Assistive Technology

For Infants, Toddlers, Children and Youth with Disabilities

COLORADO Guidelines for Health Professionals, Educators and Administrators

Colorado Consortium on Assistive Technology

Colorado Department of Education
Colorado Department of Public Health and Environment
Colorado School for the Deaf and the Blind
Colorado Assistive Technology Project

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Section I. INTRODUCTION

About the Colorado Consortium on Assistive Technology

The Colorado Consortium on Assistive Technology (AT) was established in 1998 to consolidate all public program efforts within Colorado related to AT. The purpose of this consolidation was to create a comprehensive system that could define and clarify AT requirements and services, improve access to AT for agencies, consumers, and professionals, and maintain a collaborative network of agencies who provide AT.

Partners in the Consortium

Each of the Consortium agencies and entities described below have assistive technology responsibilities for children youth and in Colorado.

The Colorado Department of Education
The Special Education Services Unit at the Colorado Department of Education (CDE) provides technical assistance and guidance to school districts relative to special education services and issues. In addition, an oversite process monitors special education procedures in each administrative unit. Special education eligibility and services, including AT, are considered on an individual basis for each child identified with a disability. Services to children and families are available through district and/or regional assistive technology teams (SWAAAC).[1]

The Colorado Department of Public Health and Environment
Health Care Program for Children with Special Needs (HCP) through the Colorado Department of Public Health and Environment (CDPHE), provides support for specific types of assistive technology devices and services to eligible children with disabilities.

The Colorado School for the Deaf and the Blind
Assistive technology support for students who have hearing loss, who have visual impairments or who are deafblind, is available through the Colorado School for the Deaf and the Blind (CSDB). The Loan Bank for Assistive Listening Devices and the Low Vision Device Loan Bank are both housed at CSDB and are available to students who qualify throughout the state.

Assistive Technology Partners
Assistive Technology Partners (ATP) is a program of the University of Colorado Health Sciences Center, JFK Partners. ATP houses the Colorado Assistive Technology Project (P.L. 105-394) and a number of other assistive technology related projects funded through local, state and federal agencies. ATP staff serve as consultants to SWAAAC teams. The SWAAAC teams provide assistive technology assessments, follow-up and consultation services to Colorado students,

[1] The acronym SWAAAC refers to statewide school-based teams who provide assistive technology devices and services for children with disabilities birth to 21.

families and educators. An extensive statewide assistive technology loan bank is accessible through the SWAAAC teams.

The Assistive Technology Process

Assistive Technology

For many children with disabilities, assistive technology is the lifeline that provides them access to the information and learning of the classroom and world. Assistive technology (AT) permits children with disabilities to access aspects of their environments that otherwise interfere with their ability to communicate, learn, develop social relationships, and reasonably benefit from school and life experiences. AT ranges from low-tech adaptive devices, such as pencil grips, to high tech devices including voice synthesizers and hearing amplification systems. In addition to provision of the device, training in the use of the device must also be provided. The parents and professional team involved with the child make decisions about whether a child qualifies for assistive technology based upon assessment information and the child's individual abilities and needs. Colorado supports the education of all children with disabilities in settings with their non-disabled peers to the maximum extent appropriate. Therefore, as part of the special education process, assistive technology must be considered for children with disabilities.

Legal Requirements

Federal and state laws require school districts to be responsible for identification and assessment of children suspected of having disabilities. School districts usually work with local community resources to establish procedures for infant and toddler (Birth-3) and preschool (3-5) screening and assessment. These federal laws include the Americans with Disabilities Act (ADA), Section 504 of the Rehabilitation Act, and the Individuals with Disabilities Education Act (IDEA). Colorado statute also supports IDEA through the Exceptional Children's Education Act (ECEA). The essential issues are to ensure that AT is considered for children who may benefit, that appropriate assessment is conducted, that AT devices and services are provided to those eligible. More detailed descriptions of the provisions of each of these laws are provided in Section IV of this document.

Process Flowchart

The process for considering AT is described on pages 8 and 9. For all children who are being considered for special education and related services, a general question should be asked, *"Could the individual benefit from assistive technology to increase access to home, school and community?"* To respond to this question, a series of four steps guide the decision process. There are slight variations for each age group.

Birth to age 3

Once referred to Part C or Child Find (Step 1), children in this age group receive a screening, or if significant problems are evident, a multidisciplinary evaluation (Step 2). This evaluation should include consideration of the need for assistive technology.

When appropriate, the evaluation team should refer the child to the local SWAAAC team for a more in-depth assessment. These teams are accessed through local school district Child Find coordinators. If needs are not identified that require special services at the time of the screening or evaluation, the child may be monitored or dismissed. For children with potential problems, consultation and exploration should occur with the family to determine other resources. These include medical resources such as Medicaid or insurance benefits, school resources for assessment, Part C or other potential services, community resources for support groups, classes, and preschool or child care options. In Step 3, the multidisciplinary team and family meet to determine if the child is eligible as a child with disabilities or developmental delay. If not eligible, the team may decide to monitor development rather than completely dismiss the child. If eligible, Step 4 of the process, the Individual Family Service Plan (IFSP), is developed.

Ages 3-5

In Colorado, children who are three years of age who are suspected of having a disability that interferes with learning and which may require special education services, are referred (Step 1) to the local school district Child Find Program. A screening or evaluation of the child is conducted to determine if the child may be eligible for special education and related services (Step 2). Again, consideration of AT must be part of the multidisciplinary evaluation including referrals to local SWAAAC teams if appropriate. