CONNECTICUT
ASSISTIVE TECHNOLOGY
GUIDELINES

SECTION 1:
Connecticut Assistive Technology Guidelines for **Ages 3-21**

SECTION 2:
Connecticut Assistive Technology Guidelines for **Infants and Toddlers** Under IDEA Part C

Connecticut State Department of Education

Connecticut Assistive Technology Guidelines

Section 1:
Connecticut Assistive Technology Guidelines for Ages 3-21

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Foreword

The advancement and changing landscape of technology has impacted the lives of individuals with disabilities, enabling them to lead fuller and richer lives.

The *Connecticut Assistive Technology Guidelines* were released in 2013. Since its publication, there have been significant changes in the availability of technology tools and resources that can improve educational outcomes for students with disabilities. The reason for the update is to ensure that current information is identified and websites in the document are brought up to date.

Fortunately, current aspects of assistive technology (AT) are no longer "different" and fall within the realm of universal design for learning (UDL). In particular, students with disabilities are able to access high-tech AT such as smartphones and tablets of all types in order to perform a variety of functions designed for anyone without stigmatization or prejudice, which can be used to enhance teaching and learning experiences. As well, wireless mobile and smart home technologies (e.g., Google Home, Amazon Echo, text-to-speech software, etc.) promote self-reliance and enable young adults with disabilities to be as independent as possible within their limitations.

However, technology by itself or just providing students with devices does not improve outcomes and make learning more effective. For students with disabilities, the human interface remains the most important aspect for educators to implement AT with fidelity for students with disabilities. As new technology and apps emerge at such a rapid pace, it is important now more than ever for

educators to understand that technology is not an end in itself but rather a tool, which leads to new approaches to teaching and learning. Educators who embrace the potential of technology discover an innovative set of tools and applications that can better serve them and all of their students.

Technology offers educators, students, and their families more choice and voice. They have more options than ever before to accommodate different needs and types of learning, to demonstrate that learning, and provide connections to share information and partner in learning. By having more educational supports, tools, and devices at their disposal, students with and without disabilities may feel a greater sense of purpose and ownership in their learning and education in general—allowing opportunities to tap the potential they possess for success.

(Updated March 2019)

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Abbreviations and Acronyms

AAC	=	alternative and augmentative communication
AAC-RERC	=	Augmentative and Alternative Communication Rehabilitation Engineering Research Center
ADA	=	Americans with Disabilities Act
ACES	=	Area Cooperative Educational Services
ACOLUG	=	Augmentative Communication Online Users Group
ASHA	=	American Speech and Language Association
AIM	=	accessible instructional materials
ANSI	=	American National Standard Institute
ASD	=	autism spectrum disorder
ASL	=	American Sign Language
AT	=	assistive technology
ATA	=	Alliance for Technology Access
ATAP	=	Association of Assistive Technology Act Programs
ATI	=	Assistive TechnologyTobii
ATP	=	Assistive Technology Professional
ATTO	=	Assistive Technology Training Online Project
BESB	=	Bureau of Education and Services for the Blind
BRS	=	Bureau of Rehabilitative Services
CAST	=	Center for Applied Special Technology
CACIL	=	Connecticut Association of Center for Independent Living
CCSS	=	Common Core State Standards

CEC = Council for Exceptional Children
CES = Cooperative Educational Services
CFR = Certified Federal Registry
COM = community
CSDE = Connecticut State Department of Education
CREC = Capitol Region Education Council
DAISY = Digital Accessibility Information System
DDS = Department of Developmental Services
DME = durable medical equipment
EI = early intervention
EPSDT = Early and Periodic Screening, Diagnosis and Treatment
ESEA = Elementary and Secondary Education Act
FAPE = free and appropriate public education
FERPA = Family Education Rights and Protection Act
FCTD = Family Center on Technology and Disability
GEC = general education classroom
GI = gastrointestinal
HOM = home
ID = intellectual disorder
IDEA = Individuals with Disabilities Education Act
IDELR/EHLR = Individuals with Disabilities Education Law Report/ Education for the Handicapped Law Reporter
ISP = Individualized Service Plan
IEP = individualized education program
IFSP = Individual Family Service Plan
IT = information technology
IWRP = Individualized Written Rehabilitation Program
LEA = local education authority
LD = learning disabilities
LRE = least restrictive environment
LMN = letter of medical necessity
NATRI = National Assistive Technology Research Institute
NCIP = National Center to Improve in Practices in Special Education Through Technology, Media and Materials
NCLB = No Child Left Behind
NEAT = New England Assistive Technology Center
NECTAC = National Early Childhood Technical Assistance Center
NIMAC = National Instructional Materials Access Center
NIMAS = National Instructional Materials Accessibility Standard
NLS = National Library Service
OAT = open source assistive technology
OSEP = Office of Special Education Programs
PandA = Office of Protection and Advocacy
PBS = Public Broadcasting System
PC-OS = personal computer-operating system
PPT = planning and placement team
QIAT = Quality Indicators for Assistive Technologies
RBI = routine-based interview

RESC = regional educational service center
RESNA = Rehabilitation Engineering and Assistive Technology Society of North America
SERC = State Education Resource Center
SETT = Student, Environment, Task, and Tools
SEC = special education classroom
SLP = speech and language pathologist
TATN = Texas Assistive Technology Network
TASC = Technology Assistance for Special Consumers
TnT = Tots and Tech
TTY = tele-printer
UDL = Universal Design for Learning
VI = visual impairments
WATI = Wisconsin Assistive Technology Initiative
YAACK = Augmentative and Alternative Communication Connecting Young Kids

Definition of Terms

convergence: The ability of a single-tech platform that performs multiple tasks and applications (e.g., web search, text, call, gaming, etc.). Increases access and productivity.

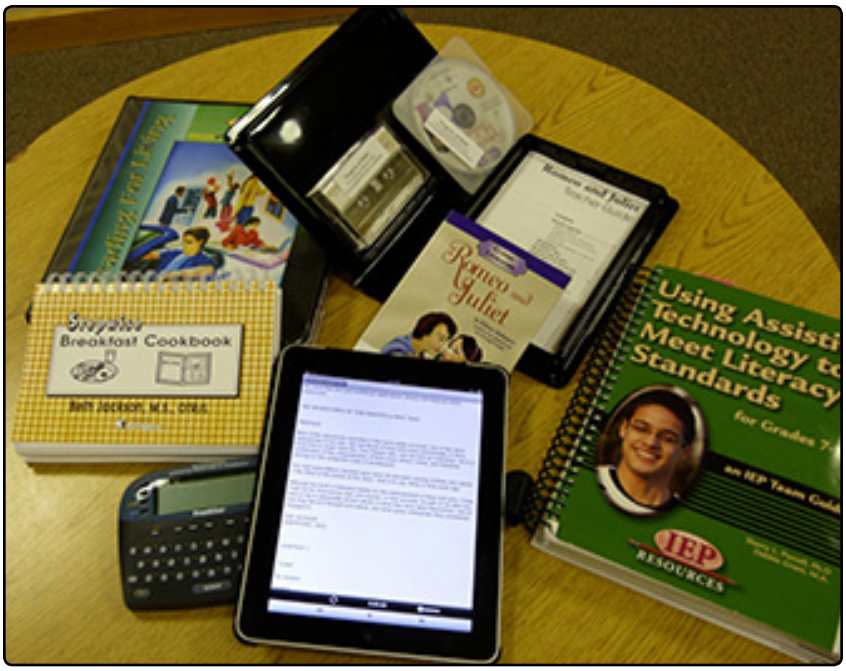
customizability and UDL: The ability to customize devices, apps, and software to meet the needs of diverse learners.

research- or evidence-based: Supported by evidence of effectiveness for students with disabilities.

portability and promotion of independence: AT that offers the flexibility to be used in various settings and moves with the user.

interoperability: The ability of two or more systems to exchange information.

virtual assistance: Assists with reducing many barriers to accessing mobile technologies for individuals with physical disabilities, including vision or hearing loss but currently have not made strides to creating access for individuals with speech impairments. As virtual assistance becomes more widely seen as a necessary daily aid, we hope to see it become smarter and even more accessible.



General Overview

Chapter contents

- Document Purpose and Layout

According to the Individuals with Disabilities Education Improvement Act (IDEA), when appropriate "each public agency must ensure that assistive technology devices or assistive technology services" (Sec. 602[1][A]; 34 CFR §300.105) be provided to students with disabilities.

Assistive technology (AT) is a broad and inclusive term that covers everything from specialized drinking cups to Velcro; from computers to wheelchairs. In fact, AT is anything that helps a child with a disability to perform a skill or participate in an activity (Campbell, Milbourne and Wilcox, 2008).

The federal definition of 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 the functional capabilities of children with disabilities" (Sec. 602[1][A]; 34 CFR §300.5). The use of AT can be advantageous for children with disabilities regardless of their diagnosis. The type of AT a student may use will depend on the environment (e.g., an electronic communication device for the classroom and a picture communication system for the cafeteria); the needs and abilities of the student; and the demands of the task (e.g., a wheelchair for mobility and a text-to-speech device for reading). AT must enable students to access, participate in, and progress in the general education curriculum.

AT supports and services are an integral component of the Common Core State Standards (CCSS). The standards recognize the significance of AT as supports and services for students with disabilities in meeting high academic

standards to demonstrate their conceptual and procedural knowledge and skills in mathematics and language arts. The CCSS clearly state that instruction for students with disabilities should incorporate supports and accommodations, including AT devices and services to ensure access to the general education curriculum and the CCSS (Common Core State Standards Initiative, 2010).

The Quality Indicators for Assistive Technologies (QIAT) were developed, revised, and validated by professionals representing various perspectives and roles within the field of assistive technology, who were concerned about the provision of AT to students (QIAT Consortium Leadership Team, 2000). The purpose of QIAT is to improve the educational achievement of students with disabilities by enabling districts to evaluate and develop their AT services (QIAT Leadership Team, 2012). As this document intends to provide a framework for providing AT services for students with disabilities in the educational setting, it seems fitting to embed QIAT throughout.

QIAT addresses eight areas (appendix 1, appendix 2, appendix 3):

1. Consideration of the need for assistive technology during the IEP meeting.
2. Evaluation of the need for assistive technology.
3. Including assistive technology in the IEP.
4. Implementing the use of assistive technology.
5. Evaluating the effectiveness of assistive technology use.
6. Transitioning with assistive technology.
7. Administrative support for assistive technology services.
8. Professional development and training in assistive technology.

These indicators are evidence-based and are used by various states (e.g., Arizona, Arkansas, Florida, Georgia, Minnesota, and Texas) to guide AT services for students with disabilities. The indicators include descriptions of common errors that may occur, self-evaluation matrices, and specific statements and intent in the above-mentioned eight areas.

For more information on the eight areas QIAT addresses, refer to appendix 1, appendix 2, and appendix 3.

Service delivery professionals can use the indicators to ensure that:

- AT services that districts develop and deliver are legally correct according to the mandates and expectations of federal and state laws;
- AT services align to district policies;
- team members involved in AT processes are responsible for following the code of ethics for their specific profession; and
- AT services, at all stages, involve the ongoing collaborative work by teams that include families and caregivers, school personnel, and other needed individuals and service agencies.

Document Purpose and Layout

This document provides a framework for making decisions about the AT needs of students with disabilities. It outlines procedures for making initial consideration decisions, evaluation, documentation, implementation, and evaluation of effectiveness. An essential focus of this document is also to assist educators, parents, and advocates to understand the legislation and rights of students with a disability regarding the use and availability of technology.

In providing this framework, the Connecticut State Department of Education (CSDE) recognizes that some districts already have AT practices in place. At the same time, it realizes that AT services vary from district to district, in both procedure and delivery, for those students that require AT. This document is an attempt to ensure that all children being provided services under IDEA have access to AT to increase their functional capabilities, and that all students being served under IDEA receive appropriate AT services so they can access, participate in, and progress in general education. The intent is that this process will enable school districts to make informed decisions about the AT considerations, implementation, and evaluation for their students, factoring in administrative support and professional development.

Laws and Policies

Chapter contents

- The Individuals with Disabilities Education Improvement Act (IDEA 2004)
- Definition of Assistive Technology and Services under IDEA
- History of Assistive Technology under the IDEA
- IDEA 2004, Part B (children 3-21 years)
- The Least Restrictive Environment (LRE)
- Connecticut Special Education Laws and Regulations
- The Rehabilitation Act of 1973—Section 504 Eligibility

The Individuals with Disabilities Education Improvement Act (IDEA 2004)

Several important laws contain sections that relate to the provision of AT for children with disabilities: the Individuals with Disabilities Education Improvement Act; Connecticut special education laws and regulations; Section 504 of the Rehabilitation Act; and the Americans with Disabilities Act (ADA). In addition, the U.S. Department of Education has issued several policy letters, and the U.S. Supreme Court has ruled on questions that affect decision-making related to assistive technology devices and services.

For further information regarding laws that relate to the provision of AT for children with disabilities, such as the ADA, the federal Assistive Technology Act, and Connecticut's assistive technology lemon law, please refer to appendix 4.

The IDEA governs all aspects of serving children with disabilities from birth through 21 years of age. The information below contains basic definitions under IDEA and their application to AT. The remaining chapters of the guidelines will include legal references related to the process of considering the technology needs of students where appropriate.

Definition of Assistive Technology and Services under IDEA

Throughout the various reauthorizations of IDEA, the definition has remained constant as "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 the functional capabilities of a child with a disability." However, when the Individuals with Disability Education Improvement Act was released in 2004, an *exception* was added for the "term does not include a medical device that is surgically implanted or the replacement of such device" (Sec. 602[1][A]; 34 CFR §.300.5). For example, cochlear implants would fall under this exception.

AT devices range on a continuum from simple low-technology (e.g., highlighters, pencil grips, straws or Velcro) through mid-technology (e.g., switch-operated toys, tape recorders, and calculators) to the most sophisticated and cutting-edge high-tech tools (e.g., computers or motorized wheelchairs). Under IDEA AT includes both *assistive technology devices* and *assistive technology services* and is applicable for (or to) infants, toddlers, preschool, and school-age students with identified disabilities.

An *assistive technology service* means any service that directly assists a child with a disability in the selection, acquisition, or use of an AT device. Under Section 34 CFR §300.6, the term includes:

- the evaluation of the needs of a child with a disability, including a functional evaluation of the child in the child's customary environment;
- purchasing, leasing or otherwise providing for the acquisition of AT devices by children with disabilities;
- selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing AT devices;
- coordinating and using other therapies, interventions, or services with AT devices, such as those associated with existing education and rehabilitation plans and programs;
- training or technical assistance for a child with a disability or, if appropriate, that child's family; and
- training or technical assistance for professionals (including individuals providing education or rehabilitation services), employers, or other individuals who provide services to, employ, or are otherwise substantially involved in the major life functions of that child.

It is important to recognize the equal importance that the law places on provisions of AT services as well as the actual devices the student or young child needs. Ensuring that a child accesses and benefits from needed AT devices requires the provision of a number of services, as described above and expanded on throughout these guidelines.

History of Assistive Technology under the IDEA

As the IDEA and its regulations have been reauthorized or amended, AT has played a more prominent role in the developmental and educational plans for

children with disabilities. AT was first mentioned when the 1975 Education for All Handicapped Children Act (P.L. 94-142) was reauthorized as the Individuals with Disabilities Education Act in 1991, and in its accompanying 1992 regulations. Under this reauthorization, the IDEA required AT devices and services to be made available to infants and toddlers with disabilities if deemed an appropriate part of their early intervention program in natural settings described in their Individual Family Service Plans (IFSPs). For preschool and school-age children with disabilities, school districts were required to provide AT devices and services, if needed, as part of their special education, related services, or supplementary aids and services in their individualized education programs (IEPs), designed to address their unique needs.

When Congress reauthorized IDEA in 1997 and released the amended regulations in 1999, school districts were required to do more than just ensure the availability of necessary AT. While the law did not require that every preschool and school-age child needing special education and related services receive AT devices and services, the planning and placement team (PPT)/individualized education program (IEP) team had to consider the use of AT whenever this group of professionals and families developed an IEP for a child with a disability. The latest improvement act of 2004 maintained the language about AT for infants and toddlers and the requirement to consider the need for AT in the development of an IEP (IDEA 2004, Sec. 614[d][3][B][v]; 34 CFR §300.324[a][2][v]; 34 CFR §300.105).

For more information about early intervention services, refer to part 2 of this document, AT Guidelines for Infants and Toddlers under IDEA Part C.

Note: AT devices and services continue to be listed as one of the early intervention services that infants and toddlers may need to have included in their IFSPs (see AT Guidelines for Infants and Toddlers under IDEA Part C). Neither the statutes nor the regulations elaborate on what needs to be done to effectively consider AT for children. The chapters that follow provide guidance for accomplishing that task.

IDEA 2004, Part B (children 3-21 years)

Part B of the IDEA defines a school-age *child with a disability* as one who has been identified as having any of the 13 disabilities described in the law and who needs special education and related services as a result. These disabilities are autism, deaf-blindness, deafness, emotional disturbance, hearing impairment, mental retardation (intellectual disability in Connecticut), multiple disabilities, orthopedic impairment, other health impairment, specific learning disability, speech or language impairment, traumatic brain injury, and visual impairment (IDEA 2004). Eligibility for special education and related services and their particular educational needs, including the need for AT, are determined through a comprehensive evaluation that is planned, conducted, and reviewed by a multidisciplinary team.

Young children (ages 3 to 6 in Connecticut) are eligible for IDEA services if determined to have a developmental delay as described in the law or any of the other disabilities mentioned above.

The AT requirements of IDEA are not limited to any particular disability. Children with any of the disabilities covered by the law have the right to have

their AT needs addressed.

The hallmark of disability eligibility in Part B of IDEA is that the identified problems must be shown, through evaluation, to adversely affect the child's educational performance. Included in Part B are several mandates to include that each eligible child be provided with a free appropriate public education (FAPE) in the least restrictive environment (LRE) with his or her nondisabled peers to the maximum extent appropriate.

The term "free appropriate public education" means special education and related services are:

- provided at public expense, under public supervision and direction and without charge;
- meet the standards of the state education agency (i.e., the Connecticut State Department of Education);
- include an appropriate preschool, elementary school, or secondary school education; and
- are provided in conformity with an IEP that meets legal requirements (IDEA 2004).

The term "special education" means specially designed instruction, at no cost to parents or guardians, to address the unique needs of a child with a disability and to ensure access of the child to the general curriculum, so that the child can meet the educational standards, including instruction conducted in the classroom, in the home, in hospitals and institutions, and in other settings; and instruction in physical education.

As members of their child's PPT/IEP team, parents have the right to be involved in all decisions relating to their child's identification, evaluation, and placement. Part B also assures that children with disabilities and their parents or guardians are protected by due process in decision-making about the child's special education and related services (IDEA 2004). When the PPT/IEP team is considering the use of AT devices and/or services, decisions should be made with consideration of FAPE, LRE, parental involvement, and parents' due process rights.

The term "related services" means those services that are required to help a child with a disability benefit from special education. All the specifically listed related services may have a direct or indirect relationship to AT, namely transportation; speech-language pathology and audiology services; interpreting services; psychological services; physical and occupational therapy; recreation, including therapeutic recreation; social work services; school nurse and health services; counseling services, including rehabilitation counseling; orientation and mobility services; medical services for diagnostic or evaluation purposes; early identification and assessment of disabling conditions; and parent counseling and training. Although AT is not specifically mentioned in the list of related services, the list is not exclusive—meaning that a service not on the list can be considered a related service if the PPT/IEP team determines it is necessary to support a child's special education. Therefore, AT could be included in a child's IEP as a related service (OSEP Policy Letter to S. Goodman, 16 EHLR 1317, [8/10/90]).

The "free" in free appropriate public education means that all aspects of the special education and related services provided to children with disabilities between the ages of 3 and 21 must be at "no cost to the parents." This rule

prohibits schools from refusing to include equipment or services in an IEP because it is too expensive. The only time "cost" can be a consideration is when two *equal* alternatives exist that would each enable the child to receive an appropriate education —in this case, the school may choose the less expensive option. In addition, schools cannot require parents to pay for devices and services that appear as part of their child's IEP, (even if that IEP includes language that the use of AT occurs at home). Parents cannot be required to use private insurance to pay for devices and services, especially if they would suffer a financial loss as a result (loss has been defined to include a decrease in coverage, depletion of a lifetime cap, raised premiums, and/or discontinuation of a policy to pre-existing condition exclusions). If a family agrees to allow the school access to its private insurance or to pay for the device out of pocket, this decision must be *strictly voluntary* (Wolfenden, 1995).

The term "appropriate" in FAPE does not mean "best." School systems are required to provide a student with a disability with an "appropriate" education. IDEA does not define the term "appropriate." However, the U.S. Supreme Court looked at the issue of "appropriate" vs. "best" in the *Board of Education of the Hendrick Central School District v. Rowley* (1982) case. The court ruled that the special education and related services offered to a child with disabilities must meet two criteria to be "appropriate" for the purposes of the IDEA:

1. The IEP must be developed in accordance with the procedures set forth in IDEA, including those governing resolution of disputes between parents and school systems.
2. The IEP must be "reasonably calculated to enable the child to receive educational benefits" (Boundy and Ordover, 1991).

The Rowley decision, as the ruling has come to be known, established a "basic floor" for special education quality by holding that the IDEA does not require the school to provide an educational program that is designed to maximize a student's potential. The educational program must, however, "confer a benefit to the student that is more than trivial." The IEP must be one "under which educational progress is likely" (Boundy and Ordover, 1991). Applying the Rowley decision to AT, *appropriate* means the use of any device or service that a child needs to benefit from his or her educational program. It also means proper assessment from knowledgeable professionals with parental input and training of all the individuals involved in the student's program (Goodman, 1991).

The Least Restrictive Environment (LRE)

The LRE requirement in the IDEA states that to the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are not disabled; and, special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability of a child is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily (34 CFR §300.114[a][2][i and ii]).

According to the report of the Harris Commission on Education and Labor

regarding P.L. 101-476 (the IDEA), "Advances in the development and use of AT have provided new opportunities for children with disabilities to participate in educational programs. For many children with disabilities, the provision of AT devices and services will redefine an appropriate placement in a least restrictive environment and allow greater independence and productivity."

Aids, services, and other supports that are provided in regular education classes, other education-related settings, and in extracurricular and nonacademic settings, to enable children with disabilities to be educated in the LRE are called "supplementary aids and services". By providing tools that help a student function either more independently and/or more successfully in the regular classroom, AT can impact both the curriculum and staff supports that a student requires. The use of AT devices may also raise a student's achievement in the least restrictive environment. For example, certain computer technologies provide ways in which students can be less dependent on staff supports for reading and writing tasks, thereby providing these students with the least restrictive environment for completing these tasks.

Connecticut Special Education Laws and Regulations

Connecticut's special education laws and regulations essentially mirror the provisions of the IDEA. Notable exceptions are the use of the term planning and placement team (PPT) that is synonymous with individualized education program team (IEP team); the composition of the PPT/IEP team and member attendance requirements that supplement IDEA requirements; and the timelines for conducting activities related to referrals, evaluations, and IEP implementation. These requirements under state law will be cited, as appropriate, in the chapters dealing with best practice and procedures for addressing the AT needs of children and youth with disabilities, ages 3-21.

The Rehabilitation Act of 1973—Section 504 Eligibility

The Rehabilitation Act was introduced to prevent intentional or unintentional discrimination and to eliminate barriers that excluded individuals with disabilities. Section 504 of the Rehabilitation Act of 1973 is a civil rights law that prohibits agencies and programs that receive federal funds from discriminating against individuals with disabilities.

The Office of Civil Rights at the U.S. Department of Education oversees the implementation of Section 504 by agencies and programs that receive federal funds. Public schools receive federal funds and, therefore, are subject to the provisions of Section 504. The law states, "No otherwise qualified individual with handicaps in the United States...shall, solely by reason of his handicap, be excluded from participation in, be denied the benefit of, or be subject to discrimination under any program or activity receiving federal financial assistance...(29 U.S.C. §794)."

Students who do not qualify for special education under the IDEA but are determined disabled under Section 504 of the Rehabilitation Act of 1973 are

eligible for accommodations that may include AT devices and/or services. Note that Section 504 uses the term "handicapped" while the IDEA uses the term "disability." The definition of disability under Section 504 is different from the definition of disability under IDEA. Under Section 504, an "individual with handicaps" is defined as a person who "(i) has a physical or mental impairment which substantially limits one or more major life activities, (ii) has a record of such an impairment, or (iii) is regarded as having such an impairment." Major life activities include walking, sleeping, seeing, hearing, learning, caring for oneself, performing manual tasks, speaking, breathing, and working (29 U.S.C. §706[8][B]). This means that the definition of individuals with handicaps under Section 504 is broader than the definition of children with disabilities under the IDEA.

Section 504 applies to preschool and elementary and secondary schools that receive or benefit from federal financial assistance. These programs are required to provide students with disabilities a free appropriate public education. Section 504 defines appropriate as the provision of regular or special education and related aids and services that are designed to meet the individual educational needs of handicapped persons as adequately as the needs of nonhandicapped persons. Programs subject to Section 504 must ensure that students with disabilities are afforded an equal opportunity to participate in all academic and extracurricular school programs. Benefits and services provided to students with disabilities must be equal to, and as effective as, the benefits and services afforded to other students (34 CFR §104.4[b][ii-iii]).

Schools may have to make special accommodations, including the provision of AT devices and/or services, to allow students with disabilities to have access to the full range of programs and activities available to nondisabled students. These are documented under "accommodations" in the 504 plan designed for each student according to individual need. For further information about Section 504 and public schools' responsibilities under the provisions of Section 504, please contact the Northeast Regional Office of Civil Rights at 617-289-0111 or the U.S. Department of Education.

For more information on laws and policies, refer to appendix 4.

Chapter contents

- Elements of Consideration
- Consideration Outcomes
- Documenting Consideration of AT in the IEP

Consideration of Assistive Technology Needs

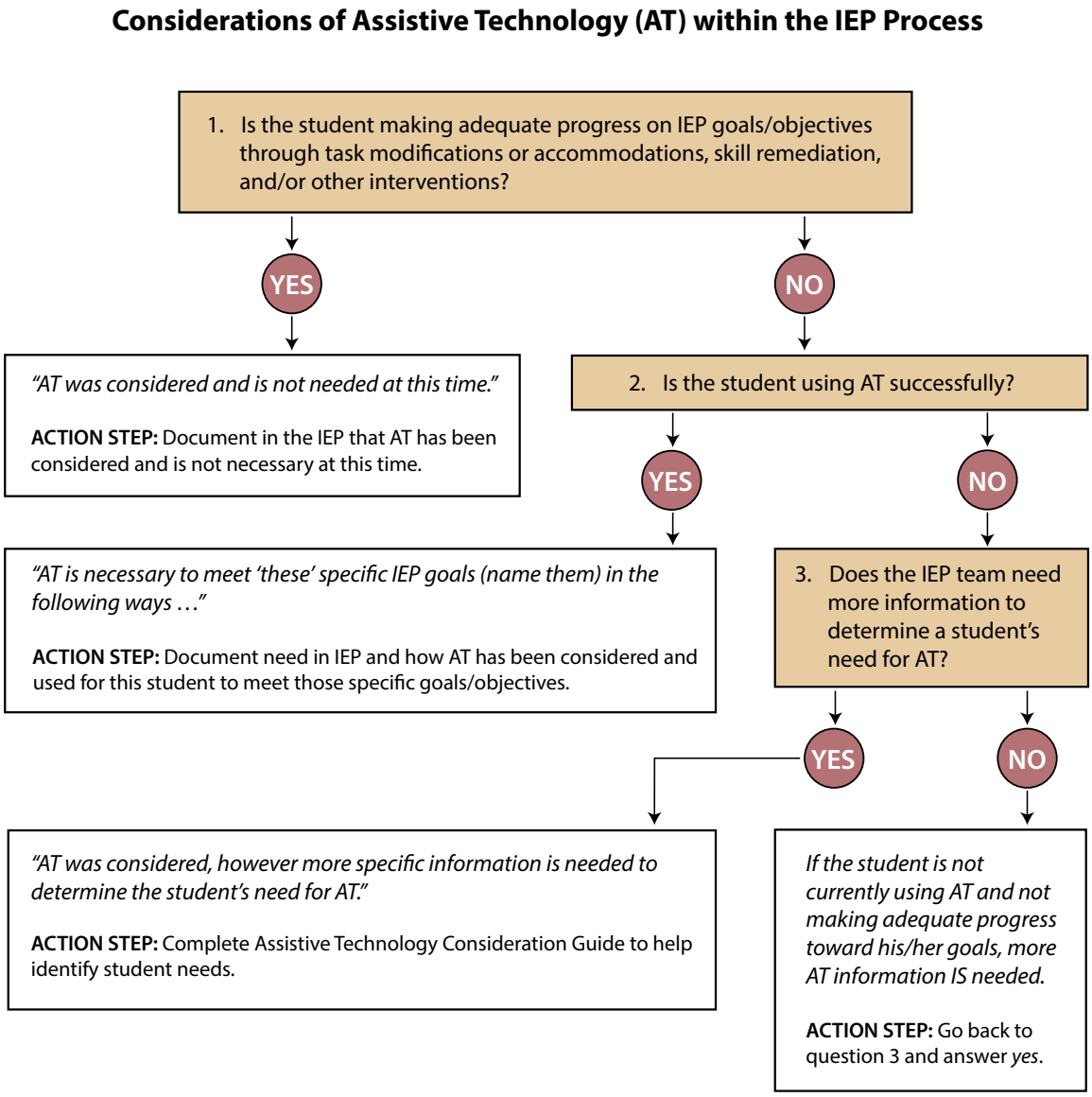
The question of whether a student needs at requires thoughtful attention and analysis of all areas related to that student's goals. The consideration process presented in this document was developed to help the PPT/IEP team simplify this analysis, organize information, and lead discussion.

This process is adapted from several sources, including the Student, Environment, Task, and Tools (SETT) procedure developed by Joy Zabala; the Consideration Guide from WATI — the Wisconsin Assistive Technology Initiative (appendix 8); the Consideration Process from John Hopkins University (appendix 6); the Consideration Checklist from the GPAT - Georgia Project for Assistive Technology (appendix 7); and QIAT the Quality Indicators for consideration of AT needs (appendix 1).

A consideration flow chart (figure 1, page 12) provides a framework for a brief discussion and format for documenting decisions the PPT/IEP team makes. The consideration process begins with the PPT/IEP team reviewing information about the student, any issues that a student may have in accessing the curriculum, and participation in and progress toward completing educational goals. The review includes gathering information about the following:

- the student's skills or issues of access affecting his or her performance;
- the environmens where the student completes goals and activities;
- the tasks that the student needs to accomplish and the student's present level of performance on that task; and
- other strategies (technology or nontechnology strategies), modifications or accommodations already in use (Zabala, 1999).

Figure 1. Consideration of AT within the IEP Process Flow Chart



Adapted from:

Zabala, J.S. (1994). The SETT framework: Critical questions to ask when making informed decisions about AT (online). Available at http://www.joyzabala.com/Documents.html.

Bowser, G. & Reed, P. (1988) Education tech points: A framework for AT planning: Roseburg, OR: Oregon Assistive Technology project.

For cases where AT needs have already been determined through an AT assessment, the PPT/IEP team should review the recommendations of the assessment and document its action on the IEP. The PPT/IEP team can use the quality indicators for consideration of AT (appendixes 1, 2 and 3) to guide and evaluate its current practices and decision-making processes when considering AT.

The PPT/IEP team should discuss whether AT is required, whether it may be required, or whether more information is needed in order to make a decision. If the PPT/IEP team determines that the student requires AT and is aware of technology that meets the student's needs, such as technology that is already available in the student's educational environment, or that the student has been using successfully to meet IEP goals and objectives, it should record the devices and services on the IEP.

When the PPT/IEP team is unsure of the need, appropriateness, or the availability of AT during the consideration discussion, it will need to gather more information. This can occur in many ways:

- through trials of possible AT;
- gathering information on possible AT devices;
- survey the student's needs by calling upon a professional with expertise in AT; and/or
- when indicated refer the student for an AT assessment.

To complete the consideration determination in such cases, the PPT/IEP team should document what services the team requires (such as training and technical assistance) and specific action required. For example, team members decide to try word prediction with a student and write into the IEP that "six-week trial of word prediction will occur". Lastly, if the PPT considers AT and finds that none is required at that time, the PPT should document that decision and the process used to make the decision.

Elements of Consideration

When considering AT, the Georgia Project for Assistive Technology (GPAT) suggests addressing the following:

- The process should be applicable to students with all types of disabilities and ability levels. Therefore, it would be applicable to students in preschool special education programs, students in school-based academic programs, and students with more severe disabilities participating in a functional instructional program.
- The process should be applicable to students of all ages. This would include students in preschool programs as well as students transitioning from the school system to postsecondary environments.
- The process should include an analysis of the instructional and access areas that are relevant to the student.
- The process should also include a review of the educationally relevant tasks with each of the appropriate instructional access areas.
- The process should include a review of the different environments in which the student is required to produce the relevant tasks referenced above.

- The process should include a review of the standard classroom tools, accommodations, modifications, and AT solutions that are currently in place and a determination as to whether these strategies are adequate to meet the student's needs.
- The process should include a generation of potential solutions, including AT, if the student's needs are not being met.

For more information on determining whether a student can complete tasks independently, refer to figure 2 on page 15 and appendix 7, column B.

After identifying the required tasks within the relevant instructional areas, the PPT/IEP team members should determine whether the student can complete the identified tasks independently using standard classroom tools. Standard classroom tools are defined as technology solutions that are typically available in the general education curriculum. If the student can independently complete the required tasks within an identified instructional area using standard classroom tools, then the consideration process for that area is completed. If the tool is required for the student to access, participate in, and make progress in the general education, it should be documented in the IEP. If the student cannot complete the identified tasks independently, then the educators should determine whether the student's needs are currently being met with accommodations and modifications that are in place or with currently available AT tools (appendix 7, column C). If the student's needs are being met in one or more of these ways, then the consideration process for this particular area is completed, and such AT should be documented in the IEP.

If the student's needs are not being met, then the PPT/IEP team should identify additional solutions (appendix 7, column D) that may be needed. These solutions may include additional accommodations and modifications that may need to be implemented, trial use of an AT device and/or referral for an AT consultation or evaluation. If potential AT devices are not known to the PPT/IEP team, the AT consideration resource guide (appendix 9), which provides a framework for identifying tasks within instructional areas and technology options ranging from low- to high-tech, may assist the PPT/IEP team to become aware of technology solutions that may be appropriate to meet the student's needs.

Assistive Technology Consideration Checklist

Student: _____ **School:** _____ **Date**: _____

DIRECTIONS

1. Please check (✔) the instructional or access areas in which the student is experiencing difficulty completing instructional tasks and/or meetings goals, benchmarks, or objectives. Record each of the checked areas in Column A of the boxes below (one area per box).

☐ Writing ☐ Spelling ☐ Reading ☐ Math

☐ Study/Organizational Skills ☐ Listening ☐ Oral Communication ☐ Seating/Positioning/Mobility

☐ Daily Living Activities ☐ Recreation and Leisure ☐ Pre-vocational and Vocational ☐ Other Specify: _____

2. Specify all relevant tasks (e.g. copying notes from board, responding to teacher questions, etc.) within each area in the space provided. Check the settings in which the task is required: GEC: General Education Classroom SEC: Special Education Classroom COM: Community HOM: Home.
3. In Column B, specify the standard classroom tools (low technology to high technology) used by the student to complete relevant tasks identified in Column A. Place a check (✔) in the appropriate box in Column B regarding independence or lack of independence with the identified tasks using standard classroom tools. For areas in which the student can complete the tasks independently with standard classroom tools, it will not be necessary to complete Columns C-D.
4. In Column C, specify the accommodations/modifications and assistive technology solutions that are currently being utilized. Place a check (✔) in the appropriate box in Column B regarding independence or lack of independence with the identified tasks using the identified accommodations/modifications and assistive technology solutions.
5. Complete Column D if the student cannot adequately complete the task with accommodations/modifications and assistive technology solutions specified in column C.

A. Instructional or Access Areas	B. Independent with Standard Classroom Tools	C. Completes Tasks with Accommodations/Modifications and/or Assistive Technology Solutions Currently in Place		D. Additional Solutions/Services Considered including Assistive Technology
		Accommodations/ Modifications	Assistive Technology Solutions	
☐GEC ☐SEC ☐COM ☐HOM	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	
☐GEC ☐SEC ☐COM ☐HOM	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	

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Figure 2. AT Consideration Checklist GPAT — Georgia Project for Assistive Technology (appendix 7)

A. Instructional or Access Areas	B. Independent with Standard Classroom Tools	C. Completes Tasks with Accommodations/Modifications and/or Assistive Technology Solutions Currently in Place		D. Additional Solutions/Services Considered including Assistive Technology
		Accommodations/ Modifications	Assistive Technology Solutions	
☐GEC ☐SEC ☐COM ☐HOM	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	
☐GEC ☐SEC ☐COM ☐HOM	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	
☐GEC ☐SEC ☐COM ☐HOM	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	

Consideration Outcomes:

☐ Student independently accomplishes tasks in all instructional areas using standard classroom tools. No assistive technology is required.
☐ Student accomplishes tasks in all instructional areas with accommodations and modifications. No assistive technology is required.
☐ Student accomplishes tasks in all instructional areas with currently available assistive technology. Assistive technology is required.
☐ Student does not accomplish tasks in all instructional areas. Required assistive technology devices are known. Assistive technology is required.
☐ Student does not accomplish tasks in all instructional areas. Appropriate assistive technology solutions are not known to the IEP team. Obtain additional assistance through consultation or refer for an assistive technology evaluation.

Specify any assistive technology services required by this student: _____

Name	Position	Name	Position

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Consideration Outcomes

Regardless of the process used for considering AT, only a limited number of outcomes can occur. These include:

- The student independently accomplishes required tasks within the relevant instructional or access areas using standard classroom tools. AT is not required. Best practice says this should be documented in the IEP, and the team should refer to the process it used to come to this decision.
- The student accomplishes the required tasks within the instructional or access areas using standard classroom tools and accommodations and modifications that are currently in place. AT is not required. Again, this decision should be documented.
- The student accomplishes the required tasks within the relevant instructional or access areas with AT that has been determined to be educationally necessary and is currently in place. AT is required. Document required AT devices and services in the IEP. Monitor the use of the AT and make changes as needed.
- The student cannot accomplish the required tasks within the relevant instructional or access areas with accommodations, AT, and/or modifications that are currently in place.
    - If potential AT solutions are known to the PPT/IEP team, trial use of the identified AT solution may be documented in the IEP and implemented.
    - If potential AT solutions are not known to the PPT/IEP team, they may choose to consult with district personnel, recruit consultants who can assist the team in addressing AT, or refer the student for an AT evaluation. A trial-use period may be recommended at the end of the consultation or evaluation. The team should document its action plan.

Documenting Consideration of AT in the IEP

As required in the IDEA, the PPT/IEP team should document its consideration of AT in the IEP. The section titled Consideration of Special Factors is the required component of the IEP in which to document the consideration of AT. This section includes the following statement:

> *"Does the student require assistive technology devices and services?"*
>
> *Required* _____ *Not Required* _____ *If required, describe:* _____

If the student does not require AT, the PPT/IEP team should check "Not Required." If the student does require AT, the team should check "Required" and

describe the AT that is required by the student. Typically, it is recommended that features of devices be used rather than name brands and models. For example, the statement of AT needs for a student who is using AT to support writing skills may be written as, "Johnny uses a portable word processor with a spell-check feature when completing longer writing assignments."

