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Primary Care for Persons with Disabilities: Access to Assistive Technology:

Guidelines for the Use of Assistive Technology: *Evaluation Referral Prescription*

Preface

In November of 1993, the American Medical Association (AMA) convened two focus groups, one with consumers and one with allied health professionals, to address the barriers faced by physicians and their patients with disabilities when dealing with assistive technology. The concerns of the focus groups were presented to the Assistive Technology Advisory Panel at a meeting held in January 1994 to develop the *Guidelines for the Use of Assistive Technology: Evaluation, Referral, Prescription*.

These Guidelines were developed for primary care physicians to help them efficiently and effectively meet the needs of their patients with disabilities. While the explosive growth of technology, both devices and services, has opened doors to greater independence for patients, it is accompanied by increased management and paperwork burdens for physicians. The Guidelines are intended to serve as a quick reference and resource, with the goal of clarifying and organizing the evaluation, referral, and prescription process.

The American Medical Association, Department of Geriatric Health gratefully recognizes the work of staff editors/authors Joanne G. Schwartzberg, MD, V. Kiki Kakavas, MA; Sheila Malkind, MA, MPH, and the able assistance of Peter Furey, MPH, Carolyn Change, and Myung-Sook Chung, MPH, PhD.

In addition to the work of the focus groups and advisory members (see listing on p. 58), the American Medical Association appreciates the assistance on this project of Barbara Gullet, MSE; James Hardy, PhD; Deborah Parker-Wolfenden, M Ed; Rachel Wobschall, MA; Mark Schultz; William C. Mann, PhD, OTR; Jan Little; Jan Galvin; Josephine Holzer; Scoti A. Kaesshaefer.

This report is not intended as a standard of medical care. Standards of medical care are determined by the facts and circumstances of an individual case. Standards change as the art of medicine, scientific knowledge, technology, and patterns of practice evolve.

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Definitions [8,9]

Disease: A pathological condition of the body with a unique set of signs and symptoms.

Impairment: Loss and/or abnormality of mental, emotional, physiological, or anatomical structure or function, including pain. Impairment occurs at the level of organs or organ systems.

Functional Limitation: Restriction or lack of ability to perform an action or activity in the manner or within the range considered normal because of impairment. Functional limitation occurs at the level of action or activity performance of an organ or organ system.

Disability: Inability or limitation in performing tasks, activities and roles to levels expected within physical and social context. Disability occurs at the level of task performance by the individual in a physical and social context.

Societal Limitation: Restrictions attributable to social policy or barriers (structural or attitudinal), which limit fulfillment of roles or deny access to services and opportunities that are associated with full participation in society.

*P*rimary Care for Persons with Disabilities

Primary Care for Persons with Disabilities includes evaluating the need for and use of assistive technology.

Longitudinal medical care has as its goal minimizing the limiting effects of the disability and maximizing functional outcome.

Who Is at Risk and Who Can Benefit [1-3]

- 49 million Americans (one in five) have ongoing disabling conditions. The average American will live almost 13 years with some sort of activity limitation.
- More than 9 million people have physical or mental conditions that keep them from being able to work, attend school, or maintain a household.
- Improvements in acute medical care and increasing longevity are increasing the numbers of persons with disabilities. People are aging with disabilities or aging into disabilities, as are the caregivers.
- Disabilities are disproportionately represented among minorities, the elderly, and lower socio-economic populations, but cut across all socioeconomic levels.
- Disability is greatest among children living in poverty and in female-headed households.

When a Physician's Care Is Needed [4-7]

- Whether or not a person receives medical rehabilitation depends significantly on the physician's recommendation - both for serious and less serious injuries and conditions. The referring physician is most likely to be a primary care physician (68% of less serious cases; 72% of more serious cases).
- Over one third (35%) of Americans with serious illness, injury or birth defect do not receive medical rehabilitation treatment. Sixty-six percent of these disabled Americans report that they did not receive rehabilitation because their doctors did not recommend it.
- General practitioners are the most commonly reported source of information on disability services but have been shown to have minimal knowledge of assistive technology.
- Most physicians refer to rehabilitation only patients whom they believe require long-term comprehensive treatment.
- Physicians are less likely to refer older patients for medical rehabilitation services.

What Is Involved [1,8-15]

- More than 13.1 million people, about 5.3% of the population, were using assistive technologies in the US, according to the 1990 National Health Interview Survey on Assistive Devices conducted by the Census Bureau.
- From 1982 through 1989, use of assistive technology devices and housing modifications to ease disability among older people increased sharply, while at the same time the use of personal assistance services declined. Reliance on equipment only was higher for women than for men and was highest at younger ages.
- A recent study showed that the mean number of assistive devices owned by the elderly was 14. Of these, 79% were in use and 72% were described as satisfactory. Even so, findings indicate that older persons who use assistive devices have limited information about them.

An assistive technology device is 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 capability of individuals with disabilities.[11]

An assistive technology service is any service that directly assists an individual with a disability in the selection, acquisition, or use of an assistive technology device. [11]

Why It Is Necessary [1, 16]

- Chronic conditions increase a person's risk of disability.
- An estimated 80% of the elderly have a chronic condition, and about 40% have some form of activity limitation caused by chronic conditions.
- Among children under 18 years of age, 3.1% have a physical, mental, or emotional disability.
- The epidemiology of disability is quite different for children than for adults.
- There is a potential for rehabilitation, improvement, and maintenance of function.
- People with disabling conditions are often at risk of developing secondary conditions that can result in further deterioration in health status, functional capacity, quality of life, and independence.
- Assistive technology promotes personal independence and helps prevent costly secondary conditions and otherwise unnecessary institutionalization.
- Lack of use or improper prescription and/or use of assistive devices is expensive and demoralizing, and increases the risk of injury and disability.
- Annual disability-related costs to the nation total more than $170 billion.

Where to Start

- You can start every time a person with a disability comes into your office.
- During every physician-patient encounter there needs to be a screening or mini-evaluation.[17] Physical needs change with the normal aging processes and can impact directly on person/environment fit.
- Ask the patient about his/her experience and current knowledge of assistive technology devices and services.

How to Implement

- Listen and incorporate the patient's knowledge and preferences into an individualized plan of care.
- Arrange for referral to interdisciplinary team members (see "Selection for Referral or Consultation" on p. 12).
- Ensure patient education from professionals and self-help consumer organizations.
- Make the office accessible to persons with disabilities.
- Ensure appropriate attitude of all staff when communicating with patients with disabilities.

Role of the Physician

Basic medical care includes an integrated approach that uses preventive, acute, and rehabilitative modalities for optimal patient outcomes. The physician's role includes the following:

- Recognition of the importance of independence and the essential need to promote function to maintain independence.
- Recognition of the disability as a primary focus of care, irrespective of disease processes.
- Basing medical decisions on core knowledge of disease and disability, assessment skills, and appropriate use of consultants and interdisciplinary team members.

- Sensitivity to patient needs and preferences.
- Identifying patients who can benefit from rehabilitation and assistive technology.
- Assessing the impact of specific impairment within the patient's total environment and lifestyle.
- Monitoring the effects of the disability over time and in relation to any acute or chronic disease process.
- Encouraging the patient to achieve and maintain a maximum level of function.
- Continuing the relationship with an interdisciplinary team that includes the patient.
- Providing individualized treatment that is sensitive to cost-effectiveness concerns.
- Recognition that both low-technology and high-technology assistive devices, environmental modification, and task modification can be highly successful in enhancing function and independence.
- Knowledge of local community resources for technology and support, and how to refer to these resources.
- Establishment/approval of a plan of treatment with identification of both short-term and long-term goals.
- Documentation and provision of letters of medical necessity to enable the patient to obtain necessary equipment and services.
- Reassessment of treatment plan: outcomes, effectiveness, and quality of care.

The Physician-Patient Relationship [18,19]

A collaborative long-term partnership should be established from the first visit. Patients with disabilities have special expertise necessary for the success of the medical and assistive technology interventions. Individuals often possess intimate knowledge of their goals, preferences, support systems, and functional needs for independence, which physicians must become fully aware of before treatment.

Discussions with the patient will probably include the following:

- Effect of the disability and treatment options on the patient's daily functioning and lifestyle.
- Patient's goals.
- Existing support systems, and the daily role of such systems in daily living.
- Tasks that the patient and/or caregiver will be expected to perform.
- Stress and burdens arising from the disability and methods to relieve such stress for the patient and caregiver(s).
- Potential for rehabilitation, improvement, and maintenance of function.
- Importance of monitoring the condition(s) by the patient and caregiver(s).
- Early signs of instability or deterioration that should be reported to the physician.
- Improvements in function or condition that should be reported to the physician.

The following steps help to establish good communication:

- Plan ahead as to communication needs.
- Relax and take the time to meet the patient; do not rush the patient when asking questions or listening to problems.

- Speak directly to the patient.
- Introduce yourself and everyone else in the room (this is especially important for patients with impaired vision).
- Face the patient when speaking and speak clearly. If you must wear a mask, remember that your voice is muffled and that the patient now can't lip read.
- Be aware of the patient's mode of communication: oral/lip reading, American Sign Language (ASL), signed English, need for an interpreter, etc.
- Always explain what you are going to do before you do it.
- Do not assume the patient has understood what you have said; ask him or her to repeat or summarize.
- For patients with mobility impairments, listen to their directions before assisting them (eg onto the examination table).

Persons with disabilities have usually received care from many different physicians. They have frequently been exposed to the best and the worst of health care delivery and their primary care physician needs to be aware of their prior experiences and how these continue to influence their decisions and lifestyles.

Persons with disabilities are among the most frequent users of physician services. They are five times more likely to make more than 20 visits to physicians per year than are persons without functional limitations.[2] In addition to dealing with the acute problem(s) that bring the patient to the office, the primary physician has the opportunity to monitor closely the disability process and the outcomes of the current treatment plan. This constant monitoring and reassessment are essential to provide optimal care.

Core Knowledge

Physicians should be familiar with the demographics and cultural issues of disability, especially in terms of the aging of our society and the nature of chronic diseases. In addition, physicians must be aware of the vast array of assistive technology devices and services presently available in order to provide appropriate primary care to persons with disabilities. The necessary core knowledge on which to base medical decisions includes the following:

Demographics and General Information

- Age, aging, and chronicity
- Nature of types of functional loss
- Epidemiology
- Natural history of disease
- Effects of chronic and acute illness(es), and medication, on potential function
- Common chronic problems affecting disability

Patient Assessment

For specific details refer to pages 6-13.

