contents

Preface

The following guidelines are intended to be a "living" document subject to the revisions we conceive as we begin to use its content. The guidelines are a consensus of comments from leaders in the field on what constitutes a broad range of basic knowledge and skills that are used by qualified Assistive Technology Providers (ATPs). It is intended to describe a composite of *basic* skills and knowledge used by all ATPs. It is not meant to describe the *in-depth expertise* of a single service provider; ATPs ususally specialize in a specific area of work (by professional background) but they should have a broadbased knowledge of the other assistive technology specialties in order to know when to refer or in working with other members of a service provider team.

The content should not be construed as requirements at this time. It is intended to be a guideline for development of curriculums for pre- and post-service education of ATPs. After much careful review and refinement, it will also serve as the basis to develop credentialing of service providers.

Thank you to the QA Working Committee who agonized through the long discussions necessary to create the original document. And, to the PSG, SIG, and QA Committee members who responded in the comment periods. Finally, thank you to Mette Norgaard and Marian Hall for their work in capturing the content and creating the document.

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6/4/93

RESNA Guidelines for Basic Curriculum Development and Credentialing for Assistive Technology Providers

Introduction

Assistive technology service delivery has become an area of specialty practice. To create a basis for curriculum development and credentialing for this specialty, a working group under RESNA's Quality Assurance Committee has described a unique set of roles and competencies for providers of assistive technology. This document is based on the work of an eclectic group of service providers and educators, who have identified the competencies that can serve as a guideline for the development of a basic curriculum and certification. The focus is on the range of knowledge and skill that may be taught and tested to assure the highest level of assistive technology services for persons with disabilities.

In this document, RESNA has defined five critical, interactive roles for providers of assistive technology. Each role is described by a set of tasks, which are supported by the skills and knowledge base that the person must learn to be able to complete the tasks.

The Technology-Related Assistance for Individuals with Disabilities Act of 1988 (PL 100-407) defines assistive technology and assistive technology service as follows:

"The term assistive technology device means any item, piece of equipment, or product system, whether acquired commercially off-the-shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities."

"The term assistive technology service means any service that directly assists an individual with a disability in the selection, acquisition or use of an assistive technology device."

An assistive technology service provider (ATP) must have a unique background in rehabilitation and assistive technology and in how to apply this technology for the benefit of people with disabilities. An ATP is a person who receives remuneration as a result of engaging in the provision of assistive technology to people with disabilities. ATPs must also be familiar with the other rehabilitation professions in order to work as a team with consumers.

Role number one describes the necessary technology background. Roles two through four focus on how to apply that technology background to benefit a consumer — first through an evaluation, and then by planning and implementing the appropriate intervention for the consumer. Finally, role five describes how the provider must conduct follow-up and make appropriate changes. Interwoven in all the roles are general skills described under section six.

The original document represents the efforts of a panel of experts from different professions and specialties. Members at large: Gerry Warren (Quality Assurance Committee Chair), Al Cook (Educational Committee Chair), Gregg Vanderheiden, Cliff Brubaker, Alexandra Enders, and Mette Norgaard. Members representing various professions are designated from each of RESNA's professional specialty groups (PSGs): Jerry Weisman (Chair of all PSGs), Roger Smith (Occupational Therapists), Diane Bristow (Speech and Language Pathologists), Margaret Barker (Rehab Engineers), Kathleen Barnes (Physical Therapists), Adrienne Bergen (Rehab Technology Suppliers and Manufacturers), and Terry Supan (Orthotists and Prosthetists). Mary Binion (Special Educators) was unable to attend the meeting but has reviewed the document.

The document has been further reviewed by the SIG Chairs and members of the Quality Assurance Committee. All of the comments received have been reviewed and integrated into the document.