Checking "required" or "not required" to the above Consideration of Special Factors question (and, if required, describing the technology needed) is the minimal compliance to the requirement for considering AT. However, best practice is to document the decision-making process used to address the student's need for AT. A statement regarding the discussion of AT needs may be documented in the minutes of the PPT/IEP team meeting and may be included in other components of the IEP as described below. For example, a statement such as the following could be used to document that AT was considered but not required: "An analysis of the required tasks within the relevant instructional areas revealed that Steve can independently accomplish the tasks; therefore, AT is not required." For a student requiring AT, a statement such as the following could be used to document the consideration process: "An analysis of the required tasks within the relevant instructional areas revealed that John has difficulty completing math calculations; therefore, it is recommended that he have access to a handheld calculator to complete math calculations in all classes."

AT required by the student may also be addressed in other components of the IEP, including the present levels of performance, the listing of special education and related services, the listing of supplemental aids and services, the listing of required accommodations and modifications, the listing of accommodations and modifications required for participation in districtwide and statewide assessments, and in the annual goals, objectives and benchmarks (GPAT, Legal Mandates for Assistive Technology 2008).

For examples of documenting AT requirements, please refer to the WATI AT consideration guide.

Assessment/Evaluation

Chapter contents

- Background Information
- Collaborative Team Process
- Student Observations and Trials
- Recommendations to PPT/IEP Team

Assessment should be conducted by a team with the collective knowledge and skills needed to determine possible assistive technology solutions that address the needs and abilities of the child in his or her natural environment. Besides the early intervention providers, inclusion of parents and caregivers from other settings on the assessment team is highly encouraged.

The assessment should focus on what the student needs to do that he or she is not currently doing within the school, routines of the family and those that are a priority for the family. Assessments should be based on the child's developmental performance in his or her customary environment such as the school, home and community. Finally, assessment should take into account what AT has been tried or is currently being used. Consider or reflect on what is working and what is not.

Following the consideration of AT within the development of the student's IEP, an evaluation may be needed to determine the potential AT tools required to meet the identified student need. As such, an AT evaluation should not be completed as a component of an initial evaluation to determine student eligibility for special education. Rather, once a student's eligibility has been determined, the PPT/IEP team should consider AT and may recommend an AT evaluation when necessary. The quality indicators for assessment of AT needs provide ways to guide and evaluate the PPT/IEP team through the processes of evaluation that schools and districts can follow (appendix 1, appendix 2, appendix 3).

Once consent has been obtained, the student's educational team may begin to explore the continuum of AT (from low- to high-tech) with consideration of the usefulness of devices. If the AT evaluation continues to be considered necessary, it should occur within a reasonable timeline (unless a specific timeline has been identified in the IEP). As part of the pre-evaluation activities, the student's educational team may continue to complete the necessary referral information to guide the evaluation process to include critical components of the indicators that the team has used in the consideration process to include all previous attempts around meeting the student's needs.

Background Information

To adequately assess the needs of a student, the pre-evaluation activities also include the collecting of background information. This information should be compiled collaboratively by the student's multidisciplinary team, which includes the student and his or her family. Common items in the background information include, but are not limited to:

- Demographic information.
- Key referral questions—specific questions to be answered by the evaluation.
- Relevant medical information and considerations.
- Results of recent education evaluations.
- History of past and current AT used:
    - How long the AT has been/was used?
    - Was the use of the AT successful?
    - If no longer being used, why was use discontinued?
- Assessment of gross and fine motor skills.
- Assessment of communication.
- Sensorimotor functioning in:
    - visual skills;
    - hearing; and
    - perceptual motor skills.
- Educational skill levels:
    - reading;
    - writing;
    - math;
    - organization; and
    - processing skills.
- Current computer usage and skills.
- Student's learning style and preferences.
- Work samples relevant to the key referral question.

Once the background information has been gathered, the AT evaluation process should continue with a consultation with/between the multidisciplinary team, including the parents and student; a review of additional educational records as appropriate; observations of the student in his or her customary environments; trials of potential AT with the student; and a written report for the PPT/IEP team to review.

Collaborative Team Process

Each student's team should be customized to reflect the student's unique needs. Anyone who has the potential to contribute to the decision-making or implementation of services can be invited to participate on the educational team. Members of the educational team (although not an inclusive list) should include all the professionals involved in the tasks addressed in the key referral question: those involved in the AT consideration and/or evaluations; parents and/or other family members; the student; the special education and regular education teacher; a representative knowledgeable about the student and/or the curriculum; and, depending on the focus of the evaluation, a specialist knowledgeable in the area of motor skills (such as an occupational or physical therapist), the area of language (such as a speech and language pathologist), and/or other professionals as needed (such as an audiologist, school nurse, vision specialist, technology specialist, or teacher of the deaf). If the school does not have appropriately trained or certified professionals, it must obtain appropriate professionals to perform the evaluation (e.g., if the student has little or no communication, then an SLP familiar with communication alternatives from low- to high-tech should be included, along with an OT to assist with the determination of access methods).

Student Observations and Trials

Observations and trials should be based on the key referral question and evaluated by the identified member of the education team who is expected to report the outcomes of the observation. Evaluators should observe the student in the customary environments engaged in activities related to the key referral question. For example, the key referral question might be "What additional tools are needed to assist Johnny with organizing written expression into a coherent multiparagraph essay?" In this instance, the customary environment would include the various classroom situations in which multi-paragraph written responses are part of the curriculum. As part of these observations, the evaluator should note whether the student is using any current strategies or AT tools already in place.

Based on the information gathered during the observation, the next step in the evaluation process is to conduct trials. The evaluator (the individuals who conduct the evaluations, observations and follow up trials) should take into consideration the student's physical, cognitive, and emotional abilities along with preferences in selecting AT for trial. Based on the initial and/or subsequent trials, an AT tool may be selected that meets the student's needs. In other instances, it may be necessary to develop an action plan for extended trials with one or more potential solutions. One factor to consider in extended trials is whether the student and/or staff require training in the use of AT to determine its effectiveness in meeting the student's needs.

The WATI AT trial-use guide is an example of student observation.

Recommendations to PPT/IEP Team

The evaluation report should provide the PPT/IEP team with clearly documented recommendations that guide decisions about the selection, acquisition, and use of AT devices and services (QIAT, 2009). The report should detail the evaluation process, particularly information and data gathered regarding the student, a summary of tools and strategies previously used, a description of the student's environment, a list of his or her tasks that need to be completed within the educational environment, a description of tools tried/trialed during the evaluation, and information on the student's response and/or performance. The report should include what strategies and/or features of tools could meet a student's needs. Recommendations should include information to help the PPT better select and plan for implementation of AT tools and services. The report can name kinds of specific devices if a particular item becomes obvious as benefiting the student during the evaluation. However, if there are questions about which of several devices may benefit the student, or if one particular tool may or may not be effective, the evaluation can and should recommend an extended trial period to make an informed decision about which tools might be appropriate. Extended trials do not have to occur during the evaluation timeframe, but there should be a documented and reasonable plan, including timelines, on what the PPT/IEP team agrees.

Funding for Assistive Technology

Chapter contents

- Evaluation
- AT Devices and Services
- Ownership
- Maintenance and Repair

If a child eligible under the IDEA requires AT to receive a free appropriate public education, the school district must provide the appropriate AT devices and services to ensure the child can access, participate in, and progress in the general education curriculum to the fullest extent possible.

As indicated in the IDEA and its regulations, FAPE means that all parts of a child's IEP (special education and related services) must be "at no cost to the parents." This "no cost" rule applies to AT and prohibits school districts from excluding AT devices and/or services from a child's IEP based solely on the devices' expense. A school district also cannot require that a parent's health insurance pay for AT devices and/or services, although a parent may elect to use it.

Evaluation

As stated above, an AT service means any service that directly assists a child with a disability in the selection, acquisition, or use of an AT device, and includes an AT evaluation of the needs of a child with a disability. The school district, therefore, is responsible for paying for an AT evaluation when the PPT recommends one.

If a parent requests an independent AT evaluation at public expense

because the parent does not agree with the school district's AT evaluation, the school district may either choose to fund the independent AT evaluation, or, if the school district believes its AT evaluation is appropriate, initiate a due process hearing to have a hearing officer decide whether the school district's AT evaluation is appropriate. The school district should choose one of these actions without delay. When the school district agrees to pay for the independent AT evaluation, the criteria under which the independent AT evaluation is obtained, including the location and the qualifications of the examiner, should be the same as the criteria that the school district would use when it does its own evaluation. When the school district initiates due process procedures and the hearing officer decides in favor of the school district, the parent may still obtain an independent AT evaluation but has to pay the costs associated with it.

AT Devices and Services

According to the IDEA, a school district is responsible for paying for any AT device and/or service that is in the IEP and determined to be necessary to provide a child with a disability a FAPE. A school district should provide funding for AT devices and services required for the implementation of the child's IEP both in school and off site (e.g., community involvement, vocational training, and homework). The IDEA and Section 504 do not provide for exemption of responsibility for "personal use" AT devices. Examples of such devices include customized wheelchairs, augmentative communication devices used exclusively by and programmed for an individual student, text readers for personal use or study, or services of a personal nature, including assistance in eating, toileting, or dressing. In cases such as these, if the device is part of the IEP or meets the requirements set forth under Section 504, the school district is responsible for providing the AT devices and/or services (OSEP Policy Letter to P. Seiler, 10 IDELR 1216, [11/19/93]).

On "a limited basis and under unique circumstances" based on a child's individual needs, devices such as hearing aids or eyeglasses *may* be considered AT devices. The consideration here is the educational need of the device as opposed to the medical need. An OSEP policy letter answering this specific issue stated that "the relationship that must be present is between the educational needs of the child and the AT device and/or service" (ibid). In other words, the student must require the device in order to benefit from his or her educational program. In order for the school district to provide the device, the device must be part of the IEP (OSEP Policy Letter to T. Bachus, 22 IDELR 629, [1/13/95]). The only exception to this is when the devices are determined to be "medical" and not "educational."

There are a few exceptions to a school district's responsibility for paying for AT devices and/or services. As stated above, the IDEA provides an exception to its definition of an AT device regarding medical devices that are surgically implanted or the replacement of such devices (Sec. 602 [1][B]; 34 CFR §.300.5). AT may be included in a child's IEP as a related service (OSEP Policy Letter to S. Goodman, 16 EHLR 1317, [8/10/90]), however, IDEA has an exception to its definition of related services under 34 CFR Section 300.34(b):

(1) Related services do not include a medical device that is surgically implanted, the optimization of that device's functioning (e.g., mapping), maintenance of that device, or the replacement of that device.

(2) Nothing in paragraph (b) (1) of this section—

i. Limits the right of a child with a surgically implanted device (e.g., cochlear implant) to receive related services (as listed in paragraph (a) of this section) that are determined by the PPT/IEP team to be necessary for the child to receive FAPE;

ii. Limits the responsibility of a public agency to appropriately monitor and maintain medical devices that are needed to maintain the health and safety of the child, including breathing, nutrition, or operation of other bodily functions, while the child is transported to and from school or is at school; or

iii. Prevents the routine checking of an external component of a surgically implanted device to make sure it is functioning properly, as required in Sec. 300.113(b).

Furthermore, under *Cedar Rapids Community School District v. Garret F.* (25 IDELR 439), the Supreme Court provided a "bright line" test for purposes of determining whether a school district is responsible for providing a device or service that may be considered medical. Under the bright line test, the inquiry focuses on *who* must deliver the device or service, not on the nature of the service to be provided. If a physician must deliver the device or service, it is not a related service, and may be excluded as a medical service or treatment. The school district, therefore, is not responsible for providing the device or service. If, however, individuals other than a physician can provide or deliver the device or service (e.g., nurse, occupational therapist, speech/language pathologist), the device or service cannot be excluded as a medical service or treatment, and the school district is responsible for providing the device or service if the PPT/IEP team determines that the child needs it to benefit from the educational program.

Ownership

The party that paid for a majority of a device owns the assistive technology devices purchased for children. If the school district fully funds the purchases of an AT device or equipment, the school district owns it. If the device has been purchased, in whole or part, through the child's private insurance or other third party, then the device belongs to the child and must be used only by that child.

Maintenance and Repair

The school personnel, the family, and the student should be jointly responsible for taking reasonable care of the AT. The PPT/IEP team should also identify methods for periodic checks of the AT equipment, reporting problems and completing repairs. If the school district owns the AT device, then it is responsible for ensuring proper safeguards and for replacement if the device

is damaged or broken. To ensure repair of devices, the PPT/IEP team should identify procedures that might include how a substitute device would be provided and other temporary options that would be offered as an acceptable substitute for the student's device. If a family purchases a device included in the IEP, the PPT/IEP team should decide who has the responsibility to repair, replace, and update the device. If the school district or outside agency purchases the device, that agency has the responsibility to repair, replace, and update it.

These requirements fall under the definition of AT services. Equipment updates are required by statute if the update would benefit the child and is not just for cosmetic purposes. However, in the area of computer technology, especially software, the need to keep up with updates is often necessary as computers and equipment change.

Funding Devices

For more information about Section 504 and public schools' responsibilities under the provisions of Section 504, contact the Northeast Regional Office of the Office of Civil Rights at 617-289-0111.

Students who are identified as having a disability/handicapped under Section 504 of the Rehabilitation Act of 1973 are eligible for accommodations that may include AT devices and/or services. Note that Section 504 uses the term "handicapped" while the IDEA uses the term "disability." The Office of Civil Rights at the U.S. Department of Education oversees the implementation of Section 504 by agencies and programs that receive federal funds.

Schools may have to make special accommodations, including the provision of AT devices and/or services, to allow students with disabilities to have access to the full range of programs and activities available to nondisabled students.

Assistive Technology: Documentation, Implementation, and Effectiveness

Chapter contents

- Documentation
- Examples of Documenting AT in the IEP
- Requirements Based on IEP Manual
- Documenting AT in 504 Plans
- Documenting AT in 504 Plans
- Implementation of AT
- Guiding Questions for Implementation of AT
- Effectiveness of AT

Documentation

AT devices and services that have been determined to be educationally necessary by the PPT/IEP team as related services or supplementary aids and services should be documented in the IEP under the accommodations section (page 8), recorded that assistive technology is "required" (page 11), and reflected as needed throughout the document.

The QIAT can assist PPT/IEP team members in describing and assessing their current practices as they relate to the role of AT in the student's educational program (appendix 1, appendix 2, appendix 3). When appropriate, AT should be integrated into goals and objective statements and transition planning. If AT is required as a component of standardized assessment, the AT should be indicated in the IEP area for standardized testing accommodations and modifications, and a statement should be included to describe the use of the AT. AT documentation should also include the training for the student and where appropriate, for the educators and other service providers (e.g., paraprofessionals) and family members.

Examples of Documenting AT in the IEP

- John demonstrates difficulty completing all writing assignments using standard classroom tools such as pencil and paper. His writing samples are characterized by spelling, grammar, and punctuation errors. He uses a handheld spell-checker to aid him in editing his handwritten communication. John also uses a computer-based word processing program with built-in spelling, grammar, and punctuation checks.
- Susan requires access to her augmentative communication device across all special education and related services. The classroom teacher as well as the speech and language pathologist and occupational therapist will be responsible for providing training in the programming and use of the augmentative communication device. Susan's general education and special education teachers will receive training in the use and programming of her device.
- Kira will write a three- to five-sentence paragraph with no more than one misspelled word when using a handheld spell checker to correct misspelled words.
- Due to her severe visual impairment, Shantae requires that all testing materials, including directions and, if appropriate, answer sheets, be provided for her use in Braille.

For information and examples of description of the features of technology, please refer to the Georgia Project for Assistive Technology Web site.

The documentation of AT devices and services should be clearly written so that all PPT/IEP team members, including parents, have a full understanding of how the AT devices and services will be provided. It is not required to name the specific name brand of AT, but the PPT/IEP team should describe features of the required technology.

Requirements Based on IEP Manual

The PPT/IEP team should list the AT devices and services as they relate to the student's active participation in educational activities, assessments, extracurricular activities, and typical routines on page 8 of the IEP. The "snapshot" view of the service provisions is on page 11 of the IEP, including a description of special education services, related services, participation in the regular education curriculum, service time requirements, and least restrictive environment information. If AT is required, it should be recorded in this section, corresponding with the description noted on page 8. Documentation of AT in the IEP should be included in other areas that are not mentioned here such as in meeting minutes, special factors, recommendations, an area of strength when AT is already in place and helping a student to be successful, and/or transition planning .

Documenting AT in 504 Plans

AT can be documented under the accommodations in a 504 Plan. For example, "Amy will be provided with 30 minutes extended time on tests to be able to use

voice recognition software (e.g., Dragon Naturally Speaking),” or “Steven will use a webcam to access a class if and when he has to remain at home because of a medical condition that prevented him from attending on any given day.”

Implementation of AT

AT implementation encompasses the ways that AT devices and services are included in the IEP and are integrated into the student’s educational program (appendix 1, appendix 2, appendix 3). The entire PPT/IEP team, and the AT team, is involved in collaborating to help support the student using AT. The focus of the PPT/IEP team should be to ensure that the AT assists the student in completing tasks necessary for progress toward IEP goals and objectives, as well as for the student to be an active participant within the educational environments (QIAT, 2009).

Once the team has considered AT during the IEP process, an implementation plan should be established. The plan, developed collaboratively, should provide detailed information regarding how the AT should be used in specific environments and for specific tasks, what needs to be completed for successful implementation, and who will do what tasks (QIAT, 2009). The implementation plan should ensure that AT is integrated into the student’s curriculum and daily activities and across applicable environments. The primary focus of AT in the plan is to facilitate the student’s access to the curriculum, but it also may facilitate active participation in educational activities, assessments, extracurricular activities, and typical routines (QIAT, 2009). This plan should also enable team members to share responsibility and be accountable for the implementation of the plan. Team members should know their responsibilities, roles, and expectations. Additionally, implementation includes the management and maintenance of materials and equipment. The team should delineate who is responsible for the organization of equipment and materials; for acquisition, set-up, repair, and replacement in a timely fashion; and for ensuring that equipment is operational (QIAT, 2009). There are many examples of implementation plans available, such as NATRI and GPAT.

Included within a student’s implementation plan should be statements of training is necessary for the student, team, and family. Training should be determined by how the AT will be used in each environment and implemented as part of an ongoing process based on the changing needs of the student and environment (QIAT, 2009). The quality indicators for implementation of AT can help educators access their current practices and to ensure that the AT is being implemented effectively in the classroom (QIAT Web site).

For more information on the quality indicators for implementation of AT, refer to appendix 1, appendix 2, and appendix 3.

AT should be one of a variety of strategies that the team employs for student success. Students and teams should be encouraged to use all types of strategies that assist with the removal of barriers to participation or student performance (QIAT, 2009). Since the AT implementation plan should initially be based on consideration and/or assessment data, the plan should be monitored and data should be taken to determine student progress. The plan should be adjusted and improved on based on this ongoing data. Examples of trial forms are available. Teams should be aware that implementation and assessment are inextricably

linked and that both occur on an ongoing basis.

Some big ideas to keep in mind in terms of AT intervention:

- Implementation includes devices, services, and strategies that promote student achievement.
- Implementation focuses on functional areas of concern when and where they occur.
- Implementation is an ongoing process involving the student, PPT, and others who work with the student.
- Implementation requires a collaborative plan by all stakeholders (TATN, 2009).

Guiding Questions for Implementation of AT

Teams will need to evaluate the effectiveness of the AT implementation plan. It is expected that the AT should have a positive impact on student achievement and/or functional performance. This could include communication, productivity, participation, environmental controls, progress in curricular expectations, progress in specific functional skills, or other domains. Team members should ask themselves a few guiding questions when determining appropriate AT interventions and implementation planning:

- What aspects of performance do they expect will change?
- What are the specifics of how the student should use AT (what tasks, under what conditions, where, when, how, and with whom)?
- What may need to be changed (use of AT, educational strategies, accommodations, and modifications)?
- What supports and cues will the student require to be successful (auditory, visual tactile, least to most, most to least, etc.)?
- What training does the student and the team need to have effective implementation?
- Are there any changes in the physical environment that need to be made to support student success (physical, sensory, availability of technology, access to technology)?
- Who are the adults actually involved in implementation (teachers, administrators, paraprofessionals, family, administrators, etc.)?
- What tasks do the adults need to accomplish to assist with supporting the student's effective use of AT (make available the technology, provide supervision or support, take data, assist with maintaining equipment)?
- What training do the adults need (device, strategies, how to get help when needed, troubleshooting, etc.)?
- What resources are needed by the adults to assist with implementation and training (AT practitioners and training from outside agencies, administrative support, vendor support, time)? (TATN, 2009)

After the supports defined in the implementation plan have been provided, teams should evaluate their AT interventions to determine effectiveness. Guiding questions could include:

- What evidence will be collected to convince us that AT is supporting the expected change in student performance (achievement, functional

capabilities, progress in goals and objectives)?
- What will be measured to determine if changes in performance occurred (quality, quantity, independence, accuracy, spontaneity, speed, frequency, duration, latency)?
- What strategies will be used for data collection (interview, discussion, observation, subjective reporting, student work review, video, etc.)?
- When and for what reason will data be reviewed and analyzed (frequency during implementation, periodically scheduled reviews, formative or summative evaluation)?
- What are we looking for when we analyze data (changes in student achievement or performance, expected results, unexpected results, barriers removed, continuing barriers, emerging barriers)?
- What changes should be made to improve implementation (consider if the student is not progressing, if expected results are not being achieved or criteria are not being met. Also consider implementation modifications when there are noted changes: in the student needs, in the environment, and task demands).

For an example of a data collection form, please refer to appendix 10 and appendix 11.

Effective intervention requires a collaborative plan. Implementation is effective when data show that student achievement and performance meet criteria. Implementation should be changed when data indicate it is not successful and decisions about change are based on data review and analysis (TATN, 2009).

Effectiveness of AT

The effectiveness of AT is determined by the impact it has on the quality of life of the user; that is, fostering the participation, independence, and self-confidence of the user. To consider the impact and effectiveness of AT, it is important to examine the device in terms of its efficiency, usefulness, and availability for the student. For example, if a student is using a computer-based writing tool, then the software should enable the student to participate with ease in all or most academic activities that require students to write; be valued by all stakeholders as having a positive impact; be easy to set up and use after training has been provided; and be available whenever the student needs to complete a writing assignment.

The student's PPT/IEP team should monitor the use of the AT technology (as outlined in the IEP). Periodic data collection across all environments should be conducted when the student is using the recommended device to evaluate the effectiveness and make changes as needed. For example, if the student is using software to write, then its actual effectiveness can be determined only if the student uses it for all writing assignments across all curricular areas. Once the evaluation has been completed, the PPT/IEP team should make relevant changes in the student's IEP. The quality indicators for evaluating the effectiveness of AT provide guidelines that enable educators to analyze and monitor changes in student performance as a result of AT implementation (appendix 1, appendix 2, appendix 3).

Regular evaluation of efficiency, usefulness, and availability will enable

service providers to consider the continuum of AT devices (from low- through high-tech) and cater to the needs of students with disabilities as well as meet changing academic and social demands. The responsibility of providing AT devices and services should not and does not lie only with the special educator or the AT specialist. When AT is used across environments as it should be, the entire team is responsible for it. Shared responsibility relates to all educators knowing what technology is being used; how the student is using it; when it should be made available; and responsibilities of the team members (i.e., programming, setting up, providing relevant information as necessary to program or set up the AT, backup plan, identifying responsibilities of the team members and carrying them through).

Assistive Technology and Educational Transition

Chapter contents

- AT and Postsecondary Transition
- AT and Self-Determination

AT should be considered a significant aspect of planning for transition (i.e., moving from one place or service to another: from B-3 to preschool; from preschool to elementary school; from elementary school to middle school; from middle school to high school; and from high school to postsecondary activities).

When students with disabilities transition from one service to another, the AT they use in one service should be provided in the next. When the team develops a plan for transition, it should include AT devices and services and identify the training needs and responsibilities of the stakeholders (student, peers, educators, and family members). The quality indicators for AT transition address practices that can help educators transition devices and services smoothly from one setting to another (appendix 1, appendix 2, appendix 3).

To successfully transition with their existing AT and/or prepare for the devices and services that students may need in new settings, AT-specific information should be included in the statement of transition services. This information can include:

- a description of the student's current technology use;
- a statement of the AT requirements in the receiving environment (i.e., the school/setting he or she will be moving to);
- information concerning the transfer of equipment, including user

manuals and support documents;
- identification of key personnel involved in training, accessing funding options, and providing ongoing support;
- steps for using and maintaining the AT;
- an outline of the roles and training needs of team members;
- follow-up activities including assessment and evaluation; and
- an individualized timeline for implementation.

Adapted from the QIAT Consortium's Quality Indicators for Assistive Technology Services and the Familiy Center on Technology and Disability.

AT and Postsecondary Transition

AT is an important component in the postsecondary transition planning process. Students may need AT for completing transition assessments, accomplishing functional tasks in community and employment settings, independent living skills, and accessing and participating in training and higher education settings. In addition, it is legally required that AT be part of the transition plan if it is part of the IEP and needed by the student.

AT elements are critical components that should be considered to bridge the next phases that the student may encounter to increase the opportunities for success while ensuring that transition needs are aligned with current and future skill sets. Students may need AT for completing transition assessments, filling out applications, accomplishing functional tasks in community and employment settings, completing essential job functions, and accessing and participating in training and higher education settings.

When AT services and devices are part of a postsecondary transition plan, information should be included about specific equipment, training, funding regarding transfer or acquisition of AT, and manuals and support documents. It is critical that key agencies be identified that may need to conduct further assessments or assist in purchasing equipment that the individual has had success with or can be trained in—ensuring that the supports remain seamless and address both generic and specific needs. This is especially important in cases in which the student is using school-purchased devices that will need to be returned upon graduation, unless arrangements are made to buy the device from the school. It can be noted that AT assessment can be considered a transition assessment.

Even if a student has been using AT within the school setting, the tools that he or she will need upon graduation will not necessarily be the same. Therefore, it is important to determine what the specific needs are based on the tasks and settings in which the student will be working, training, learning, and/or living. The student should be given the opportunity to try the technologies within settings in which they will be used and become technologically literate with current practices. Using technologies within a potential job setting will help to determine if they are an appropriate match and what changes, if any, may need to be addressed to have a successful outcome.

AT and Self-Determination

Self-determination is defined as the "ability to identify and achieve goals based on a foundation of knowing and valuing oneself" (Field and Hoffman, 1994). AT is one avenue for individuals with disabilities to gain greater control of their lives through making choices and increasing independence. Some of the elements of self-determination (Wehmeyer and Field, 2007) are:

- positive perceptions of control, efficacy and outcome expectations;
- self-awareness;
- self-knowledge;
- choice-making skills;
- decision-making skills;
- problem-solving skills;
- goal setting and attainment skills;
- self-regulation/self-management skills; and
- self-advocacy and leadership skills.

As part of self-advocacy, individuals should learn how to explain the technology they are using and how it helps them accomplish tasks. These skills will assist them in the future to make requests for needed accommodations and to become an informed consumer to avoid exploitation. Some of the characteristics of a self-determined individual are:

- acts autonomously;
- is self-regulated;
- is psychologically empowered; and
- acts in a self-realizing manner (Wehmeyer and Field, 2007).

Teaching correct terms, safety skills around social networking (such as not to give out personal information unless you are confident of the person's role in their life) and access to legitimate support networks will increase the chances for a successful and healthy transition into the next phases of the individual's life. As knowledge grows with successful use of the AT, individuals become more confident of his or her own abilities and a greater awareness of identifying and achieving personal goals. There are a number of resources available to assist with incorporating AT into transition planning, including The Assistive Technology Transition Planning Checklist, Assistive Technology Protocol for Transition Planning, Student Information Guide for Self Determination and Assistive Technology Management, Assistive Technology Goal Setting Worksheet, and the Student Portfolio for Successful Transition with Assistive Technology.

Administrative Responsibilities for Assistive Technology

Administrators from the district level to the school level play a vital and integral role in the delivery of AT services and supports within the school setting. Clear leadership, direction, and support for educational teams are needed to include the possible development of an AT team. Ideally, an AT team can comprise general and special educators, related service professionals, IT professionals, certified AT personnel, paraprofessionals and administrators.

It is the responsibility of the administrator to keep the team focused, to understand the nature of change, to facilitate teams, and their relationships, to assist with the building of knowledge, and to develop a clear message in terms of AT services and delivery (Fullan, 2001).

The administrator has many responsibilities to ensure effective AT services for students. Critical elements include ensuring that policies and guidelines for AT are developed and disseminated; effectively reinforcing to team members that the main purpose of AT within the schools is to support the implementation of the IEP; providing appropriate resources, time allotment, and professional development opportunities for individuals within AT teams as well as in PPT/IEP teams; supporting district personnel in not only providing AT services, but also making sure that capacity-building in AT takes place for all team members; and ensuring that teams evaluate the effectiveness of AT interventions and

supports on a regular basis.

Administrators should ensure that the school district has written procedural guidelines that ensure equitable access to AT devices and services for students with disabilities, if required for FAPE (QIAT, 2009). The quality indicators for administrative support of AT provide guidelines and suggestions to administrators so they can develop sustainable AT programs as well as evaluate them.

For more information on the quality indicators for administrative support of AT, refer to appendix 1, appendix 2, and appendix 3.

However, the mere creation of such procedures is not enough for effective AT services. It is the administrator's responsibility to ensure that such procedures are broadly disseminated throughout the LEA, that they are implemented, and that training on such procedures is provided when necessary. Additionally, if AT responsibilities are included and expected within the job responsibilities of staff, those AT responsibilities should be clearly defined within the staff member's job description.

Conversely, if AT responsibilities are included in staff job descriptions, it is the responsibility of administration to hire staff with AT qualifications and experience and/or to provide training to that staff member so he or she is able to provide high-quality educational services. In addition, administration should make sure that AT devices and supports are actually allocated within the budgeting process.

Administrators should also provide access to ongoing learning opportunities regarding AT to staff, to the student, and to the family when necessary. Training and technical assistance include any topic pertinent to the selection, acquisition, or use of AT or any other aspect of AT service delivery.

Lastly, administration should have a systematic process to evaluate AT services and support. The components of the evaluation process include, but are not limited to, planning, budgeting, decision-making, delivering AT services to students, and evaluating the impact of AT services on student achievement. There should be clear evaluation procedures that all administrators know about and use on a regular basis at central office and building levels (QIAT, 2009).

Assistive Technology Professional Development

Chapter contents

- AT Professional Development for School Teams

Training others to understand and use technology tools is an essential part of the provision of AT services. AT specialists and others who are charged with the responsibility of helping people to understand AT generally offer many training sessions to a variety of people.

This training may or may not be a part of a larger professional development plan. Some training sessions are offered to large groups of people. Others are designed for a single person or the members of a team for an individual who uses AT. Regardless of the size and purpose of the group, there are basic principles that can be applied to the provision of AT training (Reed, Kaplan and Browser, 2009).

Ensuring ongoing professional development in AT is an important administrative responsibility. It enables service providers to be aware of the fast-changing world of AT. It is the responsibility of the school district to ensure that service providers have the requisite professional development so that students are able to get the AT services they need to access, participate in, and progress in the general education curriculum.

AT Professional Development for School Teams

In general, the Quality Indicators for Assistive Technologies Services recommends

the creation of a comprehensive plan for ongoing AT professional development and training based on the specific needs and goals of the local education agency (QIAT, 2009). The professional development plan should have clearly defined outcomes that focus on the process of consideration, determining student needs, funding AT, integrating technology into the curriculum, and training on AT devices and software.

Administrators, general educators, instructional technology staff, and support services professionals as well as special educators need to participate in professional development opportunities on AT. These ongoing opportunities should be tailored to the specific needs and skill levels of this broad audience.

Finally, it is important to monitor the effectiveness of training provided, which should be measured in terms of improvements in practice and enhanced student performance (QIAT, 2009). The quality indicators for professional development and training in AT (appendix 1, appendix 2, appendix 3) are designed to assist administrators to develop a comprehensive plan for training as well as assess their current practices and plan for improvement.

> *AT professional development and training efforts should arise out of an ongoing, well-defined, sequential and comprehensive plan. Such a plan can develop and maintain the abilities of individuals at all levels of the organization to participate in the creation and provision of quality AT services. The goal of AT professional development and training is to increase educators' knowledge and skills in a variety of areas including, but not limited to: collaborative processes; a continuum of tools, strategies, and services; resources; legal issues; action planning; and data collection and analysis. Audiences for professional development and training include: students, parents or caregivers, special education teachers, educational assistants, support personnel, general education personnel, administrators, AT specialists and others involved with students (QIAT, 2009).*

When considering the provision of AT training and professional development for teams, family, and students, some guiding principles should be followed. The IDEA mandates that all students with disabilities must receive a free appropriate public education. Since the use of AT can contribute to FAPE, training should include the provision of AT services and devices for students with disabilities.

The education agency should create an AT training plan. This plan should identify the audiences, purposes, activities, expected results, evaluation measures, and funding for AT professional development and training using local, regional, and/or national resources.

Professional development and training opportunities enable individuals to meet present needs and increase their knowledge of AT for use in the future. Training in AT should occur frequently enough to address new and emerging technologies and practices and be available on a repetitive and continuous schedule.

A variety of AT professional development and training resources should be used depending on student, family, and team need. It should follow research-based models for adult learning that include multiple formats and are delivered at multiple skill levels. The design of professional development and training for AT recognizes adults as diverse learners who bring various levels of prior knowledge and experience to the training and can benefit from differentiated instruction using a variety of formats and diverse timeframes (e.g., workshops, distance learning, follow-up assistance, ongoing technical support).

The effectiveness of the training should be evaluated by measuring changes in practice that result in improved student performance. The professional development plan can then be modified based on this data (QIAT, 2009).

Professional development and training for individuals involved in educating and providing services for students who require AT is a broad area of need. High-quality professional development should focus on the potential benefits of AT for individual users; available AT; and AT policies and procedures specific to the local school, district, community, and/or agency.

Chapter contents

- **Competency 1:** *Knowledge of the law and AT*
- **Competency 2:** *Knowledge of AT Basics*
- **Competency 3:** *AT Assessment*
- **Competency 4:** *AT Implementation*
- **Competency 5:** *Collaboration and Communication*
- **Competency 6:** *Utilization of Resources*

Assistive Technology Service Providers Competency

AT service providers should have competencies in a variety of areas. Best practices suggest that service providers have knowledge of AT and the IDEA; basics of AT; AT assessment; AT implementation; collaboration and communication between team members; and resources and their appropriate use. These competencies enable service providers to plan and implement AT services with schools and early intervention programs.

Competency 1: *Knowledge of the law and AT*

- Understand federal and state regulations and policies related to the consideration, assessment, and implementation of AT in Connecticut schools and early intervention programs.
- Understand AT including legal requirements, purpose, and functional application for the student's educational programs.

Competency 2: *Knowledge of AT Basics*

- Demonstrate awareness of a variety of AT devices/services and the ability to integrate technology into educational programs.
- Demonstrate knowledge in their specialty area of AT (e.g., access, alternative augmentative communication, computer-based instruction, mobility, positioning, assistive listening and signaling devices,

recreation/leisure/play, vision technology and environmental control, and activities of daily living).
- Demonstrate the ability to apply discipline-specific knowledge regarding AT.
- Demonstrate the ability to use appropriate AT in a variety of educational settings.
- Demonstrate the recognition of the need for ongoing individual professional development and maintaining knowledge of merging technologies.
- Explain the strengths and challenges of specific AT devices and services and the factors that may affect their use.

Competency 3: *AT Assessment*
- Select and use appropriate measurement tools, strategies, and activities to assess a student's AT needs. Use appropriate data-gathering procedures and strategies to conduct an AT evaluation using a team approach to assess the student in customary environments.
- Identify appropriate, qualified team members necessary to determine AT needs and strengths.
- Consider a continuum of AT devices, services, and resources that may be used to address the needs of students.
- Determine, in collaboration with other members of the assessment team, AT needs as part of a comprehensive transdisciplinary evaluation, which addresses all areas related to the disability and is based on the student's strengths, tasks, and expectations.
- Provide leadership and support to professionals, students, and family members/caregivers of the team conducting AT assessment activities.
- Lead assessment teams in understanding what the student needs are relative to his or her abilities, educational goals, and environmental factors that relate to the selection and delivery of AT devices and services.
- Interpret and present the results of AT assessments to the PPT in a way that supports effective decision-making based on the student, the educational program, and data gathered during the assessment process.
- Integrate and discuss, in collaboration with the transdisciplinary team, all evaluation information, including formulating recommendations and preparing a report.

Competency 4: *AT Implementation*
- Develop AT implementation plans using appropriate, qualified team members.
- Identify and design appropriate AT devices, services, and strategies in the plan.
- Implement the plan using a collaborative approach.
- Evaluate, measure, and report on the effectiveness of the plan to meet the student's needs.
- Modify the plan as required to meet the student's needs.
- Identify areas that require further assessment or re-evaluation on an ongoing basis.

- Identify and provide training and technical assistance, dependent on student, staff and family need, regarding AT devices or strategies.

Competency 5: *Collaboration and Communication*

- Understand the transdisciplinary nature of AT application and contribution of a variety of disciplines to the service delivery process.
- Understand skills required to serve as a member of a transdisciplinary team providing services for AT.
- Include parents as team members.
- Listen and respond to input from other team members.
- Demonstrate effective group process skills.
- Know when and where to refer to other resources for AT.
- Use resources to meet technology needs for students with disabilities.
- Demonstrate the ability to network with others in the community, including parents and general educators for technical information and problem solving.

Competency 6: *Utilization of Resources*

- Identify, in collaboration with team members, AT resources at the classroom, building, district, region, community, state, and national level:
    - o funding resources;
    - o product resources, i.e., augmentative communication, and computer access;
    - o print and electronic resources, i.e., books, web sites, journals, and listservs;
    - o human resources, i.e., individuals who can provide assessment, training, and customization; and
    - o problem solving, maintenance, and repair.
- Recognize one's own scope of knowledge and skills and use identified resources to augment knowledge and skills represented within the team.
- Serve as a resource for others.
- Identify staff development needs and opportunities that meet those needs.
- Participate in staff development opportunities that address identified needs.

Adopted from the California Department of Education Competencies for Assistive Technology Providers *and the* Florida Department of Education Assistive Technology Assessment Competencies and Resources.

For more information on competencies, refer to the Wisconsin AT Initiative.

Certain assistive technologies require the expertise of qualified licensed professionals. For example, an SLP should be a part of the evaluation if an augmentative and alternative communication (AAC) device is necessary. Until licensure or certification is required, professionals of various disciplines are encouraged to examine their own skills and knowledge and to engage in ongoing professional learning opportunities through professional organizations.

Universal Design for Learning

Chapter contents

- Principles of UDL
- Research Supporting UDL
- UDL and AT
- The Law Regarding UDL

Universal design for learning (UDL) is based on the premise that learning should be designed to provide access to the curriculum to the greatest number of students possible to the greatest extent possible.

Since learning is not one-size-fits-all, educators need to tailor the curriculum to address the broad range of skills, needs, interests, and abilities that students bring to the classroom. In the UDL classroom, the teacher proactively designs lessons around all students, including those with disabilities and differing cultural and linguistic backgrounds, learning styles and interests, gifts and talents, etc.