- History and physical examination
- Functional assessment

Technology Assessment

- Uses (refer to p. 9)
- Categories (refer to p. 9)
- Matching the patient to the device (refer to pages 20-22)

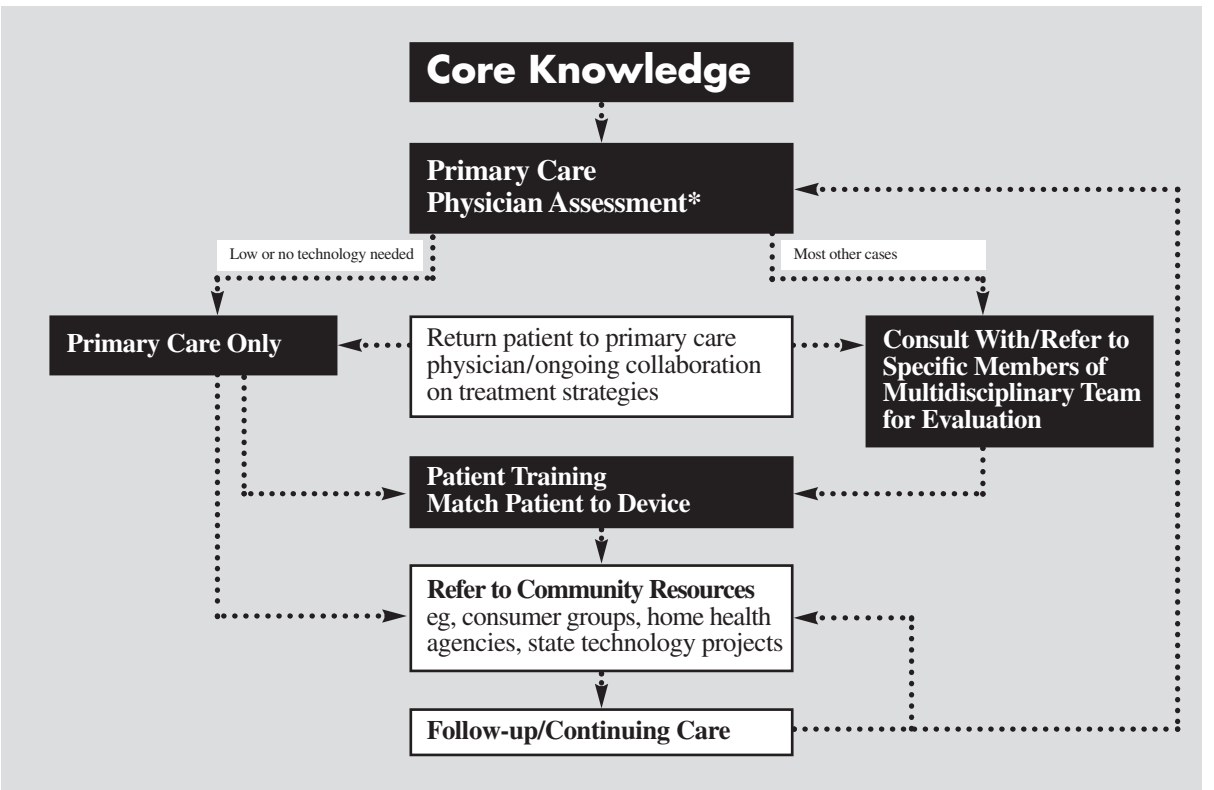
Rehabilitation Process

For specific details refer to pages 19-20.

Team Concept

For specific details refer to pages 13-18.

- Rehabilitation team member definitions, responsibilities, roles, and relationships
- Customized Teams
- Communication



* Primary care physicians are usually the first to see a person with functional limitation and determine if/ when/by whom assessment will be done. Their longitudinal care responsibilities include acting as a skilled observer of progress, monitoring maintenance of skills, and advising the team of new or changed health care status and loss or change of support systems.

Resources and Funding

- Services (refer to p. 26)
- Practitioners (refer to p. 26)
- Products (refer to p. 27)
- Prescription and certification of medical necessity (refer to pages 37-38)
- Documentation in the medical record (refer to p. 38)
- Access to Funding Resources (refer to p. 40)
- Funding sources for assistive technology (refer to p. 41)

Patient Assessment

Care for people with disabilities requires a thorough assessment of functional performance, medical problems, patient home/school/community/work environment, and their interactions. Physicians who treat people with disabilities should be aware that personality, prognosis, diagnosis, environment, functional level, psychosocial status, culture, and economics impact the results of any intervention, and a comprehensive assessment of all contributing influences should be undertaken accordingly.

Focus on Function

- Goal: enhancing independence and identifying people at risk
  - Improving function
  - Maintaining function
  - Preventing decline
- Time intensive — best accomplished in multiple sessions
- Importance of valuing ultimate capabilities and capacities, not focusing on present disabilities
- Limits of assessment in the office
  - What patients really do or are capable of doing may be hard for them to report accurately in a medical setting. They may overestimate or underestimate their abilities.
  - Functional Assessments in the office may be limited by space, time, and equipment and may not reflect accurately what the patient can accomplish.
  - Assessment in the home by the physician or other health professionals can provide needed objective information.

Importance of Medical Approach

- Clarification of medical conditions
- Identification of conditions amenable to rehabilitation, or that limit rehabilitation
- Identification of current treatment that limits rehabilitation or interferes with function
- Identification of risk factors for complications

Patient Examination and Evaluation

History and Physical Examination

History should clarify medical conditions

- Identify those that could be disabling
- Identify those that could limit rehabilitation

History should cover the following, in addition to chief complaint and review of systems:

- History of problems
  - The physician needs to ask if there are any problems.
  - Patients may not perceive a problem as such; they may consider it 'normal' or not abnormal.
- Medications
  - Primary or secondary effects that could impede function
- History of disability
- History of use of assistive technology devices and services
- History of personal assistant use
- Social and family history
  - Work, school, social lifestyle, including sexual history
  - Status changes in relationships and availability of caregivers and other supportive people
  - Status changes in living situations
  - Psychosocial impact of disability on patient and family
  - Patient's readiness and preparation for independence
- Financial and other resources
- Physical examination may be focused on one problem area or several problems, or may be comprehensive. It should include objective evaluation of the patient's function and physical performance.

Functional Screening/Assessment

Focus on level of ability and how the person accomplishes specific tasks.

A functional screening is considered part of every physician-patient encounter, may be brief or comprehensive, and may include the following:

- Review of systems
  - Sensory (hearing, vision, smell, touch, taste)
  - Cognitive/perceptual
  - Activities of Daily Living (ADL)
    - Ambulation
    - Bathing
    - Toileting
    - Transfers
    - Dressing
    - Grooming
    - Eating
  - Instrumental Activities of Daily Living (IADL)
    - Shopping
    - Transportation
    - Using telephone
    - Managing money and medications
    - Cleaning house/cooking

- Mobility
  - Balance and coordination
  - Strength and endurance
- Environment
  - Home
  - School
  - Work
  - Community
- Communication
- Vocational status
- Educational status
- Recreational needs
- Transportation needs
- Community interactions

• Examination
- Mental status (all rehabilitation requires learning)
  - Cognition
  - Addiction
  - Mood and affect
  - Motor planning
- Sensory
  - Vision
    Reading of newsprint or children's book
    Hand-held Snellen chart
  - Hearing
    Whisper test
    Audioscope
  - Special senses
    Proprioception
    Vibration
    Temperature
- Functional range of motion
  - Hands behind head
  - Pinch paper
  - Hands behind back
  - Sitting, touch toes
  - Squeeze two fingers
- Mobility
  - "Get up and go" test
  - Get up from floor
  - Climb stairs

• Awareness of quantitative tests and measurements

- Use of formal scales/assessment instruments, both brief/screening and extensive/detailed. A few examples are listed below:
  - Mental — Mini-Mental State Examination,[20], Geriatric Depression Scale (GDS),[21] etc
  - Functional — KATZ ADL Scale,[22] Tinetti Balance and Gait Evaluation Scale,[23] etc
  - Other — Barthel Self-Care Index,[24] Functional Independent Measure,[25] etc
  - Also see *Guides to the Evaluation of Permanent Impairment*[9]
- The physician usually performs a brief screening test in the above areas and refers the patient to the appropriate member of the health care team for in-depth evaluation, as indicated.

Evaluation and Prescription of Assistive Technology

Strive for Simplicity

- For the most cost-effective assistive device or program that will achieve the required function

- For realistic goals and expectations

Physicians and their patients with disabilities need to be aware that there are often easier ways to do things before opting for assistive technology. Sometimes compensatory strategies such as restructuring daily tasks or modifying environment are better than adding a device.

The use of assistive technology is not an end in itself, but is a part of an ongoing therapeutic process to achieve maximum function.

Uses of Assistive Technology

- Prevention
- Remediation
- Augmentation
- Substitution

Categories of Assistive Technology

- No technology, low technology, high technology
- Socialization/communication devices
  - Communication boards
  - Augmentative/alternative communication systems (computers/electronics)
  - Laryngeal prosthesis
  - Long-distance communication devices (telephone relay system, fax, computers, etc)
    Information networks, interactive electronic bulletin boards
    Specialized telecommunication devices for hearing, speech, and visually impaired
    Telephone typewriter (TTY), text telephone (TT), telephone device for the deaf (TDD)
  - Captioning devices
  - Computer/human interaction
- Sensory aids
  - Vision: low-vision aids, magnification, Braille, large print, increased lighting, alerting devices
  - Hearing: amplification aids, assistive listening devices, noise reduction, sound systems, telecommunication devices, cochlear implants
- Seating and positioning systems
- Prosthetics (upper extremity, lower extremity)
- Orthotics (upper extremity, lower extremity, spine, braces, splints, supports, helmets)

- Mobility options
  - Wheelchair (manual, motorized)
  - Assistive ambulatory aides (canes, crutches, walkers)
  - Public transportation accommodation
  - Vehicle and driving adaptations
  - Architectural barriers and accessibility
- Tools for Activities of Daily Living (ADLs)
  - Bathing: bath mat, grab bars, bath stool/chair/bench and lift, long brush, extended levers for faucets
  - Ambulation: canes, walkers, wheelchairs, braces
  - Toileting: raised seat, arms, wipers, grab bars
  - Transfers: height of beds and chairs, sliding boards, nonslip surfaces
  - Eating: grips, plate guards, dycem
  - Dressing: Velcro, dressing stick, reacher, special clothes
- Tools for Instrumental Activities of Daily Living (IADLs)
  - Low-vision aids
  - Aids to assist hard of hearing
  - Household modifications (eg, kitchen, bath, stairs, etc)
  - Special phones such as a TDD/TTY
  - Medication reminders and kits
  - Memory aids: Task reminders
- Environmental
  - Structural modifications (eg, doors, door hinge extensions, passageways, ramps, curb cuts, lifts, etc)
  - Enhanced lighting
  - Environmental controls
  - Visual alerts for hearing impaired
- Recreational intervention
  - Adapted exercise/sports equipment and programs
  - Gardening aids
  - Games
  - Toys
  - Computers
  - Devices to assist with arts and crafts
- Employment and job site modifications
  - Adjustable work table and arm lamps, speaker phone, telephone amplifiers, memory telephone, powered door opener, light switch extension, weighted pen, one-hand typewriters, etc
- Robotic and animal or human assistance
- Off-the-shelf solutions

Interactions

- Establishment of clear realistic goals mutually determined by patient and physician
- When and how to make a referral to a specialist (refer to *Rehabilitation Team: Definitions and Responsibilities* on p. 13)

Pitfalls in Assessment

- Failure to take into account underlying medical condition
  - Cognitive deficits
  - Cardiopulmonary stress
  - Musculoskeletal stress
  - Neurological deficits
  - Obesity
  - General weakness, fatigue
  - Orthopedic problems such as calluses, bunions, and foot deformities
  - Depression, anxiety and psychiatric disorders
- Dynamic rather than static condition
  - Braces
  - Prostheses
- Managed risk
  - Informed consent
  - Family/therapist pressures
  - Enhancement of function may increase risks—to what extent should we "push" patient?

    Falls

    Adverse technology reactions

    Walker for patient with rheumatoid arthritis

    Adapted driving equipment

    Criteria for rest and exercise
- Failure to take into account cultural/ethnic ideals and values
- Failure to recognize patient passivity and lack of self-advocacy skills
- Failure to recognize patient and caregiver preferences
- Failure to match training appraoches to educational and literacy levels

Selection for Referral or Consultation[26]

Consider a physical therapy referral if the patient:

- Is adapting to a new disability
- Has significant balance or gait disturbance
- Needs training in the use of an ambulatory aid
- Needs a wheelchair
- Has seating or positioning problems with a wheelchair
- Has significant range of motion or strength impairments
- Has mobility or transfer difficulties

Consider an occupational therapy referral if the patient:

- Needs assistance in ADLs/IADLs
- Is adapting to a new disability
- Displays limited judgment regarding safety
- Needs splint/orthotic fabrication
- Needs adaptive equipment for work
- Requires assessment of home environment for possible modification
- Needs training in use of equipment

Consider a speech/language evaluation referral if the patient:

- Has difficulty swallowing
- Has difficulty with verbal and written language reception and expression
  - Can't fill out Medicare form or office identification sheet
- Has difficulty with the cognitive processes of language (ie, learning-disabled and dementia patients)
  - Can't maintain topic
  - Can't retrieve information
  - Displays confusion
- Has a speech, language, or cognitive processing problem that has deteriorated
- Has difficulty communicating medical, social, or emotional needs
  - Can't tell autobiographical information for medical history
  - Can't tell why he or she is in your office or whom he or she wants to see

Consider referral to audiologist if the patient:

- Has difficulty hearing in face-to-face conversation
- Complains that everyone mumbles
- Needs to have questions or instructions repeated in the course of daily activities
- Has difficulty hearing over the telephone
- Needs the television louder than the rest of family or friends

Consider referral to low-vision specialist if the patient:

- Has difficulty with printed materials, ie, can't fill out forms, read labels
- Has someone accompany him or her for guidance because of vision
- Avoids outdoors and social activities because of visual problems
- Has had eye surgery or treatment that has not restored his or her sight for functional independence

Consider a referral to a home health or community agency for:

- Evaluation of home environment stressing safety, function, and accessibility
- Functional assessment
- Assessment of assistive devices in the home
- Physical, occupational, or speech therapy evaluation for assistive technology devices and training in use
- Caregiver training
- Assessment for personal assistance services

Consider consultation with physician specialists when:

- There are unresolved questions about diagnosis and treatments
- Patient requires customized or expensive equipment
- Rehabilitation therapists recommend additional consultation
- Patient requests a second opinion
- See also "When to Bring a Specialist in as a Member of the Team" (p. 18).