1. Role: CHARACTERIZING AVAILABLE TECHNOLOGIES AND THEIR APPROPRIATE APPLICATION AND USE.

1.1 Tasks

a) Characterize and group manufactured products according to function.

b) Adjust, adapt, and integrate various products and parts into a system.

c) Match features of various technologies with the user's abilities and needs.

d) Develop guidelines about how to provide custom products.

e) Recognize, troubleshoot, and have equipment problems fixed. Initiate the repair process as needed.

1.2 Skills Required

Ability to:

a) Access and interpret information about research, product development, technologies, and standards, including checking if applicable safety testing has been done.

b) Evaluate technologies in the areas of accessibility, durability, performance, adjustability, reliability, product liability, maintenance, and repairs.

c) Evaluate technologies as they relate to the functional abilities of intended users.

d) Compare and catalogue various technologies.

e) Set up and use standard computers and operating systems.

f) Set up communication, mobility, or other technologies, so the user can easily access and interface with the technology.

g) Write clear specifications for recommended technology or custom adaptations.

h) Troubleshoot mechanical and electrical problems and make minor repairs.

1.3 Knowledge Base Required

1.3.A Know state-of-the-art research, product development, technologies, and service delivery.

a) Develop and maintain a basic knowledge of state-of-the-art research.

For example: Identify organizations doing research. Know major sources of support or funding for research. Explain how to locate information when needed, how to access data through medical libraries, journals, professional associations, etc.

b) Develop and maintain a basic knowledge of state-of-the-art product development.

For example: Identify organizations doing product development. Identify sources of support or funding for development. Explain how to locate information when needed, how to access data through electronic bulletin boards, professional and lay associations, databases, networking, etc.

c) Develop and maintain a basic knowledge of businesses and programs that produce or provide assistive technology.

For example: Identify sources of technology information, such as rehab engineering centers, manufacturers, rehab technology suppliers, hardware stores, and machine shops. Describe when to use the different sources.

d) Develop and maintain files of service delivery facilities and consumer organizations.

1.3.B Know technology-related information services.

a) Develop and maintain a basic knowledge of information resources.

For example: Identify sources for technology-related information (e.g., databases, brochures, ads, books, magazines, journals, catalogues, audio and video tapes, inservices, conferences, exhibits, networking, displays). Describe when and how to use the various resources.

1.3.C Know standards for assistive technology and related technologies.

a) Identify organizations who are responsible for standards and codes.

For example: Explain the role of organizations such as American National Standards Institute (ANSI), Society of Automotive Engineers (SAE), International Standards Organization (ISO), and various government agencies. Explain how to locate relevant standards.

b) Describe the various types of standards and how they differ in function. For example: Compare performance standards, safety standards, compatibility standards, etc.

c) Describe why standards are important in clinical and functional applications.

For example: Describe why standards have been developed for assistive technology. Explain how standards benefit the users of assistive technology.

d) Interpret and apply existing standards.

For example: Describe a wheelchair standard, when it applies, and how it benefits the user. Describe an architectural standard, when it applies, and how it benefits the user.

1.3.D Demonstrate basic computer literacy.

a) Describe standard hardware components and peripherals.

For example: Identify the functions of a keyboard, mouse, mouse emulator, display, serial, parallel, random access memory (RAM), CD ROM, hard drive, modem, compact disk, etc.

b) Describe software and operating systems.

For example: Describe terms such as disk operating system (DOS), TSR, and applications for vocational and educational situations. Define the difference between an operating system (e.g., Windows) and an operating shell, and the difference between source code versus object code.

c) Describe compatibility and connectivity of computer systems.

For example: Identify basic considerations when working with communication software, networking, ports, keyboard emulating interface, SCSI, etc.

1.3.E Understand person-to-device interface and access.

a) Describe available input control systems.

For example: Compare and contrast input methods such as scanning versus direct selection. Explain input systems such as touch window, voice recognition, selection methods, virtual keyboard input, acceleration software, braille input system, infrared and ultrasonic head pointing, and input transducer types (e.g. switches, analog controls, special sensors).

b) Describe available output control systems.