The Common Core State Standards (CCSS) recognize that instructional strategies based on the principles of UDL support student engagement by presenting information in a variety of formats and allowing them to access and express what they know in different ways. The CCSS encourage teachers to use digital media and other teaching materials with the standards to meet the different needs of students with disabilities.

Principles of UDL

The three main principles of UDL that guide the development of curriculum, selection of materials, teaching methods, and assessment are:

- *Multiple Means of Representation:* This means that educators present information and content in different ways to help them reach the

greatest number of students possible.

- *Multiple Means of Action and Expression:* This means that educators give students the opportunity to express what they know in a variety of ways. Assessment is not tied solely to paper and pen tasks but is broadened to include demonstrations of knowledge, video projects, speeches, drawings, etc.
- *Multiple Means of Engagement:* This means that educators stimulate interest and motivation for learning by tapping into students' interests. The educator is in touch with the students' likes and dislikes and uses this information to inform and shape instruction.

For more in-depth information on UDL principles, refer to the UDL Guidelines.

Research Supporting UDL

These three principles of UDL are based in neuroscience research that tells us that our learning differences are as unique as our DNA or fingerprints. There are three primary brain networks that affect our learning and have led to the development of the three principles of UDL. These three networks are:

- *The Recognition Network,* also known as the "what" of learning, helps us to gather information and make sense of it. We use it to categorize what we see, hear, and read. With this network, we are able to identify letters, words, pictures, and styles of writing. Since individuals have strengths and weaknesses in this network, it makes sense for educators to present information in multiple ways. Some may be better visual learners, while others may need auditory support. This led to the development of *Multiple Means of Representation* to engage the recognition network of all students to the greatest extent possible.
- *The Strategic Network,* also known as the "how" of learning, helps us plan and perform tasks. We use it to organize and express our ideas. With this network, we are able to write a report or solve a word problem. When students experience difficulties in this area, they may not do well with more traditional tasks such as taking a paper-and-pen test or writing an essay. The second principle of UDL, *Multiple Means of Action and Expression,* addresses the difficulties that some experience in planning and performing tasks by giving students the ability to express what they know in a variety of ways.
- *The Affective Network,* also known as the "why" of learning, helps us get engaged and stay motivated. With this network we become interested, excited, and challenged by the learning process. When the educational environment presents materials in a way that appeals to the interests of the students, they will be more engaged. The third principle of UDL, *Multiple Means of Engagement,* addresses the need to make the learning meaningful and interesting to students.

The best source of information on UDL is the National Center on Universal Design for Learning, a program of CAST (the Center for Applied Special Technology).

UDL and AT

Many AT tools were originally designed to meet the unique needs of individuals with disabilities. In many cases, these tools have been add-ons to address what was lacking in existing educational materials. With the advent of UDL, there is a stronger push for technology tools to be designed from the beginning to meet the needs of a wide range of students, including those with disabilities. In addition, many tools that were previously thought of as AT tools are now being used to address the needs of a broader range of students. UDL has benefited from the existence of AT tools, and AT has benefited from the increase in attention to the tools and their benefit to a broader range of students.

Since UDL addresses the need to provide students with multiple means of representation, expression, and engagement, there are many technology tools that an educator could integrate into instruction in a school and/or classroom that incorporates the principles of UDL. Technologies that support students in the writing process such as text-to-speech and/or word prediction software can be included for use by any student who might benefit from these tools. While UDL does bring AT tools into the hands of many students, there is still the need for exploring the unique needs of students with disabilities and finding the tools that best meet those needs.

From a UDL perspective, technology tools should be designed to address the wide variety of needs, abilities, and interests of the students. Decisions about technology purchases should take into consideration the needs and abilities of all students. If a school is planning to use a Web-based tool, it would be important to examine how well the tool follows the principles of UDL. Will all students be able to access the tool? Will students be able to use alternative access methods to use the tool? Will it work with a screen reader or text-to-speech program?

From the AT perspective, technology tools are based on the needs of the individual student. When educators incorporate a UDL model, there is a greater likelihood that students with disabilities will have access to a wider range of tools and materials and that their individual technology will be integrated into the school day.

A great resource for exploring the answers to questions when making technology decisions is the TechMatrix. This site helps educators make informed decisions regarding technology purchases.

The Law Regarding UDL

IDEA 2004 defines universal design using the same definition as the AT Act of 1998, as amended, 29 U.S.C. 3002. (34CFR§ 300.44): "The term 'universal design' means a concept or philosophy for designing and delivering products and services that are usable by people with the widest possible range of functional capabilities, which include products and services that are directly accessible (without requiring assistive technologies) and products and services that are interoperable with assistive technologies" (Section 3[19] of Assistive Technology Act as amended in 2004).

National Instructional Materials Accessibility Standard

Chapter contents

- Introduction
- Definition
- Why NIMAS is Necessary
- Materials Covered by NIMAS
- Students Who Qualify to Receive NIMAS-Derived Files
- The NIMAS Process in Connecticut

Introduction

For many students with a disability, a print-based learning environment can often create a barrier to accessing the general education curriculum. For example, students who have vision impairments, physical disabilities, or learning disabilities may find it difficult to use standard printed core materials such as textbooks or workbooks.

Often, students with these print disabilities need alternatives to printed instructional materials. For this reason, IDEA 2004 mandated the creation of the National Instructional Materials Accessibility Standard (NIMAS) provide instructional materials in a timely manner to blind students or other students

with print disabilities (IDEA 2004 Sec. 612[23][A]).

Definition

In IDEA 2004, NIMAS is defined as "the standard… to be used in the preparation of electronic files suitable and used solely for efficient conversion into specialized formats" (IDEA 2004 Section 674[e][3][B]). Textbook publishing companies create NIMAS files of their instructional materials based on Extensible Markup Language (XML). These XML source files can then be easily converted into usable, specialized formats that students with print disabilities need such as Braille, large print, and audio and digital text.

Why NIMAS is Necessary

Before NIMAS, some textbook publishing companies may not have provided alternative versions of their text at all. In this case, schools would need to convert textbooks and other instructional materials into usable formats on their own. Because of the amount of time this would involve, students would often not receive the alternate materials in a timely manner. Or, if publishing companies did provide a digital version of their text, it may have come in a format that may not have been usable for every student with a print disability. At times, the AT that a student would use to access these textbooks would work with some formats but not with others, making access to the material very difficult. The NIMAS standard allows for one consistent file set from which all other specialized formats may be derived.

Materials Covered by NIMAS

For more information regarding the Office of Special Education Programs' (OSEP) interpretation of materials covered under NIMAS, please refer to the state NIMAS/NIMAC webpage.

NIMAS covers specific printed materials. In IDEA 2004, print instructional materials are defined as "printed textbooks and related printed core materials that are written and published primarily for use in elementary school and secondary school instruction and are required by a State educational agency or local educational agency for use by students in the classroom" (IDEA 2004 Section 674[e][3][C]. Instructional materials that are sold by publishers to elementary or secondary schools after July 19, 2006, are covered by NIMAS. Instructional materials that were sold to schools before this date are not covered under NIMAS, although publishers *may* voluntarily offer NIMAS file sets for these earlier editions (National Center on Accessible Instructional Materials, 2010. Frequently Asked Questions).

Students Who Qualify to Receive NIMAS-Derived Files

Only blind students or other students with print disabilities qualify to receive

NIMAS-derived files. The Library of Congress regulations (36 CFR 701.6[b] [1]) related to the Act to Provide Books for the Adult Blind state that these people include:

- Blind people whose visual acuity, as determined by competent authority, is 20/200 or less in the better eye with correcting glasses, or whose widest diameter of visual field subtends an angular distance no greater than 20 degrees.
- People whose visual disability, with correction and regardless of optical measurement, is certified by competent authority as preventing the reading of standard printed material.
- People certified by competent authority as unable to read or unable to use standard printed material as a result of physical limitations.
- People certified by competent authority as having a reading disability resulting from organic dysfunction and of sufficient severity to prevent their reading printed material in a normal manner.

36 CFR 701.6(b) (2) defines "competent authority" as follows:

i. In cases of blindness, visual disability, or physical limitations "competent authority" is defined to include doctors of medicine, doctors of osteopathy, ophthalmologists, optometrists, registered nurses, therapists, professional staff of hospitals, institutions, and public or welfare agencies (e.g., social workers, case workers, counselors, rehabilitation teachers, and superintendents); and

ii. In the case of a reading disability from organic dysfunction, competent authority is defined as doctors of medicine who may consult with colleagues in associated disciplines.

The NIMAS Process in Connecticut

The process begins when a school district orders new textbooks. When a district submits its textbook orders, it will need to include language in the contract requiring textbook publishing companies to create NIMAS file sets of their textbook.

The National Center on Accessible Instructional Materials provides this example that may be included in a contract or purchase order:

> *By agreeing to deliver the materials marked with "NIMAS" on this contract or purchase order, the publisher agrees to prepare and submit, on or before ___/___/_____ a NIMAS file set to the NIMAC that complies with the terms and procedures set forth by the NIMAC. Should the vendor be a distributor of the materials and not the publisher, the distributor agrees to immediately notify the publisher of its obligation to submit NIMAS file sets of the purchased products to the NIMAC. The files will be used for the production of alternate*

formats as permitted under the law for students with print disabilities.

This is page __ of __ of this contract or purchase order.

For further information on the National Center on Accessible Instructional Materials (NIMAS/NIMAC, 2010) and Frequently Asked Questions, please go to the FAQ. The Office of Special Education Programs' (OSEP) interpretation of materials covered under NIMAS is online at the state NIMAS/NIMAC webpage.

The Connecticut State Department of Education strongly suggests that each school district sign on to the NIMAC/NIMAS system for qualifying students. When a qualifying student is identified, a step-by-step explanation for a district representative is available on the State Department of Education Web site. If further assistance is required, call the State Education Resource Center (SERC) at 860-632-1485.

Formats for Accessible Instructional Media

Chapter contents

- Bookshare
- Learning Ally (formerly Recordings for the Blind and Dyslexic [RFB&D])
- National Library Services for the Blind and Physically Handicapped (NLS)
- Matching Features to Student Needs
- Looking to the Future

The proliferation of the availability of e-text and the devices that can be used to read the text have brought with it a fair amount of confusion: what options are available; which students are eligible for accessible instructional material; and what resources are the best match between available options and learner needs?

Historically, the field of AT has long struggled to make print materials accessible to our students. Technology has come a long way from the days of arduously scanning page after page in order to create electronic text for our students with print disabilities. Today, federal funding supports programs that are designed to help provide electronic text in flexible formats that meet the needs of diverse learners. This section will examine the resources available for free to students with print disabilities through Bookshare, an online library of e-text resources; Learning Ally, a library of audio resources; and the National Library Services for the Blind and Dyslexic. Teams can refer to the AIM Navigator for assistance to determine accessible instruction media needs.

Bookshare

In October 2007, Bookshare received a $32 million, five-year award from the U.S.

Department of Education to significantly expand the availability of accessible digital books and software for reading those books. Bookshare offers digital books produced from NIMAS source files and delivers them to students in the BRF (Braille Ready File) and DAISY (Digital Accessibility Information System) standard for Digital Talking Books. School districts create an organizational membership in which they identify sponsors (faculty and staff eligible to download books through the organizational account) and members (students who are print disabled and thus able to access materials through Bookshare). Please note that *not all* students who qualify for special education or 504 services qualify for Bookshare membership. Once a student is a member through the school's account, the student can receive a free home membership by completing the forms available on the Web site. Besides providing access to the instructional materials made available through the NIMAS files, Bookshare provides an electronic library of over 90,000 books, newspapers, and magazines. NIMAS materials are available only through the school's account, not through a home membership.

Membership procedures and qualifications for print disability can be found on the Bookshare Web site.

To better understand the nature of the digital talking books, the DAISY files available through Bookshare, it is helpful to understand electronic text or e-text. Simply put, it is the electronic presentation of print materials. Reading the daily news from a Web site rather than the paper delivered to your doorstep is an example of e-text. Besides providing the information as printed words on paper do, e-text affords the possibility of easily changing the presentation format and using digitized speech to hear the text read to meet the needs of persons with print disabilities.

Bookshare offers three options and two voices for reading the DAISY files; two options are available to members for a free download from the Bookshare Web site. One resource, the VictorReader Soft Bookshare edition by Humanware, is designed for use by people who are screen reader users. The other, READ: Outloud Bookshare Edition by Don Johnston, is designed specifically for people with learning disabilities. Read: Outloud Bookshare Edition reads the electronic materials and allows changes in the presentation of the format, such as providing a change in font size and/or text and background color. The third option is applications for mobile devices such as Read2Go, an app for the iPad that is available for purchase from iTunes. This option is similar to Read: OutLoud Bookshare Edition in the presentation of the text. These resources pair the presentation of the electronic text with digitized audio output.

The files available in Braille Refreshable Format are designed for use with Braille embossers and refreshable Braille devices. Hard copies of Braille selections are available upon request through a partnership with other resources.

Learning Ally (formerly Recordings for the Blind and Dyslexic [RFB&D])

Learning Ally, formerly Recordings for the Blind and Dyslexic (RFB&D), a nonprofit volunteer organization, is the nation's largest educational lending-library serving people who cannot effectively read standard print because of visual impairment, dyslexia, or other physical disability. Learning Ally boasts

the largest collection of accessible textbooks and educational materials. Learning Ally's format differs from the digital talking books available through Bookshare: Learning Ally files are audio files only and do not include a representation of the printed word.

Memberships to Learning Ally are available for individuals, families, and schools. If an individual has been certified as having a print disability through Bookshare, that certification meets the requirements for membership through Learning Ally. Audio files available through Learning Ally may be recorded narration, in the case of literature or pre-NIMAS text and educational materials. Materials produced from DAISY file sets use synthesized speech. The navigable DAISY format files do contain audio description of the illustrations, charts, graphs, etc., contained in the print version of the materials.

A chart downloaded from the Learning Ally Web site that depicts the features and requirements of each audiobook format is included in appendix 12.

As of this printing, Learning Ally files can be obtained in four distinct audiobook formats: Downloadable DAISY AudioPlus, DAISY CD AudioPlus, Windows Media Audio Downloadable Audio Access, and a Learning Ally app for the iPad that is available from iTunes. In order to access either of the DAISY formats, an additional purchase of specialized DAISY hardware and/or software is required.

National Library Services for the Blind and Physically Handicapped (NLS)

NLS is a free program designed to provide Braille and audio materials to persons with qualifying disabilities who are residents of the United States. Besides providing materials to persons whose visual acuity is 20/200 in the better eye with corrective lenses or whose visual field has an angular distance of no greater than 20 degrees, that person whose physical disability prevents accessing standard print materials or those with a reading disability resulting from organic dysfunction may be eligible.

Audio materials through NLS require the use of specialized playback equipment available for loan to qualifying individuals or to institutions who serve persons who are blind and/or physically handicapped, including schools serving this population. In the case of public and private schools, students should be certified on an individual basis and should receive the materials directly for their exclusive use.

In 2008, NLS began its transition from cassette-based audio materials to digital talking books produced according to the National Information Standards Organization standard, which was approved by the American National Standards Institute (ANSI) as ANSI/NISO Z39.86-2002., shipping 650 titles in a new digital book format and anticipated the addition of 2,000 new titles each year from 2009 through 2013. As with the earlier cassette-based audio materials, specialized players continue to be required.

In Connecticut, materials from NLS are available through the State Education and Resource Center (SERC) Library.

Matching Features to Student Needs

As with all AT, it is important to match the student's needs with the features available from the resources discussed. For example, a student who has difficulty paying attention may need the visual presentation of the text with highlighting as it is read, whereas a student with significant visual impairment may rely solely on the audio output to access the material.

Another aspect of accessibility and feature match is the portability of the materials in the accessible formats. A variety of commercially available devices, such as the Intel Reader and Classmate form Humanware, allow for portable options to access Bookshare, Learning Ally, and DAISY files. And the WMA (Windows Media Audio) files can be played on MP3 players that have Digital Rights Management to play the encrypted files.

Looking to the Future

The applications that support e-text, with its universal design for learning potential, are rapidly advancing. This holds with it the promise of the use of mainstream tools, such as the iPad and iPod, as well as electronic readers such as the Kindle and Nook, for accessing print materials for all learners with the advancement of technology.

The future holds the promise of universal design for tools to assist the learning of all students. Access to AT will enable students with disabilities to participate and make progress in general education and be college and career ready. It will allow them to become as independent as possible, making a lasting difference in their own lives, freeing them to move forward with fewer boundaries and providing a gateway to greater opportunity.

Frequently Asked Questions

Q. Does AT come with my computer?

A. Operating systems on PC (Windows) and Macintosh each include options (screen magnifiers, onscreen keyboards, adjustable fonts, etc.) that meet the needs of many people with disabilities. The user simply needs to know that they are there and how to customize them for optimum individual use.

To look for information on accessibility features that may be available on your computer:

On a Windows platform—search the Control Panel for "accessibility" or "ease of access." Further information on accessibility features of Windows programs can be found at Microsoft's Web site.

On a Macintosh platform—in the Apple menu, select System Preferences and then select Universal Access. Besides the accessibility features that already come with their computer, many individuals need specialized software to do different tasks. Further information on accessibility features of Mac OS X can be found at Apple's Web site.

Q. How is AT funded for postsecondary education or for a job?

A. AT services and devices may be funded through state agencies under the Federal Rehabilitation Act. Connecticut has multiple private, nonprofit, and public agencies that support people with disabilities to pursue postsecondary education or employment. The Connecticut Tech Act Project is a state-wide program that helps increase access to AT for individuals with disabilities of all ages. The New England Assistive Technology Center is the largest AT center in Connecticut where you can find equipment that makes life more accessible. The AT Exchange in New England is an online classifieds site where you can find new and used AT devices either for sale or free.

The Bureau of Rehabilitation Services (BRS) provides vocational rehabilitation services to assist Connecticut residents with significant disabilities to find and keep employment through evaluation, training, placement, and other services. Once an individual opens a case with the vocational rehabilitation agency, he/she and the agency develop an annual plan call the Individualized Plan for Employment (IPE) that identifies the employment goal and the services needed to achieve that goal. The IPE can include AT as a required service for use in training for a job or in the performance of a job.

The Connect to Work Center along with Connect-ability operate in partnership with state agencies and directs individuals around the area of employment. Please see the resources page at the end of the guidelines for other supports and more information.

Q. How can we ensure that the AT used in school is available in the home for the student to use?

A. The individualized education program (IEP) is the plan or outline of placement decisions, goods, and services to be provided to the student according to the annual determinations of a student's PPT/IEP team. If the student requires AT, then the student should have access to the same tools at home as he uses in school. An example of language used in an objective to meet a writing goal might be: "Jason will use a software that will enable him to visually 'map' his pre-writing ideas to independently outline social studies chapters weekly." "Beth will independently find three sources of information on the Internet for each written (typed) report assigned and reference them correctly as she composes on a laptop." Equipment (hardware/software) written into IEPs should appear on page 8 as well. It is only by having it written into the IEP that the school becomes responsible for ensuring that it is available to the student, if necessary, outside of the school.

Q. Is a school district responsible for putting AT in a private school setting?

A. If the student has a disability and the PPT/IEP team has placed the student in a private school setting and has determined on the IEP that AT equipment and services are indicated, it should be provided at the expense of the sending district and available at the private school.

Q. Is a school district responsible for providing AT in the home if a student has home bound instruction?

A. Home bound instruction is described as an employee of the school district entering the home of a student for a prescribed length of time weekly or daily to work directly with the student who requires such service. If the student has a disability that is identified and the PPT/IEP team have determined on the IEP that AT equipment and services are indicated, it should be provided at the expense of the sending district and available.

Q. When moving to a new school district and the new school does not have the AT device indicated in the IEP available, what can be done to ensure that the tools that have worked for her at her previous school continue to be used in the new school?

A. The technology needs to appear in her IEP under accommodation and modification as well as in her educational goals. If it appears on her established IEP, the school district must convene a PPT/IEP meeting and discuss implementation of the IEP.

If it is a new referral, the school has 60 days from the date of consent for an evaluation to review the results of referral testing and 45 school days from the date of referral to when the program is to begin.

Q. Are there grants available to schools or classrooms that would help fund AT?

A. Grants are often available to schools or classrooms; it takes some detective work to find these. Foundations and corporate grants exist that may help fund technology. Foundations generally fund organizations more readily than they fund individuals. Schools are often not included as candidates for these grants as it is commonly perceived that schools receive adequate funding for addressing most needs. Carefully reviewing requirements for grant proposals will indicate if schools are able to apply.

The Foundation Directory from the Foundation Center is found in most libraries. It is also available online for a subscription fee. It lists foundations and corporate donors, schedules for applying for each grant, and contact information.

Local foundations will sometimes fund demonstration projects that, at the end of the grant period, leave hardware and software with the school or classroom that has been awarded the grant. For example, a high school special education class wrote a grant with the school's Art Club to interview local artists and to create a multimedia presentation at the end of the year, featuring all of the artists using a computer and all related technology to produce the work. One of the students had a physical disability, so an adaptive keyboard was written into the equipment list as well as a state-of-the-art computer. Once the project was completed and presented to the foundation, the equipment that had been part of the grant stayed with the class.

Chapter contents

- Assistive Technology Funding Resources
- General Resources
- Assistive Technology and Transition Resources
- Assistive Technology Web Resources
- Assistive Technology Resources for Implementation
- Assistive Technology Resources for Administrators
- Resources for Training in Connecticut

Resources

The resources included in these guidelines are to be used as examples for administrators, families, and educators. Although not an exhaustive list, these are the most up-to-date documents, publications and materials that are being used by professionals in the AT field.

All attached appendices may be printed and used with permission. Regular updates and reviews should be completed to ensure that the most recent information, technologies and devices are used.

Assistive Technology Funding Resources

Disability Resources.org — The DRM Web Watcher provides links to a wealth of resources for the funding of AT.

Financing Assistive Technology — Handbook for Funding (some information may be data, but it includes many resources and helpful information. Published by the Trace Center.

National Legal Services Inc. — A federally funded project that "supports the advocacy efforts of attorneys, advocates, service agencies, persons with disabilities and their families as they seek funding for AT services and devices." Its Web site includes a series of booklets on funding AT, a compendium of

court and hearing decisions relating to AT, articles, legal rulings, and the like.

General Resources

Alliance for Technology Access — This Web site provides information and resources on AT that can facilitate children with disabilities to live, learn, work, define their futures, and achieve their dreams.

Assistive Technology Resources for Parents and Families — This site provides a free PDF directory with a multitude of links and resources.

Assistive Tech — This comprehensive, searchable site has an exhaustive list of assistive devices and descriptions of their key components.

Augmentative and Alternative Communication Connecting Young Kids (YAACK) — YAACK deals with issues related to AAC and student. This site is full of great information and strategies for getting started with AAC. This is a great site to check out early on if you have questions or are considering AAC assessment for a student.

Early Childhood Technical Assistance Center (ECTA) — ECTA has extensive resources for states about using AT with children, abstracted bibliographies, links to federally funded projects about AT with infants, toddlers and children. Copies of state resource materials may be accessed by using the pull-down topical menu and selecting AT.

Family Center on Technology and Disability (FCTD) — The US Department of Education, Office of Special Education Programs created FCTD to provide information about AT to organizations that work with families of students with disabilities. FCTD includes a family information guide to AT which is a comprehensive resource for parents and guardians on funding for AT; AT in the IEP; as well as many links to other resources on AT. The site has a resource guide titled Family Information Guide on Assistive Technology available to download.

LD Online — This Web site has a variety of resources for families, teachers and individuals with learning disabilities.

National Assistive Technology Research Institute (NATRI) — NATRI is an organization the University of Kentucky and the US Department of Education Office of Special Education Programs support. NATRI conducts research that produces data and products that will help improve the delivery of AT services to students. Besides a host of general information, their Web site includes specific information for families in their AT Planner: From IEP Consideration to Classroom Implementation.

National Center to Improve Practice in Special Education through Technology, Media and Materials (NCIP) — This URL will take you to a resource in the library of the Web site for the National Center to Improve Practice in Special Education through Technology, Media and Materials (NCIP). Information includes Parent-Professional Partnerships in the consideration of AT, as well as function-specific topics (seating and positioning/communication).

National Resources for Parents of Children and Youth with Disabilities —This Web site includes a variety of links to resources (not AT specific).

Pacer Center (Parent Advocacy Coalition for Educational Rights) — Simons Technology Center includes links to free downloads as well as information resources that can be purchased from the center.

PBS Parents: Inclusive Communities — Includes links to a variety of resources about AT and disability-related topics.

Project Participate — This site provides families, educators, administrators and therapists with simple strategies to increase the active participation of children with disabilities. There are several pages on "Gadgets & Gizmos" that present inexpensive, do-it-yourself solutions for reading (e.g., turning pages), writing (e.g., drawing with markers), play, and home.

Technical Assistance Alliance for Parent Centers — These centers provide training and information to parents of infants, toddlers, children, and youth with disabilities and to professionals who work with them. This assistance helps parents to participate more effectively with professionals in meeting their children's educational needs.

The Assistive Technology Training Online Project (ATTO) — ATTO provides information on AT applications that help students with disabilities learn in elementary classrooms and includes basic information about AT, AT decision-making, device tutorials, and links to national AT resources. This is an easy-to-navigate site that contains useful information for parents and caregivers.

Tots 'n Tech — This site for a national research program about AT that includes information about adaptations and devices for infants, toddlers and children. Includes resource information and links to many useful sites.

VI Guide — A guide to Internet resources about visual impairments for parents and teachers.

Assistive Technology and Transition Resources

Assistive Technology Protocol for Transition Planning — The purpose of this protocol is to review the student's AT needs when transition planning.

Family Information Guide to Assistive Technology and Transition Planning — This guide offers families information and resources to effectively prepare for and participate in periods of transition in their children's lives. In family-friendly language the guide discusses transition plans and the role of AT in them, offers checklists and suggestions, and provides a range of resources aimed at helping students make successful transitions to higher education, employment and independent living.

"Hey Can I Try That?" — A student handbook for choosing AT.

Assistive Technology Web Resources

AAC TechConnect — AAC TechConnect has created Device Assistant, a resource designed to provide information on nearly 100 AAC devices currently on the market from major manufacturers. The information is provided in cooperation with all the manufacturers and the feature-match tool can be used to search for a device, and also for side-by-side comparisons.

AAC-RERC — Augmentative and Alternative Communication Rehabilitation Engineering Research Center functions as a collaborative research group dedicated to the development of effective AAC technology. This Web site includes a variety of research-based information including handouts of presentations and webcasts.

AbleData — Provides objective information on AT and rehabilitation equipment available from domestic and international sources to consumers, organizations, professionals, and caregivers within the US.

ACOLUG — The Augmentative Communication On-Line User's Group is an Internet Listserv that allows users of augmentative communication and their families to communicate with each other and with professionals who are interested in augmentative communication.

Atomic Learning (subscription required) — Atomic Learning's AT professional development solution provides over 5,000 online video tutorials on common AT software and hardware (e.g., accessibility features of Microsoft Office, Apple iPad, etc.).

Alliance for Technology Access (ATA) — ATA aims to increase the use of technology by children and adults with disabilities and functional limitations. ATA encourages and facilitates the empowerment of people with disabilities to participate fully in their communities.

Assistivetech.net — This site provides access to information on AT devices and services as well as other community resources for people with disabilities and the general public.

Association of Assistive Technology Act Programs — The Association of Assistive Technology Act Programs (ATAP) is a national, member-based organization, composed of state Assistive Technology Act programs funded under the Assistive Technology Act. ATAP provides support to state AT program members to enhance the effectiveness of AT programs on the state and local level, and promote the national network of AT programs. ATAP represents the needs and interests of the state AT programs and is the national voice of the AT programs.

Assistive TechnologyTobii ATI — This Web site provides training documents for Tobii products.

AT/AAC enABLES — This Web site demonstrates how AT and augmentative and alternative communication enable individuals with disabilities to participate in all aspects of life.

AT Training Online Project — Provides information on AT applications that help students with disabilities learn in elementary classrooms.

Book Builder — This interactive online tool enables educators to develop their own digital books to support reading instruction for children aged 3—10. Here teachers can create, edit, and save universally designed texts that support diverse learners.

Bookshare — Bookshare has e-books available for individuals with print disabilities. This service is now free to public schools.

The Center for Applied Special Technology (CAST) — CAST is the developer of the Universal Design for Learning framework. This site includes free books, web-based software applications, and training materials.

Center for Implementing Technology in Education —This site is funded by the U.S. Department of Education and the Office of Special Education Programs. Cited.org provides support to teachers and administrators through identification of best practices, innovative online technical assistance tools, professional development, and communities of practice.

Click, Speak — A free Mozilla Firefox extension that reads the Internet and highlights phrases and sentences as it reads.

Closing the Gap — This Web site provides parents and educators with information that enables them to locate, compare, review, and implement AT.

Council for Exceptional Children — This Web site provides information on AT, educational technology, technology for administration and record keeping, universal design, research, current issues on technology, and resources.

Don Johnston Webinars and video training — The Web site provides training in Don Johnston products such as Co: Writer, Read: OutLoud, Write: OutLoud, etc.

Dynavox — This Web site provides free online training for products within the Dynavox company.

Early intervention for young children with autism, cerebral palsy, Down syndrome and other disabilities — This Web site provides guidelines for early intervention to maximize the language and communication development of young children with special needs.

The Family Center on Technology and Disability — The site provides a wide range of resources on assistive and instructional technologies, from introductory fact sheets through CEUs, for practitioners and educators.

Georgia Project for Assistive Technology (GPAT) — This Web site provides information regarding AT with the aim to improve student achievement, productivity, independence and inclusion.

LibriVox — LibriVox is a collection of free public domain audiobooks in MP3 format narrated by volunteers.

Literacy instruction for individuals with autism, cerebral palsy, Down syndrome and other disabilities — This Web site provides guidelines for teaching literacy skills to learners with special needs, especially learners with complex communication needs such as autism spectrum disorders, cerebral palsy, Down syndrome, developmental apraxia, and multiple disabilities.

Mayer Johnson — This Web site provides training resources for the Boardmaker software family.

NIMAS — This Web site serves as a resource to state- and district-level educators, parents, publishers, conversion houses, accessible media producers, and others interested in learning more about and implementing AIM and NIMAS.

OATSoft — This site is dedicated to improving AT and computer accessibility through the power of Open Source development techniques. OATSoft makes the best Open Source Assistive Technology Software (OATS) easy to find.

Paint.net — This is a free image and photo editing software for Windows that can be used to create accessible quizzes, tests, and worksheets.

Project Gutenberg — Searchable database for free public domain e-books in various formats.

Quality Indicators of Assistive Technology Consortium (QIAT) — This site offers an e-mail listserv allowing individuals to network with AT leaders throughout the U.S. The listserv provides a forum to ask questions regarding AT, UDL and instructional technology.

Special Education British Columbia The Learning Center — This Web site

provides software and hardware AT resources that support participation, communication, and learning of students with disabilities.

Standards.Gov — This site provides background materials and useful links for locating information about the use of standards in government for regulatory and procurement purposes.

TASC — This Web site provides training modules and resources for educators, parent groups to create an awareness and understanding of AT and the role it plays in the improvement, functioning and independence of students with disabilities.

TeacherTube — This is an educational site featuring lesson plan videos and teacher/student-made videos.

TechMatrix — TechMatrix is a free tool for finding assistive and learning technology products for students. Users can generate a matrix based on subject and type of learning support.

The Tots 'n Tech Research Institute (TnT) —TnT provides information regarding AT for infants and toddlers.

WordTalk — This is a free text-to-speech program for the PC that works within WORD and Outlook.

Assistive Technology Resources for Implementation

National Assistive Technology Research Institute (NATRI) — This site includes an AT planner designed to support teachers, families, and administrators as they work in collaboration with other IEP team members in planning and implementing assistive technology services. The planner consists of a separate booklet for teachers, families, and administrators. The planner consists of a separate booklet and is accompanied by a user's guide that contains reproducible documents that can be used by teachers, families and administrators.

Wisconsin Assistive Technology Initiative — This site provides tools for evaluating student AT needs as well as implantation of AT.

Georgia Project of Assistive Technology — This site provides tools for evaluating student AT needs as well as implantation of AT.

Texas Assistive Technology Network — This site provides tools for evaluating student AT needs as well as implantation of AT.

INTEGRATE — This blog discusses the different ways in which AT can support learning and be implemented in the classroom.

Assistive Technology Resources for Administrators

Connecticut State Department of Education Bureau of Special Education — Provides information regarding the special education regulations that direct services for students with disabilities.

Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) — Provides information and resources that promote the health and well-being of people with disabilities through increasing technology use.

National Public Website on Assistive Technology — Provides information on AT devices and services as well as other community resources for people with disabilities and the general public.

U.S. Department of Education — Provides information about the regulations of the Individuals with Disabilities Education Improvement Act (IDEA).

American Foundation for the Blind — Provides information and resources for individuals with visual impairment.

National Assistive Technology in Education Network, Assistive Technology Trainers Handbook — This handbook provides an overview of effective training strategies and describes specific ways that these strategies can be used to improve training about AT.

Resources for Training in Connecticut

Area Cooperative Educational Services (ACES) — The AT program at ACES focuses on evaluation and needs assessment of the student within the educational setting; assistance with the selection of assistive devices; assisting the team with implementing and integrating the use of the AT within the student's educational program; and education, training, and technical assistance to the student and team.

Bureau of Education and Services for the Blind (BESB) — BESB is responsible for the confidential registry of people who are blind in Connecticut and provides, within available resources, comprehensive low-vision services, specialized education services, life-skills training, case management, and vocational services to individuals of all ages who are legally blind and to children who are visually impaired. The agency assists them in acquiring the skills and support services necessary to be independent.

Bureau of Rehabilitation Services (BRS) — BRS provides appropriate, individualized services, develops effective partnerships, and shares sufficient information so consumers and their families may make informed choices about rehabilitation process and employment options.

Capitol Region Education Council (CREC) — CREC provides districts with customized and flexible support for AT to meet the needs of students. CREC's AT services include AT technical assistance and training to build capacity within district; AT and augmentative and alternative communication (AAC) evaluations; membership in CREC's AT Consortium; and RESC alliance newsletter.

Connect-Ability — Connect-Ability offers information, tools and technical assistance to job seekers and employers rather than provide direct job placement services.

Connecticut Association of Centers for Independent Living (CACIL) — CACIL provides information, counseling and support to people with disabilities who are developing a housing plan that will enable them to live independently.

Connecticut Tech Act Project — The Connecticut Tech Act Project is a statewide program that helps to increase access to AT for individuals with disabilities of all ages for education, employment, and community living.

Cooperative Educational Services (CES) — CES identifies and provides quality educational opportunities for educators, students, families, and communities in coastal Fairfield County. CES's AT services include evaluation and consultation and technical assistance services to assist school districts in determining the technology needs of disabled students on an individual basis.

Department of Developmental Services (DDS) — The purpose of DDS is to create the conditions under which individuals with developmental disabilities and their families experience presence and participation in Connecticut town life; opportunities to develop and exercise competence; opportunities to make choices in the pursuit of a personal future; good relationships with family members and friends; and respect and dignity.

EASTCONN — EASTCONN is one of the RESCs in Connecticut, and serves the educational needs of schools, organizations, communities, and individuals of all ages in northeastern Connecticut. The AT program at EASTCONN includes a) AT consortium; b) AT consultation; c) AT demonstration and lending library; d) AT student assessment and e) AT training.

Education Connection — Education Connection, the regional educational service center in western Connecticut, promotes the success of school districts and their communities. Education Connection provides educational and related services.

LEARN — LEARN initiates, supports, and provides a wide range of programs and services that expand opportunities and enhance the quality of learning in the educational community. Through its leadership, resources and work with schools, students, families and other community agencies, LEARN promotes regional and statewide cooperation and provides a framework for districts to achieve their goals.

New England Assistive Technology (NEAT) Resources and Education Center — NEAT provides information and services and access to equipment and devices that can change the lives of people of all ages, with all types of disabilities.

Office of Protection and Advocacy for People with Disabilities (PandA) — PandA is an independent state agency created to safeguard and advance the civil and human rights of people with disabilities in Connecticut.

State Education Resource Center (SERC) — SERC provides professional development and information dissemination in the latest research and best practices to educators, service providers, and families throughout the state, as well as job-embedded technical assistance and training within schools, programs, and districts. SERC's Technology In Education (TIE) initiative provides training, technical assistance, and materials dissemination to general and special education teachers and administrators, student support services personnel, paraprofessionals, and family members regarding educational technologies (learning tools) that may facilitate the teaching and learning process and lead to greater student achievement.

Case Studies

Chapter contents

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- Student with Learning Disabilities 1
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- Preschooler with Cerebral Palsy
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- Middle School Student Using Augmentative and Alternative Communication
- Student with Visual impairment and Transition Plan

The purpose of this section is to illustrate examples of the variety of assistive technology and diverse needs that can be met using AT. The case studies amplify and illuminate different scenarios in which AT can be used to access, participate in, and make progress in education.

Student with Muscular Dystrophy

A.L. is in seventh grade at a local middle school. He is diagnosed with muscular dystrophy. He has a 504 Plan at school that lists a variety of accommodations and modifications. He becomes very fatigued in the afternoon, and it was requested that his academic classes be held in the morning. He uses a variety of materials, including a portable word processor with word prediction for some writing during his classes, voice recognition for more lengthy writing assignments, various types of pens and markers that are easier for him to hold, a portable voice amplifier for when he has difficulty projecting his voice, a call button for getting people's attention, a page turner, access to electronic text, and other tools. In addition, A.L. has adapted seating materials, including an electric wheelchair.

A.L. receives the services of a one-to-one paraprofessional, though the focus of the team was on what tools he could use to increase his independence. Based on how he feels, the student decides what specific tools he would like to use for the different tasks. Due to fatigue and his differing voice qualities, A.L. has

three different voice files with his voice recognition, for the morning, afternoon, and evening. He was trained in using voice recognition for a year before he was expected to use it for assignments, and the team started training in dictating skills when he was in elementary school, anticipating the long-term need for voice recognition. At home, A.L. uses a variety of mid-tech tools when he is in bed and requires assistance. His parents have placed a battery-operated doorbell by his hand when he sleeps, and the receiver is in their room, so if he needs help he needs only to push the button and the bell rings in his parents' room. The family is investigating additional materials, including a hospital bed and electronic lift system.

Student with Learning Disabilities 1

A.P. is in middle school and has always had difficulty with his handwriting and spelling. He has successfully used word prediction since second grade, but word prediction alone might not be enough for him when his writing demands increase in high school. He is comfortable and familiar with dictating his responses to various scribes after preplanning what he is going to write, so A.P. and the team wanted to explore voice recognition. Prior to actually using it, he had been practicing dictating with his scribes by saying text exactly as it would appear in a document, including what punctuation was needed, when a new paragraph was needed, and visually monitoring what was written to edit the text on an ongoing basis. A.P. used the voice recognition built into the operating system of his computer with a microphone that had been suggested by another voice recognition user.

A.P. was successful in learning how to use voice recognition and used it for a variety of more enjoyable writing tasks, such as sending e-mails to family and friends, before he was asked to use it for any class assignments. A.P. generally had good recognition of his spelling errors and was able to correct most of his errors using the spell-check of his word processor, though he continued to use word prediction for some more difficult words. He used the read-back feature of his operating system to further proof his work, as it was easier for him to hear errors than see them in his writings. A.P. and the team decided to investigate the features of the built-in voice recognition of his operating system versus the features of various purchased voice recognition programs. In seventh grade, A.P. focused on becoming very familiar with the voice recognition feature of the built-in program of the operating system on his computer. By eighth grade, focus was on using it for the majority of his longer writing assignments as well as on training others how to use the program.