Individual Roles, Team Concept, and the Rehabilitation Process

Physicians need to be aware of other disciplines and consultants who can provide more in-depth assessment and training and assist with prescription of assistive technology. Physicians treating persons with disabilities should understand that an interdisciplinary team approach is often necessary to deal with the multifaceted problems facing these patients. Primary physicians should make sure that knowledgeable consultants, providers, and technology suppliers are readily available to help them meet their patients' needs.

Rehabilitation Team: Definition and Responsibilities[27]

In addition to the patient, a rehabilitation team may be made up of the following professional health care workers with expertise in assistive technology (this is only a partial list):

- Physician (MD, DO) — primary care or specialist.

  Physicians provide medical diagnosis and prescribe treatment that can include assistive technology devices and services. The physician is the coordinator of the rehabilitation team. If the expertise of several physicians specialties (physiatry, neurology, orthopedic surgery, rheumatology, psychiatry, ophthalmology, etc) is necessary for the care of the patient, the physician who will be functioning as the primary care physician responsible for the longitudinal care of the patient needs to be clearly delineated.

- Nurse (RN, BSN, LPN) — may have specialized certification.

  Rehabilitation and home health nurses work closely with patients with disabilities in carrying out the rehabilitation process. They are able to assess the need of patients for assistive technology. Nursing activities may include:

  - Direct patient care
  - Monitoring patient's response to treatment
  - Monitoring physical and mental condition, health behaviors, safety, etc
  - Patient/caregiver teaching for self-care, including such areas as:

    Medications — Skin

    Bladder — Diet

    Bowel — ADLs/IADLs, etc
  - Case management and coordination of care

- Physical therapist (PT) — must hold state licensure.

  This is the rehabilitation professional whose expertise is in muscle strengthening, neuromuscular reeducation, and ambulation training. Physical therapists are qualified to assist in prescription of ambulation aides, such as walkers. They may also assist with prescription of wheelchairs and devices to assist with transferring a patient, such as lifts.

  - Assessment of therapeutic intervention related to strength and mobility

    Transfers

    Ambulation

    Wheelchair mobility
  - Patient/caregiver teaching of in-home exercises
  - Use of modalities (eg ultrasound, hot packs/cold packs, high-volt/low-volt galvanic stimulation, Transcutaneous Electrical Nerve Simulation, or TENS)
  - Assessment of equipment needs
  - Supervision of:

    Physical therapy assistant (associate's degree)

    Cannot do assessments or make therapeutic plans

    Follows plan initiated by licensed physical therapist

    Kinesis therapist—in the Veterans Affairs (VA) system

    Does not use modalities

- Occupational therapist (OT, OTR)—must hold state licensure or other certification as required by state.

  Occupational therapists use self-care, work, and play activities to increase independent function, enhance development, and prevent disability. The occupational therapist is the rehabilitation professional whose expertise includes evaluation, individualized modifications, and training of patients in the use of adaptive equipment for ADLs/IADLs. The occupational therapist may evaluate or work in coordination with the physical therapist in wheelchair prescription, and may coordinate with a speech pathologist for prescription of assistive communication equipment. Occupational therapists can provide assessment and therapeutic intervention related to the following:

  - ADLs and IADLs

- Community reentry
  - Environmental assessment at home, work, school, personal and public transportation, and community settings to identify how multiple settings may need modification to better match the person's abilities
- Disabled driver assessment and training, car/van modification recommendations
- Carrying out communication
  - Writing, pressing key pad
- Supervision of:
  - Certified occupational therapy assistant (COTA) — associate's degree

    COTA assists with data collection and evaluation under supervision of OTR

    Implements and coordinates intervention plan of OTR

    Develops training goals

    Contributes to program plan and development in collaboration with OTR

• Speech-language pathologist (CCC-SLP) — master's degree, may also have state license.

  The speech-language pathologist is a health professional whose expertise is evaluation and treatment of communication and swallowing disorders. The speech-language pathologist is the rehabilitation professional to consult in the evaluation of patients for augmentative/alternative communication (AAC) systems and to recommend the utilization/integration plan.

  - Evaluation of swallowing disorders, feeding problems
  - Evaluation of verbal and written language reception and expression
  - Evaluation of AAC devices and/or other assistive communication alternatives
  - Evaluation of cognitive processing of language

• Audiologist (CCC-A) — master's degree, must also have state license.

  The audiologist has expertise in the evaluation of hearing disorders and the assessment of the need for aural rehabilitation, including the use of amplification and assistive listening devices and recommendation for integrating compensatory and assistive strategies.

  - Evaluation and management of communication with hearing loss, including central auditory processing
  - Assessment of amplification needs, including hearing aids and assistive listening devices

• Social worker (MSW, DSW, ACSW) — master's degree, some with state licensure.

  The social worker provides counseling to patients and their families and assists in accessing financial and community support for patients with disabilities. The social worker is often able to direct patients to funding sources in order to assist them in obtaining assistive technology.

  - Counseling
  - Direction to resources for community support, reintegration, financial support
  - Supervision of social workers with only a bachelors degree (BSW)
  - Case management and case coordination

• Psychologist (PhD) — must also have state license
  - Psychotherapy
  - Coping skills
  - Neuropsychological evaluation

- Special Education teacher

  Hospital-based teachers and special education teachers work with children and adolescents with disabilities. They provide valuable input to the physician and other rehabilitation professionals who are prescribing assistive technology.

- A rehabilitation team may also include the following:
  - Caregiver and family members
  - Rehabilitation engineer/rehabilitation technologist
    - Designs, develops, tests, customizes, repairs, and maintains assistive technology
  - Respiratory care practitioner/therapist/specialist
    - Adjusts and maintains mechanical ventilators and oxygen delivery systems
    - Administer respiratory medications/chest physiotherapy (CPT)
  - Orientation and mobility specialist
    - Provides training in independent living for people who have vision loss
  - General classroom teacher
  - Child life therapist — allied health professional, expert in development
  - Prosthetist
  - Orthotist
  - Podiatrist
  - Dentist
  - Low-vision specialist or optometrist
  - Pharmacist
  - Dietitian
  - Vocational counselor
    - Job evaluations/work site modifications
  - Recreational therapist
    - Music, art, and dance therapy
    - Recreational activities, provision of resources, some assistive technology devices (golf, bowling)
  - Durable medical equipment (DME) vendor
    - May act as a consultant to the physician and/or rehabilitation professionals in regard to equipment availability, cost, and dependability
  - Consumer consultant
  - Peer counselor
  - Legal advisor/advocate

Customized Teams

- Not every professional is needed for every patient or device.
- Depending on availability/expertise of team members, one person may fulfill multiple responsibilities.
- The physician may directly contact a DME vendor, but in most situations a therapy evaluation should be completed first.
  - More customization may be necessary.
  - The same goal may be achieved with simpler technologies.
  - The physician may not be informed of all the new equipment available.
  - The therapist can assist not only in selection of equipment but in patient education on the use of the equipment.
  - The therapist's report to the physician can provide detailed information for certificates/letters of medical necessity.

Roles of Rehabilitation Team Members

- Respect for patients' and caregivers' desired goals, needs, and preferences — these may be either grander or more modest than those of the professionals
- Designating a team leader and team member accountabilities
  - Need for interdisciplinary collaboration and coordination
- Mutual respect among team members for each others' unique expertise
  - Make recommendations for assistive devices, other therapeutic interventions, home modifications
  - Determine when to make referral to a specialist
- Continual assessment of the patient's status and goals for rehabilitation
- Patient, caregiver, and family teaching
- Appropriate documentation of assessment goals, therapeutic intervention provided, and outcomes achieved
- Monitoring to ensure that the device prescribed matches what was delivered

Communication

- Physician to other team members, including the patient
  - Written prescription and recommendations to include evaluation and clinical condition, treatment, general rehabilitation goals, expected length of treatment, and precautions or limitations
  - Informing team members of changes in the patient's medical status/diagnoses
- Team members to physician
  - Written assessment of goals — reevaluation of progress toward achieving goals
  - Progress notes
  - Discharges
  - Information regarding environmental limitations and patient limitations that impair therapeutic progress
- Interdisciplinary care

- Mutual goal of enhancing real-life functional abilities
- Team meetings (with patient present, if possible)
- Phone calls
- Joint visits
- Review of chart notes
- Care coordination

• To patient and caregiver(s) at all stages

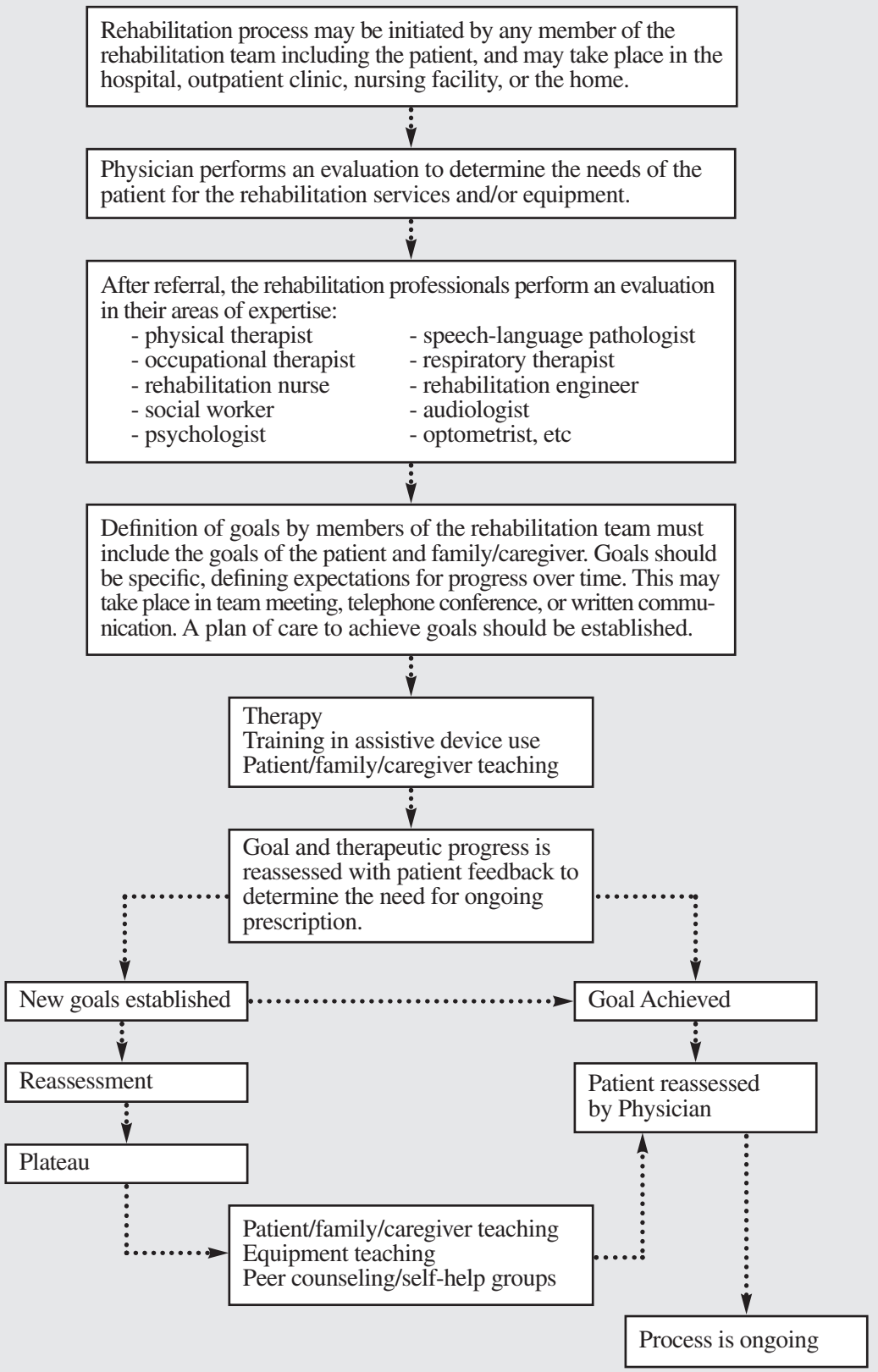
When to Bring a Specialist in as a Member of the Team