For example: Explain the use of output control options such as speech synthesis, screen readers, enlarging software, tactile displays, transcription, translation, environmental controls, refreshable braille displays, and the integration of the various systems.

c) Describe safety considerations for interface systems.

For example: Explain considerations for discrete versus continuous control for robotics, proportional speed control for wheelchairs, dead-man switches, and panic switches.

d) Describe application principles and alternatives for mounting interface systems.

For example: Explain considerations for mounting switches, or using a modified keyboard, voice recognition microphone, or an augmentative communication device.

e) Describe the principals of ergonomic analysis.

For example: What should be considered when evaluating a person's optimal position for using a computer?

f) Describe a systems approach to application of multiple assistive technologies for any individual with severe disabilities.

For example: What should be considered when recommending a powered wheelchair, augmentative communication device, and environmental controls?

1.3.F Understand mechanical and material properties.

a) List and describe mechanical principles.

For example: Define terms such as stress, strain, elasticity, ductility, transitional and rotational movements, angular movements, torque, momentum, inertia, and power. Describe why such terms are relevant to assistive technology (e.g., where can I drill a hole?).

b) Describe properties of materials.

For example: Define materials such as polymers, metals, and ceramics. Explain why factors such as temperature, humidity, and compatibility of materials should be considered in assistive technology service delivery.

c) Describe safety functions of mechanical systems.

For example: Explain technical solutions for common failures, common hazards, and flammability.

d) Describe application trade-offs in the choice of technology.

For example: Explain how the choice of material or design relates to function (e.g., folding versus rigid frame).

1.3.G Understand electrical and electronic principles.

a) Describe basic electrical parameters.

For example: Define terms such as voltage, current, power, frequency, amplitude, and resistance.

b) Describe basic electronic components.

For example: Define terms such as amplifiers, transducers, receivers, transmitters, connectors, filters, transformers, and chargers.

c) Describe safety considerations of electrical systems.

For example: Describe how to prevent shock, common hazards, and failures.

d) Describe electrical power sources.

For example: Compare and contrast power sources such as AC, DC, and transformers.

e) Describe electro-mechanical components.

For example: Describe components such as solenoids, motors, relays, and speakers.

1.3.H Understand the characteristics of technology in relationship to users.

a) Identify user's needs and wants that can be addressed through design elements.

For example: Identify key features of technology (expressed and implied) as they relate to users.

b) Translate a set of recommendations for technology into a set of specifications to be ordered.

For example: Describe a device (using a purchase order or drawings) based on a set of recommendations and performance criteria.

c) Identify and interact with the provider of the technology or perform the fabrication service.

For example: Select the appropriate resource for a given product or service.

d) Interact with other assistive technology professionals as needed.

1.3.I Understand the relationship between technology and its environment.

a) Identify the key environmental considerations to be addressed with the design of a specific technology.

For example: Identify expressed and implied product features as they relate to the user's environment (e.g., a stated number of degrees of incline a three-wheeled scooter can climb, the implications of an ad of a three-wheeled scooter in the mountains, etc.). Evaluate key features and how well they meet the environmental

needs of the target audience (e.g., can a product designed for farmers perform reliably in the intended environment).

1.3.J Know how to problem solve and integrate technical and functional information.

a) Describe available technology solutions for broad functional disability issues.

For example: Describe standard and specialized assistive technology solutions for a specific category of needs. Evaluate how well the key features of a product meet the needs of the target group (e.g., can individuals with quadriplegia see the display, operate the controls, and perform all steps involved in the activity). Identify "mainstream" (i.e., general market) technologies in terms of the functions they can provide.

b) Identify custom technology solutions.

For example: Describe how various devices can be modified to meet functional needs. Describe the functional outcomes of various custom fabrication solutions.