Student with Learning Disabilities 2

B.D. was 15 years old in ninth grade. She was very motivated to learn and aware of the extent of her learning disabilities. Her test results revealed that her oral reading and spelling were between a first- and second-grade level, while her auditory comprehension was at a 12.6 grade level.

B.D. has had access to a laptop, which has not increased her writing skills as the word processing program did not provide her with the level of support she required. B.D. tried a variety of strategies and decided what tools best met her needs. She was able to immediately recognize the benefit of many of the tools and could use the various tools available over the Internet.

As the laptop was dedicated to her use, the team decided on software that incorporated built-in word prediction, a text reader, and a scanning component, so that various textbooks could be scanned into the computer. B.D. used a combination of materials for writing. For preplanning her writings, she used computer or Web-based graphic organizers, which she would display in an outline format while writing. She would then write her information using word prediction. B.D. also began using voice recognition and found that it was helpful for longer writing assignments, especially once she did her preplanning. She used word prediction with her graphic organizers and could have that information read to her using the built-in speech in an operating system or in the software itself. For writing notes in class, she used one of the pens that allow auditory information to be recorded. She would record key points of the lectures as she added information to the teacher's notes that had been photocopied onto the special paper that came with the recording pen. The student was given access to a variety of e-text resources and signed up for Bookshare as well as Learning Ally. The goal for B.D. was to learn to set up and use all of her tools for academic success by the time she graduated from high school so she could be independent in college.

Student with Cerebral Palsy with Intellectual Disability and No Augmentative and Alternative Communication

C.A. is in first grade and is having difficulty with reading and writing. She has some difficulty with articulation and often runs out of breath while speaking. She is diagnosed with cerebral palsy, visual impairments, and cognitive impairments. C.A. uses a wheelchair and a walker at school.

C.A. has emerging phonemic awareness for the first sound in words starting with consonants. She understands the sound-symbol relationship for all consonants and has emerging knowledge for vowels. She is able to read only two sight words, "I" and "you." C.A. demonstrates increased reading skills when provided with picture cues for stories as well as when reading books with repetitive lines or when one or two words vary in sentences. She is able to access a standard keyboard, though she types more than one repetition of her letters as well as incorrect letters because she activates keys with the heel of her hand. She is able to produce sentences using a word bank paired with pictures with 10 to 14 words in the bank, with the words color-coded by parts of speech and set up in a subject-verb-object format, when provided with auditory feedback. She showed emerging skills with word prediction, with "predict ahead" turned on and when provided with help to sound out the letters in words.

As C.A. has impulsivity issues, she did best when a process for using the computer was reviewed with her. She used visuals of words paired with pictures

posted by the computer as well as color-coding for the words in her word/picture bank. She was able to use a standard mouse with an enlarged cursor, and a screen with a white background and a larger-sized text. She was able to find and locate letters on the standard keyboard using a keyguard to increase her accuracy and when the "key repeat" was turned on in the system preferences. C.A. benefited from the use of a portable amplifier in the classroom when speaking in groups to increase her loudness level, as well as from providing the topic when people had difficulty understanding her. She also benefited from supported seating positions whenever doing fine motor tasks, including a wheelchair tray and adapted chairs and tables at the correct height.

Student with Autism Spectrum Disorder (ASD)

D.J. is in ninth grade and is diagnosed with ASD. He has difficulty with reading and writing and had trouble organizing his thoughts for writing. He did best when using a computer-based graphic organizer using teacher-created templates delineating the amount of information he needed to include in each category as well as assistance in establishing the main categories. D.J. benefited from using the created outline when writing his assignments. He was distracted when using word prediction and could correct his spelling errors using the standard spell-checker built into his word processor.

D.J.'s typing was slow. He was able to dictate his thoughts to an adult and with training was able to benefit from the use of voice recognition. He benefited from the use of a text reader to proof his work.

D.J. also had difficulty in social situations and was receiving counseling at school. As part of this counseling, the team was using video self-monitoring as well as role-playing activities. Both of these strategies assisted the student in improving his social skills as well as his self-advocacy skills. D.J. benefited from the use of visuals, generally word-based, especially for new activities and routines.

Preschooler with Cerebral Palsy

J.T. is a friendly 3-year-old student with cerebral palsy. He enjoys participating in all play activities, particularly music. When he sees his other siblings playing with musical instruments, he attempts to go toward them by bunny hopping. He interacts with his family members and preschool service providers by smiling, laughing, and pointing to objects. He occasionally points to a picture that is in his vicinity. J.T. vocalizes and uses a few intelligible words to communicate.

J.T. tries to join in when his siblings are singing but feels frustrated when he cannot. He also attempts to choose a song that he wants his mother to sing but can do so only when given a choice between two songs, and this often frustrates him. His family members try to help him communicate and be a part of the family activities, but they have to depend a lot on guessing what he prefers. The mother has started to use some pictures with him, and his responses are quick and do not show any frustration.

J.T. loves to do things independently and gets very frustrated when he is

unable to express himself. After evaluation and trials of a few devices, the early intervention team decided that a transient screen device was appropriate for J.T. as it would not only assist him in participating in music activities but also would have an impact on his overall communication skills.

Elementary Student with Down Syndrome and Intellectual Disabilities

S.H. is a friendly 9-year-old student in grade 3 with Down syndrome. She likes to participate in most classroom activities. She communicates with her teachers and classmates using gestures, body language and vocalizations. There have been several occasions when S.H. has pointed to objects, pictures, and even some words to communicate with her peers and classmates. One of her favorite activities is looking at and reading books. She likes to point to pictures and words in books and pretends to read them to classmates.

During the read-aloud activity, all students sit in small groups of 3 or 4 students after one of them has selected a book with short stories. The student who has selected the book reads it aloud to the peers in the group and then asks questions. Every participant in the group gets a chance to ask questions. The questions are answered by the other students in the group. All students in the class get a chance to select a book and be the lead in the story group session. During group read- out, S.H. sits with her paraprofessional, who selects a "simple" book for her and reads it to her. She then asks her questions (mainly what and who) that she knows S.H. can answer by pointing to the pictures in the book that is being read. Her teacher and paraprofessional have noticed that S.H. has recently wanted to sit with a group of students and be part of the group rather than sit and read with an adult.

S.H.'s parents purchased a mid-tech fixed display communication device with different levels and wanted the school to use it for S.H., especially during the read-aloud activity. The multidisciplinary team working with S.H. learned to program the device, and the paraprofessional was given the responsibility of programming it every day. The device was programmed with vocabulary so S.H. could participate in a variety of situations and classes.

Middle School Student Using Augmentative and Alternative Communication

J.C. is a seventh grader at Hill Valley Middle School. J.C. enjoys being part of the classroom and being alongside peers. She walks with an awkward gait and often has seizures. J.C. is fully integrated in all grade activities and participates in all classroom activities. J.C. also has significant cognitive impairments. In all of her classrooms, including her home room, J.C. has picture schedules and pictures or photographs associated with the activity or current topic. J.C. also has a digitized communication device with eight messages. To ensure participation within the school routine throughout the day, the multidisciplinary team at the Hill Valley Middle School worked closely preparing appropriate materials. For example,

when arriving for her science class, J.C. greets the teacher using her speech generating device. When the teacher reviews last week's quiz and asks questions, J.C. responds using her speech-generating device and the communication display. When the teacher introduces the lesson on photosynthesis, J.C. listens and follows the adapted book with photographs that has been made for her.

J.C. uses her speech-generating device to draw attention to herself and her picture communication board. After the lesson is over, J.C. walks to the door with a peer and looks at the picture schedule that is hanging there to help her to determine her next class. For all of J.C.'s classes, the general education teacher, the special education teacher, and the speech and language pathologist have planned together as a team to ensure that J.C. has the communication system with the appropriate vocabulary and accommodations to enable her to participate in a rich educational experience.

Student with Visual impairment and Transition Plan

T.R. is a high school student and an outgoing, friendly young man who loves to engage in conversation with familiar and unfamiliar people and participate actively. He enjoys his independence despite a significant visual impairment. T.R. is working with a transition team who explored with him his desire to work in a food service job after exiting high school. T.R. and his family visited numerous adult service agencies, and after reviewing their options, chose an agency in his home town that had a baking program. The transition team, along with the adult service agency, collaborated with BESB (Bureau of Education and Services for the Blind) to find AT options that would enable him to function as independently as possible. In addition, T.R. and his family needed to arrange transportation services to the adult service agency. T.R. used a cane along with personal assistants for mobility.

T.R. used audio books for leisure as well as for work. TR also had a computer with specialized software that assisted him in reading. To facilitate his skills at work, BESB provided T.R. with adaptive equipment such as sound-making measuring cups and spoons and a tactile bowl to assist in pouring. BESB worked with the adult service agency to ensure that the environment was accessible (e.g., placing items in particular arrangement, tactile coding key areas in the building such as front door, kitchen, bathroom). BESB also provided in-service training to the adult service agency to ensure that T.R.'s transition was as smooth as possible. At the same time, the school funded a transition period to the adult service agency.

Glossary

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accessible. In the case of a facility, readily usable by a particular individual; in the case of a program or activity, presented or provided in such a way that a particular individual can participate, with or without auxiliary aids; in the case of electronic resources, accessible with or without adaptive computer technology.

access barriers. Any obstruction that prevents people with disabilities from using standard facilities, equipment and resources.

activities of daily living. Activities that affect a person's ability to perform tasks that are essential for self-care, such as bathing, grooming, feeding oneself, dressing, toileting, and mobility, including walking, transferring, or independently using a wheelchair to move from one place to another.

adaptive technology. Hardware or software products that provide access to a computer that is otherwise inaccessible to a person with a disability.

advocacy. Speaking or acting on behalf of someone to protect his or her rights and needs.

alternative and augmentative communication (AAC). Any system that aids

individuals who are not independent verbal communicators. The system can include speech, gestures, sign language, symbols, synthesized speech, dedicated communication aids or microcomputers.

Americans with Disabilities Act (ADA). The Americans with Disabilities Act (ADA) of 1990 assures full civil rights of people with disabilities. The ADA guarantees equal opportunity for people with disabilities in employment, public accommodations, transportation, state and local government services and telecommunications.

appeal. A process that takes place after a request or application is denied. Additional information is supplied to the funding agency so that it may reconsider the request.

assistive technology (AT). A generic term including assistive, adaptive and rehabilitative devices and the process used in selecting, locating and using them. Assistive technologies include:

- Mechanical, electronic, and microprocessor based equipment. This includes microcomputers, electronic communication devices and other sophisticated devices.
- Nonmechanical and nonelectronic aids. For example, a ramp to replace steps would fit in this category.
- Specialized instructional materials, services and strategies. Large print for persons with visual impairments is one example of specialized instructional material.

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

assistive technology services. Any service that directly assists an individual with a disability in the selection, acquisition, or use of an AT device. These include evaluation and assessment, acquisition and/or purchase, coordination with existing services, training and technical assistance for an individual with a disability and/or the family, and training or technical assistance for service providers and employers who are substantially involved with the individual.

Braille. System of embossed characters formed by using a Braille cell, a combination of six dots consisting of two vertical columns of three dots each. Each simple Braille character is formed by one or more of these dots and occupies a full cell or space. Some Braille may use eight dots.

coding system. A process or system of assigning codes, abbreviations or labels to represent a letter, item or message. The system can be arbitrarily or systematically applied. For example, the code 456 may represent "Turn on the TV," or a picture of a drinking glass may signify, "I want a drink of water." Commonly used coding systems include Morse code, abbreviation/expansion and semantic compaction.

compensatory tools. Adaptive computing systems that allow people with disabilities to use computers to complete tasks that they would have difficulty doing without a computer, e.g., reading, writing, communicating, and accessing information.

dial scan. A device that looks like a clock face without numbers and has only one hand or dial. It is usually battery operated and switch controlled. Pictures or miniature objects are placed around the perimeter of the face. Selection is made when the dial points to the desired object and the switch is pressed or released.

direct selection. Activation of a letter, picture or other item by a single action. Pressing a key on a keyboard, eye gaze selection, or use of an optical head pointer are examples of direct selection.

disability. Physical or mental impairment that substantially limits one or more major life activities; a record of such an impairment; or being regarded as having such an impairment (Americans with Disabilities Act of 1990).

durable medical equipment (DME). A piece of equipment is considered durable medical equipment if it can withstand repeated use and

- is primarily and customarily used to service a medical or therapeutic purpose;
- is generally not useful to a person in the absence of illness or injury; and
- is appropriate for use in the home (this is determined by opinions of medical specialists in the fields of physical medicine and rehabilitation).

electronic information. Any digital data for use with computers or computer networks including disks, CD-ROMs, or World Wide Web (WWW) resources.

encoding. A selection technique used to specify items from an individual's vocabulary. For example, an individual may select DW on a communication device to say, "I want a drink of water."

environmental adaptations. Modifications or changes made to an individual's environment (e.g., home, work, school, community) to assist in living independently. These modifications include ramps, widening of doorways, modifying bathrooms, special furniture, other additions of equipment, etc.

environmental control unit (ECU). A system that enables individuals to control various devices in their environment with single or multiple switches. The control unit may be mounted on a wheelchair for ease of access. Target devices include lights, door openers, televisions and telephones.

equipment fabrication. The design and construction of a device or piece of equipment that improves an individual's functioning level.

equipment fitting. The process of installing, adjusting, and testing an AT device, piece of equipment, or other adaptation that will benefit an individual.

equipment modification. Changing or altering of the design and construction of an existing device or piece of equipment.

expanded keyboard. A keyboard that has keys and/or spaces between the keys larger than the standard microcomputer keyboard.

FM sound amplification system. Electronic sound amplification system consisting of three components: a microphone/transmitter, monaural FM receiver, and a combination charger/carrying case. It provides wireless FM broadcast from a speaker to a listener who has a hearing impairment.

free and appropriate public education (FAPE). The Individuals with Disabilities Education Act (IDEA) requires state and local education agencies that accept federal funds to provide a "free and appropriate public education," in the least restrictive environment, for ALL children with disabilities between the ages of 3-21. Free appropriate public education means special education and related services that are provided at public expense, under public supervision and direction and without charge; meet the standards of the state education agency (i.e., the Connecticut State Department of Education); include an appropriate preschool, elementary school, or secondary school education; and are provided in conformity with an IEP that meets legal requirements (IDEA 2004, Sec. 602[9]).

hardware. Physical equipment related to computers.

headwand or headstick. A pointer or extension device that is mounted to a headpiece and extends from the center of the forehead and angles downward. It is usually used in direct selection of an object such as a key on a keyboard or a symbol or word on a board. It is for use by persons with good head control and limited upper and lower body movement.

hearing impairments. Complete or partial loss of ability to hear caused by a variety of injuries or diseases, including congenital defects.

icon. A graphic used to represent a concept or idea. Icons can appear on the computer screen or in print format. For example, a pencil may represent a word processing program.

inclusion and integration. Use of the same community resources available to others. Contact and interactions with citizens without disabilities including physically, socially, academically or vocationally, and societally.

independence. The extent to which a person with a disability can exert control and choice over his or her own life.

individualized education program (IEP). A plan used to document appropriate and individualized education. The IEP puts in writing the child's current level of functioning, annual goals, short-term objectives and support and/or related services needed to achieve these goals and objectives (including the need for AT

devices and services).

individualized plan for employment (IPE). A written plan developed by a consumer and a vocational rehabilitation counselor to outline all the services needed to find employment and an appropriate career of the consumer's choice.

input device. A method of activating or sending information to a computer or other electronic device. Keyboards, mice and trackballs are common computer input devices.

interdisciplinary team. Individuals involved in assessment and recommendations for people with disabilities. The team consists of people from a wide variety of disciplines including, but not limited to, medical experts, educators, speech language pathologists, occupational therapists, rehabilitation engineers, care providers, psychologists, counselors, and social workers.

interpreter. Professional who assists a deaf person in communicating with hearing people.

jack. A jack is used to complete an electrical connection. A plug is inserted into a jack to connect switches to electronic devices.

joystick. A manual device with a moveable control lever that can be tilted in various directions to control a computer, wheelchair or other target system.

keyboard emulation. A method of having an alternate device and/or software, such as a switch-based system, serve the role of a keyboard.

keyguard. A cover, usually made of plastic or Plexiglas, which fits directly over the computer's keyboard. Holes in the cover correspond to each key on the keyboard and guide a finger, headstick or mouthstick to facilitate direct key presses. Locking devices that allow keys to operate similarly to a caps lock key are available for keys frequently used in multiple key sequences, such as the shift key, function or command keys.

large print books. Most ordinary print is six to 10 points in height (about 1/16 to ⅛ of an inch). Large type is 14 to 18 points (about ⅛ to ¼ of an inch) and sometimes larger. The format of large print books is also proportionately larger (usually 8 ½ x 11 inches).

mainstreaming/inclusion. The inclusion of people with disabilities, with or without special accommodations, in programs, activities, and facilities with their nondisabled peers.

major life activities. Functions such as caring for oneself, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, working and participating in community activities (Americans with Disabilities Act of 1990).

medically necessary. Items that are needed by the consumer for medical reasons. A doctor or other appropriate medical professionals need to order these items. Medical necessity is a judgment made by the individual doctor or medical professional.

membrane keyboard. A flat, usually programmable, keyboard with numerous pressure sensitive switches located under a soft surface. After areas of the keyboard have been defined, the user activates them by pressing on the surface.

miniature keyboard. Although smaller than the standard keyboard, a miniature keyboard contains all of the keys and functions. It is useful to people with limited range of motion and one-handed typists.

mobility impairment. Disability that affects movement ranging from gross motor skills such as walking to fine motor movement involving manipulation of objects by hand.

moisture guard. A soft plastic cover molded to the shape of the keyboard and placed on the keyboard to protect it from moisture.

mouse. An input device connected to a computer that controls the position of the cursor on the screen. The mouse fits into the user's hand and has a ball encompassed on the underside that is rolled across a flat surface to move the cursor in the same direction as the mouse.

mouse emulator. A device that imitates the function of a mouse. In some instances, software may be used to alter the function of a keyboard to serve as a mouse emulator.

mouthstick. A pointer or extension device that extends downward and is held in the mouth between the teeth. It is used in direct selection of keys on a keyboard or a picture symbol or word on a communication board. It is for use by persons with good head control who have very limited use of their upper body (arms and hands). If the pointer extends from the chin, it is referred to as a chinwand or chinstick.

nontransparent access. A method of accessing a computer-based device that requires specialized software to allow it to interface with the computer.

occupational therapist (OT). Occupational therapists (OT) help people with both physical and emotional problems. The term "occupation" used in the context of this profession refers to any activity with which persons occupy their time. Occupational therapists focus on helping people master the everyday activities of life and work.

optical character recognition (OCR). Technology system that scans and converts printed materials into electronic text.

orthotics. The selection, fabrication and fitting of devices used to protect, support, or improve the function of parts of the body. Any device of this type is called an orthosis or an orthotic device (plural: *orthoses*).

peripheral. Any number of devices connected to a computer to provide input, output, or other functions. Printers, modems, switches, voice synthesizers, and internal memory cards are considered peripherals.

physical/mental impairment. Any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more of the following body systems: neurological; musculoskeletal; special sense organs; cardiovascular; reproductive; digestive; genitourinary; hemic and lymphatic; skin; and endocrine; or any mental or psychological disorder, such as mental retardation, organic brain syndrome, emotional or mental illness, and specific learning disabilities (Americans with Disabilities Act of 1990).

physical therapist (PT). Physical therapists (PT) are health care professionals who evaluate and treat people with health problems resulting from injury or disease.

plug. Used in electrical connections, a plug is inserted into a jack to connect switches to electronic devices.

position (seated). The optimal seated position in a wheelchair places the individual's hips, knees and feet at 90-degree angles. The individual should feel secure, comfortable and relaxed.

prior approval. A written agreement that ensures payment of a device. The funding source (agency) should determine eligibility for prior approval *before* the purchase of the device.

prosthetics. The selection, fabrication and fitting of devices (artificial limbs) used to replace the function of parts of the body that move (i.e., arms, hands, legs, and feet). Any device of this type is called a prosthesis or a prosthetic device (plural: *prostheses*).

qualified individual with a disability. An individual with a disability who, with or without reasonable modification to rules, policies, or practices, the removal of architectural, communication, or transportation barriers, or the provision of auxiliary aids and services, meets the essential eligibility requirements for the receipt of services or the participation in programs or activities provided by a public entity (Americans with Disabilities Act of 1990).

reasonable accommodation. According to the ADA, a reasonable accommodation is a change in the work environment or the manner in which work is performed that allows an individual with a disability to perform the essential functions of his or her job.

re-definable keyboard. A keyboard that is defined according to individual users' needs. Keys may be rearranged on the keyboard, or redefined to represent frequently used words, phrases or computer commands.

rehabilitative device. Rehabilitate means to train. Rehabilitative devices are used for testing, exercising and training. For example, a balance beam is a rehabilitative device used to improve coordination.

scanning. A selection technique that presents groups of items to the user. The user then signals with a switch press, gesture or other means when the desired item is being indicated. The scanning may be performed automatically by an electronic system or manually by the communication partner.

screen enlargement. Hardware and/or software that increases the size of characters and text on a computer screen.

screen reader. Software used to echo text on a computer screen to audio output, often used by people who are blind, with visual impairments, or with learning disabilities.

selection technique. The means by which the user acquires or gets to and selects items, which will be sent to a device.

sensory impairment. A disability that affects touch, sight, and/or hearing.

sign language. Manual communication commonly used by the deaf. The gestures or symbols in sign language are organized in a linguistic way. Each individual gesture is called a sign. Each sign has three distinct parts; the hand shape, the position of the hands, and the movement of the hands. American Sign Language (ASL) is the most commonly used sign language in the United States. Deaf people from different counties speak different sign languages.

sip and puff switch. A dual switch that is activated by sipping or puffing on an apparatus resembling a drinking straw.

specific learning disability. Disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in difficulties listening, thinking, speaking, reading, writing, spelling, or doing mathematical calculations. Frequent limitations include hyperactivity, distractibility, emotional instability, visual and/or auditory perception difficulties and/or motor limitations, depending on the types of learning disability.

speech digitizer. A device that allows digitally recorded speech to be analyzed and converted into electronic patterns that can be stored on a computer. Digitized speech may vary in quality from poor to human sounding, depending on the sampling frequency and audio playback system.

speech impairment. Problems in communication and related areas such as oral motor functioning, ranging from simple sound substitutions to the inability to understand or use language or use the oral-motor mechanism for functional speech.

speech input/recognition. A method of controlling a computer and creating text by dictation. Speech input software is combined with a microphone.

speech language pathologist (SLP). Professionals that provide treatment of speech defects and disorders, especially through use of exercises and audio-visual aids that develop new speech habits.

speech synthesizer. An electronic device that converts text characters into artificial speech. Speech synthesizers most frequently use pronunciation rules for translating text to speech. The quality of synthetic speech ranges from close to lifelike to robotic sounding speech found in lower end speech synthesizers.

switch. An input device used to control assistive devices and computers. There are a variety of types of switches, including pressure switches, pneumatic switches, and voice activated switches. These switches can control adapted toys, environmental control devices, communication devices, and a wide range of computers.

telecommunication device for the deaf (TDD). A TDD allows a person to transmit typed messages over the phone lines to another person with a TDD. Most TDDs include a keyboard for typing messages to send and a display and/or printer to receive messages.

touch screen. An input device, which allows access to a computer by directly touching the screen.

trackball. An input device that contains a visible sphere, mounted in a stationary container. It functions similarly to a mouse; however, the sphere is rotated with the fingers to move the cursor to any position on the screen.

transparent access. A method of using an alternative access system with a computer based device, such that the computer does not detect that the individual is using alternate input.

traumatic brain injury (TBI). Open and closed head injuries resulting in impairments in one or more areas, including cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual, and motor abilities; psychosocial behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital, degenerative or induced by birth trauma.

universal design. Designing programs, services, tools, and facilities so that they are usable, without modification, by the widest range of users' possible, taking

into account a variety of abilities and disabilities.

Vocational Rehabilitation Act of 1973. Act prohibiting discrimination on the basis of disability that applies to any program that receives federal financial support. Section 504 of the Act is aimed at making educational programs and facilities accessible to all students. Section 508 of the Act requires that electronic office equipment purchased through federal procurement meets disability access guidelines.

voice recognition system. An access system designed to replace the standard keyboard as the method of input. The system is "trained" to recognize utterances that are spoken into a microphone. The utterances are translated into computer commands or sequences of alphanumeric characters and used to operate the computer and software.

vision impairments. Complete or partial loss of ability to see, caused by a variety of injuries or diseases, including congenital defects. Legal blindness is defined as visual acuity of 20/200 or less in the better eye with correcting lenses, or widest diameter of visual field subtending an angular distance no greater than 20 degrees.

word prediction. Software that reduces the number of keystrokes needed to type words and sentences. As characters are entered on either a standard, alternative or virtual keyboard, suggested completions of the word that has been started are provided to the user.

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Appendixes

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Appendix 1:

QIAT Indicators

Quality Indicators for Consideration of Assistive Technology Needs

Consideration of the need for AT devices and services is an integral part of the educational process identified by IDEA '97 for referral, evaluation, and IEP development. Although AT is considered at all stages of the process, the Consideration Quality Indictors are specific to the consideration of AT in the development of the IEP as mandated by IDEA '97. In most instances, the Quality Indicators are also appropriate for the consideration of AT for students who qualify for services under other legislation (e.g. 504, ADA).

1. **Assistive technology devices and services are considered for all students with disabilities regardless of type or severity of disability.**

    - **Intent:** Consideration of assistive technology need is required by IDEA '97 and is based on the unique educational needs of the student. Students are not excluded from consideration of AT for any reason. (e.g. type of disability, age, administrative concerns, etc.)
    - Matrix Descriptors: Select the statement that most accurately reflects your individual perception of the current services provided in the school district with which you are associated.

2. **During the development of the individualized educational program, the IEP team consistently uses a collaborative decision-making process that supports systematic consideration of each student's possible need for assistive technology devices and services.**

    - Intent: A collaborative process that ensures that all IEP teams effectively consider the assistive technology of students is defined, communicated, and consistently used throughout the agency. Processes may vary from agency to agency to most effectively address student needs under local conditions.

3. **IEP team members have the collective knowledge and skills needed to make informed assistive technology decisions and seek assistance when needed.**

    - **Intent:** IEP team members combine their knowledge and skills to determine if assistive technology devices and services are needed to remove barriers to student performance. When the assistive technology needs are beyond the knowledge and scope of the IEP team, additional resources and support are sought.

4. **Decisions regarding the need for assistive technology devices and services are based on the student's IEP goals and objectives, access to curricular and extracurricular activities, and progress in the general education curriculum.**

    - **Intent:** As the IEP team determines the tasks the student needs to complete and develops the goals and objectives, the team considers whether assistive technology is required to accomplish those tasks.

5. **The IEP team gathers and analyzes data about the student, customary environments, educational goals, and tasks when considering a student's need for assistive technology devices and services.**

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- **Intent:** The IEP team shares and discusses information about the student's present levels of achievement in relationship to the environments, and tasks to determine if the student requires assistive technology devices and services to participate actively, work on expected tasks, and make progress toward mastery of educational goals.

6. When assistive technology is needed, the IEP team explores a range of assistive technology devices, services, and other supports that address identified needs.

- **Intent:** The IEP team considers various supports and services that address the educational needs of the student and may include no tech, low tech, mid-tech and/or high tech solutions and devices. IEP team members do not limit their thinking to only those devices and services currently available within the district.

7. The assistive technology consideration process and results are documented in the IEP and include a rationale for the decision and supporting evidence.

- **Intent:** Even though IEP documentation may include a checkbox verifying that assistive technology has been considered, the reasons for the decisions and recommendations should be clearly stated. Supporting evidence may include the results of assistive technology assessments, data from device trials, differences in achievement with and without assistive technology, student preferences for competing devices, and teacher observations, among others.

COMMON ERRORS:

1. AT is considered for students with severe disabilities only.
2. No one on the IEP team is knowledgeable regarding AT.
3. Team does not use a consistent process based on data about the student, environment and tasks to make decisions.
4. Consideration of AT is limited to those items that are familiar to team members or are available in the district.
5. Team members fail to consider access to the curriculum and IEP goals in determining if AT is required in order for the student to receive FAPE.
6. If AT is not needed, team fails to document the basis of its decisions.

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Quality Indicators for Assessment of Assistive Technology Needs

Quality Indicators for Assessment of Assistive Technology needs is a process conducted by a team, used to identify tools and strategies to address a student's specific need(s). The issues that lead to an AT assessment may be very simple and quickly answered or more complex and challenging. Assessment takes place when these issues are beyond the scope of the problem solving that occurs as a part of normal service delivery.

1. **Procedures for all aspects of assistive technology assessment are clearly defined and consistently applied.**

    - **Intent:** Throughout the educational agency, personnel are well informed and trained about assessment procedures and how to initiate them. There is consistency throughout the agency in the conducting of assistive technology assessments. Procedures may include - but are not limited to - initiating an assessment, planning and conducting an assessment, conducting trials, reporting results, and resolving conflicts.

2. **Assistive technology assessments are conducted by a team with the collective knowledge and skills needed to determine possible assistive technology solutions that address the needs and abilities of the student, demands of the customary environments, educational goals, and related activities.**

    - **Intent:** Team membership is flexible and varies according to the knowledge and skills needed to address student needs. The student and family are active team members. Various team members bring different information and strengths to the assessment process.

3. **All assistive technology assessments include a functional assessment in the student's customary environments, such as the classroom, lunchroom, playground, home, community setting, or work place.**

    - **Intent:** The assessment process includes activities that occur in the student's current or anticipated environments because characteristics and demands in each may vary. Team members work together to gather specific data and relevant information in identified environments to contribute to assessment decisions.

4. **Assistive technology assessments, including needed trials, are completed within reasonable timelines.**

    - Intent: Assessments are initiated in a timely fashion and completed within a time line that is reasonable as determined by the IEP team. The timeline complies with applicable state and agency requirements.

5. **Recommendations from assistive technology assessments are based on data about the student, environments and tasks.**

    - Intent: The assessment includes information about the student's needs and abilities, demands of various environments, educational tasks, and objectives. Data may be gathered from sources such as student performance records, results of experimental trials, direct observation, interviews with students or significant others, and anecdotal records.

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6. The assessment provides the IEP team with clearly documented recommendations that guide decisions about the selection, acquisition, and use of assistive technology devices and services.

- **Intent:** A written rationale is provided for any recommendations that are made. Recommendations may include assessment activities and results, suggested devices and alternative ways of addressing needs, services required by the student and others, and suggested strategies for implementation and use.

7. Assistive technology needs are reassessed any time changes in the student, the environments and/or the tasks result in the student's needs not being met with current devices and/or services.

- **Intent:** An assistive technology assessment is available any time it is needed due to changes that have affected the student. The assessment can be requested by the parent or any other member of the IEP team.

COMMON ERRORS

1. Procedures for conducting AT assessment are not defined, or are not customized to meet the student's needs.
2. A team approach to assessment is not utilized.
3. Individuals participating in an assessment do not have the skills necessary to conduct the assessment, and do not seek additional help.
4. Team members do not have adequate time to conduct assessment processes, including necessary trials with AT.
5. Communication between team members is not clear.
6. The student is not involved in the assessment process.
7. When the assessment is conducted by any team other than the student's IEP team, the needs of the student or expectations for the assessment are not communicated.

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Quality Indicators for Including Assistive Technology in the IEP

The Individuals with Disabilities Education Act of 1997 (IDEA '97) requires that the IEP team consider AT needs in the development of every Individualized Education Program (IEP). Once the IEP team has reviewed assessment results and determined that AT is needed for provision of a free, appropriate, public education (FAPE), it is important that the IEP document reflects the team's determination in as clear a fashion as possible. The Quality Indicators for AT in the IEP help the team describe the role of AT in the child's educational program.

1. **The education agency has guidelines for documenting assistive technology needs in the IEP and requires their consistent application.**

   - **Intent:** The education agency provides guidance to IEP teams about how to effectively document assistive technology needs, devices, and services as a part of specially designed instruction. related services, or supplementary aids and services.

2. **All services that the IEP team determines are needed to support the selection, acquisition, and use of assistive technology devices are designated in the IEP.**

   - **Intent:** The provision of assistive technology services is critical to the effective use of assistive technology devices. It is important that the IEP describes the assistive technology services that are needed for student success. Such services may include evaluation, customization or maintenance of devices, coordination of services, and training for the student and family and professionals, among others.

3. **The IEP illustrates that assistive technology is a tool to support achievement of goals and progress in the general curriculum by establishing a clear relationship between student needs, assistive technology devices and services, and the student's goals and objectives.**

   - **Intent:** Most goals are developed before decisions about assistive technology are made. However, this does not preclude the development of additional goals, especially those related specifically to the appropriate use of assistive technology.

4. **IEP content regarding assistive technology use is written in language that describes how assistive technology contributes to achievement of measurable and observable outcomes.**

   - **Intent:** Content which describes measurable and observable outcomes for assistive technology use enables the IEP team to review the student's progress and determine whether the assistive technology has had the expected impact on student participation and achievement.

5. **Assistive technology is included in the IEP in a manner that provides a clear and complete description of the devices and services to be provided and used to address student needs and achieve expected results.**

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- **Intent:** IEPs are written so that participants in the IEP meeting and others who use the information to implement the student's program understand what technology is to be available, how it is to be used, and under what circumstances. "Jargon" should be avoided.

COMMON ERRORS:

1. IEP teams do not know how to include AT in IEPs.
2. IEPs including AT use a "formula" approach to documentation. All IEPs are developed in similar fashion and the unique needs of the child are not addressed.
3. AT is included in the IEP, but the relationship to goals and objectives is unclear.
4. AT devices are included in the IEP, but no AT services support the use.
5. AT expected results are not measurable or observable.

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Quality Indicators for Assistive Technology Implementation

Assistive technology implementation pertains to the ways that assistive technology devices and services, as included in the IEP (including goals/objectives, related services, supplementary aids and services and accommodations or modifications) are delivered and integrated into the student's educational program. Assistive technology implementation involves people working together to support the student using assistive technology to accomplish expected tasks necessary for active participation and progress in customary educational environments.

1. **Assistive technology implementation proceeds according to a collaboratively developed plan.**

   - **Intent:** Following IEP development, all those involved in implementation work together to develop a written action plan that provides detailed information about how the AT will be used in specific educational settings, what will be done and who will do it.

2. **Assistive technology is integrated into the curriculum and daily activities of the student across environments.**

   - **Intent:** Assistive technology is used when and where it is needed to facilitate the student's access to, and mastery of, the curriculum. Assistive technology may facilitate active participation in educational activities, assessments, extracurricular activities, and typical routines.

3. **Persons supporting the student across all environments in which the assistive technology is expected to be used share responsibility for implementation of the plan.**

   - **Intent:** All persons who work with the student know their roles and responsibilities, are able to support the student using assistive technology, and are expected to do so.

4. **Persons supporting the student provide opportunities for the student to use a variety of strategies—including assistive technology—and to learn which strategies are most effective for particular circumstances and tasks.**

   - **Intent:** When and where appropriate, students are encouraged to consider and use alternative strategies to remove barriers to participation or performance. Strategies may include the student's natural abilities, use of assistive technology, other supports, or modifications to the curriculum, task or environment.

5. **Training for the student, family and staff is an integral part of implementation.**

   - **Intent:** Determination of the training needs of the student, staff, and family is based on how the assistive technology will be used in each unique environment. Training and technical assistance are planned and implemented as ongoing processes based on current and changing needs.

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6. Assistive technology implementation is initially based on assessment data and is adjusted based on performance data.

- Intent: Formal and informal assessment data guide initial decision-making and planning for AT implementation. As the plan is carried out, student performance is monitored and implementation is adjusted in a timely manner to support student progress.

7. Assistive technology implementation includes management and maintenance of equipment and materials.

- **Intent:** For technology to be useful it is important that equipment management responsibilities are clearly defined and assigned. Though specifics may differ based on the technology, some general areas may include organization of equipment and materials; responsibility for acquisition, set-up, repair, and replacement in a timely fashion; and assurance that equipment is operational.

COMMON ERRORS

1. Implementation is expected to be smooth and effective without addressing specific components in a plan. Team members assume that everyone understands what needs to happen and knows what to do.
2. Plans for implementation are created and carried out by one IEP team member.
3. The team focuses on device acquisition and does not discuss implementation.
4. An implementation plan is developed that is incompatible with the instructional environments.
5. No one takes responsibility for the care and maintenance of AT devices and so they are not available or in working order when needed.
6. Contingency plans for dealing with broken or lost devices are not made in advance.

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Quality Indicators for Evaluation of the Effectiveness of Assistive Technology

This area addresses the evaluation of the effectiveness of the AT devices and services that are provided to individual students. It includes data collection, documentation and analysis to monitor changes in student performance resulting from the implementation of assistive technology services. Student performance is reviewed in order to identify if, when, or where modifications and revisions to the implementation are needed.

1. **Team members share clearly defined responsibilities to ensure that data are collected, evaluated, and interpreted by capable and credible team members.**

    - **Intent:** Each team member is accountable for ensuring that the data collection process determined by the team is implemented. Individual roles in the collection and review of the data are assigned by the team. Data collection, evaluation, and interpretation are led by persons with relevant training and knowledge. It can be appropriate for different individual team members to conduct these tasks.

2. **Data are collected on specific student achievement that has been identified by the team and is related to one or more goals.**

    - **Intent:** In order to evaluate the success of assistive technology use, data are collected on various aspects of student performance and achievement. Targets for data collection include the student's use of assistive technology to progress toward mastery of relevant IEP and curricular goals and to enhance participation in extracurricular activities at school and in other environments.

3. **Evaluation of effectiveness includes the quantitative and qualitative measurement of changes in the student's performance and achievement.**

    - **Intent:** Changes targeted for data collection are observable and measurable, so that data are as objective as possible. Changes identified by the IEP team for evaluation may include accomplishment of relevant tasks, how assistive technology is used, student preferences, productivity, participation, and independence, quality of work, speed and accuracy of performance, and student satisfaction, among others.

4. **Effectiveness is evaluated across environments including during naturally occurring opportunities as well as structured activities.**

    - **Intent:** The team determines the environments where the changes in student performance are expected to occur and prioritizes appropriate activities for data collection in those environments.

5. **Data are collected to provide teams with a means for analyzing student achievement and identifying supports and barriers that influence assistive technology use to determine what changes, if any, are needed.**

    - **Intent:** Teams regularly analyze data on multiple factors that may influence success or lead to errors in order to

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guide decision-making. Such factors include not only the student's understanding of expected tasks and ability to use assistive technology but also student preferences, intervention strategies, training, and opportunities to gain proficiency.

6. Changes are made in the student's assistive technology services and educational program when evaluation data indicate that such changes are needed to improve student achievement.

- **Intent:** During the process of reviewing evaluation data, the team decides whether changes or modifications need to be made in the assistive technology, expected tasks, or factors within the environment. The team acts on those decisions and supports their implementation.