• When the primary care physician feels that the patient requires medical expertise beyond his/her abilities. Some examples include persons with the following:

- Home ventilator
- Amputation
- Spinal cord injury
- Cerebral palsy
- Neuromuscular disorder
- Head trauma
- Stroke
- Hip fracture
- Spinal dysraphism
- Sensory dysfunction
- Communication disorder
- Vision loss
- Hearing loss
- Severe and persistent emotional and behavorial problems

• See also “Selection for Referral or Consultation ” (p. 12).

Rehabilitation Process



Pitfalls of the Rehabilitation Process

- Unavailability of some members of the ideal rehabilitation team in many areas
- Inadequate collaboration or communication between professional team members — "turf" issues
- Inadequate collaboration with the patient, family, and others
- Variable quality of rehabilitation services provided
- Change in medical status
- Change in patient environment
  - Nursing home
  - Family move
  - Change in caregiver
- Unrealistic goals, either too low or too high
- Scheduling difficulties for providing rehabilitation therapy
- Fragmented services/lack of coordination
- Few accepted "standards of care"
- Reimbursement issues, financial barriers, lack of coverage for needed services or equipment
- Insurance coverage of only limited, short-term therapy, while patients may need long-term encouragement and reinforcement of training to maintain goals achieved
- Vocational training/rehabilitation that is pragmatic and reflects vocational opportunities in the area

Where Rehabilitation Takes Place

- Acute care hospital
- Outpatient care at hospital or independent therapy facility
- Home
- Subacute, skilled nursing, intermediate or assisted living facilities
- School
- Residential living center
- Day care

*M*atching the Patient to the Device

Assistive devices cannot simply be delivered to patients without training and be expected to be effective. Patients and caregivers must be trained in the uses and limitations of devices. Patients must always be instructed not to accept a device that does not meet their needs. The device itself must be assessed for safety and durability. Before a device is prescribed, a thorough assessment of the patient's needs, skills and preferences along with a review of the available devices must be undertaken to match patient and device properly.

Patient-related Issues

- Patient's acceptance of technology is necessary
- Patient's involvement and expectations are an important part of the decision process
  - Functional
  - Aesthetic
  - Financial
- Social and cultural environment must be considered.
- The adjustment period is variable because of the need for preparation, training, and support.

Caregiver-related Issues

- Caregiver/family acceptance of technology is necessary.
- Physical, emotional, and social burden of technology on the caregiver needs to be addressed.
- Technologies exist to assist caregiver tasks.

Technology-related Issues [28]

Assistive devices can enhance health maintenance, deformity prevention, and energy conservation.

- Purposes of technology
    - ▲ Augment function
  - Substitute function
  - Remediate function
    - ▲ Technology may make the task easier, not just make the difference between ability and inability.
  - Prevent complications
  - Reduce energy requirements
- Types of technology
  - Functional impairment may be addressed by:
    - ▲ No-technology solutions

      Acquisition of adaptive strategies may suffice
    - ▲ Low technology (simple, inexpensive, easy to learn, easy to fix/adapt)
    - ▲ High technology (eg, sip & puff wheelchair, computerized devices)
  - Assistive technology devices can be:
    - ▲ Off the shelf
    - ▲ Adapted
    - ▲ Customized
- Choose the least invasive technology
- Choose the least expensive technology
- Encourage trial with technology prior to purchase whenever possible

Communication

Patients need to understand the purpose of the device.

Discussion should include the following:

- Realistic expectations
- Technological, medical, and other options
- Encouragement of communication to facilitate technology acceptance
  - Technology provider
  - Family/caregiver
  - School/work
  - Payer
- Negotiation of plan of care

Training

- Training helps to ensure integration of the device into the patient's lifestyle.
- All technology requires some training in use.
- The training period may identify a need for modification of technology.
- Training may be done by a therapist, audiologist, vocational counselor, nurse, teacher, or technician.
- Improper use of the device may cause harm to the patient or others.
- There are limitations of technology.

Barriers/Pitfalls

- Match technology to the community.
  - Environment
  - Repair services: high-technology devices may be inappropriate in isolated areas
  - Loaner capabilities
- Don't overload the patient with too many items at once
- Allow extra time for the patient to learn about the device and adapt to its use
- Technology abandonment
  - Cultural/ethnic and psychosocial incompatibility
  - Inadequate training and reassessment
  - No longer needed
  - Unable to afford repair and maintenance
  - Lack of caregiver support

Device Selection Evaluation Criteria

Performance:	Effectiveness, reliability, durability, safety, comfort
Ease of use:	Easy to set up, learn to use, operate, maintain, repair
Aesthetics:	Attractive, quiet, well-designed
Cost:	Purchase, maintenance, repairs
Convenience:	Easy to store, transport
Flexibility:	Compatible with other devices, expandable

Influences on Use of Assistive Technology[29]

Milieu	Personality	Technology
Use		
Support from family, peers, or employer	Proud to use device	Goal achieved with little or no pain, fatigue, discomfort, or stress
Realistic expectations of family or employer	Motivated	Compatible with, or enhances the use of other technologies
Setting/environment fully supports and rewards use	Cooperative	Is safe, reliable, easy to use and maintain
Pressure for use from family, peers, or employer	Optimistic	Has the desired transportability
Realistic expectations of the device	Good coping skills	Best option currently available
	Patient	
	Self-disciplined	
	Generally positive life experiences	
	Has the skills to use the device	
	Perceives discrepancy between desired and current situation	
	Willing to challenge self	
Nonuse		
Lack of support from family, peers, or employer	Fear of losing own abilities or becoming dependent	Perceived lack of goal achievement or too much strain or discomfort in use
Unrealistic expectations of others	Embarrassed to use device	Requires a lot of setup
Setting/environment disallows, prevents, discourages, or makes use awkward	Depressed	Perceived or determined to be incompatible with the use of other technologies
Requires assistance that is not available	Unmotivated	Too expensive
Medical status inhibits or limits use of device	Uncooperative, resistant, hostile, or angry	Long delay for delivery
Unrealistic expectations of the device	Intimidated by technology	Other options to device use are available
	Overwhelmed by changes required with device use	Has been outgrown
	Does not have skills for use	Is inefficient
	Training not available	Repairs or service not timely or affordable
	Poor socialization and coping skills	

Comparison of ambulatory aids [30]

Device	Support	Stability
Cane, single point	Offers some support of body weight; useful for people with arthritis, painful joints, or lower-extremity weakness	Least stable ambulatory aid; needs frequent replacement of tip
Cane, quad	Provides more support than single point cane	More stable than single-point cane; can stand by itself, freeing the patient's hands; may be unstable on steeper hills and uneven ground surfaces
Cane, tripod or crab	Similar support as quad	More stable on uneven ground
Crutches, axillary	Support more weight than canes, but the patient must have adequate muscle strength for shoulder depression, elbow extension, and hand grasping	Provide more stability than a cane or forearm crutch
Crutches, forearm	Weight distributed over forearms; require a strong hand grip and upper body strength	Less stable than axillary crutches, but also less cumbersome
Crutches, platform	Help support body weight for patients who cannot bear weight on hands (gripping limitations)	Less stable than axillary crutches but more stable than standard forearm crutches
Walker, standard	Supports more weight than canes or crutches; transfers some weight bearing to hands	Very stable, less so on slopes or uneven ground
Walker, two-wheeled	Same as standard walker	User may feel more stable with nonpivoting model, but pivoting models are more easily maneuvered
Walker, three- or four-wheeled	Same as standard walker	May slip more than two-wheeled walkers, but are faster

Checklist for Wheelchair Selection [31]

What do I need and want in this wheelchair?

Do I have any trouble sitting in a correct posture, or keeping my balance?

Have I recently had any pressure sores, or tender, painful, or reddened spots on my rear end, back, or thighs?

Has my medical condition changed since my last wheelchair was selected?

Do I need to connect other equipment to the wheelchair (lap tray, ventilator, communication aid)?

Do I need to use something other than a regular handrim to move the chair?

If the answer to any of the above questions is "yes", you need to have the assistance of a physician or therapist in making your selection.

For the following items, decide whether you **need** it, you **want** it, or it is not important to you. Mark the correct box to the right of the item.

	Need	Want	Not Important
The wheelchair:			
folds up for storage or transportation (folding chair, folding, or sling seat)	☐	☐	☐
holds my leg(s) up (elevating footrests)	☐	☐	☐
can be used with a leg amputation (amputee modifications)	☐	☐	☐
will have customized cushion (solid seat/insert)	☐	☐	☐
can hold itself when going uphill (hill holder)	☐	☐	☐
I need to be able to:			
stand easily while getting in or out (foldup or swingaway footrests)	☐	☐	☐
transfer over the side of the chair (removable or swingaway or no armrests)	☐	☐	☐
propel the wheelchair with one hand (one-hand or lever drive)	☐	☐	☐
raise the footrests/legrests to support the legs (elevating footrests)	☐	☐	☐
recline the back (recliner mechanism)	☐	☐	☐
change wheels quickly or remove them for transport (quick-release hubs)	☐	☐	☐
work at regular desk or table (desk length or removable armrests)	☐	☐	☐

My seat width (measure widest part of hips) _____ inches

Access and Assess Resources and Services

Optimal care employs a variety of community resources that exist for both service delivery and information.

Physicians should be aware of community resources to help meet the multiple needs of people with disabilities and how to access them. This includes knowing about self-help groups, therapists, vendors, orthotists and prosthetists, medical specialists, specialty hospitals, government agencies, and advocacy groups.

Services

- State and regional agencies for special education
- State and regional agencies for the elderly
- Individuals with Disabilities Education Act (IDEA) Part H programs for toddlers with disabilities — state specific
- Vocational rehabilitation — state specific
- Comprehensive outpatient rehabilitation centers
- Centers of excellence/evaluation training/assessment centers
  - Outpatient activity evaluation for ADLs, assistive technology instruction
- Independent living centers
- Low-vision clinics
- American Occupational Therapy Association referral service
- Closing the Gap and other resources
- Consumer-directed centers
- See resource listings beginning on page 42.

Practitioners

- For listing of many of the practitioners, see "*Rehabilitation Team* : Definitions and Responsibilities" (p. 13)

Information

For specific disability and consumer self-help groups and resource organizations, see pages 42-55.