2. Role: IDENTIFYING FUNCTIONAL LIMITATIONS THAT CAN BE ACCOMMODATED AND STRENGTHS THAT CAN BE FACILITATED THROUGH THE APPLICATION OF ASSISTIVE TECHNOLOGY.

2.1 Tasks

a) Assist the consumer in identifying goals.

b) Assess ability and functional deficits as they relate to the use of assistive technology.

c) Assess the environmental impact, both physical and social as related to the use of the assistive technology.

d) Anticipate future needs and ability levels, including changing and additional needs.

e) Refer to other professionals when appropriate.

f) Integrate all the assessment information into comprehensive recommendations.

2.2 Skills Required

Ability to:

a) Read, understand, and interpret appropriate records (e.g., medical, educational, or vocational), assimilate information, and plan evaluation.

b) Interview the consumer, family, caregivers, and other team members to identify the person's goals and plans for the future.

c) Identify the activities that are involved in achieving the goals.

d) Select appropriate tools to evaluate the consumer and his or her environments, or know a referral source for the needed evaluation.

e) Integrate the assessments (possibly from multiple sources) of the consumer's level of motivation, emotional status, technology tolerance, and interpersonal relations as they relate to the consumer's technology goals.

f) Read, understand, and interpret reports from other disciplines to evaluate the motor, sensory, language, speech, cognitive, and perceptual functions as they relate to the consumer's technology goals.

g) Evaluate the consumer's ability to function in his or her environments (e.g., in the home, educational, vocational, community, and recreational settings).

h) Evaluate the social and physical characteristics of each environment.

i) Identify the types of devices the consumer needs for communication, mobility, environmental control, sensory, and cognitive functions and how the multiple devices interact with each other.

For example: Will a new wheelchair accommodate an existing mounting system for a communication device, or will the new wheelchair work in the consumer's transportation system.

2.3 Knowledge Base Required

2.3.A Understand human anatomy and physiology.

a) Describe the neurological and musculo-skeletal elements common to specific functional movements.

For example: Identify muscle groups. Classify joints. Define sensory elements.

b) Describe the cardio-pulmonary elements necessary for functional activities.

For example: Explain measures of exertion, cardiovascular and respiratory capacities, and components of the systems (musculature, lungs, vessels, etc.).

c) Describe the properties and characteristics of soft tissues, especially the skin.

For example: Explain elasticity and tissue distortion. Define normal and shear forces as they relate to skin integrity.

d) Describe the central and peripheral nervous systems.

For example: Identify the role of the vestibular, visual, oculomotor, and auditory systems. Explain the elements of integrative functions such as postural control.

e) Describe the functional characteristics of speech, language, and communication.

For example: Describe the coordination of respiratory, phonatory, and articulatory systems for speech production. Describe different methods of communication other than speech.

2.3.B Understand psychological and social aspects of human behavior.

a) Describe the functional characteristics of cognition and perception.

For example: Define perception versus real sensation. Explain attention span and memory. Describe impact of oculomotor and environmental factors.

b) Describe the functional characteristics of motivation.

For example: Outline factors that may influence motivation, such as financial status, novelty, depression, substance abuse, peer pressure, and other psychological factors.

c) Describe the functional characteristics of value systems and interpersonal relations.

For example: Outline factors that may affect outcomes such as family, culture (e.g., national, religious, institutional) and other social factors. Identify different types of values and intensity of values.

d) Describe normal learning styles.

For example: Describe how learning styles differ in children, adults, and elderly people. Explain how sensory impairments may affect learning. Describe learning disabilities.

2.3.C Understand elements of kinesiology and biomechanics.

a) Describe the mechanical principles related to human posture and movement.

For example: Explain lever systems, torque, and inertia in terms of human movement.

b) Describe kinesiological principles of human posture and movement.

For example: Define biomechanics. Demonstrate how to apply mechanical and anatomical considerations in relation to posture and gait.

2.3.D Understand disability sufficiently to be able to formulate and apply solutions.

a) Describe the most common etiologies leading to disabilities.