7. Evaluation of effectiveness is a dynamic, responsive, ongoing process that is reviewed periodically.

- **Intent:** Scheduled data collection occurs over time and changes in response to both expected and unexpected results. Data collection reflects measurement strategies appropriate to the individual student's needs. Team members evaluate and interpret data during periodic progress reviews.

COMMON ERRORS:

1. An observable, measurable student behavior is not specified as a target for change.
2. Team members do not share responsibility for evaluation of effectiveness.
3. An environmentally appropriate means of data collection and strategies has not been identified.
4. A schedule of program review for possible modification is not determined before implementation begins.

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Quality Indicators for Assistive Technology Transition

Transition plans for students who use assistive technology address the ways the student's use of assistive technology devices and services are transferred from one setting to another. Assistive technology transition involves people from different classrooms, programs, buildings, or agencies working together to ensure continuity. Self-advocacy, advocacy and implementation are critical issues for transition planning.

1. **Transition plans address the assistive technology needs of the student, including roles and training needs of team members, subsequent steps in assistive technology use, and follow- up after transition takes place.**

   - **Intent:** The transition plan assists the receiving agency/team to successfully provide needed supports for the AT user. This involves the assignment of responsibilities and the establishment of accountability.

2. **Transition planning empowers the student using assistive technology to participate in the transition planning at a level appropriate to age and ability.**

   - **Intent:** Specific self-determination skills are taught that enable the student to gradually assume responsibility for participation and leadership in AT transition planning as capacity develops. AT tools are provided, as needed, to support the student's participation.

3. **Advocacy related to assistive technology use is recognized as critical and planned for by the teams involved in transition.**

   - **Intent:** Everyone involved in transition advocates for the student's progress, including the student's use of AT. Specific advocacy tasks related to AT use are addressed and may be carried out by the student, the family, staff members or a representative.

4. **AT requirements in the receiving environment are identified during the transition planning process.**

   - **Intent:** Environmental requirements, skill demands and needed AT support are determined in order to plan appropriately. This determination is made collaboratively and with active participation by representatives from sending and receiving environments.

5. **Transition planning for students using assistive technology proceeds according to an individualized timeline.**

   - **Intent:** Transition planning timelines are adjusted based on specific needs of the student and differences in environments. Timelines address well mapped action steps with specific target dates and ongoing opportunities for reassessment.

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6. Transition plans address specific equipment, training and funding issues such as transfer or acquisition of assistive technology, manuals and support documents.

- **Intent:** A plan is developed to ensure that the AT equipment, hardware, and/or software arrives in working condition accompanied by any needed manuals. Provisions for ongoing maintenance and technical support are included in the plan.

COMMON ERRORS:

1. Lack of self-determination, self-awareness and self-advocacy on part of the individual with a disability (and/or advocate).
2. Lack of adequate long range planning on part of sending and receiving agencies (timelines).
3. Inadequate communication and coordination.
4. Failure to address funding responsibility.
5. Inadequate evaluation (documentation, data, communication, valued across settings) process.
6. Philosophical differences between sending and receiving agencies.
7. Lack of understanding of the law and their own responsibilities.

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Quality Indicators for Administrative Support of Assistive Technology

This area defines the critical areas of administrative support and leadership for developing and delivering assistive technology services. It involves the development of policies, procedures, and other supports necessary to sustain effective assistive technology programs.

1. **The education agency has written procedural guidelines that ensure equitable access to assistive technology devices and services for students with disabilities, if required for a free and appropriate public education (FAPE).**

    - **Intent:** Clearly written procedural guidelines help ensure that students with disabilities have the assistive technology devices and services they require for educational participation and benefit. Access to assistive technology is ensured regardless of severity of disability, educational placement, geographic location, or economic status.

2. **The education agency broadly disseminates clearly defined procedures for accessing and providing assistive technology services and supports the implementation of those guidelines.**

    - **Intent:** Procedures are readily available in multiple formats to families and school personnel in special and general education. All are aware of how to locate the procedures and are expected to follow procedures whenever appropriate.

3. **The education agency includes appropriate assistive technology responsibilities in written descriptions of job requirements for each position in which activities impact assistive technology services.**

    - **Intent:** Appropriate responsibilities and the knowledge, skills, and actions required to fulfill them are specified for positions from the classroom through the central office. These descriptions will vary depending upon the position and may be reflected in a position description, assignment of duty statement, or some other written description.

4. **The education agency employs personnel with the competencies needed to support quality assistive technology services within their primary areas of responsibility at all levels of the organization.**

    - **Intent:** Although different knowledge, skills, and levels of understanding are required for various jobs, all understand and are able to fulfill their parts in developing and maintaining a collaborative system of effective assistive technology services to students.

5. **The education agency includes assistive technology in the technology planning and budgeting process.**

    - **Intent:** A comprehensive, collaboratively-developed technology plan provides for the technology needs of

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all students in general education and special education.

6. The education agency provides access to ongoing learning opportunities about assistive technology for staff, family, and students.

- **Intent:** Learning opportunities are based on the needs of the student, the family, and the staff and are readily available to all. Training and technical assistance include any topic pertinent to the selection, acquisition, or use of assistive technology or any other aspect of assistive technology service delivery.

7. The education agency uses a systematic process to evaluate all components of the agency- wide assistive technology program.

- **Intent:** The components of the evaluation process include, but are not limited to, planning, budgeting, decision-making, delivering AT services to students, and evaluating the impact of AT services on student achievement. There are clear, systematic evaluation procedures that all administrators know about and use on a regular basis at central office and building levels.

COMMON ERRORS:

1. If policies and guidelines are developed, they are not known widely enough to assure equitable application by all IEP teams.
2. It is not clearly understood that the primary purpose of AT in school settings is to support the implementation of the IEP for the provision of a free appropriate public education (FAPE).
3. Personnel have been appointed to head AT efforts, but resources to support those efforts have not been allocated. (Time, a budget for devices, professional development, etc.)
4. AT leadership personnel try to or are expected to do all of the AT work and fail to meet expectations.
5. AT services are established but their effectiveness is never evaluated.

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Quality Indicators for Professional Development and Training in Assistive Technology

This area defines the critical elements of quality professional development and training in assistive technology. Assistive technology professional development and training efforts should arise out of an ongoing, well-defined, sequential and comprehensive plan. Such a plan can develop and maintain the abilities of individuals at all levels of the organization to participate in the creation and provision of quality AT services. The goal of assistive technology professional development and training is to increase educators' knowledge and skills in a variety of areas including, but not limited to: collaborative processes; a continuum of tools, strategies, and services; resource; legal issues; action planning; and data collection and analysis. Audiences for professional development and training include: students, parents or caregivers, special education teachers, educational assistants, support personnel, general education personnel, administrators, AT specialists, and others involved with students.

1. **Comprehensive assistive technology professional development and training support the understanding that assistive technology devices and services enable students to accomplish IEP goals and objectives and make progress in the general curriculum.**

    - **Intent:** The Individuals with Disabilities Education Act (IDEA) requires the provision of a free and appropriate public education (FAPE) for all children with disabilities. The Individualized Education Plan (IEP) defines FAPE for each student. The use of AT enables students to participate in and benefit from FAPE. The focus of all AT Professional Development and training activities is to increase the student's ability to make progress in the general curriculum and accomplish IEP goals and objectives.

2. **The education agency has an AT professional development and training plan that identifies the audiences, the purposes, the activities, the expected results, evaluation measures and funding for assistive technology professional development and training.**

    - **Intent:** The opportunity to learn the appropriate techniques and strategies is provided for each person involved in the delivery of AT services. Professional development and training are offered at a variety of levels of expertise and are pertinent to individual roles.

3. **The content of comprehensive AT professional development and training addresses all aspects of the selection, acquisition and use of assistive technology.**

    - **Intent:** AT professional development and training address the development of a wide range of assessment, collaboration and implementation skills that enable educators to provide effective AT interventions for students. The AT professional development and training plan includes, but is not limited to: collaborative processes; the continuum of tools, strategies and services; resources; legal issues; action planning; and data collection.

4. **AT professional development and training address and are aligned with other local, state and national professional development initiatives.**

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- **Intent:** Many of the effective practices used in the education of children with disabilities can be enhanced by the use of assistive technology. The functional use of AT is infused into all professional development efforts.
- Matrix Descriptors: Select the statement that most accurately reflects your individual perception of the current services provided in the school district with which you are associated.

5. Assistive technology professional development and training include ongoing learning opportunities that utilize local, regional, and/or national resources.

- **Intent:** Professional development and training opportunities enable individuals to meet present needs and increase their knowledge of AT for use in future. Training in AT occurs frequently enough to address new and emerging technologies and practices and is available on a repetitive and continuous schedule. A variety of AT professional development and training resources are used.

6. Professional Development and Training in assistive technology follow research-based models for adult learning that include multiple formats and are delivered at multiple skill levels.

- **Intent:** The design of Professional Development and Training for AT recognizes adults as diverse learners who bring various levels of prior knowledge and experience to the training and can benefit from differentiated instruction using a variety of formats and diverse timeframes (e.g., workshops, distance learning, follow-up assistance, ongoing technical support).

7. The effectiveness of assistive technology professional development and training is evaluated by measuring changes in practice that result in improved student performance.

- **Intent:** Evidence is collected regarding the results of AT professional development and training. The professional development and training plan is modified based on these data in order to ensure changes educational practice that result in improved student performance.

COMMON ERRORS:

1. The educational agency does not have a comprehensive plan for ongoing AT professional development and training.
2. The educational agency's plan for professional development and training is not based on AT needs assessment and goals.
3. Outcomes for professional development are not clearly defined and effectiveness is not
4. measured in terms of practice and student performance.
5. A continuum of ongoing professional development and training is not available.
6. Professional development and training focuses on the tools and not the process related to determining student needs and integrating technology into the curriculum.
7. Professional development and training is provided for special educators but not for administrators, general educators and instructional technology staff.

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Appendix 2:

Self-Evaluation Matrices for the Quality Indicators in Assistive Technology Services

Introduction to the QIAT Self-Evaluation Matrices

The Quality Indicators in Assistive Technology (QIAT) Self-Evaluation Matrices were developed in response to formative evaluation data indicating a need for a model that could assist in the application of the Quality Indicators for Assistive Technology Services in Schools (Zabala, et. al, 2000). The QIAT Matrices are based on the idea that change does not happen immediately, but rather, moves toward the ideal in a series of steps that take place over time. The QIAT Matrices use the Innovation Configuration Matrix (ICM) developed by Hall and Hord (1985) as a structural model. The ICM provides descriptive steps ranging from the unacceptable to the ideal that can be used as benchmarks to determine the current status of practice related to a specific goal or objective and guide continuous improvement toward the ideal. It enables users to determine areas of strength that can be built upon as well as areas of challenge in need of improvement.

When the QIAT Matrices are used to guide a collaborative self-assessment conducted by a diverse group of stakeholders within an agency, the information gained can be used to plan for changes that lead to improvement throughout the organization in manageable and attainable steps. The QIAT Matrices can also be used to evaluate the level to which expected or planned-for changes have taken place by periodically analyzing changes in service delivery over time.

When completed by an individual or team, the results of the self-assessment can be used to measure areas of strength and plan for needed professional development, training, or support needed by the individual or team. When the QIAT Matrices are used by an individual or team, however, it is important to realize that the results can only reasonably reflect perceptions of the services in which that individual or team is involved and may not reflect the typical services within the organization. Since a primary goal of QIAT is to increase the quality and consistency of assistive technology (AT) services to all students throughout the organization, the perception that an individual or small group is working at the level of best practices may still indicate a need to increase the quality and consistency of services throughout the organization.

The descriptive steps included in the QIAT Matrices are meant to provide illustrative examples and may not be specifically appropriate, as written, for all environments. People using the QIAT Matrices may wish to revise the descriptive steps to align them more closely for specific environments. However, when doing this, care must be taken that the revised steps do not compromise the intent of the quality indictor to which they apply.

The QIAT Matrices document is a companion document to the list of Quality Indicators and Intent Statements. The original six indicator areas were validated by research in 2004 and revisions were made in 2005. For more information, please refer to the indicators and intent statements on the QIAT Web site at http://www.qiat.org. Before an item in the QIAT Matrices is discussed and rated, groups must read the entire item in the list of Quality Indicators and Intent Statements so that the intent of the item is clear.

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Quality Indicators for Consideration of Assistive Technology Needs

Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
1. Assistive technology (AT) devices and services are considered for all students with disabilities regardless of type or severity of disability.	1 AT is not considered for students with disabilities.	2 AT is considered only for students with severe disabilities or students in specific disability categories.	3 AT is considered for all students with disabilities but the consideration is inconsistently based on the unique educational needs of the student.	4 AT is considered for all students with disabilities and the consideration is generally based on the unique educational needs of the student.	5 AT is considered for all students with disabilities and the consideration is consistently based on the unique educational needs of the student.
2. During the development of the individualized educational program (IEP), every IEP team consistently uses a collaborative decision-making process that supports systematic consideration of each student's possible need for AT devices and services.	1 No process is established for IEP teams to use to make AT decisions.	2 A process is established for IEP teams to use to make AT decisions but it is not collaborative.	3 A collaborative process is established but not generally used by IEP teams to make AT decisions.	4 A collaborative process is established and generally used by IEP teams to make AT decisions.	5 A collaborative process is established and consistently used by IEP teams to make AT decisions.
3. IEP team members have the collective knowledge and skills needed to make informed AT decisions and seek assistance when needed.	1 The team does not have the knowledge or skills needed to make informed AT decisions. The team does not seek help when needed.	2 Individual team members have some of the knowledge and skills needed to make informed AT decisions. The team does not seek help when needed.	3 Team members sometimes combine knowledge and skills to make informed AT decisions. The team does not always seek help when needed.	4 Team members generally combine their knowledge and skills to make informed AT decisions. The team seeks help when needed.	5 The team consistently uses collective knowledge and skills to make informed AT decisions. The team seeks help when needed.

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Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
4. Decisions regarding the need for AT devices and services are based on the student's IEP goals and objectives, access to curricular and extracurricular activities, and progress in the general education curriculum.	1 Decisions about a student's need for AT are not connected to IEP goals or the general curriculum.	2 Decisions about a student's need for AT are based on either access to the curriculum/IEP goals or the general curriculum, not both.	3 Decisions about a student's need for AT sometimes are based on both the student's IEP goals and general education curricular tasks.	4 Decisions about a student's need for AT generally are based on both the student's IEP goals and general education curricular tasks.	5 Decisions about a student's need for AT consistently are based on both the student's IEP goals and general education curricular tasks.
5. The IEP team gathers and analyzes data about the student, customary environments, educational goals, and tasks when considering a student's need for AT devices and services.	1 The IEP team does not gather and analyze data to consider a student's need for AT devices and services.	2 The IEP team gathers and analyzes data about the student, customary environments, educational goals or tasks, not all, when considering a student's need for AT devices and services.	3 The IEP team sometimes gathers and analyzes data about the student, customary environments, educational goals and tasks when considering a student's need for AT devices and services.	4 The IEP team generally gathers and analyzes data about the student, customary environments, educational goals and tasks when considering a student's need for AT devices and services.	5 The IEP team consistently gathers and analyzes data about the student, customary environments, educational goals and tasks when considering a student's need for AT devices and services.
6. When AT is needed, the IEP team explores a range of AT devices, services, and other supports that address identified needs.	1 The IEP team does not explore a range of AT devices, services, and other supports to address identified needs.	2 The IEP team considers a limited set of AT devices, services, and other supports.	3 The IEP team sometimes explores a range of AT devices, services, and other supports.	4 The IEP team generally explores a range of AT devices, services, and other supports.	5 The IEP team always explores a range of AT devices, services, and other supports to address identified needs.
7. The AT consideration process and results are documented in the IEP and include a rationale for the decision and supporting evidence.	1 The consideration process and results are not documented in the IEP.	2 The consideration process and results are documented in the IEP but do not include a rationale for the decision and supporting evidence.	3 The consideration process and results are documented in the IEP and sometimes include a rationale for the decision and supporting evidence.	4 The consideration process and results are documented in the IEP and generally include a rationale for the decision and supporting evidence.	5 The consideration process and results are documented in the IEP and consistently include a rationale for the decision and supporting evidence.

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Quality Indicators for Assessment of Assistive Technology Needs

Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
1. Procedures for all aspects of AT assessment are clearly defined and consistently applied.	1 No procedures are defined.	2 Some assessment procedures are defined, but not generally used.	3 Procedures are defined and used only by specialized personnel.	4 Procedures are clearly defined and generally used in both special and general education.	5 Clearly defined procedures are used by everyone involved in the assessment process.
2. AT assessments are conducted by a team with the collective knowledge and skills needed to determine possible AT solutions that address the needs and abilities of the student, demands of the customary environments, educational goals, and related activities.	1 A designated individual with no prior knowledge of the student's needs or technology conducts assessments.	2 A designated person or group of individuals who have knowledge of technology, but not of the student's needs, environments, or tasks conducts assessments.	3 A designated team with knowledge of AT conducts assessments with limited input from individuals who have knowledge of the student's needs, environments, and tasks.	4 A team whose members have direct knowledge of the student's needs, environments, tasks, and knowledge of AT generally conducts assessments.	5 Flexible teams formed on the basis of knowledge of of the individual student's needs, environments, tasks, and expertise in AT consistently conduct assessments.
3. All AT assessments include a functional assessment in the student's customary environments, such as the classroom, lunchroom, playground, home, community setting, or work place.	1 No component of the AT assessment is conducted in any of the student's customary environments.	2 No component of the AT assessment is conducted in any of the customary environments, however, data about the customary environments are sought.	3 Functional components of AT assessments are sometimes conducted in the student's customary environments.	4 Functional components of AT assessments are generally conducted in the student's customary environments.	5 Functional components of AT assessments are consistently conducted in the student's customary environments.

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Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
4. AT assessments, including needed trials, are completed within reasonable timelines.	1 AT assessments are not completed within agency timelines.	2 AT assessments are frequently out of compliance with timelines.	3 AT assessments are completed within a reasonable timeline and may or may not include initial trials.	4 AT assessments are completed within a reasonable timeline and include at least initial trials.	5 AT assessments are conducted in a timely manner and include a plan for ongoing assessment and trials in customary environments.
5. Recommendations from AT assessments are based on data about the student, environments and tasks.	1 Recommendations are not data based.	2 Recommendations are based on incomplete data from limited sources.	3 Recommendations are sometimes based on data about student performance on typical tasks in customary environments.	4 Recommendations are generally based on data about student performance on typical tasks in customary environments.	5 Recommendations are consistently based on data about student performance on typical tasks in customary environments.
6. The assessment provides the IEP team with clearly documented recommendations that guide decisions about the selection, acquisition, and use of AT devices and services.	1 Recommendations are not documented.	2 Documented recommendations include only devices. Recommendations about services are not documented.	3 Documented recommendations may or may not include sufficient information about devices and services to guide decision-making and program development.	4 Documented recommendations generally include sufficient information about devices and services to guide decision-making and program development.	5 Documented recommendations consistently include sufficient information about devices and services to guide decision-making and program development.
7. AT needs are reassessed any time changes in the student, the environments and/or the tasks result in the student's needs not being met with current devices and/or services.	1 AT needs are not reassessed.	2 AT needs are only reassessed when requested. Reassessment is done formally and no ongoing AT assessment takes place. .	3 AT needs are reassessed on an annual basis or upon request. Reassessment may include some ongoing and formal assessment strategies.	4 AT use is frequently monitored. AT needs are generally reassessed if current tools and strategies are ineffective. Reassessment generally includes ongoing assessment strategies and includes formal assessment, if indicated.	5 AT use is frequently monitored. AT needs are generally reassessed if current tools and strategies are ineffective. Reassessment generally includes ongoing assessment strategies and includes formal assessment, if indicated.

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Quality Indicators for Including Assistive Technology in the IEP

Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
1. The education agency has guidelines for documenting AT needs in the IEP and requires their consistent application.	1 The agency does not have guidelines for documenting AT in the IEP.	2 The agency has guidelines for documenting AT in the IEP but team members are not aware of them.	3 The agency has guidelines for documenting AT in the IEP and members of some teams are aware of them.	4 The agency has guidelines for documenting AT in the IEP and members of most teams are aware of them.	5 The agency has guidelines for documenting AT in the IEP and members of all teams are aware of them.
2. All services that the IEP team determines are needed to support the selection, acquisition, and use of AT devices are designated in the IEP.	1 AT devices and services are not documented in the IEP.	2 Some AT devices and services are minimally documented. Documentation does not include sufficient information to support effective implementation.	3 Required AT devices and services are documented. Documentation sometimes includes sufficient information to support effective implementation.	4 Required AT devices and services are documented. Documentation generally includes sufficient information to support effective implementation.	5 Required AT devices and services are documented. Documentation consistently includes sufficient information to support effective implementation.
3. The IEP illustrates that AT is a tool to support achievement of goals and progress in the general curriculum by establishing a clear relationship between student needs, AT devices and services, and the student's goals and objectives.	1 AT use is not linked to IEP goals and objectives or participation and progress in the general curriculum. .	2 AT use is sometimes linked to IEP goals and objectives but not linked to the general curriculum. .	3 AT use is linked to IEP goals and objectives and sometimes linked to the general curriculum.	4 AT is linked to IEP goals and objectives and is generally linked to the general curriculum.	5 AT is linked to the IEP goals and objectives and is consistently linked to the general curriculum.
4. IEP content regarding AT use is written in language that describes how AT contributes to achievement of measurable and observable outcomes.	1 The IEP does not describe outcomes to be achieved through AT use.	2 The IEP describes outcomes to be achieved through AT use¸ but they are not measurable.	3 The IEP describes outcomes to be achieved through AT use¸ but only some are measurable.	4 The IEP generally describes observable¸ measurable outcomes to be achieved through AT use.	5 The IEP consistently describes observable¸ measurable outcomes to be achieved through AT use.

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Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
5. AT is included in the IEP in a manner that provides a clear and complete description of the devices and services to be provided and used to address student needs and achieve expected results.	1 Devices and services needed to support AT use are not documented.	2 Some devices and services are documented but they do not adequately support AT use.	3 Devices and services are documented and are sometime adequate to support AT use.	4 Devices and services are documented and are generally adequate to support AT use.	5 Devices and services are documented and are consistently adequate to support AT use.

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Quality Indicators for Assistive Technology Implementation

Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
1. AT implementation proceeds according to a collaboratively developed plan.	1 There is no implementation plan.	2 Individual team members may develop AT implementation plans independently.	3 Some team members collaborate in the development of an AT implementation plan.	4 Most team members collaborate in the development of AT implementation plan.	5 All team members collaborate in the development of a comprehensive AT implementation plan.
2. AT is integrated into the curriculum and daily activities of the student across environments.	1 AT included in the IEP is rarely used.	2 AT is used in isolation with no links to the student's curriculum and/or daily activities.	3 AT is sometimes integrated into the student's curriculum and daily activities.	4 AT is generally integrated into the student's curriculum and daily activities.	5 AT is fully integrated into the student's curriculum and daily activities.
3. Persons supporting the student across all environments in which the AT is expected to be used share responsibility for implementation of the plan.	1 Responsibility for implementation is not accepted by any team member.	2 Responsibility for implementation is assigned to one team member.	3 Responsibility for implementation is shared by some team members in some environments.	4 Responsibility for implementation is generally shared by most team members in most environments.	5 Responsibility for implementation is consistently shared among team members across all environments.
4. Persons supporting the student provide opportunities for the student to use a variety of strategies—including AT–and to learn which strategies are most effective for particular circumstances and tasks.	1 No strategies are provided to support the accomplishment of tasks.	2 Only one strategy is provided to support the accomplishment of tasks.	3 Multiple strategies are provided. Students are sometimes encouraged to select and use the most appropriate strategy for each task.	4 Multiple strategies are provided. Students are generally encouraged to select and use the most appropriate strategy for each task.	5 Multiple strategies are provided. Students are consistently encouraged to select and use the most appropriate strategy for each task.

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Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
5. Learning opportunities for the student, family and staff is an integral part of implementation.	1 AT training needs have not been determined.	2 AT training needs are initially identified for student, family, and staff, but no training has been provided.	3 Initial AT training is sometimes provided to student, family, and staff.	4 Initial and follow-up AT training is generally provided to student, family, and staff	5 Ongoing AT training is provided to student, family, and staff as needed, based on changing needs.
6. AT implementation is initially based on assessment data and is adjusted based on performance data.	1 AT implementation is based on equipment availability and limited knowledge of team members, not on student data.	2 AT implementation is loosely based on initial assessment data and rarely adjusted.	3 AT implementation is based on initial assessment data and is sometimes adjusted as needed based on student progress.	4 AT implementation is based on initial assessment data and is generally adjusted as needed based on student progress.	5 AT implementation is based on initial assessment data and is consistently adjusted as needed based on student progress.
7. AT implementation includes management and maintenance of equipment and materials.	1 Equipment and materials are not managed or maintained. Students rarely have access to the equipment and materials they require.	2 Equipment and materials are managed and maintained on a crisis basis. Students frequently do not have access to the equipment and materials they require.	3 Equipment and materials are managed and maintained so that students sometimes have access to the equipment and materials they require.	4 Equipment and materials are managed and maintained so that students generally have access to the equipment and materials they require.	5 Equipment and materials are effectively managed and maintained so that students consistently have access to the equipment and materials they require.

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Quality Indicators for Evaluation of the Effectiveness of Assistive Technology

Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
1. Team members share clearly defined responsibilities to ensure that data are collected, evaluated, and interpreted by capable and credible team members.	1 Responsibilities for data collection, evaluation, or interpretation are not defined.	2 Responsibilities for data collection, evaluation, or interpretation of data are assigned to one team member.	3 Responsibilities for collection, evaluation and interpretation of data are shared by some team members.	4 Responsibilities for collection, evaluation and interpretation of data are shared by most team members.	5 Responsibilities for collection, evaluation and interpretation of data are consistently shared by team members.
2. Data are collected on specific student achievement that has been identified by the team and is related to one or more goals.	1 Team neither identifies specific changes in student behaviors expected from AT use nor collects data.	2 Team identifies student behaviors and collects data, but the behaviors are either not specific or not related to IEP goal(s).	3 Team identifies specific student behaviors related to IEP goals, but inconsistently collects data.	4 Team identifies specific student behaviors related to IEP goals, and generally collects data.	5 Team identifies specific student behaviors related to IEP goals, and consistently collects data on changes in those behaviors.
3. Evaluation of effectiveness includes the quantitative and qualitative measurement of changes in the student's performance and achievement.	1 Effectiveness is not evaluated.	2 Evaluation of effectiveness is based on something other than student performance, such as changes in staff behavior and/or environmental factors.	3 Evaluation of effectiveness is based on subjective information about student performance.	4 Evaluation of effectiveness is generally based on objective information about student performance from a few data sources.	5 Evaluation of effectiveness is consistently based on objective information about student performance obtained from a variety of data sources.
4. Effectiveness is evaluated across environments including during naturally occurring opportunities as well as structured activities.	1 Effectiveness is not evaluated in any environment. .	2 Effectiveness is evaluated only during structured opportunities in controlled environments (e.g. massed trials data).	3 Effectiveness is evaluated during structured activities across environments and a few naturally occurring opportunities.	4 Effectiveness is generally evaluated during naturally occurring opportunities and structured activities in multiple environments.	5 Effectiveness is consistently evaluated during naturally occurring opportunities and structured activities in multiple environments.

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Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
5. Data are collected to provide teams with a means for analyzing student achievement and identifying supports and barriers that influence AT use to determine what changes, if any, are needed.	1 No data are collected or analyzed.	2 Data are collected but are not analyzed.	3 Data are superficially analyzed. .	4 Data are sufficiently analyzed most of the time.	5 Data are sufficiently analyzed all of the time.
6. Changes are made in the student's AT services and educational program when evaluation data indicate that such changes are needed to improve student achievement.	1 Program changes are never made.	2 Program changes are made in the absence of data.	3 Program changes are loosely linked to student performance data.	4 Program changes are generally linked to student performance data.	5 Program changes are consistently linked to student performance data.
7. Evaluation of effectiveness is a dynamic, responsive, ongoing process that is reviewed periodically.	1 No process is used to evaluate effectiveness.	2 Evaluation of effectiveness only takes place annually, but the team does not make program changes based on data.	3 Evaluation of effectiveness only takes place annually and the team uses the data to make annual program changes.	4 Evaluation of effectiveness takes place on an on-going basis and team generally uses the data to make program changes.	5 Evaluation of effectiveness takes place on an on-going basis and the team consistently uses the data to make program changes.

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Quality Indicators for Assistive Technology Transition

Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
1. Transition plans address the AT needs of the student, including roles and training needs of team members, subsequent steps in AT use, and follow-up after transition takes place.	1 Transition plans do not address AT needs.	2 Transition plans rarely address AT needs, critical roles, steps or follow-up.	3 Transition plans sometimes address AT needs but may not include critical roles, steps or follow-up.	4 Transition plans always address AT needs and usually include critical roles, steps or follow-up.	5 Transition plans consistently address AT needs and all team members are involved and knowledgeable about critical roles, steps and follow-up.
2. Transition planning empowers the student using AT to participate in the transition planning at a level appropriate to age and ability.	1 Student is not present.	2 Student may be present but does not participate or input is ignored.	3 Student sometimes participates and some student input is considered.	4 Student participates and student input is generally reflected in the transition plan.	5 Student is a full participant and student input is consistently reflected in the transition plan.
3. Advocacy related to AT use is recognized as critical and planned for by the teams involved in transition. v	1 No one advocates for AT use or the development of student's self- determination skills.	2 Advocacy rarely occurs for AT use or the development of student self-determination skills.	3 Advocacy sometimes occurs for AT use and the development of student self-determination skills.	4 Advocacy usually occurs for AT use and the development of student self-determination skills. .	5 Advocacy consistently occurs for AT use and the development of student self-determination skills.
4. AT requirements in the receiving environment are identified during the transition planning process.	1 AT requirements in the receiving environment are not identified.	2 AT requirements in the receiving environment are rarely identified	3 AT requirements in the receiving environment are identified, some participants are involved and some requirements are addressed.	4 AT requirements in the receiving environment are identified, most participants are involved and most requirements are addressed.	5 AT requirements in the receiving environment are consistently identified by all participants.

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Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
5. Transition planning for students using AT proceeds according to an individualized timeline.	1 Individualized timelines are not developed to support transition planning for students using AT.	2 Individualized timelines are developed, but do not support transition planning for students using AT.	3 Individualized timelines are sometimes developed and support transition planning for students using AT.	4 Individualized timelines are generally developed and support transition planning for students using AT.	5 Individualized timelines are consistently developed and support transition planning for students using AT.
6. Transition plans address specific equipment, training and funding issues such as transfer or acquisition of AT, manuals and support documents.	1 The plans do not address AT equipment, training and funding issues.	2 The plans rarely address AT equipment, training and/or funding issues.	3 The plans sometimes address AT equipment, training or funding issues.	4 The plans usually address AT equipment, training and funding issues. .	5 The plans consistently address AT equipment, training and funding issues.

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Quality Indicators for Administrative Support of Assistive Technology

Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
1. The education agency has written procedural guidelines that ensure equitable access to AT devices and services for students with disabilities, if required for a free appropriate public education (FAPE).	1 No written procedural guidelines are in place.	2 Written procedural guidelines for few components of AT service delivery are in place. (i.e. assessment or consideration)	3 Written procedural guidelines that address several components of AT service delivery are in place.	4 Written procedural guidelines that address most components of AT service delivery are in place.	5 Comprehensive written procedural guidelines that address all components of AT service delivery are in place.
2. The education agency broadly disseminates clearly defined procedures for accessing and providing AT services and supports the implementation of those guidelines.	1 No procedures disseminated and no plan to disseminate.	2 A plan for dissemination exists, but has not been implemented.	3 Procedures are disseminated to a few staff who work directly with AT.	4 Procedures are disseminated to most agency personnel and generally used.	5 Procedures are disseminated to all agency personnel and consistently used.
3. The education agency includes appropriate AT responsibilities in written descriptions of job requirements for each position in which activities impact AT services.	1 No job requirements relating to AT are written.	2 Job requirements related to AT are written only for a few specific personnel who provide AT services.	3 Job requirements related to AT are written for most personnel who provide AT services but are not clearly aligned to job responsibilities.	4 Job requirements related to AT are written for most personnel who provide AT services and are generally aligned to job responsibilities.	5 Job requirements related to AT are written for all personnel who provide AT services and are clearly aligned to job responsibilities.

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Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
4. The education agency employs personnel with the competencies needed to support quality AT services within their primary areas of responsibility at all levels of the organization.	1 AT competencies are not considered in hiring, assigning or evaluating personnel.	2 AT competencies are recognized as an added value in an employee but are not sought.	3 AT competencies are recognized and sought for specific personnel. .	4 AT competencies are generally valued and used in hiring, assigning and evaluating personnel.	5 AT competencies are consistently valued and used in hiring, assigning and evaluating personnel.
5. The education agency includes AT in the technology planning and budgeting process.	1 There is no planning and budgeting process for AT.	2 AT planning and budgeting is a special education function that is not included in the agency-wide technology planning and budgeting process.	3 AT is sometimes included in the agency-wide technology planning and budgeting process, but is inadequate to meet AT needs throughout the agency.	4 AT is generally included in agency-wide technology planning and budgeting process in a way that meets most AT needs throughout the agency.	5 AT is included in the agency-wide technology planning and budgeting process in a way that meets AT needs throughout the agency.
6. The education agency provides access to ongoing learning opportunities about AT for staff, family, and students.	1 No learning opportunities related to AT are provided.	2 Learning opportunities related to AT are provided on a crisis-basis only. Learning opportunities may not be available to all who need them.	3 Learning opportunities related to AT are provided to some individuals on a pre-defined schedule.	4 Learning opportunities related to AT are provided on a pre-defined schedule to most individuals with some follow-up opportunities.	5 Learning opportunities related to AT are provided on an ongoing basis to address the changing needs of students with disabilities, their families and the staff who serve them.
7. The education agency uses a systematic process to evaluate all components of the agency-wide AT program.	1 The agency-wide AT program is not evaluated.	2 Varying procedures are used to evaluate some components of the agency-wide AT program.	3 A systematic procedure is inconsistently used to evaluate a few components of the agency-wide AT program.	4 A systematic procedure is generally used to evaluate most components of the agency-wide AT program.	5 A systematic procedure is consistently used throughout the agency to evaluate all components of the agency-wide AT program.

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Quality Indicators for Professional Development and Training in Assistive Technology

Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
1. Comprehensive AT professional development and training support the understanding that AT devices and services enable students to accomplish IEP goals and objectives and make progress in the general curriculum.	1 There is no professional development and training in the use of AT.	2 Professional development and training only addresses technical aspects of AT tools and/or is not related to use for academic achievement.	3 Some professional development and training includes strategies for use of AT devices and services to facilitate academic achievement.	4 Most professional development and training includes strategies for use of AT devices and services to facilitate academic achievement.	5 All professional development and training includes strategies for use of AT devices and services to facilitate academic achievement.
2. The education agency has an AT professional development and training plan that identifies the audiences, the purposes, the activities, the expected results, evaluation measures and funding for AT professional development and training.	1 There is no plan for AT professional development and training.	2 The plan includes unrelated activities done on a sporadic basis for a limited audience.	3 The plan includes some elements (e.g. variety of activities, purpose, levels) for some audiences.	4 The plan includes most elements of a comprehensive plan, for most audiences.	5 The comprehensive AT professional development plan encompasses all elements, audiences, and levels.
3. The comprehensive AT professional development and training content addresses all aspects of the selection, acquisition and use of AT.	1 There is no professional development and training on related to selection, acquisition, and use of AT.	2 Professional development and training addresses few aspects of selection, acquisition, and use of AT.	3 Professional development and training addresses some aspects of selection, acquisition, and use of AT.	4 Professional development and training addresses most aspects of selection, acquisition, and use of AT.	5 Professional development and training addresses all aspects of selection, acquisition, and use of AT.

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Quality Indicator	UNACCEPTABLE	Variations →			PROMISING PRACTICES
4. AT professional development and training address and are aligned with other local, state and national professional development initiatives.	1 Professional development and training does not consider other initiatives.	2 Professional development and training rarely aligns with other initiatives.	3 Professional development and training sometimes aligns with other initiatives. .	4 Professional development and training generally aligns with other initiatives.	5 Professional development and training consistently aligns with other initiatives as appropriate.
5. AT professional development and training include ongoing learning opportunities that utilize local, regional, and/or national resources.	1 There are no professional development and training opportunities.	2 Professional development and training occurs infrequently.	3 Professional development and training is sometimes provided.	4 Professional development and training is generally provided.	5 Professional development and training opportunities are provided on a comprehensive¸ repetitive and continuous schedule utilizing appropriate local¸ regional and national resources.
6. Professional development and training in AT follow research-based models for adult learning that include multiple formats and are delivered at multiple skill levels.	1 Professional development and training never considers adult learning.	2 Professional development and training rarely considers models for adult learning strategies.	3 Professional development and training sometimes considers research-based adult learning strategies. .	4 Professional development and training generally considers research-based adult learning strategies. .	5 Professional development and training consistently considers research-based adult learning strategies.
7. The effectiveness of AT professional development and training is evaluated by measuring changes in practice that result in improved student performance.	1 Changes in practice are not measured.	2 Changes in practice are rarely measured.	3 Changes in practice are measured using a variety of measures but may not be related to student performance.	4 Changes in practice are usually measured using a variety of reliable measures linked to improved student performance.	5 Changes in practice are consistently measured using a variety of reliable measures linked to improved student performance.

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Appendix 3:

Quality Indicators in Assistive Technology

Quality Indicators in Assistive Technology

After reviewing the Quality Indicators for each area, record the self-rating numbers on this self-rating summary sheet. Enter variation numbers to the right of the appropriate indicator. All sections should be completed.

Rater's Name:

District/School:

Date:

AREA: Consideration of AT Needs	
INDICATOR	Self-Rating #
1. Assistive technology devices and services are considered for all students with disabilities regardless of type or severity of disability.	
2. During the development of the individualized educational program, every IEP team consistently uses a collaborative decision-making process that supports systematic consideration of each student's possible need for assistive technology devices and services.	
3. IEP team members have the collective knowledge and skills needed to make informed assistive technology decisions and seek assistance when needed.	
4. Decisions regarding the need for assistive technology devices and services are based on the student's IEP goals and objectives, access to curricular and extracurricular activities, and progress in the general education curriculum.	
5. The IEP team gathers and analyzes data about the student, customary environments, educational goals, and tasks when considering a student's need for assistive technology devices and services.	
6. When assistive technology is needed, the IEP team explores a range of assistive technology devices, services, and other supports that address identified needs.	
7. The assistive technology consideration process and results are documented in the IEP and include a rationale for the decision and supporting evidence.	

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AREA: Assessment of AT Needs	
INDICATOR	Self-Rating #
1. Procedures for all aspects of assistive technology assessment are clearly defined and consistently applied.	
2. Assistive technology assessments are conducted by a team with the collective knowledge and skills needed to determine possible assistive technology solutions that address the needs and abilities of the student, demands of the customary environments, educational goals, and related activities.	
3. All assistive technology assessments include a functional assessment in the student's customary environments, such as the classroom, lunchroom, playground, home, community setting, or work place.	
4. Assistive technology assessments, including needed trials, are completed within reasonable time lines.	
5. Recommendations from assistive technology assessments are based on data about the student, environments and tasks.	
6. The assessment provides the IEP team with clearly documented recommendations that guide decisions about the selection, acquisition, and use of assistive technology devices and services.	
7. Assistive technology needs are reassessed any time changes in the student, the environments and/or the tasks result in the student's needs not being met with current devices and/or services.	