Products

- Evaluate product design, function, and service delivery, not quality of marketing strategy
- Performance of equipment is related to simplicity of design.
- Obtain data on products.
  - RESNA
  - State Assistive Technology Projects (see page 42-45)
  - Closing the Gap

- California State University Northridge (CSUN) annual Assistive Technology Conference
- Product catalogs of "lower-level" adaptive data
- Abledata (identifies more than 20,000 available products)

- Evaluate the technology
  - Performance
  - Ergonomics
  - Reliability
  - Safety
  - Cost/availability/service
  - Compatibility with existing assistive technology
  - Ease of modification and upgrades

How to Choose a Durable Medical Equipment (DME) Dealer/Vendor [32]

- Good reputation
- Consumer involvement
- Knowledgeable staff
  - Is a rehabilitation specialist on staff?
  - What training has she or he had?
- Services
  - What arrangements are made for installation and setup?
  - What education/training is provided?
  - What kinds of repair services are provided?
  - Are appropriate loaners provided?
  - Is there a trial period of use — can items be returned?
  - What emergency services are offered?
- Fitting
- Communication of the patient's progress to the physician
- Location
- Follow-up
- Years in business
  - Is the dealer financially sound and expected to stay in business?

Continuing Assessment

Patients require continuing assessment of assistive technology on the basis of potential changes in medical condition, technology availability, and situational and environmental needs. To care properly for people with disabilities, a longitudinal approach must be adopted and physicians must be sensitive to ongoing changes in their patients' functional capabilities. An appreciation for the rapid development of new technology is also necessary so that the patients' changing needs can best be met with the latest technologies.

Introduction

- Emphasize that reevaluation is part of "usual" care
- Reassessment is periodic and varies with:
  - Health condition
  - Level of technology
- Ongoing care involves assessment of attitudes and adjustment to disability.
  - Patient
  - Family
  - Caregiver
  - Work/school
- Remember that patients use different types of technology.
  - Keep a list, similar to a medication list.
- There are a variety of sources of information.
  - Patient
  - Family
  - Caregiver
  - Social agencies in community
  - Home visit

First-visit Assessments

- The first assessment after the active intervention/training phase has ended is important.
- The main goal is assessment of the fit of technology with the patient's needs, and the fitness of the patient to use the technology.
- Was the correct technology chosen? Ask the following questions:
  - What did the patient expect to be able to do with the equipment?
  - Is she or he getting what was expected?
  - If not, why?
    - ▲ Is the technology appropriate to the need?

        - Is there something wrong with the technology?
            Does it fit?
            Does it still work?
            Was the wrong device provided?
        - Was there a lack of appropriate training?
- Are there any adverse technology reactions (ATRs)?
    - Fit problems, ie:
        - Pressure sore from the prostheses/orthoses/splints
        - Wheelchair too big or too small
    - Hygiene
    - Safety issues
        - Cane tip worn off
        - Equipment broken
    - Improper usage by patient or caregiver
    - Pain
    - Ischemia
    - Excessive fatigue

Ongoing (Subsequent) Visits

In addition to preventive care and monitoring for the development of secondary conditions, the following assessments should be made on subsequent visits with the patient

Person-related issues

- Patient's functional status
    - Watch the patient use the device. Equipment use in the home setting may differ from the successful use in a different setting.
    - Have there been cognitive, sensory, or motor changes or changes in general health status that may influence the patient's need for the technology?
    - For pediatric patients, there is a need to assess overall growth and development on an ongoing basis for certain devices.
    - Change of condition may reduce the need for continued use of original technology
- Patients attitude and adjustment toward use of the device
    - How often is the patient using the equipment?
    - Does the patient need more instruction in the use of the equipment?
    - Does the device look and feel acceptable to patient?
    - How does the device affect self-image?
    - How does the patient's belief system, personal values, and concept of independence affect device use?

Family/caregiver issues

- Adjustment of the family or caregiver to the technology in the home
  - "Old business" — premorbid family systems
  - Overprotectiveness inhibits use
  - New stresses (divorce, death, etc)
  - Lack of training/inadequate training if caregiver participates in the use of technology

Environmental compatibility: ease of use and acceptance in:

  - Home
  - Workplace
  - School
  - Transportation
  - Recreation/leisure site

Technology-related issues

- Functioning of the device
  - Is the device in need of repair or maintenance?
  - Is the device compatible with other technology; is it expandable?
  - Is the device easy to store, transport, etc?
- Occurrence of any "adverse technology reactions"
- New technology
  - Be open to patient inquiry.
  - Be wary of new products that have not been assessed.
- Working with vendor/providers
  - Physician as surrogate consumer
- Use of community resources
  - Consultations
  - State Technology Act programs

Re-referral to Community Resources

- Consideration of all of the patients' needs
  - Psychological
  - Social
  - Economic
  - Retraining
- Technology-related re-referrals
  - Consults
  - State Technology Act Programs

Things Often Overlooked

- Patient preference
- Sensory function: assess use of specialized equipment for these disabilities:
  - Vision
  - Hearing
  - Tactile
  - Perception
- Cognitive function, literacy
- Co-morbid conditions
- Underestimation or overestimation of the patient's potential and motivation
- Fiscal resources
- Interface of the equipment in the workplace and/or school environment

Office Practice Guidelines to Meet the Needs of Persons with Disabilities

Physicians' offices should be appropriately equipped and office staff should be properly trained to accommodate persons with disabilities. Disability advocacy groups can often provide useful advice on accessibility and office staff training. It is important to understand that different disabilities have different accessibility requirements. Not only must the office be accessible, but also scheduling should be done with the needs of the patient in mind. An understanding of the Americans with Disabilities Act of 1990 (ADA) will enable physicians to identify alternative ways of providing service if office modifications are too expensive.

Building Patient Practice

- Visibility/membership in community support groups
- Availability for guest lectures in community organizations
- Letting colleagues know of your special interests
- Advertisement of the possibility of home visits
- Listing with state medical organizations/professional associations

Scheduling

- Flexibility in scheduling and advance planning are key to less stressful interactions for both patients and office staff. Make it a practice before scheduling to:
  - Ask the reason for the visit, in order to identify time and resources needed
  - Ask when the patient last had a complete physical examination (preventive care, gynecological examination, etc.)
  - Ask the patient what timing is best for him/her
    - Some patients with arthritis may prefer late morning slots

        - Some patients may prefer to come in when pain is worse, so that the physician can see the problem
        - Work and family considerations may limit choice
    - Ask if there are any particular transportation arrangements that may limit scheduling (Medicar, group transportation, assistance needed)
    - Ask if patient wishes to coordinate this visit with other medical or allied health visits on the same day
    - Ask patients to bring with them the equipment and devices they are using.
        - If there are special communication needs, discuss how these will be handled, i.e., special equipment, interpreter, family member, personal care assistant
    - Ask patients if they would like their family member or personal care assistant to come into the examining room with them or wait outside. Be sure to ask the patient if he or she would like a moment alone with the physician at some point during the visit
    - Be sure the patient understands the directions for the appointment:
        - Ask the patient to repeat or confirm the time, place and special instructions
        - Provide written confirmation of appointment and instructions
- In a group practice, it may be useful for one or more physicians to develop an expertise in chronic conditions and disabilities. However, always be sensitive to patient choice in which prior relationships, continuity of care and ease of communication may outweigh practice "convenience"

Office Accessibility (Outside)

- Parking
    - Adequate width of spaces for vans with lifts
    - Curb cutout
- Steps
    - Ramp
        - Covered ramp
        - Horizontal rest in long or steep ramp
    - Double handrails
- Entry door
    - Directional signage to accessible door
    - Level surface at door to prevent rollback of wheelchair
    - Lever handle or power-assist door
    - Intercom
    - Low threshold
    - Kick plates
    - Ease of opening
- Elevator if on upper floor
    - Handrail in elevator
    - Large print on buttons, Braille

- Building access
  - Halls/baths

Office Accessibility (Inside)

- Waiting room
  - Background noise
    - Evaluate level; consider soundproofing
  - Good lighting to prevent glare and assist lip readers
  - Painted with with nongloss paint in contrasting colors, especially:
    - Hallways
    - Doors
    - Baseboards
  - Reception window accessible to seated wheelchair users
  - Coat and hat racks at different heights
  - Chairs
    - Adequate space for wheelchairs
    - Armrests
    - No swivel or wheels
    - Variable height (pediatric vs short vs raised)
    - No benches
  - Flooring
    - No throw rugs
    - Solid color carpeting, avoiding complex patterns
    - No deep pile
  - Play area
    - Toys on floor or raised tables to fit pediatric-size wheelchair
    - Visible for observation without disturbance
  - Reading material
  - Accessible drinking water
- Bathroom
  - Stall large enough to accommodate wheelchair
  - Stall large enough to accommodate personal assistance with transfer
  - Raised toilet seat
  - Wheelchair access
  - Grab bars on both sides
  - Sink height sufficient for a wheelchair to slip under
  - No sharp angles at entrance or between doors
  - Emergency call device

- Easy handles/faucets
- Method to open locked door from outside in case of emergency
- Specimen window easily used at commode
- Soap and toweling within reach

• Hall/doors
- No threshold
- Uncluttered
- Exam rooms close to entrance
- Rail on each side
- Well lit
- Adequate width

• Exam room
- Room for wheelchair to turn around
- Room for at least three chairs (physician, patient, caregiver)
- Room to observe transfers and minimal ambulation with devices
- Space for equipment storage
- Appropriate temperature control

• Equipment
- Adjustable-height exam table with padding or cushion to avoid hard surfaces
- Spare equipment on hand for patient to try new devices
- Table away from the wall to allow for transfers from either side
- X-ray, if in-house, must be positioned for accessibility
- Scales with hand holds or broad base for wheelchair
- Gynecology: more accessible reclined lithotomy chair, mammography equipment usable by women in wheelchairs
- Portable amplifiers (eg, pocket talker, one-to-one communicator, etc)
- Magnifying equipment

• Communication
- Provide telephone access for hearing or speech-impaired patients by telecommunication devices (TTY/TDD) and relay operator systems
- Develop office protocols and staff training on use of TTY's and relay systems
- Provide simple assistive listening devices/portable amplifiers for patients with hearing problems, when needed, to facilitate communication
- Recognize need for increased time for all staff in order to meet communication needs of patients with impaired speech or hearing, low literacy or limited English
- Develop office protocols on how and when to schedule interpreters. Under the Americans with Disabilities Act (ADA), physicians are responsible for the costs of whatever auxiliary aids and interpreter services are necessary to ensure effective communication

Staff

All office staff need training to be sensitive to deficits and disabilities.

- Heightened sensitivity to patient needs
  - Sit down when you talk with patients; speak directly to a person with a disability.
  - Listen to patient concerns.
  - Wait and listen to patient directions before attempting to assist him or her.
  - Give directions for care directly to the patient.
- Heightened sensitivity to possible deficits
  - Eye, ear, range of motion, gait, agility
  - Signs of bruising and neglect
  - Easy assessment of ADLs
- Specialized education/in-services for staff
  - Communication techniques
  - History gathering
  - Quality of life
  - Discussion of expectations
  - Use of equipment
- Realistic discussion with office manager regarding productivity and the need to spend more time with patients with disabilities
- Possibly have specially trained nurse available to assist physician (transfers, special procedures)
- Possibly hire part-time physical therapist/occupational therapist/social worker/nurse specialist to be available for resourcing with patients and patient caregivers

Educational Material for Patients and Families

- Catalogs
  - Adapted clothing
  - Equipment
- Videos of equipment with captioning
- Community resource guide
  - Equipment vendors
  - Specific support groups
  - Wheelchair/handicapped-accessible transportation
- Patient information brochures
  - Incontinence
  - Sexuality
  - Disabled driver assessment services
- Legal concerns pamphlets
  - State driving rules, housing, etc

Patient Technology Survery

To be filled out in waiting room

Please check any activity that you may find difficult

Bathroom

- ☐ Getting in/out of tub
- ☐ Standing in tub for a shower
- ☐ Washing hair/back/legs and feet
- ☐ Holding soap and wash cloth at same time
- ☐ Other _____
- ☐ Getting on/off toilet
- ☐ Reaching into medicine cabinet
- ☐ Adjusting water temperature
- ☐ Turning faucet on/off

Kitchen

- ☐ Standing at counter or sink for meal preparation or cleanup
- ☐ Bending down to reach lower cabinets
- ☐ Opening jars, cans, plastic bags, boxes
- ☐ Lifting containers in/out of refrigerator
- ☐ Reaching overhead to cabinets
- ☐ Opening cabinets/drawers
- ☐ Remembering to turn stove/oven off
- ☐ Other _____
- ☐ Cutting food
- ☐ Lifting items on/off stove top
- ☐ Lifting items in/out of oven
- ☐ Turning knobs on sink/stove

Phone

- ☐ Dialing phone
- ☐ Hearing phone ring
- ☐ Other _____
- ☐ Holding phone receiver
- ☐ Hearing other person speak

Dressing

- ☐ Is this a tiring activity for you?
- ☐ Problems while pulling on/off:
  - ☐ socks
  - ☐ stockings
  - ☐ shoes
  - ☐ pants
  - ☐ underwear
  - ☐ shirts
- ☐ Problems with any fasteners
- ☐ Getting clothes out of closets
- ☐ Getting clothes out of drawers
- ☐ Other _____
- ☐ Combing hair
- ☐ Brushing teeth
- ☐ Putting on makeup

Mobility

- ☐ Walking
- ☐ In/out of car
- ☐ Carrying bag of groceries
- ☐ Up/down steps
- ☐ Off/on a bus

Recreation/Leisure Activities

- ☐ Reading regular-size print
- ☐ Writing letters or checks
- ☐ Exercise
- ☐ Playing cards
- ☐ Other _____
- ☐ Sewing
- ☐ Cutting
- ☐ Gardening

Have you recently had a ☐ burn or ☐ fall?