For example: Compare and contrast etiologies such as trauma, congenital deformities, and disease.

b) Describe the implications of common pathologies that lead to dysfunction.

For example: Describe the possible solutions and reasonable expectations for a given pathology. Describe how this may change given the extent of the pathology.

c) Describe the implications of social, cultural, and environmental factors on disabilities.

For example: Explain how factors such as family, culture, ethnic background, values, and religion may affect outcomes. Explain how the environment (e.g., cold weather) may affect outcomes.

d) Describe the implications of the interaction between extrinsic and intrinsic factors on a functional prognosis.

For example: Identify the interrelated aspects of disability, environment, and motivational influences.

e) Describe the functional progression of common disabilities, deformities, and diseases.

For example: Outline the progression of diseases such as multiple sclerosis and muscular dystrophy, including the resulting disabilities. Outline possible consequences of disabilities such as cerebral palsy and spinal cord injury. Outline the progression of deformities when uninterrupted by the intervention of technology or other modalities.

2.3.E Understand normal and abnormal development.

a) Define terminology related to normal and abnormal development.

For example: Explain how fine motor and gross motor development differs.

b) Describe the key elements of normal and abnormal development from infancy through old age.

For example: Identify basic developmental stages in the areas of gross motor, fine motor, oral motor, language, speech, cognitive, and sensory functions.

c) Describe factors that may affect normal and abnormal development.

For example: Explain how age, general health, psycho-social, and cultural factors may affect development. Identify disabilities and diseases that frequently affect development.

2.3.F Know when to obtain an assessment of abilities in the areas of gross motor, fine motor, oral motor, sensory, cognitive, language, speech production, and psycho-social functions.

a) Describe standard assistive technology assessment methodologies.

For example: Describe the process, including the interview, objective evaluation, assessment, and goal setting. Explain the importance of factors such as objectivity, reliability, validity, and relevancy.

b) Identify standard assistive technology assessment terminology and procedures, or which disciplines perform which assessments.

For example: Identify tests or the disciplines that assess for range of motion; muscle strength; coordination; skill level; auditory and visual perception; speech production, receptive and expressive language; motivation; attention; comprehension; compensation and accommodation; memory; and learning. For each area describe who, why, what, and when to test. Explain when to refer to other professionals for tests.

2.3.G Understand how to perform a task analysis.

a) Explain how to analyze a task.

For example: Describe how to identify and sequence components of a specific task.

2.3.H Know principles of human factors/ergonomics.

a) Describe basic human-factors and ergonomic principles.

For example: List basic principles. Explain how abilities, tasks, and environments are interrelated.

b) Apply human-factor and ergonomic principles to temporary, acute conditions.

For example: Describe, analyze, and recommend solutions to work-related injuries such as low-back pain, and repetitive-motion injuries.

c) Apply human-factor and ergonomic principles to disability-related conditions.

For example: Describe, analyze, and recommend solutions for work-site modifications for people with visual and auditory impairments.

2.3.I Know the types of measurements of physical conditions and performance, and how to relate the results to consumers' environments.

a) Identify the evaluation tools available.

For example: List the tools and identify their functions (e.g., observation, tape measure, level, adjustable tables and seats demo equipment), goniometer, computer with special software to measure speed and accuracy of performance, etc.). Identify specific tools to be used in a given situation.

b) Understand the use of evaluation tools.

For example: Identify which measurements are taken with what tools. Describe how measurements can be used to establish recommendations.

3. Role: DEVELOPING AN INTERVENTION PLAN TO MAXIMIZE A CONSUMER'S CAPABILITY IN ALL SETTINGS.

3.1 Tasks

a) Develop team goals and recommendations with the consumer (to be used in the justification documentation).

b) Develop technology specifications (to be used for the development of the prescription or final ordering process).

c) Help to secure funding.

d) Help to procure the appropriate equipment and services.