AREA: Documentation in the IEP	
INDICATOR	Self-Rating #
1. The education agency has guidelines for documenting assistive technology needs in the IEP and requires their consistent application.	
2. All services that the IEP team determines are needed to support the selection, acquisition, and use of assistive technology devices are designated in the IEP.	
3. The IEP illustrates that assistive technology is a tool to support achievement of goals and progress in the general curriculum by establishing a clear relationship between student needs, assistive technology devices and services, and the student's goals and objectives.	
4. IEP content regarding assistive technology use is written in language that describes how assistive technology contributes to achievement of measurable and observable outcomes.	
5. Assistive technology is included in the IEP in a manner that provides a clear and complete description of the devices and services to be provided and used to address student needs and achieve expected results.	

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AREA: AT Implementation	
INDICATOR	Self-Rating #
1. Assistive technology implementation proceeds according to a collaboratively developed plan.	
2. Assistive technology is integrated into the curriculum and daily activities of the student.	
3. Persons supporting the student across all environments in which the assistive technology is expected to be used share responsibility for implementation of the plan.	
4. Persons supporting the student provide opportunities for the student to use a variety of strategies—including assistive technology— and to learn which strategies are most effective for particular circumstances and tasks.	
5. Learning opportunities for the student, family and staff are an integral part of implementation.	
6. Assistive technology implementation is initially based on assessment data and is adjusted based on performance data.	
7. Assistive technology implementation includes management and maintenance of equipment and materials.	

AREA: Evaluation of Effectiveness	
INDICATOR	Self-Rating #
1. Team members share clearly defined responsibilities to ensure that data are collected, evaluated, and interpreted by capable and credible team members.	
2. Data are collected on specific student behaviors that have been identified by the team and are related to one or more goal.	
3. Evaluation of effectiveness includes the quantitative and qualitative measurement of changes in the student's performance and achievement.	
4. Effectiveness is evaluated across environments during naturally occurring and structured activities.	
5. Data are collected to provide teams with a means for analyzing student achievement and identifying supports and barriers that influence assistive technology use to determine what changes, if any, are needed.	
6. Changes are made in the student's assistive technology services and educational program when evaluation data indicate that such changes are needed to improve student achievement.	
7. Evaluation of effectiveness is a dynamic, responsive, ongoing process that is reviewed periodically.	

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AREA: Assistive Technology Transition	
INDICATOR	Self-Rating #
1. Transition plans address assistive technology needs of the student, including roles and training needs of team members, subsequent steps in assistive technology use, and follow-up after transition takes place.	
2. Transition planning empowers the student using assistive technology to participate in the transition planning at a level appropriate to age and ability.	
3. Advocacy related to assistive technology use is recognized as critical and planned for by the teams involved in transition.	
4. AT requirements in the receiving environment are identified during the transition planning process.	
5. Transition planning for students using assistive technology proceeds according to an individualized timeline.	
6. Transition plans address specific equipment, training and funding issues such as transfer or acquisition of assistive technology, manuals and support documents.	

AREA: Administrative Support	
INDICATOR	Self-Rating #
1. The education agency has written procedural guidelines that ensure equitable access to assistive technology devices and services for students with disabilities, if required for a free, appropriate, public education (FAPE).	
2. The education agency broadly disseminates clearly defined procedures for accessing and providing assistive technology services and supports the implementation of those guidelines.	
3. The education agency includes appropriate assistive technology responsibilities in written descriptions of job requirements for each position in which activities impact assistive technology services.	
4. The education agency employs personnel with the competencies needed to support quality assistive technology services within their primary areas of responsibility at all levels of the organization.	
5. The education agency includes assistive technology in the technology planning and budgeting process.	
6. The education agency provides access to on-going learning opportunities about assistive technology for staff, family, and students.	
7. The education agency uses a systematic process to evaluate all components of the agency-wide assistive technology program.	

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AREA: Professional Development and Training for AT	
INDICATOR	Self-Rating #
1. Comprehensive assistive technology professional development and training support the understanding that assistive technology devices and services enable students to accomplish IEP goals and objectives and make progress in the general curriculum.	
2. The education agency has an AT professional development and training plan that identifies the audiences, the purposes, the activities, the expected results, evaluation measures and funding for assistive technology professional development and training.	
3. The content of comprehensive AT professional development and training addresses all aspects of the selection, acquisition and use of assistive technology.	
4. AT professional development and training address and are aligned with other local, state and national professional development initiatives.	
5. Assistive technology professional development and training include ongoing learning opportunities that utilize local, regional, and/or national resources.	
6. Professional Development and Training in assistive technology follow research-based models for adult learning that include multiple formats and are delivered at multiple skill levels.	
7. The effectiveness of assistive technology professional development and training is evaluated by measuring changes in practice that result in improved student performance.	

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Appendix 4:

Laws and Policies

Laws and Policies

The following is a brief description of Laws and Policies that give a foundation for the components of assistive technology for individuals with disabilities.

I. The Rehabilitation Act

The Rehabilitation Act of 1973 prohibits discrimination on the basis of disability in programs conducted by Federal agencies, in programs receiving Federal financial assistance, in Federal employment, and in the employment practices of Federal contractors.

Section 504

Section 504 of the Rehabilitation Act states that "No otherwise qualified individual with a disability in the United States . . . shall, solely by reason of her or his disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance..."

Aids, benefits and services provided to children with disabilities must be equal to those afforded to others and must be as effective in affording equal opportunity to obtain the same result, to gain the same benefit, or to reach the same level of achievement. The 504 regulations define an 'appropriate education' as "the provision of regular or special education and related aids and service that (i) are designed to meet individual educational needs of handicapped persons as adequately as the needs of non-handicapped persons are met and (ii) are based upon adherence to procedures that satisfy the requirements of 104.34"(34 CFR§ 104.33).

The Americans with Disabilities Act (ADA)

The Americans with Disabilities Act of 1990 (ADA), amended in 2008 as the ADA Amendments Act (ADAAA) (P.L. 110-325), went into effect on January 1, 2009. In March of 2011, the Equal Employment Opportunity Commission (EEOC) released the ADAAA Regulations for Titles II and III (29 CFR § 1630) that went into effect on May 24, 2011.The ADA Amendments Act of 2008 and the subsequent regulations prohibit discrimination on the basis of disability. To be protected by the ADA, one must have a disability (a person who has a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such an impairment, or a person who is regarded by others as having such an impairment) or have a relationship or association with an individual with a disability. The Act also has a civil rights statute to protect the rights of persons with disabilities in almost every facet of their lives, including school, work and recreation.

In regards to the area of assistive technology, a student or young child with a disability may also be entitled to assistive technology as a reasonable accommodation to his or her disability under the ADA. Students and young children (0–21) with disabilities who are not eligible for special education under the IDEA may have a right to assistive technology under Section 504 of the Rehabilitation Act, and either Title II or Title III of the ADA.

ADA Title II: State and Local Government Activities

Title II of the ADA, which reinforces many of the requirements of Section 504 of the Rehabilitation Act of 1973 (as amended, 29 U.S.C. § 794), covers state

and local government services regardless of whether these entities receive Federal financial assistance. It prohibits discrimination against qualified individuals with disabilities from discrimination on the basis of disability in services, programs, and activities provided by State and local government entities (28 CFR Part 35). Public entities include school systems and publicly operated preschool programs and other instrumentalities of state and local governments.

The regulations of Title II of the ADA state that: "No qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of a public entity, or be subjected to discrimination by the public entity (28 CFR §35.130(a)".

State and local governments are required to follow specific architectural standards and transportation provisions. They are required to make reasonable modifications to policies, practices, and procedures where necessary to avoid discrimination, unless they can demonstrate that doing so would fundamentally alter the nature of the service, program, or activity being provided.

In order to comply with the Title II discrimination prohibitions, school systems may be required to make reasonable modifications in policies, practices and procedures or to provide "auxiliary aids and services" to the student with a disability (28 CFR §35.130(b)(7). Auxiliary aids and services" include assistive technology devices such as tape recorders, computers, and listening devices. In addition, the terminology includes assistive technology services, such as the acquisition or modification of equipment (28 CFR §35.104).

ADA Title III: Public Accommodations

Title III covers businesses and nonprofit service providers that are public accommodations, privately operated entities offering certain types of courses and examinations, privately operated transportation, and commercial facilities. Public accommodations are private entities who own, lease, lease to, or operate facilities such as restaurants, retail stores, hotels, movie theaters, private schools, convention centers, doctors' offices, homeless shelters, transportation depots, zoos, funeral homes, day care centers, and recreation facilities including sports stadiums and fitness clubs. Transportation services provided by private entities are also covered by Title III.

Title III of the ADA prohibits places of public accommodation from discriminating against persons with disabilities. Places of public accommodation are privately owned entities such as a nursery school, or elementary and secondary private schools (42 U.S.C. §1218(7)(J). The general prohibition of discrimination under Title III states that "no individual shall be discriminated against on the basis of disability in the full and equal enjoyment of the goods, services, facilities, privileges, advantages, or accommodations of any place of public accommodation..." (27 CFR §86.201(a). Public accommodations must comply with basic nondiscrimination requirements that prohibit exclusion, segregation, and unequal treatment.

Individuals with disabilities may not be denied these goods and services because of disability. They may not be required to accept goods and services that are unequal or separate from those provided to non-disabled individuals.

II. Connecticut's Assistive Technology Lemon Law

In June of 1997, Connecticut enacted Public Act 97-100, An Act Concerning the Security of Assistive Technology Devices, to protect consumers with respect to

nonconforming assistive technology devices purchased or leased on or after January 1, 1998. Nonconforming devices are defined as "any condition, malfunction or defect that substantially impairs the use, value or safety of the device" or that is covered by a warranty on the device (CGS Sec. 1(10). The law also helps device owners enforce either the warranty or lease guarantees associated with a device. Manufacturers or authorized repair dealers have 10 business days to complete the repair; if repair takes more than ten days or if the nonconformity has occurred on at least two previous occasions, the manufacturer must reimburse the consumer a reasonable per day cost for using an alternative device. The law also spells out specific consequences for devices that have been out of service for over thirty days or that have had to be brought in for repair three times within the warranty period or two years (whichever is longer). In those cases, replacement or refund is required. This law does not apply to hearing aids. (See appendix B for a full copy of the Lemon Law statutes.)

III. Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act (FERPA) regulations apply to educational agencies and institutions that receive federal funds and protect the privacy of parents and students. The FERPA regulations concern access to and the disclosure, release, and transfer of educational records and can be found in Title 34 of the Code of Federal Regulations, Part 99 (34 CFR 99). The FERPA Regulations are important because they set forth the basic federal records retention and destruction requirements.

Protection under FERPA transfers to students at age 18 (34 C.F.R. §99.3(a)(5)) or when a student reaches age of majority, the rights accorded to, and consent required of, parents under FERPA transfer from the parents to the student in most instances. (FERPA § 99.31(a)). In the case of a divorce, separation or custody dispute, both parents retain their FERPA rights unless a court order or other legally binding document that revokes these rights is presented (34 C.F.R. §99.4).

Parents, guardians or eligible students may request an amendment to the student's records if they believe that information in them is inaccurate, misleading or violates the student's right to privacy. If the district refuses, it must inform the parties seeking the amendment of their right to a hearing. If the hearing officer rules in favor of the parties requesting the amendment, the district must amend the records accordingly and inform the party of the amendment; otherwise, the parties may place a statement concerning the contested information in the record and this statement must be disclosed along with the records under the disclosure provisions of the law (34 C.F.R. §99.21). This applies to parental concerns about the AT information in their child's record.

The law gives parents or guardians and eligible students the right to inspect and review the student's education records or to receive a copy of the requested records if circumstances effectively prevent them from inspecting or reviewing the records (34 C.F.R. §99.10). Connecticut regulations entitle these individuals to one free copy of the requested records that the school must send within 5 school days of a written request for the copy (RCSA 10-76d-18(b)(2). Except in certain circumstances, before a school can disclose personally identifiable information from a student's record, it must secure written consent from the parents, guardian or eligible student (34 C.F.R. §99.30). One exception permits disclosure to school officials, including teachers who have been determined by the district to have legitimate educational interests

(34 C.F.R. §99.31). Another concerns the transfer of student records when a student enrolls in a new district, the new district has notified the former district and the parents or guardian have not given written permission for the records transfer (C.G.S. Sec.10-220h). In this circumstance, the sending district must notify the parents or guardian that it has transferred the records. The records transfer must occur no later than 10 calendar days after the new district notifies the former district of the student's enrollment. Timely transfer of the education records of a child using AT is critical to that youngster's educational progress and may affect his or her safety and well-being.

IV. The Elementary and Secondary Education Act (ESEA)

The Elementary and Secondary Education Act (ESEA) flexibility process (also known as the ESEA waiver) has been offered by the U.S. Department of Education for each State educational agency (SEA) to request flexibility regarding specific requirements of the No Child Left Behind Act of 2001 (NCLB); in exchange for a rigorous and comprehensive State-developed plan designed to improve educational outcomes for all students, close achievement gaps, increase equity, and improve the quality of instruction. In May 2012, the U.S. Department of Education approved Connecticut's flexibility request (or waiver), allowing the State to establish a new accountability system to assess school performance.

According to the SDE website, the new performance measurement system improves the State's ability to provide more accurate and appropriate interventions, support and recognition to local schools. Connecticut's new accountability system improves upon the old one in several ways. The new system:

- Recognizes and values improvement in student achievement at all performance levels unlike the old system, which only recognized movement of students from 'not proficient' to 'proficient';
- Raises expectations by setting the target that all students perform at the 'goal' level on the majority of tests they take rather than just perform at the 'proficient' level, as in the old system;
- Integrates all tested subjects, encouraging schools to improve instruction not only in Mathematics and Reading (as under No Child Left Behind), but also in Science and Writing;
- Includes graduation rates as important indicators of high school success;
- Identifies schools with struggling student subgroups, which in the past, may have been less visible to parents and educators; and
- Enables schools to be classified into new categories, including Turnaround, Review and Focus, Transitioning, Progressing and Excelling Schools, that will enable districts and the State to provide tailored support to individual schools.

You may view further information on the on the Department's updated ESEA flexibility web page:

- "The Opportunity of ESEA Flexibility" (brochure)
- "Protecting School and Student Accountability" (fact sheet)
- "Advancing Accountability and Graduation Rates" (fact sheet)
- "Continuing to Expose and Close Achievement Gaps" (fact sheet)
- "Turning Around the Lowest-Performing Schools" (fact sheet)
- "Supporting Teachers, Leaders, and Local Innovation" (fact sheet)

V. Question and Answers

Q. Describe the differences between medically necessary and educationally necessary assistive technology.

A. IDEA 2004 and its regulations added an important exclusion to the definition of related services – a medical device that is surgically implanted, the optimization of that device's functioning, or the replacement of that device and services that apply to children with these devices (e.g., mapping for cochlear implants).

The Supreme Court decision in Cedar Rapids Community School District v. Garret F. [25 IDELR 439] provides a clear test for purposes of determining whether or not a school district is responsible for providing a device or service which may be considered medical and therefore an excluded service. The Supreme Court ruled that a "bright line" distinction exists between those devices/services which can be excluded from school responsibility as a medical treatment or service and those which cannot and therefore must be provided as a related service under the IDEA. Under the bright line test, the inquiry focuses on who must deliver the device or service, not on the nature of the service to be provided. If a physician must deliver the device or service, it is not a related service, and may be excluded as a medical service or treatment. The school is not responsible for providing the device or service. If individuals other than a physician can provide or deliver the device or service, including but not limited to nurses, physical therapists, occupational therapists, speech/language pathologists, audiologists, trained teachers or other trained school staff, it cannot be excluded as a medical service or treatment. The school will need to provide the device or service if the planning and placement team determines that the child needs the service or device as a related service in order for the child to benefit from the educational program.

Q. Explain what the law says about devices that are used exclusively for the "personal use" of school-aged children.

A. IDEA and Section 504 do not provide for exemption of responsibility for "personal use" assistive technology devices. Examples of personal use devices include items such as customized wheelchairs, augmentative communication devices used exclusively by and programmed for an individual student, text readers for personal use or study, or services of a personal nature including assistance in eating, toileting or dressing. In cases such as these, if the device is part of the IEP or meets the requirements set forth under Section 504, the school is responsible for providing the device (10 IDELR 1216 SEILER (1993).

On a very limited basis, and under unique circumstances based on the individual needs of a student with disabilities, personal use devices such as hearing aids and eye glasses may also be considered assistive technology. An OSEP policy letter answering this specific issue stated that "the relationship that must be present is between the educational needs of the child and the assistive technology device and/or service (22 IDELR 629 BACHUS (1995). The only exception to this is when the devices are determined to be "medical" and not "educational," as described in the previous section.

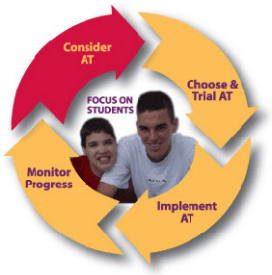
Individuals who qualify for assistive technology under the American with Disabilities Act (ADA) are subject to exclusion for personal devices. ADA regulations primarily address those technologies which ensure public access and accommodation.

Appendix 5:

AT Consideration Cycle

AT CYCLE: CONSIDER ASSISTIVE TECHNOLOGY

The Five-Step Consideration Process



PURPOSE:

The **Five-Step Consideration Process** form helps the IEP team determine ***if*** assistive technology is necessary and identifies categories of AT required by the student to achieve IEP goals and to participate and progress in the general curriculum.

COMPLETING THE CONSIDERATION FORM:

SECTION 1: Student Demographic Data, Team Members & Roles, Note IEP Goal(s) requiring AT

Include student demographic data from the IEP, and specify the roles each team member serves, indicating team members knowledgeable of assistive technology. Note the specific IEP goals where a student's achievement is expected to improve as a result of assistive technology implementation.

SECTION 2: Student, Environment, Tasks, and Tools

STEP 1: Review present levels of achievement and functional performance (ex. language processing, reading comprehension, mobility, etc.) Include areas of concern or barriers to achievement in general education. Identify areas of strength to apply and build upon in supporting the student's achievement. Note prior or current use of assistive technology and its effectiveness in helping the student reach the present levels of performance.

STEP 2: Review annual goals which require assistive technology to enable the student to attain the stated goals. Maintain high expectations for the student and consider access and progress as demonstrated through state content standards, school district curriculum, and required assessments.

STEP 3: Examine the environment and identify tasks to accomplish IEP goals. Consider location, room arrangement, available resources, concerns related to the student's functional performance, ways the student can participate with peers while attaining IEP goals, etc. List the specific tasks required in each environment and identify the student's functional capability to perform the critical elements of these tasks.

STEP 4: Determine the student's difficulty with tasks. Are there assistive technology devices and/or services the student needs to participate and progress in general education?

STEP 5: Identify appropriate supports and service, including AT. List tools, strategies, and services needed to support the student's achievement of IEP goals. Identify No/Low-, Mid-, and High-Tech assistive technology options. Note any state-approved assessment accommodations and assistive technology. Record assistive technology options by category (ex. voice output device) rather than identifying specific devices.

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Source: Johns Hopkins University, Center for Technology in Education

Appendix 6:

AT Cycle Toolkit

AT Cycle Toolkit DRAFT

CONSIDER ASSISTIVE TECHNOLOGY : The Five-Step Consideration Process

Student Name:	Date:	Grade:	School Year:	LRE Placement: % Residence School: Service School: Special Program:
Plan Completed by (Name & Role)			Note IEP Goals requiring AT:	

Student		Environment and Tasks		Tools
STEP 1: Review present levels of achievement and functional performance	STEP 2: Review annual IEP goals	STEP 3: Examine environment and identify tasks to accomplish IEP goals	STEP 4: Determine the student's difficulty with tasks	STEP 5: Identify appropriate supports and service, including AT

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Appendix 7:

AT Consideration Checklist

Assistive Technology Consideration Checklist

Student: _____ **School:** _____ **Date**: _____

DIRECTIONS

1. Please check (✔) the instructional or access areas in which the student is experiencing difficulty completing instructional tasks and/or meetings goals, benchmarks, or objectives. Record each of the checked areas in Column A of the boxes below (one area per box).

☐ Writing	☐ Spelling	☐ Reading	☐ Math
☐ Study/Organizational Skills	☐ Listening	☐ Oral Communication	☐ Seating/Positioning/Mobility
☐ Daily Living Activities	☐ Recreation and Leisure	☐ Pre-vocational and Vocational	☐ Other Specify: _____

2. Specify all relevant tasks (e.g. copying notes from board, responding to teacher questions, etc.) within each area in the space provided. Check the settings in which the task is required: GEC: General Education Classroom SEC: Special Education Classroom COM: Community HOM: Home.
3. In Column B, specify the standard classroom tools (low technology to high technology) used by the student to complete relevant tasks identified in Column A. Place a check (✔) in the appropriate box in Column B regarding independence or lack of independence with the identified tasks using standard classroom tools. For areas in which the student can complete the tasks independently with standard classroom tools, it will not be necessary to complete Columns C-D.
4. In Column C, specify the accommodations/modifications and assistive technology solutions that are currently being utilized. Place a check (✔) in the appropriate box in Column B regarding independence or lack of independence with the identified tasks using the identified accommodations/modifications and assistive technology solutions.
5. Complete Column D if the student cannot adequately complete the task with accommodations/modifications and assistive technology solutions specified in column C.

A. Instructional or Access Areas	B. Independent with Standard Classroom Tools	C. Completes Tasks with Accommodations/Modifications and/or Assistive Technology Solutions Currently in Place		D. Additional Solutions/Services Considered including Assistive Technology
		Accommodations/ Modifications	Assistive Technology Solutions	
☐GEC ☐SEC ☐COM ☐HOM	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	
☐GEC ☐SEC ☐COM ☐HOM	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	

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A. Instructional or Access Areas	B. Independent with Standard Classroom Tools	C. Completes Tasks with Accommodations/Modifications and/or Assistive Technology Solutions Currently in Place		D. Additional Solutions/Services Considered including Assistive Technology
		Accommodations/ Modifications	Assistive Technology Solutions	
☐GEC ☐SEC ☐COM ☐HOM	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	
☐GEC ☐SEC ☐COM ☐HOM	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	
☐GEC ☐SEC ☐COM ☐HOM	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	☐ Independent ☐ Not Independent	

Consideration Outcomes:

☐ Student independently accomplishes tasks in all instructional areas using standard classroom tools. No assistive technology is required.
☐ Student accomplishes tasks in all instructional areas with accommodations and modifications. No assistive technology is required.
☐ Student accomplishes tasks in all instructional areas with currently available assistive technology. Assistive technology is required.
☐ Student does not accomplish tasks in all instructional areas. Required assistive technology devices are known. Assistive technology is required.
☐ Student does not accomplish tasks in all instructional areas. Appropriate assistive technology solutions are not known to the IEP team. Obtain additional assistance through consultation or refer for an assistive technology evaluation.

Specify any assistive technology services required by this student: _____

Name	Position	Name	Position

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Appendix 8:

WATI Assistive Technology Consideration Guide

WATI Assistive Technology Consideration Guide

Student's Name School

1. What task is it that we want this student to do, that s/he is unable to do at a level that reflects his/her skills/abilities (writing, reading, communicating, seeing, hearing)? Document by checking each relevant task below. Please leave blank any tasks that are not relevant to the student's IEP.
2. Is the student currently able to complete tasks with special strategies or accommodations? If yes, describe in Column A for each checked task.
3. Is there available assistive technology (either devices, tools, hardware, of software) that could be used to address this task? (If none are known, review WATI's AT Checklist.) If any assistive technology tools are currently being used (or were tried in the past), describe in Column B.
4. Would the use of assistive technology help the student perform this skill more easily or efficiently, in the least restrictive environment, or perform successfully with less personal assistance? If yes, complete Column C.

Task	A. If currently completes task with special strategies / accommodations, describe.	B. If currently completes task with assistive technology tools, describe.	C. Describe new or additional assistive technology to be tried.
☑ Motor Aspects of Writing			
☑ Computer Access			
☑ Composing Written Material			
☑ Communication			
☑ Reading			
☑ Learning/ Studying			

WATI Assessment Forms Copyright (2004) Wisconsin Assistive Technology Initiative1Printed with Permission. Permission to photocopy is granted for non-commercial purposes if this credit is retained.

Task	A. If currently completes task with special strategies /accommodations, describe.	B. If currently completes task with assistive technology tools, describe.	C. Describe new or additional assistive technology to be tried.
☑ Math			
☑ Recreation and Leisure			
☑ Activities of Daily Living (ADLs)			
☑ Mobility			
☑ Environmental Control			
☑ Positioning and Seating			
☑ Vision			
☑ Hearing			
5. Are there assistive technology services (more specific evaluation of need for assistive technology, adapting or modifying the assistive technology, technical assistance on its operation or use, or training of student, staff, or family) that this student needs? If yes, describe what will be provided, the initiation and duration.			
Persons Present:			Date:

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Appendix 9:

Assistive Technology Consideration Resource Guide

Assistive Technology Consideration Resource Guide

The following information is provided to assist educational teams in considering assistive technology in the development, review, and/or revision of a student's Individual Educational Plan. This document provides a framework for identifying relevant tasks within instructional areas as well as appropriate accommodations, modifications, and technology solutions. Additional tasks and solutions will need to be added to address individual student needs.

Instructional or Access Area	Standard Tools	Modifications and Accommodations of Task and Expectations	Assistive Technology Solutions
Writing: Sample Tasks: • Write name • Copy letters/words/numbers for skills practice • Write words from memory • Copy print from book or worksheet Copy notes from board or overhead • Complete written worksheets with single word responses (fill-in-the blank) • Complete written worksheets with phrase or sentence response • Complete written test with multiple choice response (circle/mark answer) • Complete written test and forms with fill-in-the-blank response • Complete written test with matching response • Complete written test with phrase/sentence (short answer)	• Crayon/Marker Pencil • Pen • Letter and number strip • Clipboard • Typewriter • Computer with word processing software with grammar and spell checker • Instructional software to remediate and enhance specific writing skills	• Increased time for completing assignments • Decreased length of assignment/number of responses • Oral dictation as an alternative to writing Peer notetaker Format of assignment changed to meet need of student - multiple choice, matching word banks, fill-in-the-blank, short answer • Word banks, sentence starters, and cloze format writing activities for supports • Provide typed outline or typed copy of lecture notes to student prior to delivery for student to use to follow lecture • Student highlights key points on printed copy of notes rather than copying/recording lecture notes • Webbing-concept mapping strategy used • Increased time for completing assignments • Decreased length of assignment/number of responses • Oral dictation as an alternative to writing • Peer notetaker • Format of assignment changed to meet need of student - multiple choice, matching word banks, fill-in-the-blank, short answer	• Pencil grip or other adapted writing aids • Adapted paper (bold line, raised line, different spacing, secured to desk, paper stabilizers) • Slant board • Personal dry erase board • Non-slip writing surface (e.g., dycem) • Tape recorder or digital recorder for dictated responses and notetaking • Portable word processor (e.g., AlphaSmart Neo, The Writer Fusion, etc.) • Notetaking device (e.g., Braille, adapted tape/digital recorder, smartboard, Notetaker, Iris Pen) • Computer with word processing software with spell and grammar checks (e.g., Microsoft Word) • Computer with word processing software and outlining/webbing software (e.g., Inspiration or Kidspiration, Draft:Builder) • Computer with graphic-based word processor (e.g., Writing with Symbols) • Computer with talking word processing software (e.g., Write Out:Loud, Classroom Suite, Talking Word Processor)

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Instructional or Access Area	Standard Tools	Modifications and Accommodations of Task and Expectations	Assistive Technology Solutions
• Complete written test with essay response (multi-paragraph) Record notes from teacher dictation/lecture with teacher recording notes on board/overhead • Record notes from teacher dictation/lecture without teacher notes • Generate creative/spontaneous writing samples • Copy numbers • Enter number in correct location within calculation problems • Copy math calculation problems with correct alignment • Record dictated math calculation problems with correct alignment • Copy diagrams and graphs create and plot linear and quadratic equations on graph		• Word banks, sentence starters, and cloze format writing activities for supports • Provide typed outline or typed copy of lecture notes to student prior to delivery for student to use to follow lecture • Student highlights key points on printed copy of notes rather than copying/recording lecture notes • Webbing-concept mapping strategy used	• Computer with word prediction software (e.g., Co:Writer, WordQ) • Computer with graphic based word processor (e.g., Writing with Symbols) • Scanner and computer with form filling software to create electronic worksheets • Computer-based advanced reading and writing aids (e.g., Kurzweil 3000, WYNN, Read & Write Gold) *Adaptive input hardware and/or software (e.g., keyguard, keyboard utilities, enlarged keyboard, touchscreen, on-screen keyboard,trackball, switch access, voice dictation software, Braille input) and adaptive output solutions (screen enlargement, text or screen reading software) to be used as needed for all computer based writing solutions

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Instructional or Access Area	Standard Tools	Modifications and Accommodations of Task and Expectations	Assistive Technology Solutions
Spelling: Sample Tasks: • Identify correctly spelled word from printed list • Write spelling words from dictation • Spell words orally • Take a written spelling test • Use spelling words appropriately in a sentence • Locate correctly spelled words in a dictionary • Complete writing tasks with correct spelling • Identify/correct incorrectly spelled words in writing sample	• Flashcards • Alphabet strip • Print dictionary • Computer with word processing software with built-in spell checker • Instructional software to remediate and enhance basic phonics and spelling skills	• Peer/adult assistance for difficult to spell words • Personal or custom dictionary • Problem word list • Reduce number of spelling words • Increased time for completing assignments	• Personal dry erase board for practice • Tape recorder with difficult to spell words recorded • Hand-held spellchecker without auditory output (e.g Merriam-Webster Dictionary and Thesaurus) • Hand-held spellchecker with auditory output (e.g., Speaking Merriam-Webster Dictionary and Thesaurus) • Portable word processor with built-in spellchecker (e.g., AlphaSmart NEO, The Writer Fusion) • Computer with word processing program with spell check feature (e.g., Microsoft Word) • Computer with talking word processing software containing speaking spell check (e.g., Write Out:Loud, Classroom Suite, Talking Word Processor) • Computer with word prediction software, (e.g., Co:Writer, WordQ)

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Instructional or Access Area	Standard Tools	Modifications and Accommodations of Task and Expectations	Assistive Technology Solutions
Reading: Sample Tasks: • Identify letters in isolation and in sequence • Recognize/read name • Read basic/primer sight words • Read functional words (community, emergency, grocery, etc.) • Read target/selected words within a sentence • Comprehend age/grade appropriate reading materials • Read print materials from textbooks and supplemental materials with comprehension • Read material from worksheet with comprehension • Read material from board/overhead with comprehension • Read material from computer display with comprehension • Read longer reading samples with comprehension and without fatigue • Answer literal questions regarding materials read • Answer questions regarding main idea of materials read • Answer inferential questions regarding materials read	• Textbooks • Worksheets • Printed information on board/overhead • Printed test materials • Instructional software to remediate basic reading and/or reading comprehension skills	• Peer/adult reading assistance • High interest, low reading level materials • Increased time for completing reading materials • Decreased length of assignment • Simplify complexity of text • Color coding to emphasize key points (highlighting) • Custom vocabulary list Increase print size of materials through photocopying	• Page fluffers • Slant board and book holders for positioning books • Color Overlays • Tracking strategies (e.g., reading window, bar magnifier) • Speaking spellchecker or dictionary as a word recognition aid(e.g., Speaking Merriam-Webster Dictionary and Thesaurus) • Reading Pen (e.g., Readingpen) • Audio-taped books (e.g.books-on-tape from Recordings for the Blind and Dyslexic) • Electronic books (e.g., disk or CD-ROM) • Computer-based talking word processing program (e.g., Write OutLoud, E-Text Reader, Classroom Suite) • Computer with graphic word processor (e.g., Writing with Symbols) • Computer with text enlargement software (e.g., ZoomText) • Computer with text reading software (e.g., ReadPlease, JAWS, Kurzweil 1000) • Computer-based advanced reading and writing aids (e.g., Kurzweil 3000, WYNN, Read & Write Gold) • Solutions for converting text into alternative format (e.g., scanner with OCR software, Braille translation software, Braille printer/embosser, refreshable Braille displays, and tactile graphic production systems, etc.)

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Instructional or Access Area	Standard Tools	Modifications and Accommodations of Task and Expectations	Assistive Technology Solutions
Math: Sample Tasks: • Identify numbers in isolation and sequence • Comprehend basic math concepts • Complete basic calculations (addition, subtraction, multiplication, and division) • Complete complex math calculations • Complete math word problems • Tell time to the hour, half-hour, etc. using an analog and/or digital clock • Calculate passage of time Identify coins and bills • Demonstrates understanding of coin and bill value • Utilize money to purchase items • Utilize coins and bills to make appropriate change • Maintain and balance a checkbook	• Manipulatives (beads, etc.) • Abacus • Number line • Math fact sheet (e.g., multiplication facts) • Calculator • Instructional software to remediate and enhance specific math skills	• Change format of assignment (e.g.: write answers only) • Peer/adult reading of problem and recording of answer • Reduce number of problems • Provide additional spacing between problems • Provide additional time to complete tasks • Increase size of print through photocopying • Change complexity of material (e.g., separate problems by operations required) • Teacher/peer support for reading and assistance	• Modified paper (bold line, enlarged, raised line, graph paper, etc.) • Talking calculator with speech output • Calculator with large print display • Calculator with large keypad • Calculator with embossed output (e.g., Braille N Speak) • Computer based on-screen calculator • Computer with word processing program with Equation Editor feature (e.g., Microsoft Word) • Electronic math worksheet software with adaptive input and output as needed (e.g., MathPad, MathPad Plus, Scientific Notebook, and Geometers Sketchpad) • Adapted measuring devices (e.g., devices with speech output, large print display, or tactile output)

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Instructional or Access Area	Standard Tools	Modifications and Accommodations of Task and Expectations	Assistive Technology Solutions
Study Organizational Skills: Sample Tasks: • Copy assignments from board • Record assignments from teacher dictation • Complete assigned task within designated timelines • Request teacher/peer assistance when needed • Has appropriate materials/supplies for class activities	• Instructional materials including software to remediate deficit areas to teach compensation strategies and focus on strengths	• Assignment sheet provided by peer and/or adult • Outlines of key points • Student schedule or checklist • Positioning student strategically within classroom environment • Timers • Student self-monitoring sheets	• Print or picture schedule • Organizational aids (e.g., Color coding, appointment book, etc.) • Tape recorder • Electronic organizer/personal digital assistant (e.g., Step Pad, PDA,, Dana) • Computer based electronic organizer with adapted input and output provided as needed • Speech prompting device

Instructional or Access Area	Standard Tools	Modifications and Accommodations of Task and Expectations	Assistive Technology Solutions
Listening : Sample Tasks: • Follow verbal directions • Listen to stories, books, etc. and answer comprehension questions • Listen to classroom discussion and apply information (answer questions, record notes, etc) • Listen to teacher lecture and and apply information (answer questions, record notes, etc) • Listen to verbally presented information and retell with correct sequencing and facts • Listen to videos to gather information about current instructional topics • Respond to environmental stimuli appropriately (someone knocking on classroom door, bell ringing, fire alarm)	• Television • Video player • Cassette recorder/player • Headphones for clarity of sound and blocking of extraneous noises for cassette/ television • Overhead projector to provide visual outline during notetaking • Closed captioning access to caption ready television and video presentations	• Preferential seating • Use teacher proximity • Elimination of extraneous noise (air conditioner) • Break directions into smaller steps/ segments • Use verbal prompts • Use gestures • Pre-teach vocabulary and/or components of the lesson • Audio-tape verbally presented information for repeated presentation • Use visual aids (picture symbols, diagrams, maps) to illustrate key points • Provide a written outline of lecture • Use a peer note-taker to record notes in class • Provide print copy of script in videotapes • Provide sign language/oral interpreter	• Personal amplification system • Classroom sound field system • Auditory trainer • Personal hearing aids • Tape recorder with indexing capability • Smart Board for transferring teacher written notes to student computer for viewing and printing and viewing • Environmental alert system • Voice to text software application for converting teacher lecture to text • Closed captioning on non-caption ready instructional materials • Real time captioning of class lecture and discussion

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Instructional or Access Area	Standard Tools	Modifications and Accommodations of Task and Expectations	Assistive Technology Solutions
Oral Communication: Sample Tasks: • Gain attention of peers/adults within environment • Express basic wants/needs • Request assistance as needed • Provide appropriate greetings • Participate in conversation with peers/teachers • Respond appropriately to teacher/peer questions and/or comments • Provide oral report in class on assigned topic • Inform others of events, topics, etc • Terminate conversation	• Organizing diagram for presentations	• Interpreter • Verbal prompts • Modeling appropriate skills • Repetition of spoken answers • Additional response time • Provide questions before time • Accepting shortened responses	• Speech enhancing devices (e.g., amplifiers, clarifiers) • Augmentative communication solutions (e.g., object based communication displays, picture communication boards, books, and wallets, talking switches, dedicated augmentative communication devices, and integrated computer based augmentative communication solutions-all with adaptive input as needed) • Sign language

Instructional or Access Area	Standard Tools	Modifications and Accommodations of Task and Expectations	Assistive Technology Solutions
Aids to Daily Living: Sample Tasks: • Feed self using appropriate utensils • Drink using appropriate utensils • Prepare simple snack • Prepare basic meal • Dress and/or undress self using appropriate tools • Complete personal hygiene and grooming tasks (brushing teeth, hair, etc.) • Toilet self • Perform simple household chores	• Eating utensils (ex. spoon, cup, etc.) • Personal hygiene tools (ex: toothbrush, comb, brush, etc.) • Toileting supplies (ex: tissue) • Bathroom rails and adaptive faucet handles • Cleaning materials and appliances	• Verbal prompts • Modeling appropriate skills • Picture cures and prompts • Additional time to complete tasks • Modification of task length and complexity	• Adapted eating aids (e.g., grips for standard eating utensils, adapted cups/glasses, etc.) • Feeding machines • Adapted dressing aids (e.g., button holers, pulls for zippers, Velcro fasteners, etc.) • Adapted cooking and food preparation aids (e.g., blender attached to power control unit, adapted pouring handles, etc.) • See other sections of this document for leisure, vocational, mobility, and learning aids.) • Adapted household cleaning tools and appliances

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Instructional or Access Area	Standard Tools	Modifications and Accommodations of Task and Expectations	Assistive Technology Solutions
Recreation and Leisure: Sample Tasks: • Participate in play activities • Participate in leisure activities (ex: look at/read book or magazine, listen to music, etc.) appropriately • Manipulate and/or operate toys, tools, and/or electronic appliances required for participation in leisure activities appropriately	• Puzzles • Games • Toys • Music (e.g., tape player, CD- ROM, etc.)	• Verbal prompts • Adult peer assistance • Modeling appropriate skills • Cooperative participation with • Game modification	• Knobs for puzzles • Adapted crayon holders • Adapted books • Adapted music with symbols • Raised line coloring sheets • Spinners for games • Switch accessible toys (commercially available or switch accessible through switch interface) • Environmental control devices • Power control units and battery adapter devices • Adaptive sports equipment • Computers with adaptive input devices as needed and appropriate software to address leisure skills

Instructional or Access Area	Standard Tools	Modifications and Accommodations of Task and Expectations	Assistive Technology Solutions
Pre-vocational and Vocational: Sample Tasks: • Complete assigned tasks (ex: filing, sorting, assembly, etc.) within designated timelines • Utilize tools, manipulatives, and/or equipment to complete tasks • Complete single and multiple step tasks	• Sorting and assembling materials • Office equipment • Computer with standard office applications • Timers and watches	• Verbal prompts • Picture and word cues • Modeling appropriate skills • Cooperative participation with peers and adults • Student self-monitoring sheets • Modification of task length and complexity	• Individualized task and material modifications to meet student needs • Computer with adaptive input devices as needed and appropriate software to address pre-vocational or vocational needs • Vibrating and talking watches and timers • Auditory prompting with and without visual display

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Instructional or Access Area	Standard Tools	Modifications and Accommodations of Task and Expectations	Assistive Technology Solutions
Seating, Positioning, and Mobility: Sample Tasks: • Move about/ambulate about the classroom, school, and/or community • Manipulate educational materials as required in assigned activities • Maintain appropriate seating/ position for participation in relevant activities	• Classroom chairs desks and tables	• Limit mobility requirements through careful scheduling of daily activities (order, location, etc.) • Peer and adult assistance • Modification of requirements based upon student's daily energy level and the task to be completed	• Adaptive classroom equipment (e.g., prone and supine standers, side lyers, adapted chairs with seating modifications and support, etc.) • Adapted tables and desks • Walkers • Crutches/canes • Manual wheelchairs • Power wheelchairs • Laptrays and equipment mounts

The assistive technology devices referenced in this document are included to provide examples of different types of devices used by students with disabilities to accomplish educationally relevant tasks in instructional and access areas. The document does not include all assistive technology devices within a device category and inclusion of a particular device does not constitute endorsement by the Georgia Department of Education. Additional devices may be added to the document by contacting the Georgia Project for Assistive Technology.