- Self-assessment information and questionnaires to be completed while waiting for appointment
  - Depression scales
  - Alcohol use
  - Improper medication administration
  - Medication interactions
  - Functional deficits
- ADA rights information (available from federal clearinghouse, etc)
  - Employment
  - Public spaces
  - Public transportation, etc

Pitfalls

- Expectations of excess time demands may discourage practice.
  - Emergencies
  - Obstetrics
  - Solo practice
- Redesigning the office may be difficult.
- Resources in community may be limited.
- These patients require more frequent follow-up.
- Multiple offices may limit physician availability.
- Managed care and productivity demands may limit the scope of practice regardless of the physician's interest.

Ethical/Legal Issues [33]

- Primary care physicians may not refuse to provide care to patients with any type of disability (see the *Americans with Disabilities Act of 1990*, 42 USC § 12101).
- Office practice procedures and protocols must not discriminate against persons with disabilities.
- Physicians may refuse to treat patients if the medical condition has become too complex for their expertise but may not discontinue treatment of a patient as long as further treatment is medically indicated unless provisions are made for the patient to obtain alternative physician services or the patient refuses all further treatment.

Obtaining Funding for Assistive Technology

While not all assistive technology requires a physician's prescription, physicians are increasingly being involved in providing documentation for reimbursement purposes. Physicians must be aware of the costs of assistive devices they prescribe and be prepared to justify their prescriptions to third party payers, while at the same time they should be able to refer their patients to alternative funding sources (see p. 41). Funding for assistive technology should consider the initial cost of the device, expenses for equipment maintenance and patient education plus potential economic benefits it provides to the patient.

Prescription and Certification of Medical Necessity

- The physician must provide evidence of individual medical necessity.
- An "appropriate" prescription is one that takes into consideration the comprehensive assessment process (see pages 6-12) including motivation and availability of training, the potential patient functional outcome and the cost/benefit of available products.
- Physicians should be prepared to provide sufficient information to insurance companies to ensure approval. Dialogue is often necessary to show medical necessity of complex assistive technologies.
- Basic knowledge of assistive technology reimbursement for patient and physician includes familiarity with established medical necessity forms and prior authorization procedures.
- Avoid making static decisions on a dynamic problem; anticipate future need.
- Base decisions on both expected performance and durability of the device.

Documentation in the Medical Record [34]

In addition to prescribing and certifying medical necessity on various forms, physicians must be sure to maintain complete patients records, which should include the following information:

- Patient diagnosis or diagnoses
- Duration of the patient's condition
- Expected clinical course
- Prognosis
- Nature and extent of functional limitations
- Therapeutic interventions and results
- Past experience with related items
- Consultations and reports from other physicians, interdisciplinary team, home health agencies, etc
- Complete listing of all assistive devices the patient is using, including copies of prescriptions and certification forms or letters
- Tracking system for device performance[35] including follow-up assessment schedules and lists of professional and vendor names to contact if problems occur

Letters of Medical Necessity

These letters should include the following areas:

- Diagnosis(es)
  - ICD-9-CM code(s)
- Functional limitation (a partial list of disabilities as examples follows):
  - Balance disorder
  - Developmental delay
  - Hypotonia
  - Joint deformity
  - Joint instability
  - Hemiparesis (R) (L) (B)
  - Diaparesis
  - Paraparesis
  - Quadriparesis

- Level of limb loss
  (R) (L) (B)
- Pain
- Respiratory deficiency
- Skin disorder
- Spinal deformity
- Weakness
- Other
- Hemiplegia
  (R) (L) (B)

Diplegia
- Paraplegia
- Quadriplegia
- Spasticity
- Athetosis
- Spasticity/athetosis

• Patient status - "Due to the patient's functional limitation, he/she is unable to..."
  - Perform
    - ▲ Activities of daily living (ADLs)
    - ▲ Instrumental activities of daily living (IADLs)
    - ▲ ADLs and functional mobility
    - ▲ Functional mobility
    - ▲ Work activities
  - Communicate
    Verbally
    In writing
    Independently over the phone
  - Other
• Use of equipment - "The use of equipment will..."
  - Allow the patient to...
    Function independently
    Function independently with device/equipment
    Function independently in a modified environment
    Perform independent wheelchair mobility in the home
    Perform independent wheelchair mobility in the home and community
    Return home
  - Be required as a lifetime medical need (if shorter duration, explain need).
  - Improve the patient's functional ability
• Description of equipment (a partial list as examples follows):
  - Wheelchair
    - ▲ Electric
    - ▲ Manual
    - ▲ Manual backup
    - ▲ One-arm drive
    - ▲ Power scooter
    - ▲ Quad system
    - ▲ Replacement
    - ▲ Repair
  - Wheelchair frame
    - ▲ Lightweight
    - ▲ Nonstandard
    - ▲ Reclining
    - ▲ Miscellaneous

- Wheelchair accessories
  - ▲ Armrests
  - ▲ Casters
  - ▲ Handrims
  - ▲ Legrests
  - ▲ Footrests
  - ▲ Seat belt
  - ▲ Tires
  - ▲ Axle
  - ▲ Locks
  - ▲ Rear Wheels
- Other
  - ▲ Bathing aids
  - ▲ Toileting aids
  - ▲ Anti-embolus stockings
  - ▲ Back support
  - ▲ Walker
  - ▲ Visual aids
  - ▲ High-Technology vision enhancers
  - ▲ Long white cane
  - ▲ Other hearing assistive devices
  - ▲ Hospital bed
  - ▲ Prone stander
  - ▲ Transfer lift
  - ▲ Cane
  - ▲ Hearing Aids
  - ▲ Communication aids
- Customized devices

• Rationale (a partial list as examples follows):
  - Safety, safe positioning for activity
  - Cost effectiveness in prevention of secondary complications and occurrence of additional functional limitations
  - Mobility restrictions preventing independent activity
  - Access to areas in home, such as bathroom and kitchen
  - Access to workplace, school
  - Past experience, interventions, and results
  - Duration of expected use
  - Goals and benefits to patient

Access to Funding Resources

• Funding should include not only the purchase of equipment but maintenance, training, tracking, and repairing.

• Funding exists for many assistive technology devices but varies by:
  - Locality
  - How the need is specified
  - How it is justified

• Sources of funding may include federal, state, and local programs such as Medicaid, Medicare, vocational rehabilitation, educational systems, medical insurance as well as other insurance, and many charitable organizations.

- Rehabilitation team members, particularly physical and occupational therapists, are knowledgeable about funding resources.
- When provided through home health agencies, services of OT, PT, and speech-language therapists in the patient's home may be funded by many medical insurance programs and can provide assessment, fitting, and rehabilitation training.
- Medical social workers can assist with funding as well as with psychosocial and cultural acceptance of technology.
- Some useful devices are deemed "convenience" items and may not be easily funded through established sources, although their use can be very beneficial to the patient.
- State technology projects can provide information on funding.
- Patient advocacy may be needed if services or equipment are denied funding
  - Client Assistance Program
  - Protection and Advocacy Services (see p. 52)

Potential Funding Sources For Assistive Technology

Public Programs	Alternative Financing	US Tax Code
Medicare	Private insurance	Medical care expense deduction
Medicaid — Early and Periodic Screening, Diagnosis, and Treatment (EPSDT)	Private foundations	Business deductions
State grants	State loan programs	ADA credit for small business
Individuals with Disabilities Education Act (IDEA) - Part B and Part H	Employee accommodation Programs	Charitable contributions deduction
Vocational rehabilitation state grants, including Title VII, Chapter 2	Corporate-sponsored loans	Targeted jobs tax credit
The Developmental Disabilities state grants	Community reinvestment programs	
CHAMPUS	Community groups	
Workers Compensation Programs	Family and friends	
The Technology-Related Assistance Programs	Religious organizations	
Social Security Supplemental Security Income PASS Program	Service clubs	
Department of Veterans Affairs	Advocacy organizations	

State Assistive Technology Projects

The following state projects are funded under the Technology-Related Assistance for Individuals with Disabilities Act of 1988.

Many states have regional assistive technology resource centers. To find out if there is a center near you, call your state's Technology Act Project.

Alabama Statewide Technology Access and Response Project (STAR) System for Alabamians with Disabilities
2125 East South Boulevard
P.O. Box 20752
Montgomery, AL 36120-0752
334 613-3480
800 STAR656 (In-state only)
334 613-3485 (Fax)

Assistive Technologies of Alaska
701 E. Tudor Road, Suite 280
Anchorage, AK 99503-7445
Information and Referral:
800 770-0138 (V/TDD)
907 562-5606 (V/TDD)
907 563-0146 (Fax)

American Samoa Assistive Technology Project
Division of Vocational Rehabilitation
Department of Human Resources
Pago Pago, American Samoa 96799
684 699-1529
684 233-7874 (TDD)
684 699-1376 (Fax)

Arizona Technology Access Program (AZTAP)
2600 N. Wyatt Drive, 2nd Floor
Tucson, AZ 85712
Information and Referral: Dean Packard
520 324-3170
520 324-3177 (TDD)
520 324-3176 (Fax)

Arkansas Increasing Capabilities Access Network
Department of Education
Vocational and Technical Education Division
Arkansas Rehabilitation Services
2201 Brookwood Drive, Suite 117
Little Rock, AR 72202
501 666-8868 (V/TDD)
800 828-2799 (V/TDD; In-state only)
501 666-5319 (Fax)

California Assistive Technology System
California Department of Rehabilitation
830 K Street
Sacramento, CA 95814
Information and Referral:
916 324-6061
916 324-3062 (V/TDD)
916 323-0914 (Fax)

Colorado Assistive Technology Project
Rocky Mountain Resource and Training Institute
1391 N. Speer Boulevard
Suite 350
Denver, CO 80204
303 534-1027
303 534-1063 (TTY)
303 534-1075 (Fax)

Connecticut Assistive Technology Project
Bureau of Rehabilitation Services
10 Griffin Road North
Windsor, CT 06095
860 298-2014
860 298-2018 (TDD)
860 298-9590 (Fax)

Delaware Assistive Technology Initiative (DATI)
Applied Science & Engineering Laboratories
University of Delaware/A.I. dupont Institute
1600 Rockland Road, Room 154
P.O. BOX 269
Wilmington, DE 19899-0269
302 651-6790
302 651-6794 (TDD)
302 651-6793 (Fax)

D.C. Partnership for Assistive Technology
801 Pennsylvania Avenue, S.E.
Suite 300
Washington, DC 20003
202 546-9163
202 546-9168 (TDD)
202 546-9169 (Fax)