3.2 Skills Required

Ability to:

a) Synthesize the assessment results and identify priorities of the team.

b) Evaluate pros and cons of different intervention strategies, including reasonable compromises.

c) Evaluate possible technology solutions during appropriate equipment trials.

d) Select the appropriate interventions to accomplish goals.

e) Write a clear report of the assessment.

f) Specify the equipment and related services, and obtain necessary prescriptions or other required paperwork from outside sources.

g) Prepare proper documentation for funding, including evaluation results (with expected outcomes) and justification reports or letters.

h) Order the equipment and related services.

i) Help the funding advocate or coordinator with follow-up, including appeals if needed.

j) Manage the many phases of in the process of providing appropriate technology and services.

3.3 Knowledge Base Required

3.3.A Know how to develop an intervention strategy.

a) Describe the team process.

For example: Identify the members of the assistive technology team (including the consumer, family, and caregivers). Identify indirect members of the team.

b) Define different intervention strategies.

For example: Explain why an appropriate intervention may be technology, training, medicine, surgery, therapy, education, or counseling.

3.3.B Know which resources are available to the user.

a) Identify funding resources.

For example: Explain how to identify and locate available funding sources for individual consumers.

b) Describe the role of the funding source as it relates to the assistive technology team.

For example: Describe how the funding source can affect evaluation and decision making.

c) Identify services and facilities that may be helpful to the user.

For example: Describe the role of consumer advocates and peer groups, and how to locate them.

3.3.C Understand the range of possible solutions and outcomes.

a) Identify possible outcomes based on assessment results.

For example: List and describe possible outcomes, such as the ability to communicate, remain seated, return to work, access education, be independent in activities of daily living, or no change.

b) Identify the solutions that may help accomplish the desired outcomes.

For example: List and describe different system solutions (a system includes the devices, training, local resources, etc.).

c) Identify extrinsic constraints and limitations which impact potential solutions.

For example: Explain different factors that may affect the outcomes such as cost, available funding, and environmental factors (e.g., snow, rain, rural, city, desert, and physical space). Compare commercial and custom solutions.

3.3.D Understand the interdependencies between interventions when multiple needs exist.

a) Describe the relationship between therapy and assistive technology interventions.

For example: Explain when it may be appropriate to intervene with therapy, technology, or a combination of both.

b) Describe the interaction among various technologies in solving a consumer's problems.

For example: Develop a plan for integrating a seating system with an augmentative communication device or a prosthesis with a wheelchair.

c) Describe the trade-offs and constraints in formulating an optimal solution.

For example: Identify the steps involved in the process of selecting a solution, such as listing alternatives, setting priorities, and selecting the optimal solution.

3.3.E Understand the advantages and disadvantages of different service delivery models.

a) List and describe the most common service delivery systems.

For example: For consumer-assessment or intervention, compare and contrast a "center-based" model versus a "community-based" model. For sales, compare and contrast a model where clinics sell direct versus through an independent supplier.

b) Describe different strategies for service delivery.

For example: Explain how case histories can be helpful. Identify alternative service delivery models. Describe how to find out which systems are available within a given state.

3.3.F Understand the roles, constraints, and perspectives of manufacturers regarding assistive technology.

a) List the major components that contribute to the cost of a product.

For example: Describe the standard costs of doing business, such as cost of manufacturing, design, marketing, sales demonstrations, product liability, and service support.

b) Identify appropriate resources within companies.

For example: List contact points (job titles and departments) for warranties, grievances, new ideas, prices, custom work, technical support, etc. Describe organizational structures and common distribution systems for manufacturers. Identify other manufacturers' resources such as brochures, videos, catalogues, and technical documents.

c) Identify the appropriate supplier or manufacturer to use for a given consumer.

For example: List and explain the importance of a supplier's or manufacturer's responsiveness, delivery times, customer support, etc.