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Appendix 10:

AT Implementation Data Collection Form

AT Implementation Data Collection

COLLECTOR: **DATE:** **Device:**

This video walks you through figuring out the level

Level Codes
IND = independent
VER = verbal prompt
VIS = visual prompt
PP = partial physical prompt
FP = full physical (hand-over-hand)

TRIAL	TIME	ACTIVITY	CHOICES	CHOSE	LEVEL
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Please return to on / /

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Appendix 11:

Sample AT Implementation Data Collection Form

Sample Data Collection

COLLECTOR: Mom **DATE:** 1/5/12 **Device:** Super Sized Communicator

This video link walks you through figuring out the level

Level Codes
IND = independent
VER = verbal prompt
VIS = visual prompt
PP = partial physical prompt
FP = full physical (hand-over-hand)

TRIAL	TIME	ACTIVITY	CHOICES	CHOSE	LEVEL
1	7:15 AM	dressing	jeans vs. khakis	khaki pants	PP
2	7:20 AM	dressing	blue vs. red sweater	red sweater	PP
3	9 AM	breakfast	cereal vs. eggs	eggs	IND
4	4 PM	Free time	magazine vs. cutting paper	magazine	VP
5	5:45	Choosing a drink to have with supper	soda vs. milk	soda	IND
6	6:00 PM	Choosing a side dish to have with supper	peas vs. salad	salad	IND
7	8 PM	movie	Kung Fu Panda vs. Shrek	Kung Fu Panda	VP
8	10 PM	dressing	black vs. purple pajamas	purple pajamas	FP

Please return to Mrs. B. **on** 1/9/12

Appendix 12:

Audiobook Formats

Audiobook Formats

Features and Functionality	Downloadable DAISY	DAISY CDs	WMA Downloadable
Requires separate purchase of specialized DAISY hardware and/or software	Yes	Yes	No
Compatible with MP3* players and Windows Media Player**	No	No	Yes
Download chapters or sections of a book	No	No	Yes
Enhanced (DAISY) navigation, bookmarking and variable speed control	Yes	Yes	No
Requires online access	Yes	No	Yes
Compatible with RFB&D ReadHear for Mac and PC	Yes	Yes	No
Compatible with Apple Devices	Yes	No	No

- Downloadable DAISY Books provide instant access with enhanced navigation, bookmarking and variable speed control. Play from Microsoft® Windows® compatible computer with Learning Ally enabled software or specialized DAISY players.
- DAISY CDs offer enhanced navigation and play on Learning Ally enabled specialized DAISY players.
- Downloadable books in WMA (Windows Media Audio) play on Microsoft Windows based computer using Windows Media Player version 10 or higher. These books can be synched to commercial MP3 players with DRM capabilities.

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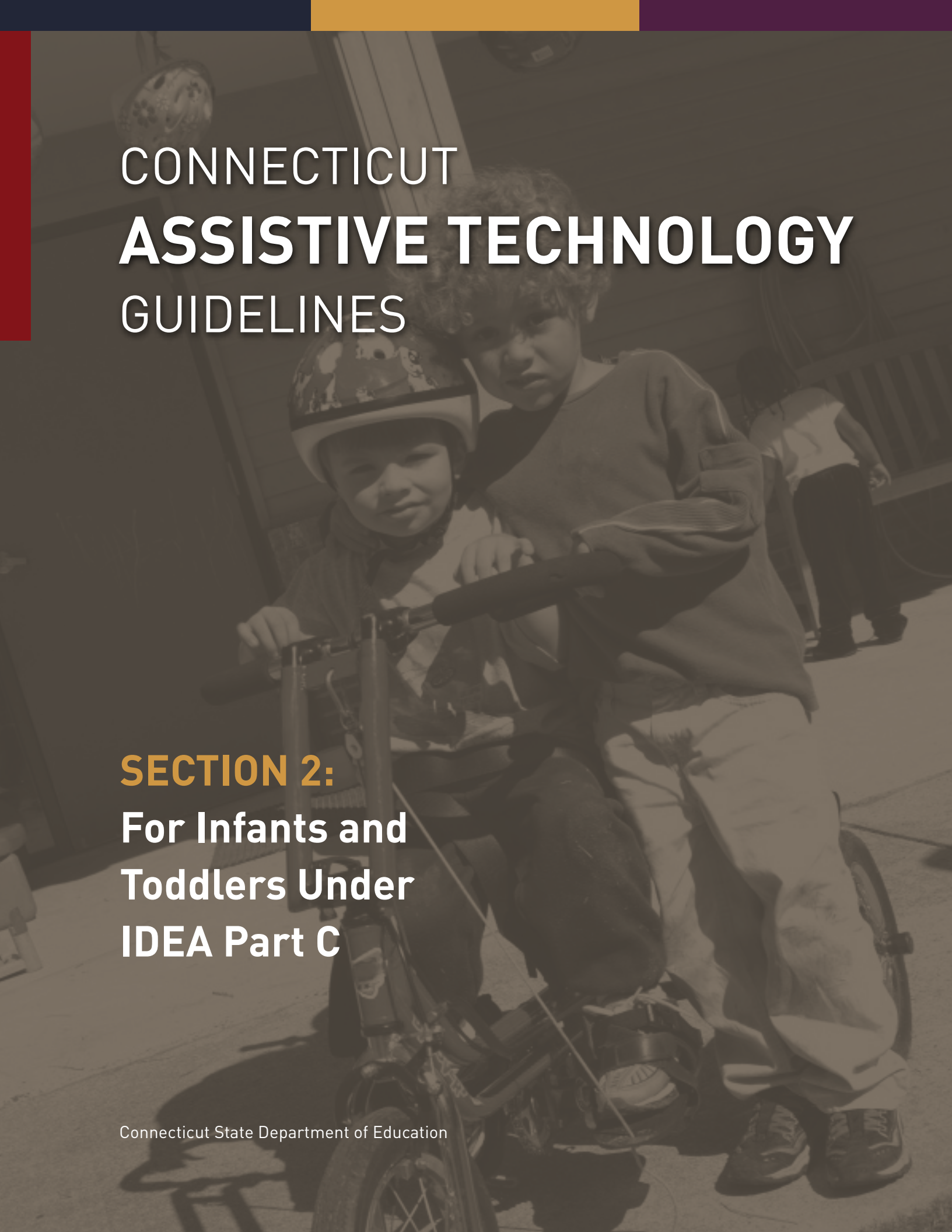


CONNECTICUT ASSISTIVE TECHNOLOGY GUIDELINES

SECTION 2:

For Infants and Toddlers Under IDEA Part C

Connecticut State Department of Education

Purpose

The purpose of this document is to help service providers ensure that all infants and toddlers who require assistive technology (AT) as indicated under IDEA Part C receive the appropriate devices. This document also assists parents in understanding how assistive technology is incorporated into early intervention services in Connecticut.

This guideline outlines processes consistent with Quality Indicators for Assistive Technology (QIAT). These include consideration of the need for AT, the assessment process, documentation in the Individualized Family Service Plan (IFSP), implementation, evaluation of effectiveness, transition planning from Birth to Three, and professional development.

Connecticut Birth to Three procedures regarding funding, ownership, maintenance, and repair of assistive technology are incorporated throughout the document.

Assistive Technology as Part C Service

Chapter contents

- Parent Rights
- Definition of Assistive Technology Devices and Services
- Continuum of Assistive Technology Devices
- Types of Assistive Technology Devices

Assistive technology devices and services should be considered for all children enrolled in Connecticut's Birth to Three System. Every child referred to the Connecticut Birth to Three System must receive a comprehensive, multidisciplinary evaluation of his or her unique strengths and needs to determine eligibility and to plan for early intervention (EI) services appropriate to meet those needs, including the need for assistive technology.

Assistive technology, which includes devices and services, is one of the services required under Part C of the Individuals with Disabilities Education Act (IDEA) of 2004. Children may not be excluded from consideration for assistive technology for any reason (e.g., type of disability, age, cost, lowered expectations, or administrative concerns).

Parent Rights

Parents are an integral part of the process for determining the needs of their child, including the need for assistive technology. Parental participation is vital for the assessment, selection, implementation, and maintenance associated with their child's use of assistive technology. Parents must give consent to the evaluation of their child. They must be included as part of the team that develops the

Individual Family Service Plan. If the family and the early intervention team do not agree on the proposed assistive technology, the family may share its concerns with the Birth to Three program through many informal steps. However, if informal steps do not satisfy the concerns, a family can take other, more formal steps, including a written complaint, mediation, and/or a hearing (Connecticut Birth to Three System, 2011).

Definition of Assistive Technology Devices and Services

Assistive technology in the Individuals with Disabilities Education Act includes both *assistive technology devices* and *assistive technology services*.

Assistive technology devices covered under IDEA

An *assistive technology device* means any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of a child with a disability (IDEA 2004, Sec.602(1)A; 34CFR §.300.5).

Assistive technology devices not covered under IDEA

- Devices provided to meet the medical, daily living, or life-sustaining needs of a child.
- Devices that are not specifically designed to increase, maintain, or improve the functional capabilities of a child with a disability.
- A device that is surgically implanted, or the replacement of such device.

Equipment that is not specifically designed to increase, maintain, or improve the functional capabilities of a child, such as car seat or bath chair, and does not meet the definition of AT under IDEA, may still be needed by a child and his or her family. It is the responsibility of the child's service coordinator to coordinate with medical and health providers as well as to assist the family in locating services and devices outside of the Birth to Three System when needed. For example, the family may need a bath seat to help with the bathing routine and to ensure the safety of the child. The bath seat, however, may not contribute toward increasing, maintaining, or improving the functional capabilities of the child. If the family indicates that obtaining a bath seat is a family priority, the service coordinator should assist the family in obtaining a bath seat through other resources.

Assistive technology services

Assistive technology services means any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device. Assistive technology services include:

- evaluation of the needs of such child, including a functional evaluation of the child in the child's customary environment;
- purchasing, leasing, or otherwise providing for the acquisition of assistive technology devices by such child;
- selecting, designing, fitting, customizing, adapting, applying,

maintaining, repairing, or replacing assistive technology devices;
- coordinating and using other therapies, interventions, or services with assistive technology devices, such as those associated with existing education and rehabilitation plans and programs;
- training of child and family; and
- training or technical assistance for professionals (including individuals providing education and rehabilitation services), employers, or other individuals who provide services to, employ, or are otherwise substantially involved in the major life functions of such child (IDEA 2004).

Continuum of Assistive Technology Devices

The complexity and specificity of AT devices proceed along a hierarchy. AT options along the continuum of AT devices ranging from no-tech to high-tech should be considered (Tots 'n Tech Research Institute, 2009).

- NO-TECH Universally designed devices that would be used with all children, with and without disabilities, at a particular age (e.g., booster seat, suction bowl, safety plugs in outlets) (Thomas Jefferson University, 2011). A no-tech device may not be considered AT under Connecticut Birth to Three unless it is something unique and specific to the child's disability and not something commonly used by most parents. Early intervention providers can help parents select and procure such devices when needed and, if they think it is justifiable as an AT device, may purchase such devices if under $250 or may submit request for reimbursement to the Birth to Three System for devices costing $250 or more.
- LOW-TECH Differentiated adaptations and assistive technology that enable children to do something they cannot do and may not be able to do for a while (e.g., loops attached to puzzle pieces, picture communication systems board, rolled towels or foam to enhance sitting posture) (Thomas Jefferson University, 2011).
- MODERATE-TECH Battery-operated or simple electronic devices or adaptations. (e.g., switch-activated toys, cordless remote control to activate appliance/light).
- HIGH-TECH Specialized individual adaptations and assistive technology that would allow a child to do something he or she cannot do otherwise (e.g., gait trainer walker, computerized augmentative communication device, wheelchair, hearing aids) (Thomas Jefferson University, 2011).

Types of Assistive Technology Devices

Assistive technology devices range from the creative use of existing resources in the child's environment (e.g., household items) to the most sophisticated and cutting-edge high technology. Many types of AT are available to address needs in

all areas of development: cognitive, physical, communication, social/emotional, and adaptive.

- Adaptive/self-care (e.g., elastic waist pants, suction bowl, bath mitt).
- Communication (e.g., picture communication boards, single or multiple message devices with switches or more complex augmentative and alternative communication devices).
- Mobility (e.g., self-propelled wheelchairs with seating/safety adaptations, therapeutic walkers, curb cuts).
- Positioning (e.g., positioning pillows or pads, standing aids).
- Sensory enhancers for hearing and vision (e.g., toys with sound or vibrating mechanism, large picture books, hearing aids or other forms of amplification)
- Socialization/play (e.g., Velcro mitt to catch a tennis ball, paper clips separating pages for ease of turning, a ball designed with openings for ease of holding, knobbed crayon, standing devices for peer height interactions).
- Cognition (e.g., switch-adapted toys, touch-screen computers, software).

Determining whether a piece of equipment meets the definition of assistive technology under Part C of IDEA must occur on an individual basis and be based on the child's needs, the family's concerns, and the IFSP outcomes. Some devices might be therapeutic or make caring for the child easier or safer but do not contribute to enhancing or maintaining the child's functional capabilities. Consequently, these may not be AT but may be appropriate to acquire these devices through other medical channels.

Chapter contents

- Principles to Keep in Mind when Considering Assistive Technology for an Infant or Toddler

Consideration of Assistive Technology

In the development of the IFSP, the service coordinator can help set the stage for discussing family priorities and needs by having a conversation or conducting an interview about the child's typical participation in everyday activities/routines.

In the IFSP section 4: Daily Activities, this section enables the discussion to identify what is working well during daily activities and what is not. Examples of additional tools that may facilitate this process are the Routines-Based Interview (RBI) (Siskin Children's Institute, 2006—appendix 1 and appendix 2) and the Assessment of Family Activities and Routines (Thomas Jefferson University, n.d.—appendix 3 and appendix 4).

These interview/conversation guidelines assist the provider in understanding:

- how each activity and routine occurs in a household;

- how the child participates in the activities and routines; and
- the extent to which caregivers are satisfied with their child's participation.

This discussion assists the IFSP team to identify what the child needs to accomplish but cannot perform. Parents, along with the service coordinator, will develop outcome statements that reflect what the child's parents see as important for their child and themselves. The IFSP team then will consider whether assistive technology may be needed or helpful to remove barriers to the child's participation in routines and activities and for the accomplishment of IFSP outcomes.

Adaptations should also be considered to make a task easier or simpler to accomplish. Adaptations can be made to the setup of the environment, the child's schedule, the design of the activity, the requirements of the task, the instructions, the materials, or the equipment used. Adaptation strategies alone may enable participation in routines or activities and/or may be combined with AT (Tots 'n Tech Research Institute, 2009).

Principles to Keep in Mind when Considering Assistive Technology for an Infant or Toddler

Assistive technology:

- should increase, maintain, or improve the functional capabilities of a child;
- should enhance a child's participation in a routine or activity (Tots 'n Tech Research Institute, 2009);
- should provide opportunities for learning (Tots 'n Tech Research Institute, 2009);
- should complement existing services;
- should not be used in place of services;
- should be developmentally and age-appropriate;
- should be appropriate for the environment where the child spends his or her day; and
- may be needed by some children from all levels of the continuum, concurrently or consecutively.

Chapter contents

- Assessment Process
- Assessment Considerations
- Selection of Assistive Technology

Assessment for Assistive Technology

Assessment Process

Assessment for assistive technology is an ongoing process, not a one-time event. The needs of infants and toddlers change frequently due to:

- rapid growth and development;
- family expectations;
- family circumstances;
- where the child spends his or her day; and
- a change of caregivers.

Therefore, assessment, formal and informal, should occur throughout the child's enrollment in Birth to Three, beginning with the initial assessment.

The type and extent of AT required may not be apparent when a child begins receiving Birth to Three services. In other instances, the need for AT devices and services are unmistakable and immediate. To neglect the AT needs of a child may deprive the child of reaching his or her goals. For example, waiting to fit hearing aids deprives a child of valuable listening time during critical language learning years. Another example is the postponement of introducing an AT ambulatory device needed by a child for independent walking. As a result, the child remains dependent on an adult for mobility. Along the same lines, delaying the

introduction of pictures for communication for a language-delayed child prevents him or her from conveying needs and wants, resulting in unwarranted frustration for the child and family.

AT devices ranging from no-tech to high-tech may be introduced at any point during the child's enrollment. Selecting low- and moderate-level devices may not require formal assessment. In Birth to Three, professionals of many disciplines (e.g., early intervention teachers, occupational therapists, physical therapists, speech and language pathologists, and audiologists) are the Birth to Three providers who typically consider the need and recommend AT for infants and toddlers.

Birth to Three providers will introduce AT, based on the child/family needs and the environments where difficulties exist. "Infants and toddlers are likely to depend on the simpler forms of AT—like towel rolls to provide trunk support when sitting … or a homemade communication device" (Tots 'n Tech Research Institute, 2009).

When it becomes apparent that the child is not progressing toward his or her outcomes, the need for assistive technology should, again, be considered. The IFSP team should examine the barriers to the child performing functional skills or participating in his or her daily routines and activities.

Problem solving may be very simple and accomplished quickly. In other instances, the barriers to the child's participation may be more complex and challenging. When these issues are beyond the scope of the problem solving that occurs as a part of early intervention service delivery, the Birth to Three program should conduct a formal AT assessment and/or arrange for a consultation by an AT specialist.

Assessment Considerations

- Assessment should be conducted by a *team with the collective knowledge and skills needed* to determine possible assistive technology solutions that address the needs and abilities of the child in his or her *natural environment.*
- Besides the early intervention providers, inclusion of parents and caregivers from other settings on the assessment team is highly encouraged. The team may also include an AT Professional (ATP/RESNA*), the child's therapist outside of the Birth to Three System, and a vendor of durable medical equipment (DME), if needed.

The assessment should focus on what the child needs to do that he or she is not currently doing within the routines of the family and those that are a priority for the family.

- The child's developmental performance in his or her natural *environment* should be the basis for assessments.

Tools that may assist in the assessment process include the Routines-Based Interview and the Assessment of Family Activities and Routines.

**Assistive Technology Professional (ATP) Certification by Rehabilitation Engineering and Assistive Technology Society of North America (RESNA)*

- What AT has been tried or is currently being used? Consider or reflect on what is working and what is not.

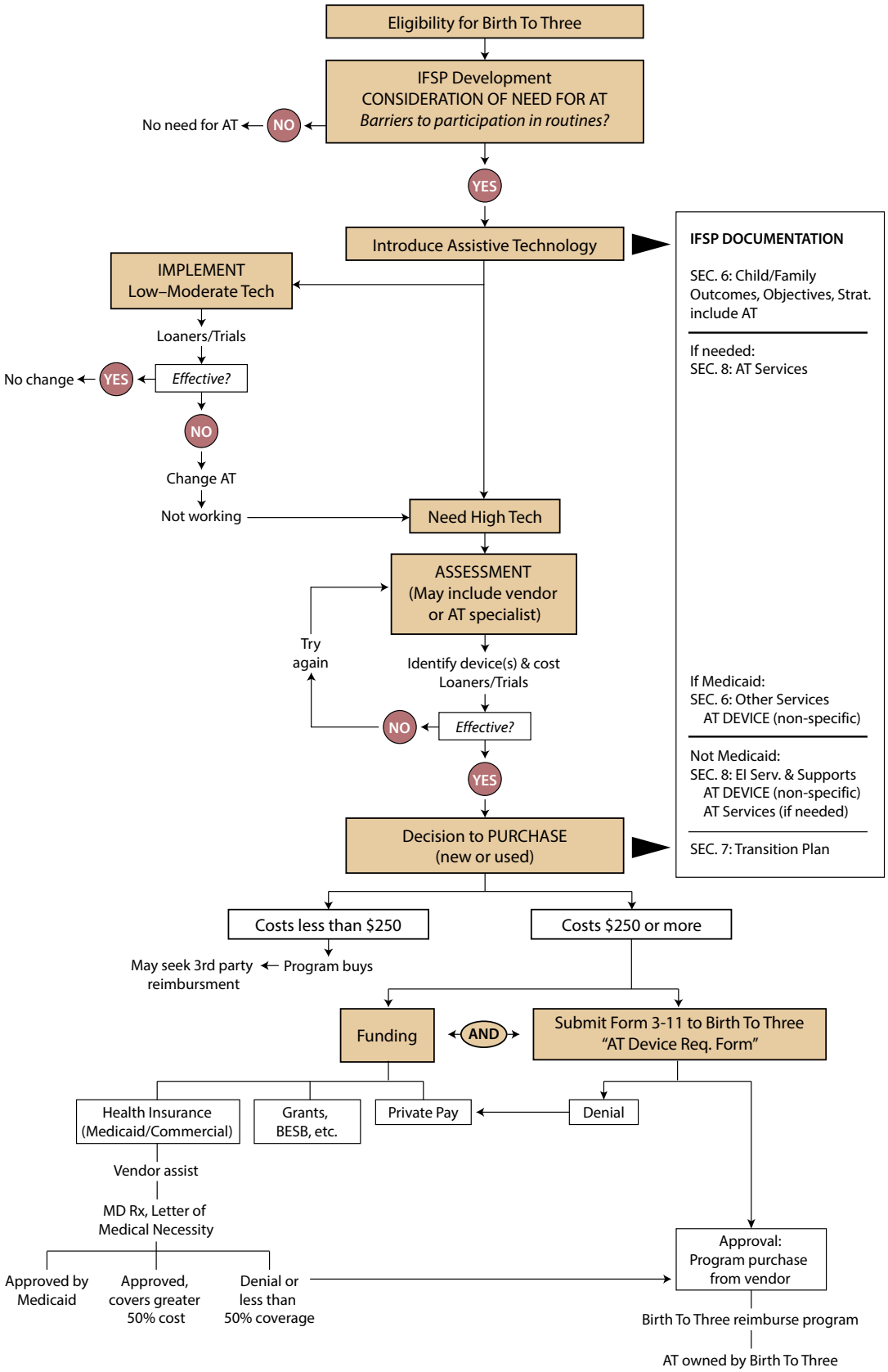
Selection of Assistive Technology

The family's needs and priorities are central to the collaborative decision-making process and will determine the extent to which a child actually uses a particular device within family routines and activities. The assessment consideration for AT devices must include:

- *Caregivers, including family:* practical to use, compatible with their lifestyle, their preferences, the physical environment where the AT is needed and will be used, caregiver comfort level using the AT in other environments in which the child may function.
- *Child:* appropriateness for the child's developmental age, addresses the child's immediate needs, removes identified barriers to participation, supports the child's functional outcomes, comfortable to use.
- *Characteristics of the AT Device:* simple but meets the need, easy to use (does it require more than one person to implement?), dependable, transportable, adaptable, durable, versatile, compatible with other existing or needed AT, offers optimal functional developmental impact on the child.
- *Service System Factors:* availability of re-used devices for trial and/or purchase; availability of short- or long-term loaned devices; funding sources and procurement; provider skills to use the AT and his or her ability to train families and caregivers; transition considerations from Birth to Three; insurance coverage for malfunction, theft, replacement, and damage.

The assessment process should provide the IFSP team with clear recommendations about the purpose, selection, acquisition, and use of assistive technology (figure 3 – page 172). Collaboration and communication with the child's primary medical provider regarding the selected AT is appropriate and necessary. The medical provider is an essential IFSP team member who participates in the procurement process when seeking funding from the child's health insurance carrier, including Medicaid. A detailed medical prescription of the devices is often required to submit a claim to the child's health insurance carrier for approval.

Figure 3. Assessment process



Chapter contents

- AT and the IFSP Document
- IFSP Section 8 for Assistive Technology Devices
- IFSP Section 8 for Assistive Technology Services

Individualized Family Service Plan (IFSP) Documentation of Assistive Technology

Once the IFSP team has determined that assistive technology is needed to support the child's outcomes, the assistive technology devices and services should be reflected in the IFSP in as clear a fashion as possible.

If AT is already being used or tried out, a discussion should occur at the IFSP meeting regarding the effectiveness of the AT in supporting the child's outcomes and whether any changes are necessary. If AT devices on the IFSP need to be purchased, the service coordinator must add AT devices and services to the IFSP.

AT and the IFSP Document

When assistive technology is required, (regardless of price) it should be included in several places in the IFSP. At a minimum, AT should be included in the following sections:

- **IFSP Section 6.** ***Child/Family Outcomes***

  The outcome must be stated to improve, maintain, or increase the

child's functional abilities. "Obtaining the AT" is not an outcome. This section should include:

- The family's stated goals:
  E.g., "We want Jocelyn to be able to play for a while without our help so that she becomes more independent."
- Objectives required to measure progress:
  E.g., Seated in her adaptive chair with tray, Jocelyn will explore her toys for 10 minutes by herself.
  E.g., Jocelyn will activate a simple cause-and-effect toy secured to her tray, using push buttons, pull levers, swiping, and switches.
- Methods and strategies incorporating AT to achieve the outcome:
  E.g., Conduct a trial of adaptive seating devices to determine the most effective.
  E.g., Introduce toys that Jocelyn is able to operate successfully so she can experiment and learn concepts.
  E.g., Train childcare staff in proper positioning in the adaptive seating device and proper placement of toys during free playtime.
- Incorporate type of device (brand not specified), its purpose, and where it is to be used (i.e., activities and routines, location, time of day).

- **IFSP Section 6.** ***Other Services Related to this Outcome that Are in Place or that Are Needed***

  For a child who is covered by Medicaid, Assistive Technology devices, aka Durable Medical Equipment (DME), should be listed because of payment considerations. To be funded by Medicaid, AT devices must specifically address medical problems and be prescribed by a physician[1], or in the case of hearing aids, an audiologist.

- **IFSP Section 7.** ***Plan for Transition from the Birth to Three System***

  The transition plan should clearly address the use of assistive technology and whether devices and services will be needed once the child is no longer enrolled in the Birth to Three System (see Transition Planning for Assistive Technology section).

- **IFSP Section 8.** ***Early Intervention Services and Supports***

  If AT devices and services are included in the IFSP, they must be listed

1. Goeber, G. *Funding Adaptive Mobility Equipment for Young Children with Disabilities.* Rifton, 2009.

as separately in this section even if someone other than Birth to Three is paying for all or some portion of the device.

IFSP Section 8 for Assistive Technology Devices

When the IFSP lists assistive technology devices, the service provider should address the following components:

- ***What is going to happen:*** Assistive technology devices.
- ***Delivered by:*** Vendor, and/or appropriate professional
- ***Location, How Often, How Long:*** May not apply for devices and can be left blank.
- ***Start date:*** the expected date of the delivery of the device(s).

- Just below the services and supports grid, it should be documented that some other entity is paying for all or part of the device in the ***Part C services are paid for by the Birth to Three System unless otherwise indicated here:***.

IFSP Section 8 for Assistive Technology Services

If the IFSP team projects the need for Assistive Technology services beyond routinely scheduled early intervention visits, "Assistive Technology Services" should be added to service grid. The provider(s) of services may be existing IFSP members or specialized "Assistive Technology Professionals."

When the IFSP lists assistive technology services, the service provider should address the following components

- ***What is going to happen:*** Assistive technology services.
- ***Delivered by:*** The appropriate professional should be listed.
- ***Location:*** Should be filled in.
- ***How Often, How Long, Start Date and End Date*** boxes should reflect the amount and duration of AT services that will be required

Following the IFSP review, Assistive Technology devices and services are entered into the Birth to Three data system by checking the box on IFSP screen entitled "Check if IFSP contains an AT device."

Funding Assistive Technology

Chapter contents

- Payer of Last Resort
- Obtaining Assistive Technology
- Accessing Third Party Reimbursement for Assistive Technology
- Insurance Requirements
- Accessing Birth to Three Funding
- Maintenance and Repair of Assistive Technology
- Ownership of Assistive Technology

Once the appropriate assistive technology device has been determined, the child's Birth to Three program is responsible for putting funding options in place for obtaining the AT, including accessing third-party reimbursement as appropriate. If the device costs less than $250, the program can pay for the device or can attempt to access third-party reimbursement. If the device costs $250 or more, the program should pursue funding as well as submit the "Assistive Technology Device Request Form" Form 3-11 (appendix 5) to the Birth to Three System. The service provider should submit this request form concurrent with the pursuit of third-party reimbursement.

Payer of Last Resort

The Birth to Three System funds assistive technology devices and services as the payer of last resort. This means that it is the responsibility of the family, program,

and vendor to pursue all other funding options. Potential sources of AT or funding for AT include:

- the New England Assistive Tech (NEAT) Resource & Education Center, which also serves as a gateway to vendors;
- commercial health insurance;
- Medicaid as part of the EPSDT Screening (Early and Periodic Screening, Diagnosis and Treatment);
- Children and Youth with Special Health Care Needs; and
- Board of Education and Services for the Blind.

Obtaining Assistive Technology through the NEAT Center

The Birth to Three System contracts with an AT center in Connecticut (currently the NEAT Resource and Education Center) that helps Birth to Three programs obtain AT and training. This center maintains a database of assistive technology devices that the Birth to Three system owns and has available for loan to children enrolled in the system. In addition, the center maintains a database of equipment available for resale. Once it has been determined that a child needs assistive technology to accomplish an outcome, the provider should contact the AT center to borrow or purchase the appropriate assistive technology.

If parents are concerned about the use of reconditioned devices, the service provider should inform them that it is Birth to Three's legal obligation to provide assistive technology devices, not necessarily new devices. The NEAT Center will assist the provider in finding an appropriate vendor who will assist with insurance paperwork, for both used and new equipment, through the family's health insurance, including Medicaid.

Accessing Third Party Reimbursement for Assistive Technology

It is the responsibility of the local Birth to Three program to initiate and participate in the process to bill commercial insurance or Medicaid for AT for those children whose parents have given permission to bill their medical insurance. This process can occur in collaboration with the NEAT Center. Typically, the billing process necessitates engaging a vendor of durable medical equipment who is an approved provider with the family's health insurance, including Medicaid.

Insurance and Medicaid customarily fund equipment that fits under the category of durable medical equipment. Examples may include, but are not limited to aids for daily living and personal care, mobility aids, standing and walking aids, wheeled mobility aids, seating and positioning systems, prosthetics and orthotics, augmentative communication aids, and hearing aids. They are less likely to cover learning and developmental aids such as computers, play equipment, and switch-adapted toys. If commercial insurance pays for all or some of the cost of a device, that amount may be applied against the annual and lifetime caps for durable

medical equipment benefits in the child's health insurance plan.

Insurance Requirements

If the program is working with a vendor of DME, the vendor will likely take responsibility for the insurance billing. To access insurance (for a device costing any amount) or Medicaid funding (for devices over $250), the program and vendor must provide with the insurance claim:

a. A physician's detailed prescription for the devices. To assist, the vendor often provides the specific device and accessories to the primary medical provider.

b. A "Letter of Medical Necessity" (LMN) the Birth to Three provider prepares. Each insurer defines the term "medical necessity" in a different manner. It may be helpful to request the definition from the insurance company or from the vendor participating in the procurement process in order to customize the letter. This letter must be personal, meaningful, and show that the purchase is a worthwhile investment for the payer.

Refer to appendix 6 for a sample letter of medical necessity.

The customary items within the LMN should include (Goebel, 2009):

- Personal benefit: How does this device increase participation in daily activities related to independence, choice, self-determination, reduced costs for caregivers, and living a full, abundant, and dignified life?
- Investment: Besides the health and functional benefits of the device, what are the costs of *not* providing the requested AT? For example, the costs to an insurer of respiratory and gastrointestinal complications, joint malformation, low bone density, etc., far exceed the cost of a suitable standing device for an individual who cannot yet bear weight.
- Equipment choice: Why is this particular equipment the most appropriate choice to address the needs of the child? What features make this equipment the right choice? Can it adapt to the child's needs over time (even though it may cost more initially)?

Based on established fee schedules, vendors have information regarding the amounts that Medicaid and the various commercial insurance carriers will pay toward durable medical equipment. The payment may cover the cost of the device(s) completely or partially. When the vendor has paid for the full cost of the device, the program cannot bill Birth to Three for cost above those allowed. The vendor must accept as payment in full the amount Medicaid reimburses. However, if payment is partial by commercial insurance, the program can submit a request for reimbursement of the balance to the Birth to Three System. The Birth to Three System cannot supplement Medicaid payments.

Accessing Birth to Three Funding

The Birth to Three System is responsible for funding only equipment intended to achieve functional outcomes identified on the IFSP. No new devices or equipment should be requested for children who are 2 years, 9 months of age

or older, as equipment requested during this period would not be available long enough to make progress on identified outcomes. An exception will be made for initial hearing aids if the child is newly enrolled in Birth to Three after age 2 years, 9 months.

The Birth to Three program is advised to submit the Assistive Technology Device Request Form (appendix 5) to the Birth to Three System *while* third party funding is being pursued. A copy of the current IFSP must accompany this form.

Requests should reflect all costs for the acquisition of equipment, including shipping and handling, fitting and customization, and extended warranties. The Birth to Three System has an approved dispensing fee for services needed to acquire hearing technology for young children, and Medicaid has its own rate for dispensing fees.

The Birth to Three central office staff will review the request for AT funding and return a decision to the provider program on Form 3-11 (appendix 5). If approved, Form 3-11 will include the date of approval and the maximum amount of reimbursement allowed.

If the family's health insurance denies payment or approves only partial payment for the AT, the program will pay the vendor directly for the amount not covered. After the family receives the device, the program will submit the final invoice for the device along with the pre-approved Request Form 3-11, showing the result of the third party billing, to the Birth to Three fiscal office. Proof of payment (e.g., copy of check showing cancellation or zero balance invoice from vendor) must be included for reimbursement as part of the regular monthly invoice.

If funding has been requested and approved by the Birth to Three System and a third-party payer covers the full cost of the device, the requesting program should notify the Birth to Three fiscal office so that funds are not set aside unnecessarily.

Maintenance and Repair of Assistive Technology

- The child's Birth to Three program is responsible for the maintenance and repair of the AT device. If any devices or service are part of a child's IFSP, then the technology must be available to the child for fulfilling the outcomes and objectives of the IFSP. If a device needs repair or maintenance, the Birth to Three program is responsible for providing alternative access or temporary use of another device or equivalent during the period of time the regularly used device is out of service.
- The NEAT Center provides minor repair service for AT owned by the Birth to Three System.
- Whenever possible, the local Birth to Three programs should consider obtaining insurance and/or maintenance contracts when purchasing AT. Parents are also requested to insure the AT devices under their homeowner's or renter's insurance policy if possible.
- If the child continues to use assistive technology after age 3, the Birth to Three System will not assume responsibility for any repair or maintenance.

Ownership of Assistive Technology

The party that paid for a majority of a device owns assistive technology devices purchased for children enrolled in the Birth to Three System. If third-party funding ends up paying more than 50 percent of the purchase price of the device, then the device belongs to the family. If Birth to Three funds pay for 50 percent or more of the device, the Birth to Three System owns that device.

Programs are responsible for tagging all equipment purchased with Birth to Three funds with inventory tags the Birth to Three fiscal office supplies. The fiscal office notifies the AT center of the devices purchased along with the address of the family using the AT. This information is maintained in the center's data system.

Implementation of Assistive Technology

The implementation of assistive technology may be long-term or short-term; may require trials with different devices to determine if the AT is accomplishing what was intended; and may require using more than one AT device at the same time.

Parent input is essential. According to the Illinois Early Intervention Assistive Technology Guidelines (2007), "Parents who understand how a device works and believe that it plays an important role in their child's development will provide more opportunities for the child to learn about and use the device(s). Parent preferences and feelings about particular devices often determine whether

implementation and use of devices will be successful."

The implementation of assistive technology involves the child's entire team working together, sharing responsibility, to support the child's use of the assistive technology according to a collaboratively developed written plan. The plan may preclude misunderstandings and ensure consistency. It should delineate the steps of a routine/activity (identified by the family) when AT will be used, the devices that will be used, what the adult will do, and what the child is expected to do as a result of using the AT. The Child Caregiver Interaction Plan (Thomas Jefferson University, n.d.) is an example of an implementation plan. Regardless of the plan's design, it should be easy to understand and accomplish.

For more information about the Child Caregiver Interaction Plan, refer to appendix 7 and appendix 8.

All members of the IFSP team must understand what is expected of them in regard to the implementation of the AT. It should be clear:

- why the AT was selected;
- the purpose the AT serves;
- how it enhances the child's functional skills;
- when and how often it will be used;
- how the AT will be used in combination with other AT;
- which adults are responsible for ensuring that the AT is used as planned; and
- how the AT will be coordinated with other therapies outside of Birth to Three, if any.

Different implementations plans will be warranted depending on the environment. The AT selected for implementation in the childcare setting may differ from the AT selected for use in the home. The plan should consider the time and effort to set up and use the AT as well as ensure caregiver understanding of how to use the AT device.

Training for the child, family, and team are integral to implementation. Early intervention professionals are responsible for providing appropriate instruction and follow-up for all adults who will be involved in using the AT. Training may be ongoing as needs change, participating adults change, and child's abilities change.

As the implementation plan is carried out, the service provider should monitor the child's performance and adjustments then made to support the child's progress. For technology to be effective and successful, devices must be in working order so they are available to the child. Following acquisition of the devices, additional responsibilities of the Birth to Three provider include:

- setup;
- organization of equipment and materials;
- temporary use of a comparable device if the original is unavailable for an extended period of time; and
- timely replacement of a nonrepairable device.

Effectiveness of Assistive Technology

Evaluation of AT effectiveness is a dynamic, responsive, ongoing process. Measuring effectiveness occurs over time. The pursuit and implementation of optimal AT should continue throughout the child's enrollment in Birth to Three.

This process requires answering the questions:

- What is working?
- What is not?
- Why?
- What needs to be changed?