Florida Alliance for Assistive Service and Technology (1992)
2002-A Old St. Augustine Road
Tallahassee, FL 32399-0696
904 487-3278 (V/TDD)
904 921-7214 (Fax)

Georgia Tools For Life
Division of Rehabilitation Services
2 Peachtree Street NW
Suite 23-411
Atlanta, GA 30303-3166
404 657-3084
404 657-3085 (TDD)
404 657-3086 (Fax)

V = Voice

Guam System for Assistive Technology
University Affiliated Program - Developmental Disabilities
House #12 Dean's Circle
University of Guam
USG Station
Mangilao, Guam 96923
671 735-2490
671 734-5709 (Fax)

Hawaii Assistive Technology Training and Service Project
677 Ala Moana Boulevard
Suite 403
Honolulu, HI 96813
808 532-7110 (V/TDD)
808 532-7120 (Fax)

Idaho Assistive Technology Project
129 W. Third Street
Moscow, ID 83843
208 885-3559 (V/TDD)
208 885-3628 (Fax)

Illinois Assistive Technology Project
528 S. 5th Street, Suite 100
Springfield, IL 62701
217 522-7985
217 522-9966 (TDD)
217 522-8067 (Fax)

Indiana ATTAIN (Accessing Technology Through Awareness in Indiana) Project
1815 N. Meridian, Suite 200
Indianapolis, IN 46202
317 921-8766
800 528-8246 (in-state only)
800 743-333 (TDD)
317 921-8774 (Fax)

Iowa Program for Assistive Technology
University Hospital School (S.384)
Iowa City, IA 52242-1011
800 331-3027 (V/TDD; National)
319 356-8284 (Fax)

Assistive Technology for Kansans Project
2601 Gabriel
P.O. Box 738
Parsons, KS 67357
316 421-8367 or
800 KAN DO IT
316 421-0954 (Fax/TDD)

Kentucky Assistive Technology Services Network
P.O. Box 757
Frankfort, KY 40602-0757
502 564-2733 (V/TDD)
800 327-5287 (Toll free in-state only V/TDD)
502 564-2951 (Fax)

Louisiana Assistive Technology Access Network (1991)
P.O. Box 14115
Baton Rouge, LA 70898-4115
504 925-9500 (V)
800 270-6165 (TDD)
504 925-9560 (Fax)

Maine Consumer Information And Technology Training Exchange (Maine Cite)
Maine CITE Coordinating Center
Education Network of Maine
46 University Drive
Augusta, ME 04330
207 621-3195 (V/TDD)
207 621-3193 (Fax)

Maryland Technology Assistance Program
Governor's Office for Individuals with Disabilities
300 W. Lexington Street, Box 10
Baltimore, MD 21201
410 333-4975 (V/TDD)
410 333-6674 (Fax)

Massachusetts Assistive Technology Partnership
1295 Boylston Street, Suite 310
Boston, MA 02215
617 355-7820
617 355-7301 (TDD)
617 355-6345 (Fax)
Information & referral:
800 848-8867 in state (V/TDD)
617 355-7153

Michigan Tech 2000
Michigan Jobs Commission/TECH 2000
3815 West St. Joseph Hwy.
Suite A
Lansing, MI 48917-3623
517 334-6502
517 334-6499 (TDD)
517 373-0565 (Fax)

Minnesota Star Program
300 Centennial Building
658 Cedar Street
St. Paul, MN 55155
800 657-3862 (Voice/in-state only)
or 612 296-2771
612 296-8478 (TDD)
612 296-9478 (Fax)

Mississippi Project Start P.O. Box 1698
Jackson, MS 39215
800 852-8328 (V/TDD; In-state) or
601 853-5171
601 364-2349 (Fax)

Missouri Assistive Technology Project
4731 South Cochise, Suite 114
Independence, MO 64055-6975
800 647-8557 (In-state only)
or 816 373-5193 (V)
816 373-9315 (TTY)
816 373-9314 (Fax)

Montech
MUARID, The University of Montana
634 Eddy Avenue
Missoula, MT 59812
406 243-5676
800 732-0323 (TDD; National)
406 243-4730 (Fax)

Nebraska Assistive Technology Project
301 Centennial Mall South
P.O. Box 94987
Lincoln, NE 68509-4987
800 742-7594 (In-state only) or
402 471-0735 (V/TDD)
402 471-0117 (Fax)

Nevada Assistive Technology Collaborative
Rehabilitation Division
Office of Community Based Services
711 South Stewart Street
Carson City, NV 89710
702 687-4452
702 687-3388 (TDD)
702 687-3292 (Fax)

New Hampshire Technology Partnership Project
Institute on Disability/UAP
#14 Ten Ferry Stree
The Concord Center
Concord, NH 03301
603 224-0630 (V/TDD)
603 226-0389 (Fax)

New Jersey Technology Assistive Resource Program
135 East State Street, CN 398
Trenton, NJ 08625
609 292-7498
800 382-7765 (TDD)
609 292-8347 (Fax)

New Mexico Technology Assistance Program
435 St. Michael's Dr., Building D
Santa Fe, NM 87505
800 866-2253 (V/TDD)
505 827-3746 (Fax)

New York State Traid Project
Office of Advocate for Persons with Disabilities
One Empire State Plaza
Suite 1001
Albany, NY 12223-1150
800 522-4369 (V/TDD; In-state) or
518 474-2825
518 473-4231 (TTY)
518 473-6005 (Fax)

North Carolina Assistive Technology Project
Department of Human Resources
Division of Vocational Rehabilitation Services
1110 Navaho Drive, Suite 101
Raleigh, NC 27609
919 850-2787 (V/TDD) or
800 852-0042 National
919 850-2792 (Fax)

North Dakota Interagency Project for Assistive Technology (IPAT)
P.O. Box 743
Cavalier, ND 58220
701 265-4807 (V/TDD)
701 265-3150 (Fax)

Commonwealth of the Northern Mariana Islands Assistive Technology Project
Developmental Disabilities Planning Office
Office of the Governor
Building 1312
P.O. Box 2565
Saipan, MP 96950
670 322-3014 (V/TDD)
670 322-4168 (Fax)

Ohio Train
Ohio Super Computer Center
1224 Kinnear Road
Columbus, OH 43212
614 292-2426 (V/TDD)
800 784-3425 (Toll free in-state only V/TDD)
614 292-3162 (TDD)
614 292-5866 (Fax)

Oklahoma Able Tech
Oklahoma State University
Wellness Center
1514 W. Hall of Fame
Stillwater, OK 74078-0618
405 744-9864 or
800 257-1705 (V/TDD)
405 744-7670 (Fax)

Oregon Technology Access for Life Needs Project (TALN)
1257 Ferry Street, SE
Salem, OR 97310
503 361-1201 (V/TDD)
503 378-3599 (Fax)

Pennsylvania's Initiative on Assistive Technology
Institute on Disabilities/UAP
Temple University
423 Ritter Annex (004-00)
Philadelphia, PA 19122
800 204-PIAT (V) or
215 204-3862 (V/TDD)
215 204-9371 (Fax)

Puerto Rico Assistive Technology Project
University of Puerto Rico
Medical Sciences Campus
College of Related Health Professions
Department of Communication Disorders
Box 365067
San Juan, PR 00936
800 496-6035 From U.S. Mainland
800 981-6033 Toll free in PR only
787 764-6035
787 754-8034 (TDD)
787 754-8034 (Fax)

Rhode Island Assistive Technology Access Project
Office of Rehabilitation Services
40 Fountain Street
Providence, RI 02903-1898
401 421-7005
800 752-8088 ext.2608 Toll free in RI
401 421-7016 (TDD)
401 274-1920 (Fax)

South Carolina Assistive Technology Program
USC. School of Medicine
Center for the developmental Disabilities
West Columbia, SC 29208
803 935-5231 (V/TDD)
803 935-5059 (Fax)

South Dakota Assistive Technology Project (DAKOTALINK)
1925 Plaza Boulevard
Rapid City, SD 57702
605 394-1876
800 645-0673 (V/TDD) Toll free in SD
605 394-5315 (Fax)

Tennessee Technology Access Project
710 James Robertson Parkway
Gateway Plaza, 11th Floor
Nashville, TN 37243-0675
615 532-6530
800 732-5059 Toll free in TN
615 741-4566 (TDD)
615 532-9940 (Fax)

Texas Assistive Technology Partnership
University of Texas at Austin, UAP of Texas
Department of Special Education, EDB 306
Austin, TX 78712
512 471-7621
512 471-1844 (TDD)
512 471-7549 (Fax)

U.S. Virgin Island Technology-Related Assistance for Individuals with Disabilities (TRAID)
University of the Virgin Islands/UAP
#2 John Brewers Bay
St. Thomas, VI 00801-0990
809 693-1323
809 693-1325 (Fax)

Utah Assistive Technology Program
Center for Persons with Disabilities
UMC 6855
Logan, UT 84322-6855
801 797-2153
801 797-2096 (TDD)
801 797-2355 (Fax)

Vermont Assistive Technology Project
103 South Main Street, Weeks I
Waterbury, VT 05671-2305
802 241-2620 (V/TDD)
802 241-2174 (Fax)

Virginia Assistive Technology System
8004 Franklin Farms Drive
P.O. Box K300
Richmond, VA 23288-0300
804 662-9990 (V/TDD)
804 662-9478 (Fax)

Washington Assistive Technology Alliance
DSHS/DVR
P.O. Box 45340
Olympia, WA 98504-5340
360 438-8000
360 438-8644 (TDD)
360 438-8007 (Fax)

West Virginia Assistive Technology System
Division of Rehabilitation Services
P.O. Box 50890, State Capitol
Charleston, WV 25305-0890
304 293-4692 (V/TDD)
800 841-8436 Toll free in WV
304 293-7294 (Fax)

Wistech
Division of Supportive Living
2917 International Lane, 3rd Floor
Madison, WI 53704
608 243-5674 (V/TDD)
608 243-5681 (Fax)

Wyoming's New Options in Technology (WYNOT)
Division of Vocational Rehabilitation
1100 Herschler Building
Cheyenne, WY 82002
307 777-4386 or
777-7450 (V/TDD)
307 777-5939 (Fax)

Professional and Interdisciplinary Resources

American Academy of Physical Medicine and Rehabilitation
1 IBM Plaza
Suite 2500
Chicago, IL 60603
312 922-9366
312 464-0227 Fax

American Occupational Therapy Association
PO Box 31220
Bethesda, MD 20824-1220
301 652-2682

American Physical Therapy Association
1111 N Fairfax Street
Alexandria, VA 22314
703 684-2782

American Respiratory Therapy Association
11030 Ables Lane
Dallas, TX 75229
214 243-2272

American Speech-Language-Hearing Association
10801 Rockville Pike
Rockville, MD 20852
800 638-8255
301 897-5700

Center for Assistive Technology
University At Buffalo
515 Kimball Tower
3435 Main Street
Buffalo, NY 14214-3079
716 829-3141
800 628-2281 (TDD)
716 829-3217 (Fax)

Closing the Gap
PO Box 68
Henderson, MN 56044
507 248-3294

International Society for Augmentative and Alternative Communication (ISAAC)
AI Dupont Institute
1600 Rockland Road
PO Box 269
Wilmington, DE 19899
302 651-6830

IBM Independent Series Information Center for People with Special Needs
800 426-4832

Medical Rehabilitation Education Information Bureau
1910 Association Drive
Reston, VA 22091-1502
800 GET-REHAB
800 688-6167 TDD

National Association of Protection & Advocacy Systems
900 Second St, NE
Suite 211
Washington, DC 20002
202 408-9514

National Clearing House for Rehabilitation Information
816 W 6th St
Stillwater, OK 74078
800 223-5219
405 624-7650

National Rehabilitation Information Center (NARIC)
8455 Colesville Road, Suite 935
Silver Spring, MD 20910
800 346-2742
301 587-1967 Fax