3.3.G Understand the roles, constraints, and perspectives of distributors and suppliers.

a) Compare the roles of suppliers, distributors, manufacturers' representatives, and manufacturers.

b) Describe the cost of a supplier's support activities for a specific consumer.

For example: Estimate the costs of a demo call, demo equipment, paper work for insurance, and phone calls; in addition to the fixed costs such as accreditation and liability insurance.

c) Identify the important issues involved in interactions with the suppliers or distributors of technology.

For example: List what to look for in a responsible supplier or distributor.

3.3.H Understand the roles, constraints, and perspectives of designers and fabricators.

a) Explain the roles of designers and fabricators versus manufacturers and distributors.

b) Identify the major components that contribute to the cost of custom products.

For example: Identify factors such as the cost of custom versus mass production, liability and malpractice insurance, warranties, etc.

c) Describe how to communicate successfully with designers.

For example: Demonstrate how to write clear directions for fabrication of a product.

3.3.I Understand the role, constraints, and perspective of payors.

a) Describe different categories of payors and what they fund.

For example: Identify different payment sources such as public health insurance, trust funds, benevolent societies, public schools, private insurance, vocational rehabilitation and other state or provincial agencies, and Veteran's Administration and other federal agencies. Describe which populations are served by different programs. Describe what types of technology they may fund.

b) Describe how to communicate with different funding sources.

For example: Explain how reimbursement processes are set up, including standard procedures, forms, codes, etc. Describe appropriate and inappropriate terminology and justifications for different funding sources. Outline how to write a medical justification letter or report.

c) Describe the different types of procurement systems of various payors.

For example: Bid systems, co-payments, deductibles, etc.

3.3.J Understand the basic laws, regulations, and policies; the processes for applying them; and the procedures for appeal.

a) Name and describe major underlying legislation and regulations related to funding of technology and related services.

For example: In the U.S. identify major laws such as the Rehab Act, the Americans with Disabilities Act (ADA), Individuals with Disabilities Education Act (IDEA), and the Tech Act. Explain how their regulations affect service delivery.

b) Understand insurance policies and consumer's rights.

For example: Describe the different types of insurances (e.g., indemnity, managed care, HMO, PPO, etc.). Describe the difference between a policy, its benefits, and its implementation. Define the role of case managers. Identify advocates and advocacy programs for consumer protection (general and special).

c) Describe the appeal process for major funding sources.

For example: Define the appeal processes for different payors. Explain how to prevent appeals by including payors or their representatives (e.g., case managers) on the team. Describe how to give testimony at a hearing.

4. Role: IMPLEMENTING THE INTERVENTION TO ACHIEVE MAXIMUM CAPABILITY.

4.1 Tasks

a) Receive the equipment and deliver it to the consumer.

b) Assure that the consumer, family, and caregivers know how to use and maintain the equipment.

c) Plan for appropriate follow-up.

4.2 Skills Required

Ability to:

a) Receive equipment and check that all items meet specifications.

b) Assemble equipment and assure that it functions as intended.

c) Deliver equipment to the consumer and fit it properly. (If assembled by the supplier, schedule a joint appointment with the supplier to do the delivery, ensuring correct specifications and operation of the device.)

d) Train the consumer, family, and caregivers on how to use equipment.

e) Train the consumer, family, and caregivers on necessary maintenance and what to do in case of breakdown.

f) Inform consumer, family, and caregivers of the general and specific safety concerns and procedures.

g) Prepare plan for follow-up.

4.3 Knowledge Base Required

4.3.A Know sequence of activities or functions required to deliver technologies.

a) Know how to perform basic quality control checks on new equipment.

For example: Describe the fundamental steps of quality control. Explain why new products should be checked upon delivery, after assembly, and during long-term follow-up.

b) Know how to integrate components to develop a system.

For example: Know how to assemble the system that was ordered.

4.3.B Understand the need for maintenance and repairs of specific technologies.

a) Identify contractual maintenance and repair commitments.