The best device will not work if the child does not use it. Reasons may include:

- It is not enabling the child's participation in routines and activities.
- It may be one of many assistive devices for the child and difficult to embed into daily routines.
- It may be overwhelming for the family and caregivers.
- There may be insufficient physical space to accommodate using the devices.
- "…parents or caregivers may not be adequately trained on how to use the technology" (Illinois Early Intervention Assistive Technology Guidelines, 2007).

The adults who will be assuming responsibility to record information about the child responses to the AT should be clearly determined. Team members should understand what information is to be gathered, who is to provide it, in what form, how often, and for what period. The Birth to Three professional responsible for the AT services coordinates collection of this information and interpretation of changes. Assessing AT effectiveness should occur informally during routine early intervention visits as well as formally at IFSP reviews.

Evaluation of effectiveness includes measuring changes in the child's performance related to his or her functional outcomes. The expected changes may be quantitative in nature. Examples include the distance that a child walked with the walker, how many new pictures the child has used weekly to communicate, and/or the amount of food the child scooped independently. Change can also be measured qualitatively. Examples include the erectness of the child's posture using the seating device during circle time, the accuracy of pointing to small pictures on a communication board, and/or the efficiency with which the child can put on shoes with Velcro fastenersin the morning.

Service providers can collect this information in various ways:

- verbal feedback and/or written notes;
- simple data-keeping chart (prepared by the child's interventionist);
- clinical measurements (e.g., amount of movement, distance walked, clarity of speech); and/or
- observing the child using the AT.

The formal analysis of this collected information may result in changes to implementation of AT and/or changes to AT devices. There may be a recommendation to the IFSP team, at a review, to engage the consultation of a specialist or to schedule a formal assistive technology assessment, if one has not been completed previously.

Chapter contents

- Developing a Transition Plan

Transition Planning for Assistive Technology

All children enrolled in the Birth to Three system are required to have a plan in place to ensure a smooth transition to preschool or other appropriate services and supports. A transition plan must be developed as part of an IFSP meeting (initial, periodic review, or evaluation of the IFSP held at least annually) and can be updated several times to reflect the different stages of the transition planning process.

Transition steps and services should be recorded on section 5 of the IFSP. Transition plans that include assistive technology should clearly address the use of assistive technology and the anticipated need for continued use once the child is no longer enrolled in the Birth to Three System.

When a child exits from the Birth to Three System, assistive technology equipment Birth to Three owns and that the child uses may transition with

him or her so that the child can continue to use the device at home, in school, or in the community as needed and appropriate. Children may keep assistive technology devices the Birth to Three System purchased and owns for as long as they need. However, the Birth to Three System will no longer assume responsibility for repair or maintenance. After exiting from Birth to Three, the New England Assistive Technology Resource & Education Center will routinely contact families for whom assistive technology devices have been purchased to determine whether the devices are still in use. If families are no longer using the devices, the NEAT Center will arrange for pickup and storage of those devices.

The program is advised to notify the NEAT Center if a child who was using a device the Birth to Three System purchased or loaned no longer requires services and/or is not enrolled in Birth to Three or who has passed away. This will enable the center's staff to approach the family with sensitivity and awareness when attempting to retrieve the devices.

Developing a Transition Plan

Transition plans for children who use assistive technology should address the child's use of AT devices and services as the children transfer from one setting to another. The transition plan should list any AT obtained through the Birth to Three System and how it will be used once the child transitions out of the Birth to Three System. It cannot be assumed that assistive technology will automatically go to the school district or local education agency (LEA) for use in the school because it may be more appropriately needed in the home.

Possible items to discuss at the transition meeting and include on the transition plan as appropriate are:

- Who owns the AT?
- Does the child still need the assistive technology device? Why?
- Where will the child use the AT?
- Who will be responsible for the maintenance and repair of the AT?
- What is the status of any warrantees or insurance coverage for the AT?
- Who will be responsible, if anyone, to maintain insurance coverage for the AT?
- Where can the AT be repaired?
- Who will notify the AT center that Birth to Three-owned AT is no longer needed?
- If the child is eligible for preschool special education, will the student need AT to support his or her individualized education program (IEP) goals? (It is the responsibility of the Planning and Placement Team (PPT)/IEP Team to consider and determine if AT is educationally necessary and to include it in the child's IEP.)
- If AT is included in the child's IEP, have provisions been made for training, assignment of responsibilities, subsequent steps in AT use, and follow-up after transition takes place?

Assistive Technology Professional Development

Chapter contents

- Scope of Practice
- Myths and Barriers
- Resources for Professional Development

Scope of Practice

Some assistive technology categories require the inclusion of designated licensed professionals for the assessment, implementation, and evaluation process. This is important to determine appropriateness of a device for a child and to measure effectiveness. For example, an audiologist must select the amplification for a child with a hearing loss. A speech and language pathologist should be part of the process for selecting augmentative and alternative communication (AAC) devices. Physical or occupational therapists have the clinical knowledge and expertise to guide the selection of a mobility device, although they may also assist the speech and language pathologist in the selection of an AAC device for a child with motoric

disabilities. Professionals should examine their own skills in selecting AT devices. The Birth to Three program's responsibility is to locate and engage providers who possess the needed expertise when the program does not possess the competency to select a needed AT device.

Myths and Barriers

Various myths and barriers have influenced early intervention providers' use of assistive technology. To eliminate barriers to good practice and ensure that programs deliver appropriate services that include assistive technology, professional development and training in this area are critical. It is essential that providers are competent in the selection, acquisition, and use of assistive technology and knowledgeable about the array of AT options that are available for infants and toddlers**.** Professionals are encouraged to examine their own skills and knowledge and to engage in ongoing professional learning opportunities to meet their present needs as well as to increase their knowledge of new and emerging technologies and practices. Training increases people's awareness of options and possibilities as well as provides skills in creating and using AT materials or devices. When people feel confident about their knowledge, they are more likely to consider AT as an intervention—as a means to help young children participate and learn (Tots 'n Tech, 2009).

MYTHS: *A widely held but false belief* (Oxford English Dictionary, 2002).

- Children must possess an understanding of cause and effect or other cognitive skills before they can effectively use AT (Dugan, Campbell and Wilcox, 2006).
- Children must have specific speech and language competencies before using an AAC device (Dugan et al., 2006).
- AT means giving up on a child learning to perform specific skills (Dugan et al. 2006).
- Augmentative and alternative communication (AAC) hinders or stops further speech development (Romski and Sevcik, 2005).
- AAC is a "last resort" in speech-language acquisition (Romski and Sevcik, 2005).
- Children have to be a certain age to benefit from AAC (Romski and Sevcik, 2005).

BARRIERS: *A fence or other obstacle that prevents movement or access, a circumstance or obstacle that keeps people or things apart or prevents communication or progress* (Oxford English Dictionary, 2002).

- The professional has limited knowledge about the benefits of using AT (Dugan et al., 2006).
- The provider does not have sufficient knowledge and resources to apply recommended practices (Dugan et al., 2006).
- The provider is fearful of technology (Dugan et al., 2006).
- The provider lacks confidence in delivering AT services (Long and Perry, 2008).

- The provider does not know how to include AT devices and services into the child's early intervention and therefore avoids consideration of need.
- Concerns for costs and funding (Dugan, et al., 2006)

Resources for Professional Development

The Birth to Three System has a contract with NEAT in Connecticut to provide training to all Birth to Three programs as well as assistance in selecting appropriate and cost-effective devices. The center schedules training events each year specific to early interventionists. The Birth to Three System has purchased seating at each workshop, which it offers without cost to Birth to Three providers.

Birth to Three providers should consider a variety of professional development and training options to increase their knowledge of AT. Examples of continuing educational opportunities include:

- Professional organizations such as ASHA, RESNA, or CEC.
- Workshops offered through SERC, NEAT, and private providers of assistive technology devices
- Web-based learning opportunities
- Classes offered at colleges/universities
- Product demonstrations
- Individual mentoring
- Web sites such as Tots 'n Tech

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Appendixes

Appendix 1: Routines-Based Interview Outline

Appendix 2: Routines-Based Interview Form

Appendix 3: Assessment of Family Activities and Routines

Appendix 4. Assessment of Family Activities and Routines (Sample)

Appendix 5: Assistive Technology Device Request Form, CT Birth to Three Form 3-11

Appendix 6: Letter of Medical Necessity (Sample)

Appendix 7: Child Caregiver Interaction Plan

Appendix 8: Child Caregiver Interaction Plan (Sample)

Appendix 1:

Routines-Based Interview Outline

Routines-Based Interview Outline (McWilliam, 2009)

I. Beginning

a. Who lives in the home with you and the child?
b. Why is the child in special services?
c. What are your main concerns?

II. Home Routines

How does your day begin?

a. Start marking concerns with stars

In each routine...

1. What is everyone else doing?
2. What does the child do?
3. Engagement (How well does the child participate in the activity? Stay involved?)
4. Independence
5. Social Relationships (communication, getting along with others)
6. Rating 1-5: how happy you are with this time of day
7. Transition to next routine: What happens next?

III. Classroom Routines

In each routine...

a. What is everyone else doing?
b. What does the child do?
c. Engagement (How well does the child participate in the activity?
d. Stay involved?)
e. Independence
f. Social Relationships (communication, getting along with others)
g. Rating 1-5: How well does activity work for the child?
h. Back to home routines

IV. The Worry and Change Questions

a. When you lie awake at night, worrying, what do you worry about?
b. If you could change one thing in your life, what would it be?
c. ***Recap:*** Review starred items (concerns). *This is just a reminder; it is not the list of outcomes/goals*

V. Outcome/Goal Selection

a. New sheet of paper: What would you like to work on—to have us help you with?
b. If necessary to get to minimum 6 outcomes/goals, hand notes to family members, showing them the starred items as a reminder
c. If necessary, take back the notes and ask about starred items
d. Once 6-10 outcomes/goals are listed, ask for the priority order in terms of importance

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Appendix 2:

Routines-Based Interview Form

RBI Report Form

Including the RBI-SAFER Combo

R. A. McWilliam
2003
Revised January 2006
Vanderbilt Center for Child Development

Directions:

This form is designed to be used to report the findings from the McWilliam model of conducting a routines-based interview. A second person (e.g., someone assisting the lead interviewer) can use the form to summarize the discussion during the interview, or it can be filled out at the end of the interview. Two versions of the routines pages exist: (1) an "open" form that does not specify the routine being discussed is written nor specific questions to ask about; and (2) a "structured" form, on which home routines and specific questions are specified. This structured form is a combination of the Scale for Assessment of Family Enjoyment within Routines (SAFER; Scott & McWilliam, 2000).

1. Complete the information below.
2. For each routine, write a short phrase defining the routine (e.g., *waking up, breakfast, hanging out, circle, snack, centers*).
3. Write brief descriptions about the child's engagement in the Engagement box (e.g., *Participates with breakfast routine, banging spoon on the high chair* or *Pays attention to the teacher; names songs when asked; often leaves circle before it has ended*).
4. If the interview revealed no information about one of the three domains, circle *No information* in that domain for that routine..
5. Write brief descriptions about the child's independence in the Independence box (e.g., *Feeds herself with a spoon; drinks from a cup but spills a lot* or *Sings all the songs with the group, but needs prompting to speak loudly enough*)
6. Write brief descriptions about the child's communication and social competence in the Social Relationships box (e.g., *Looks parent in the eye when pointing to things in the kitchen* or *Pays attention to the teacher at circle but can't stand touching other children*).

Child's Name	
Date of birth	
Who is being interviewed	
Interviewer	
Date of interview	
"What are your main concerns?"	

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Star * concerns and likely intervention targets

Routine	
Engagement	No information
Independence	No information
Social Relationships	No information

Home: Satisfaction with routine (CIRCLE ONE)	*Classroom*: Fit of routine and child (CIRCLE ONE)
1. Not at all satisfied	1. Poor goodness of fit
2.	2.
3. Satisfied	3. Average goodness of fit
4.	4.
5. Very satisfied	5. Excellent goodness of fit

Domains addressed (CIRCLE ALL THAT APPLY):

Physical Cognitive Communication Social or emotional Adaptive

Routine	
Engagement	No information
Independence	No information
Social Relationships	No information

Home: Satisfaction with routine (CIRCLE ONE)	*Classroom*: Fit of routine and child (CIRCLE ONE)
1. Not at all satisfied	1. Poor goodness of fit
2.	2.
3. Satisfied	3. Average goodness of fit
4.	4.
5. Very satisfied	5. Excellent goodness of fit

Domains addressed (CIRCLE ALL THAT APPLY):

Physical Cognitive Communication Social or emotional Adaptive

Outcomes

Before asking the family to select "things to work on," review the concerns identified (i.e., starred) on the previous pages.

Outcome (short, informal version)	Priority Number

RBI-SAFER Combo

Combination of the Routines-Based Interview Report Form (McWilliam, 2003) and the Scale for Assessment of Family Enjoyment within Routines (Scott & McWilliam, 2000)
R. A. McWilliam (2006)

Routine:	Waking up
Could you describe what wake up time is like? Who usually wakes up first? Where does your child sleep? How does your child let you know she is awake? Does she wan to be picked up right away? If so, is she happy when picked up? Or is she content by herself for a few minutes? What does she do? What is the rest of the family doing at this time? Is this a good time of day? If not, what would you like to be different?	
Notes	
Engagement	No information
Independence	No information
Social Relationships	No information

Home: Satisfaction with routine (CIRCLE ONE)	***Classroom***: Fit of routine and child (CIRCLE ONE)
1. Poor goodness of fit	1. Poor goodness of fit
2.	2.
3. Average goodness of fit	3. Average goodness of fit
4.	4.
5. Excellent goodness of fit	5. Excellent goodness of fit

Domains addressed (CIRCLE ALL THAT APPLY):

Physical Cognitive Communication Social or emotional Adaptive

Routine:	Diapering/Dressing

What about dressing? How does that go?
Who helps your child dress?
Does he help with dressing? How? What can he do on his own?
What is his mood like?
What is communication like?
Does your child wear diapers?
Are there any problems with diapering?
What does your child do while you are changing him?
Does your child use the toilet? How independently?
How does he let you know when he needs to use the toilet?
How satisfied are you with this routine? Is there anything you would like to be different?

Notes	
Engagement	No information
Independence	No information
Social Relationships	No information

Home: Satisfaction with routine (CIRCLE ONE)	*Classroom*: Fit of routine and child (CIRCLE ONE)
1. Poor goodness of fit	1. Poor goodness of fit
2.	2.
3. Average goodness of fit	3. Average goodness of fit
4.	4.
5. Excellent goodness of fit	5. Excellent goodness of fit

Domains addressed (CIRCLE ALL THAT APPLY):

Physical Cognitive Communication Social or emotional Adaptive

Routine:	Feeding/Meals
What are feedings/mealtimes like? Does anyone help feed your child? Who? How often does she eat? How much can she do on her own? How involved is she with meals? Where does your child usually eat? What are other family members doing at this time? How does your child let you know what she wants or whether she is finished? Does she like mealtimes? How do you know? What would make mealtimes more enjoyable for you? What are mealtimes like for your child when under the care of others?	
Notes	
Engagement	No information
Independence	No information
Social Relationships	No information

Home: Satisfaction with routine (CIRCLE ONE)	*Classroom*: Fit of routine and child (CIRCLE ONE)
1. Poor goodness of fit	1. Poor goodness of fit
2.	2.
3. Average goodness of fit	3. Average goodness of fit
4.	4.
5. Excellent goodness of fit	5. Excellent goodness of fit

Domains addressed (CIRCLE ALL THAT APPLY):

Physical Cognitive Communication Social or emotional Adaptive

Routine:	Getting ready to go/Traveling

How do things go when you are getting ready to go somewhere with your child?
Who usually helps your child get ready?
How much can he do on his own?
How involved is he in the whole process of getting ready to go?
What is communication like at this time?
Does your child like outings? How do you know?
Is this a stressful activity? What would make this time easier for you?
What are drop-off and pick-up times like for your child? Do you or other caregivers have any concerns?

Notes	
Engagement	No information
Independence	No information
Social Relationships	No information

Home: Satisfaction with routine (CIRCLE ONE)	***Classroom***: Fit of routine and child (CIRCLE ONE)
1. Poor goodness of fit	1. Poor goodness of fit
2.	2.
3. Average goodness of fit	3. Average goodness of fit
4.	4.
5. Excellent goodness of fit	5. Excellent goodness of fit

Domains addressed (CIRCLE ALL THAT APPLY):

Physical Cognitive Communication Social or emotional Adaptive

Routine:	Hanging out/Watching TV
What does your family do when relaxing at home? How is your child involved in this activity? How does your child interact with other family members? Does your family watch V? Will your child watch TV? What does he like to watch? How long will he watch TV? Do you have a favorite show? Is there anything you would like to do in the evening but can't?	
Notes	
Engagement	No information
Independence	No information
Social Relationships	No information

Home: Satisfaction with routine (CIRCLE ONE)	***Classroom***: Fit of routine and child (CIRCLE ONE)
1. Poor goodness of fit	1. Poor goodness of fit
2.	2.
3. Average goodness of fit	3. Average goodness of fit
4.	4.
5. Excellent goodness of fit	5. Excellent goodness of fit

Domains addressed (CIRCLE ALL THAT APPLY):

Physical Cognitive Communication Social or emotional Adaptive

Routine:	Bath time
What is bath time like? Who usually helps your child bathe? How is she positioned in the bathtub? Does she like the water? How do you know? How involved is your child in bathing herself or playing in the water? Does she kick or splash in the water? What toys does she like to play with in the tub? How does she communicate with you? What do you talk about? Is bath time usually a good time? If not, what would make it better?	
Notes	
Engagement	No information
Independence	No information
Social Relationships	No information

Home: Satisfaction with routine (CIRCLE ONE)	***Classroom***: Fit of routine and child (CIRCLE ONE)
1. Poor goodness of fit	1. Poor goodness of fit
2.	2.
3. Average goodness of fit	3. Average goodness of fit
4.	4.
5. Excellent goodness of fit	5. Excellent goodness of fit

Domains addressed (CIRCLE ALL THAT APPLY):

Physical Cognitive Communication Social or emotional Adaptive

Routine:	Nap/Bed time
How does bed time go? Who usually puts your child to bed? Do you read books or have some type of ritual at this time? How does he fall asleep? How does your child calm himself? Does he sleep through the night? What happens if he wakes up? Who gets up with him? Is bedtime an easy or stressful time for your family? Does he take naps for other caregivers? How does that go?	
Notes	
Engagement	No information
Independence	No information
Social Relationships	No information

Home: Satisfaction with routine (CIRCLE ONE)	***Classroom***: Fit of routine and child (CIRCLE ONE)
1. Poor goodness of fit	1. Poor goodness of fit
2.	2.
3. Average goodness of fit	3. Average goodness of fit
4.	4.
5. Excellent goodness of fit	5. Excellent goodness of fit

Domains addressed (CIRCLE ALL THAT APPLY):

Physical Cognitive Communication Social or emotional Adaptive

Routine:	Grocery Store
How are trips to the grocery? Do you bring your child with you? Does she sit in a shopping cart? Does she like being at the store? How is she involved in shopping? Do you have to occupy her or is she pretty content? How does she react to other people in the store? How is she involved in shopping? Do you have to occupy her or is she pretty content? How does she react to other people in the store? How does she communicate with you and others at this time? Is there anything that would make shopping with your child easier?	
Notes	
Engagement	No information
Independence	No information
Social Relationships	No information

Home: Satisfaction with routine (CIRCLE ONE)	*Classroom*: Fit of routine and child (CIRCLE ONE)
1. Poor goodness of fit	1. Poor goodness of fit
2.	2.
3. Average goodness of fit	3. Average goodness of fit
4.	4.
5. Excellent goodness of fit	5. Excellent goodness of fit

Domains addressed (CIRCLE ALL THAT APPLY):

Physical Cognitive Communication Social or emotional Adaptive

Routine:	Outdoors

Does your family spend much time outdoors? What do you do?
What does your child do?
Does your child like (the activity)?
How does he get around?
How does he interact with others?
Are there any toys or games he engages with/in?
How does your child let you know when he wants to do something different?
What things does your child like or notice outside?
Is this usually an enjoyable time? Would anything help make this time easier?
What kinds of outdoor activities does she participate in? How much assistance does he need?
How does he interact with his peers?

Notes	
Engagement	No information
Independence	No information
Social Relationships	No information

Home: Satisfaction with routine (CIRCLE ONE)	*Classroom*: Fit of routine and child (CIRCLE ONE)
1. Poor goodness of fit	1. Poor goodness of fit
2.	2.
3. Average goodness of fit	3. Average goodness of fit
4.	4.
5. Excellent goodness of fit	5. Excellent goodness of fit

Domains addressed (CIRCLE ALL THAT APPLY):

Physical Cognitive Communication Social or emotional Adaptive

Appendix 3:

Assessment of Family Activities and Routines

Assessment of Family Activities & Routines

Date:_____Child's name:_____Completed As Guided Interview with_____by Provider Name: _____

DIRECTIONS FOR USING THE ASSESSMENT AS AN INTERVIEW/CONVERSATION WITH CAREGIVERS

1. Ask the caregiver open ended questions about each activity/routine. For example, start by saying "tell me about bathtime and what you and your child do during bathtime." Follow-up by asking additional questions so that you gain an understanding, a picture, of what the routine or activity looks like. Then ask the caregiver to rate the child's participation in terms of the caregiver's expectations (e.g., exceeds, meets, occasionally meets, does not meet). Then, ask the caregiver about satisfaction with how the activity/routine is going.
2. Ask the caregiver to rate the child's use of functional skills (e.g., socializing, communicating) within activities and routines and satisfaction with the child's abilities. You are not trying to find out about the child's deficit or delay (e.g., speech) but rather about the extent to which problems or limitations interfere with a child's participation.
3. Identify any routines which may not be going well (so that you can help families make them go better); Identify routines that are positive for families/children as these will provide a context in which to show families how to teach developmental skills to their children.

	EXPECTATIONS					SATISFACTION				
ROUTINE/ACTIVITY	**Exceeds**	**Meets**	**Occasionally meets**	**Does not meet**	**COMMENTS**	**Very**	**Is OK**	**Somewhat**	**Not**	**Did Not Ask**
BATHTIME										
MORNING ROUTINE (getting up, getting dressed, bathing/washing)										
BEDTIME (getting ready for bed, going to bed, sleeping)										
MEALTIMES (appetite, level of assistance)										

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	EXPECTATIONS					SATISFACTION				
ROUTINE/ACTIVITY	**Exceeds**	**Meets**	**Occasionally mees**	**Does not meet**	**COMMENTS**	**Very**	**Is OK**	**Somewhat**	**Not**	**Did Not Ask**
PLAYTIME (Indoor Play)										
STORY TIME										
OUTDOOR PLAY (riding a bike, playing outside, playing on playground equipment, swimming)										
AT HOME CHORES (cleaning, preparing meals, watching TV, caring for pets, etc.)										
LEAVING THE HOUSE										
TRAVEL TIME (riding in a car, bus; walking, etc.)										
RUNNING ERRANDS (grocery store, mall/store shopping, banking, wash/ cleaners)										
OUTINGS (visit a friend/relative, eat at a restaurant/fast food, go to museums, amusement parks, zoo, etc.)										

USE OF FUNCTIONAL SKILLS IN ROUTINES/ACTIVITIES										
SOCIALIZING (interacting with peers and adults)										
COMMUNICATING with peers and adults										
GETTING AROUND (mobility at home/community)										
USING HANDS & ARMS for functional tasks (e.g., reaching, obtaining/holding objects, manipulation)										
PROBLEM SOLVING (figuring out solutions to "problems" – knowing object exists when not in sight; an object is a tool, etc.										
Use blanks to add activities or routines not included in categories										

Based on your answers above, list the routines/activities that <u>do not</u> meet your expectations.

ROUTINE/ACTIVITY	What would you like to *<u>see</u>* happening: What would the child be doing? What would you or other family members be doing? What strategies have you tried?
1.	
2.	
3.	

Based on your answers above, list the routines/activities that are enjoyable for your family and child.

ROUTINE/ACTIVITY	
1.	
2.	
3.	

Additional Comments:

Appendix 4:

Assessment of Family Activities and Routines (Sample)

Assessment of Family Activities & Routines

This questionnaire will help providers get a picture of a child's typical performance in everyday family activities/routines. The best way to use the form is as a guideline for an interview or conversation with the caregiver(s). When used as an interview/conversation guideline, the provider makes sure that s/he learns about how each activity/routine occurs in the household, the child's participation in the activity/routine, and the extent to which caregiver(s) are satisfied with the child's participation. Information from the child's caregivers helps providers determine, with families, (1) routines/activities in which the child's participation could be improved and (2) activities/routines in which the child participates well so that these may be used as a context for practicing or acquiring new skills and abilities. At the end of the interview, providers identify activities/routines that do not meet caregiver expectations and describe what caregivers would like to see happen in the activity/routine. Providers also talk with caregivers to identify the activities/routines that are enjoyable for the Caregiver and child.

Date: 4/7/08 Child's name: PG Age: 17m Completed As: Guided Interview with SG (mother) Provider Name: LLB

DIRECTIONS FOR THE CAREGIVER ASSESSMENT AS AN INTERVIEW/CONVERSATION:

1. Ask the caregiver open ended questions about each activity/routine. For example, start by saying "tell me about bathtime and how your child participates during bathtime." Follow-up by asking additional questions so that you gain an understanding, "a picture", of what the routine or activity looks like. Then ask the caregiver to rate the child's participation in terms of the caregiver's expectations (e.g., exceeds, meets, occasionally meets, does not meet). If you wish, you may ask the caregiver about how satisfied they are with how the activity/routine is going. For some families, this helps them identify where they want to focus.
2. Ask the caregiver to rate their child's use of functional skills (e.g., socializing, communicating) within activities and routines and their satisfaction with the child's abilities. You are not trying to find out about the child's deficit/delay (e.g., speech) but rather the extent to which limitations may interfere with a child's participation.
3. Identify any routines which may not be going well (so that you can help families make them go better); Identify routines that are positive for families/children as these will provide a context in which to show families how to teach their children identified skills

	EXPECTATIONS					SATISFACTION				
ROUTINE/ACTIVITY	Exceeds	Meets	Occasionally Meets	Does not meet	COMMENTS	Very	Is OK	Somewhat	Not	Did Not Ask
BATHTIME			✓		Sitting in tub is problem; Slides under seat belt; does not hold him well enough. Enjoys play with tub toys.		✓			
MORNING ROUTINE (getting up, getting dressed, etc.)			✓		I dress him in the morning – no time and he can help but it takes too long. He wakes up happy and ready to go.		✓			
EVENING ROUTINE (getting ready for bed, going to bed, sleeping)		✓			Watches video and then we read a book in his rocking chair; he enjoys both of these activities and falls asleep easily.	✓				

Child & Family Studies Research Programs, Thomas Jefferson University, Philadelphia, PA

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	EXPECTATIONS					SATISFACTION				
ROUTINE/ACTIVITY	**Exceeds**	**Meets**	**Occasionally Meets**	**Does not meet**	**COMMENTS**	**Very**	**Is OK**	**Somewhat**	**Not**	**Did Not Ask**
MEALTIMES (appetite, level of assistance)				✓	Does not finger or spoon feed; can help a little with cup; chews ok but not big pieces; Eats with us and can stay in highchair until everyone is done.			✓		
PLAYING WITH BROTHERS OR SISTERS OR FAMILY MEMBERS			✓		Can't play by self with toys. Can watch video or TV if propped in sitting; has so much trouble moving arms & hands that even big toys need assistance. Likes being read to and watching someone else do the toy.			✓		
PHYSICAL ACTIVITIES (riding a bike, playing outside, playing on playground equipment, swimming)			✓		He is best at swimming – loves the water, can be propped in kiddie pool or I hold him; can't do any riding toy – can't hold on. We have not tried playground equipment. He might like sandbox if I could figure out how to prop him up and have his hands reach the sand.			✓		
AT HOME CHORES (cleaning, preparing meals, watching TV, caring for pets, etc.)	✓				He enjoys TV – especially Sesame, Barney, etc. or children's movies (Disney). Too little to help with other chores.	✓				
LEAVING THE HOUSE TO GO SOMEWHERE	✓				He enjoys going out, riding in car. Does take longer to get him ready, carry to car, put in seat, etc. Does not help at all but does not fuss.		✓			
RUNNING ERRANDS (grocery store, mall/store shopping, banking, wash/cleaners)			✓		I can only go one place at a time if he is with me. Too much time and effort to get him out of the car, in a stroller, etc. & getting too heavy to carry. For multiple errands, I leave him at home.		✓			
OUTINGS (visit a friend/relative, eat at a restaurant/fast food, go to museums, amusement parks, zoo, etc.)		✓			Going out is no problem – visits, eating in restaurants, etc. are things he really enjoys. Sometimes the equipment is a problem or he has to be held. In restaurants, he sits in stroller because cannot sit well enough in most highchairs.	✓				

USE OF FUNCTIONAL SKILLS IN ROUTINES/ACTIVITIES

	EXPECTATIONS					SATISFACTION				
ROUTINE/ACTIVITY	**Exceeds**	**Meets**	**Occasionally Meets**	**Does not meet**	**COMMENTS**	**Very**	**Is OK**	**Somewhat**	**Not**	**Did Not Ask**
SOCIALIZING (e.g., interacting with peers and adults)			✓		Very social – smiles, gets people's attention, makes noises; but in child care, may only play with adult – other children are moving around too much.		✓			
COMMUNICATING with peers and adults		✓			Makes a lot of noises but does not have words yet. Sometimes hard to know what he is trying to get across		✓			
GETTING AROUND (mobility at home/community)				✓	This is becoming bigger problem as he gets older/bigger. Cannot walk yet or really crawl well; needs to be carried a lot; in child care is totally carried.				✓	
USING HANDS & ARMS for functional tasks (e.g., range of motion, holding objects, manipulation)				✓	He can bat at toys if suspended but cannot grasp anything; can bang, push big objects sometimes. Also makes other things hard – eating, bathing, dressing, etc. Needs help with everything				✓	
Use blanks to add activities or routines not included in categories										

Based on your answers above, list the routines/activities that <u>do not</u> meet your expectations.

ROUTINE/ACTIVITY	What would you like to *see* happening: What would the child be doing? What would you or other family members be doing? What strategies have you tried?
1.Mealtimes	Would like to see PG sit next to me or his dad during dinner and try to feed himself either with his fingers or spoon or both and to eat a wider variety of foods other than junior foods or food that I blend or grind.
2. Physical Activities	A lot of the other mothers sit outside with their children while they play in the yard. I would like to be able to do this and would like to see PG playing with other children like on a riding car or in a sandbox.
3. Playing with Family Members (Caregiver)	PG is an only child but we visit my sister(s) quite a bit and both of them have children – one 4 and one 3 and 5. I would like to be able to take him to my sisters and see him playing with his cousins and at home to play with me or his dad with toys without our having to do everything while he just watches.

Based on your answers above, list the routines/activities that are enjoyable for your family and child.

ROUTINE/ACTIVITY	
1. Evening Routine	He especially enjoys being read to and watching an evening DVD to unwind from the day.
2. Leaving the House & Outings	Enjoys going in the car, on visits to my sisters, parents, and to places like the zoo or Children's museum. We often go to the park, zoo, etc. with my sisters and their children and as long as he can be in his stroller, everything goes well although he participates primarily by watching/looking.
3. Watching TV, listening to stories	He really enjoys the children's shows if they have a lot of music and activity. Many DVD shows are also ones he likes. He "sings along" and is very engaged. He is attentive when being read to, makes noises when asked questions about familiar stories, and tries to turn book pages.

Additional Comments: Functional skills of using hands and arms and getting around currently limit PG's participation in some activities and routines. As expectations change as he gets older, these limitations may even further interfere with participation. While he communicates sufficiently with family and child care personnel at this time, his lack of words may eventually become more of a challenge for participation and may influence his ability to participate and socialize with other children.

Appendix 5:

Assistive Technology Device Request Form, CT Birth to Three Form 3-11

ASSISTIVE TECHNOLOGY DEVICE REQUEST FORM

Connecticut Birth to Three System

Child's Name:	*Date of Birth:*	*Record #*

Parent (or foster parent or relative) child resides with and address (i.e. where device will be located):	*Telephone #:*

Program Name:	*Telephone #:*

Contact person for this request:	*Contact person's discipline:*	*Date of this request:*

Child's identified need (Attach section 6 of IFSP and outcome page that references assistive technology):

Device requested (Specify model # and any necessary related equipment. Attach specs if needed):

Additional vendors contacted	Model and Order #	Price

Total cost including tax, shipping and handling: $_____
Additional fees for insuring or dispensing technology $_____
Other (specify here or attach description): $_____
Total $

Was Medicaid billed? ☐ Yes ☐ No	*Date:*	*Status or Results:*
Was Insurance billed? ☐ Yes ☐ No	*Date:*	*Status or Results:*
Final Results: ☐ Payment ☐ Denial	*Date:*	*Details (attach written denial):*

For use by the Birth to Three Fiscal Office only:

Date request received	Date request approved	Cost to the state not to exceed	Birth to Three Authorization
		$	
Date invoice received	**Date invoice approved**	**Actual cost to the state**	**Birth to Three Authorization**
		$	

Connecticut Birth to Three Form 3-11 (revised 7/1/11)

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Assistive Technology Checklist		Yes	No
1.	Does the IFSP reflect the need for this device or service and has it been indicated in the data system **(**check box on IFSP screen**)**?		
2.	Is information attached that briefly describes why this is the most appropriate equipment and how it will improve the functional capabilities of the child?		
3.	Did the team consider a range of devices from low to high tech?		
4.	Did the NEAT Marketplace have a suitable device ~~is~~ available?		
5.	Is there a loaner device or rental available?		
6.	Is there more than one device or vendor that can meet the need *(e.g. one vendor's prone stander may be the same as another)*?		
7.	Has the family participated in the evaluation or seen the actual equipment being requested?		
8.	Has all provider staff serving this child agreed that this is the most appropriate device to meet the child's need ***(****e.g. Can the communication device be mounted on the mobility equipment)*?		
9.	Have you determined at what point will the child no longer need the equipment?		
10.	Will this device need to be listed on the transition plan?		
11.	Does the vendor offer a maintenance contract?		
12.	Will the parents be able to list the device as part of their homeowner's or renters insurance?		
13.	Does the program need to purchase insurance for the device?		
14.	Have you arranged for training for the parents in the use of the device once it is delivered?		

Additional Comments:

Send this form to the Birth to Three Fiscal Office 460 Capitol Ave Hartford, CT 06106
Fax: 860-418-6003

Connecticut Birth to Three Form 3-11 (revised 7/1/11)

Appendix 6:

Letter of Medical Necessity (Sample)

LETTER OF MEDICAL NECESSITY — SAMPLE

OMNIBUS Rehab, PC
14 Park Rd.
New Haven, CT 06511
(203) 222-6868

June 9, 2011

To Whom It May Concern:

Alexander Potter (D.O.B. – 04/3/2009) is a 2-year, 2 month-old little boy with a diagnosis of Spastic Diplegia. Alexander presents with increased muscle tone in bilateral lower extremities and decreased muscle tone in his trunk, which impairs his ability to move about his home independently.

Alexander recently learned how to crawl on hands and knees however this requires much effort to move from one room to another. He is pulling to stand at a stable object or with support from his parent and is cruising along the couch and walks short distances with both hands held. He wears bilateral solid ankle dynamic foot orthoses to provide proper support and positioning to his ankles and feet to improve his ability to properly bear weight and help prevent orthopedic abnormalities. A pediatric walker has been introduced during his visits and has been loaned to Alexander to promote independent use of the walker in his home for functional mobility.

The **Kaye Child's Walker4 with front swivel wheels,** size **Small,** has proven successful for Alexander in walking short, functional distances in his home. Alexander is preparing to transition to preschool where it will be imperative that he have age appropriate mobility.

The **front swivel wheels** of the walker will allow Alexander to safely turn the walker to the right or left and navigate around obstacles in his path. He is unable to safely pick up and move a walker to turn right or left due to decreased muscle tone in his trunk and increased muscle tone in both legs which in combination impairs his balance and equilibrium reactions.

The above equipment will allow Alexander to be at eye level with his peers, which will benefit his social/emotional developmental. The ability to bear weight through his extremities will assist with bone growth and an upright posture will also benefit his bowel and bladder function and respiratory status.

If there are any questions regarding this request and prescription for durable medical equipment, please do not hesitate to contact me.

Thank you for your consideration in this matter.

Deborah Willey, RPT
Physical Therapist

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Appendix 7:

Child Caregiver Interaction Plan

Caregiver-Child Interaction Plan (CCIP)

(The early intervention provider (teacher, therapist, etc.) and caregiver develop this plan together)

Routine/Activity:_____**Location (if outside the home)** _____**Date:** _____
Child: _____**Provider:** _____**Is this routine going well?** Yes No (circle one)

What I would like to see happen during this routine:

What is the current situation?

Steps in the Routine	Problem (y/n)	Adaptations that will be used	What I will do	What my child is expected to do

Wilcox, M. J. (2005; 2008 revised). Caregiver Child Interaction Plan for Activities and Routines in Early Intervention. Infant Child Research Programs, Arizona State University, Tempe, AZ 85287-1908.
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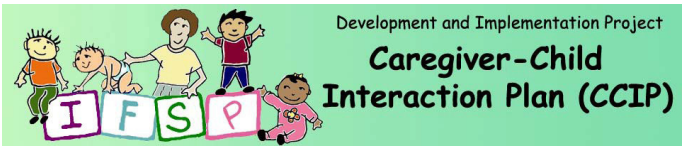
Appendix 8:

Child Caregiver Interaction Plan (Sample)



Caregiver-Child Interaction Plan Sample

(This plan and the analysis of effectiveness are to be completed by the early interventionist and caregiver together)

Routine/Activity: Meal-time **Location** (if outside the home): _____

Is this routine going well? Yes **No** (circle one) **Focus:** **Routine** or Creating Opportunities (circle one)

What I would like to see happen during this routine: I would like Brian to be able to participate in mealtime by sitting in his highchair.

What is the current situation? Brian does not like to sit in his high chair. He is uncomfortable and cries to be taken out of the chair.

Steps in the Routine	Problem (y/n)	Adaptations that will be used	What I will do	What my child is expected to do
Put Brian in his high chair.	Y	Foam insert for stability.	Put Brian in his high chair and insert the foam around his legs and at his back to keep him seated comfortably.	Nothing.
Position toys on Brian's tray	Y	Double sided Velcro tape to keep toys on the tray	Tape a favorite toy of Brian's onto the high-chair tray.	Nothing.
Play with toy with Brian.	N		Play with the toy with Brian for as long as he is enjoying it (no longer than 5 minutes). Reinforce Brian when he plays (or tries to play) with the toy.	Play with the toy.
Feed Brian	N	Food will be cut into small pieces Use shelf liner to secure plate/ bowl to tray	Leave toy on tray for Brian to play with. Put food either directly on tray or in a bowl/plate. Feed Brian food that requires utensils.	Eat finger food
Clean Up	N		Leave toy for Brian to play with. Take food away. Wipe Brian's face/hands.	Play with toy
Take Brian out of the high chair.	N		Take Brian out of the high chair.	Nothing.

Note: If the routine is not going well, planning focuses on completing the routine; if the routine is going well, planning focuses on embedding learning opportunities within the routine.

Wilcox, M. J. (2005; 2008 revised). Caregiver Child Interaction Plan for Activities and Routines in Early Intervention. Infant Child Research Programs, Arizona State University, Tempe, AZ 85287-1908.

Child: Brian *Provider:* Therapist X

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