RESNA Technical Assistance Project
1700 N Moore Street, Suite 1540
Arlington, VA 22209-1903
703 524-6686
703 524-6639 TTY
703 524-6630 Fax

National Rehabilitation Association
633 S Washington Street
Alexandria, VA 22314
703 836-0850

Research Institute for Assistive & Training Technologies (RIATT)
U of NM
801 Univ. Blvd
Ste 105
Albuquerque, NM 87106-4343

Organizations

Alexander Graham Bell Association for the Deaf
3417 Volta Place, NW
Washington, DC 20007-2778
202 337-5220

American Association of Retired Persons (AARP)
Disability Initiative
601 E Street, NW
Washington, DC 20049
202 434-2277
202 434-2479 TTY

American Council of the Blind
1155 15th Street, NW, Suite 720
Washington, DC 20005
800 424-8666
202 467-5081
202 467-5085 Fax

The ARC (formerly the Association of Retarded Citizens)
500 E Border Street
Suite 300
Arlington, TX 76010
800 433-5255
817 261-6003

Arthritis Foundation
1330 W Peach St
Atlanta, GA 30309
800 283-7800
404 872-7100

Council for Disability Rights
176 W Adams, #1830
Chicago, IL 60603
312 444-9484
312 444-1977 Fax

Disability, Pregnancy and Parenthood International
1 Chiswick Staithe
London W4 3TP, England
0181 994-0896

Epilepsy Foundation of America
4351 Garden City Drive
Landover, MD 20785
800 332-1000
301 495-3700

Gazette International Networking Institute
4207 Lindell Blvd, #110
St Louis, MO 63108-2915
314 534-0475

Health Resource Center for Women with Disabilities
Rehabilitation Institute of Chicago
345 E Superior
Chicago, IL 60611
312 908-7997

HEATH Resource Center
1 Dupont Circle, NE, Suite 800
Washington, DC 20036
202 939-9320
800 544-3284

Job Accommodation Network
918 Chestnut Ridge Road, Suite 1
PO Box 6080
Morgan Town, WV 26506-6080
800 526-7234
304 293-7186

The Lighthouse Inc
111 E 59th St
New York, NY 10022
212 821-9200

Muscular Dystrophy Association
3300 E Sunrise Drive
Tucson, AZ 85718
602 529-2000

National Alliance for the Mentally Ill
200 N Glebe Rd, #1015
Arlington, VA 22203
800 950-NAMI

National Association of the Deaf
814 Thayer Avenue
Silver Spring, MD 20910
301 587-1788

National Association of Hearing and Speech Action (NASHA)
10801 Rockville Pike
Rockville, MD 20852
301 897-8682
800 638-8255

National Council on Independent Living
4th & Broadway
Troy, NY 12180
518 274-0701

National Easter Seal Society
700 13th St, Ste 200
Washington, DC 20005
202 347-3066
202 347-7385 (TDD)
202 737-7914 Fax

National Federation of the Blind
1800 Johnson Street
Baltimore, MD 21230
410 659-9314
410 685-5653 Fax

National Head Injury Foundation
1776 Massachusetts Avenue, NW
Suite 100
Washington, DC 20036
800 444-6443

National Multiple Sclerosis Society
706 Haddonfield Rd
Cherryhill, NJ 08002
800 532-7667

National Organization on Disability (NOD)
910 16th Street, NW #600
Washington, DC 20006
202 293-5968

National Spinal Cord Injury Association
8300 Colesville Rd, Suite 551
Silver Spring, MD 20910
800 962-9629
301 588-6959

National Technology Center
American Foundation for the Blind
11 Penn Plaza, Ste 300
New York, NY 10001
212 620-2000
212 502-7600

Self Help for Hard of Hearing People, Inc
7910 Woodmont Avenue
Suite 1200
Bethesda, MD 20814
301 657-2248
301 657-2249 (TTY)

Technical Aids and Assistance for Persons with Disabilities
1950 W Roosevelt Road
Chicago, IL 60608
800 346-2939
312 421-3373

Trace R&D Center
S-151 Waisman Center
1500 Highland Ave
Madison, WI 53705
608 262-6966

United Cerebral Palsy Associations, Inc
1660 L St NW
Suite 700
Washington, DC 20036
800 872-5827
202 842-1266

Veterans Affairs Prosthetic and Sensory Aids Service
Washington, DC 20420
202 535-7293

Resources for Children with Disabilities and Their Parents

Association for the Care of Children's Health
7910 Woodmont Avenue
Suite 300
Bethesda, MD 20814
800 808-2224
301 654-6549

Center for Accessible Technology
2547 8th Street, 12A
Berkeley, CA 94710
510 841-3224

Clearinghouse on Disability Information
Office of Special Education and Rehabilitative Services
Room 3132 Switzer Building
330 C Street SW
Washington, DC 20202-2524
202 205-8241

Coordinating Council for Handicapped Children
20 E Jackson
Room 900
Chicago, IL 60604
800 952-4199 (only Ill)
312 939-3513

Council for Exceptional Children (CEC)
1920 Association Drive
Reston, VA 20191
703 620-3660

ERIC Clearinghouse on Handicapped and Gifted Children
Council for Exceptional Children
1920 Association Drive
Reston, VA 20191
703 620-3660

Exceptional Parent
120 State Street
Hackensack, NJ 07601
800 372-7368
201 489-0871

Federation for Children with Special Needs
Technological Assistance for Parent Programs (TAPP)
95 Berkeley Street, Suite 104
Boston, MA 02116
800 331-0688 (only MA)
617 482-2915

National Center for Youth with Disabilities (NYCD)
University of Minnesota
420 Delaware Street SE
Box 721
Minneapolis, MN 55455
612 626-2825 (Voice)
612 624-3939 (TDD)

National Information Center for Children and Youth With Disabilities
PO Box 1492
Washington, DC 20013-1492
800 695-0285
202 884-8200

National Lekotek Center
2100 Ridge
Evanston, IL 60201
847 328-0001

Toys for Special Children
385 Warburton Avenue
Hastings, NY 10706
800 832-8697
914 478-0960

Publications

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Henderson, MN 56044
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Framingham, MA 01701
508 620-1777

DRAGnet
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310 E 38th Street
Room 303
Minneapolis, MN 55409
612 378-9796
612 827-2379 Fax
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Foundation for Technology Access
2175 E Francisco
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Columbia, SC 29202-3232
803 691-4300

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Nashville, TN 37202
615 251-8182

Regional Disability and Business Technical Assistance Centers (DBTACs)

800 949-4232

If you need information or technical assistance on the ADA, contact the center in your region. When you dial the toll-free number above, your free call will automatically ring through to the National Institute on Disability and Rehabilitation Research (NIDRR) DBTAC responsible for the region of the country that contains the area code you are calling from.

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Phone number not available at publication time
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United Cerebral Palsy Association of New Jersey
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Trenton, NJ 08608
609 392-4004 (Voice)
609 392-7044 (TDD)

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Atlanta, GA 30309
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360 438-4116

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603 224-7005 (V/TDD)

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Tuscaloosa, AL 35487-0395
205 348-4928

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Anchorage, AK 99518
907 344-l002 (V/Tdd)

American Samoa
Client Assistance Program and Protection and Advocacy Office for the Disabled
P.O. Box 3937
Pago Pago, AS 96799
011 684 633-2441
684 633-2444

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3131 North Country Club Road
Suite 100
Phoenix, AZ 85716
520 327-9547 (V/TDD)

Arkansas
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Sacramento 916 488-9955

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455 Sherman St., Suite l30
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303 722-0300 (V/TDD)

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60- B Weston Street
Hartford, CT 06120
203 297-4300
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Delaware
Disabilities Law Program
913 Washington
Wilmington, DE 19801
302 575-0660 (Voice,TDD)

District of Columbia
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300 I Street, NE, Suite 202
Washington, DC 20002
202 547-4747

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Advocacy Center for Persons with Disabilities
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Webster Building, Suite l00
Tallahassee, FL 3230l-5024
904 488-9071
800 342-0823
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Georgia Advocacy Office, Inc.
999 Peachtree Street, N.E.
Suite 870
Atlanta, GA 30309-3166
404 885-1234
800 282-4538

Guam
The Advocacy Office
Reflection Center, Suite 204
Chalan Santo Papa
Agana, GU 96910
671 649-1948

Hawaii
Protection & Advocacy
Agency of Hawaii
1580 Makaloa Street, Suite l060
Honolulu, HI 96814
808 949-2922 (Voice/TDD)

Idaho
Coalition of Advocates for the Disabled, Inc.
4477 Emerald, Suite B-100
Boise, ID 83706
208 336-5353 (V/TDD)

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Equip for Equality, Inc.
11 E. Adams, Suite l200
Chicago, IL 60603
312 341-0022 (V/TDD)

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Indianapolis, IN 46204
317 232-1150 (V/TDD)
800 622-4845

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Iowa Protection & Advocacy Service, Inc.
3015 Merle Hay Road, Suite 6
Des Moines, IA 50310
515 278-2502
515 278-0571 (TDD)

Kansas
Kansas Advocacy and Protective Services, Inc
501 SouthWest Jackson, Suite 425
Topeka, KS 66603
913 236-5207

Kentucky
Protection and Advocacy Division
Department of Public Advocacy
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Frankfort, KY 40601
502 564-8035
800 633-6283

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New Orleans, LA 70112
504 522-2337
800 960-7705

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Maine Advocacy Services
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Maryland Disability Law Center, Inc.
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l06 W. Allegan, Suite 300
Lansing, MI 48933
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430 First Avenue North, Suite 300
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800 292-4150

Mississippi
Mississippi Protection & Advocacy System for the Developmentally Disabled
5330 Executive Place, Suite A
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Missouri Protection & Advocacy Services
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Jefferson City, MO 65109
573 893-3333

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Montana Advocacy Program, Inc.
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Helena, MT 59624
406 444-3889 (V/TDD)
800 245-4743 (In-State)

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DNA-People's Legal Services, Inc.
PO Box 392
Shiprock, NM 87420

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Nebraska Advocacy Program, Inc.
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215 Centennial Mall South
Lincoln, NE 68508
402 474-3183

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603 228-0432 (V/TDD)
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Trenton, NJ 08608
609 292-9742

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Albuquerque, NM 87110
505 256-3100 (V/TDD)
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New York
New York State Commission on Quality of Care for the Mentally Disabled
99 Washington Ave., Room 1004
Albany, NY 12210
518 473-7378
800 624-4143 (TDD)

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Governor's Advocacy Council for Persons with Disabilities
2113 Cameron Street, Suite 100
Raleigh, NC 27605
919 733-9250 (V/TDD)

North Dakota
Protection and Advocacy Project
400 E. Broadway, Suite 515
Bismarck, ND 58501
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800 366-6888 (TDD)

Northern Mariana Islands
Northern Marianas Protection & Advocacy Systems, Inc. (NMPASI)
P.O. Box 3529
Saipan, MP 96950 (011)
011 670 235-7274

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Ohio Legal Rights Service
8 E. Long Street, 6th Floor
Columbus, OH 43215
614 466-7264 (V/TDD)
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2915 N. Classen Blvd., Suite 300
Oklahoma City, OK 73106
405 525-7755

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Oregon Advocacy Center
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Pennsylvania
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Puerto Rico
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Ombudsman for the Disabled
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787 721-4299
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South Carolina
Protection & Advocacy System for People with Disabilities, Inc.
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1401 E. Jefferson Street, Suite 506
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Litton Bldg., 4th Floor
1207 Quarrier Street
Charleston, WV 25301
304 346-0847 (V/TDD)
800 950-5250

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Madison, WI 53703
608 267-0214 (V/TTY)

Wyoming
Protection and Advocacy System, Inc.
2424 Pioneer Avenue, Suite 101
Cheyenne, WY 82001
307 632-3496
800 821-3091 (In-state, V/TDD)

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These Guidelines are part of a physician training project on Assistive Technology. For more information on how to set up a training program in your state, please contact: the Department of Geriatric Health, American Medical Association, 515 North State Street, Chicago, Illinois 60610. Phone: 312 464-5085.

American Medical Association

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