For example: Explain the strengths and weaknesses of a given warranty or service contract. Develop a warranty or service contract for a custom product.

b) Describe obligations under a contract.

For example: Write procedures that ensure communication about service responsiveness, lead time on replacements, insurance, etc. List criteria for quality maintenance and repair services.

4.3.C Know how to mount, adjust, or program the equipment for optimal consumer use.

a) Describe the process of fitting a piece of equipment to a consumer.

For example: Explain considerations for fitting and fine-tuning the technology to the consumer and his or her environments.

4.3.D Know how to integrate training in an implementation plan.

a) Describe the components of a training program.

For example: Identify the components of a training program for a consumer, caregivers, teacher, and parent. Describe training programs for how to operate a device and how to maintain it.

b) Demonstrate how training strategies e in an overall implementation plan.

For example: Identify implementation plans such as IEPs and IWRPs. Describe how such plans can help accomplish the training objectives.

4.3.E Understand how to use the implementation plan.

a) Communicate with people who are vested in the plan.

For example: Identify the different interests of caregivers, payors, therapists, consumers, and families. Describe different methods of communication such as meetings, clinics, phone calls, and IEP and IWRP conferences.

b) Describe the rationale for recording and evaluating the implementation plan.

For example: Describe the rationale for keeping records. Explain the benefits of different record keeping methods such as archival records, legal records, photos, and videos.

5. Role: EVALUATING FUNCTIONAL OUTCOMES OF THE PLAN, MAKING APPROPRIATE ADJUSTMENTS, AND RESPONDING ACCORDINGLY.

5.1 Tasks

a) Evaluate and report outcomes.

b) Provide appropriate follow-up.

c) Evaluate the process of service delivery (program evaluation).

d) Apply principles of quality assurance (QA) and continuous quality improvement (CQI).

5.2 Skills Required

Ability to:

a) Interview the consumer, family, and caregivers to determine if the equipment meets their needs.

b) Observe or get feedback about the consumer's performance with the technology in various settings.

c) Participate in functional assessments to determine if the equipment delivered is meeting the consumer's needs.

d) Make necessary changes or adjustments to the equipment to improve outcome.

e) Provide any additional training that may be needed to improve outcome.

f) Make necessary changes to the service delivery process to improve future outcomes.

5.3 Knowledge Base Required

5.3.A Know what constitutes a functional assessment.

a) Describe criteria for judging the consensus success or failure on a continuum.

For example: Explain the importance of having identified the expectations of all team members.

b) Evaluate the consumer using the technology, in all appropriate settings.

For example: Describe which measures to take to assess the quality of task completion, acceptance, use of technology, comfort level, etc.

c) Compare expectations and results.

For example: Describe how the evaluation plan is part of implementation. Given a case study: identify changes from the initial plan; review how well expectations were met from the perspective of consumer, caregivers, assistive technologist, vocational counselor, and others; and explain outcomes.

5.3.B Assess the service delivery process for a consumer.

a) Describe the basic principles of program evaluation and quality assurance.

For example: Explain how to develop objectives, use measures, analyze results, and make changes to the service delivery process.

b) Describe the need for and how to incorporate external review.

For example: Describe factors to be considered such as demographics, data collection on individuals, average number of treatments, types of technology related to functional outcomes, CQI, and timeliness of paperwork. Explain how to act and make changes based on external reviews.

c) Understand how to integrate program evaluations into a larger process.

For example: Explain how program evaluations can contribute to the development of national indicators, outcome measures, standards, and other.

d) Describe the principles for preparing a "customer satisfaction" survey questionnaire.

Testing of "Skills Required"

To demonstrate their skills, service delivery professionals can, for example:

- Complete an internship.
- Record a video of the service delivery process for one or more consumers.
- Write a protocol for one or more consumers.
- Problem solve case studies (provided on paper, video, or interactive computer disk).
- Take practical exams.
- Document past successes with recommendations and testimonies.
- Some or all of the above in any combination.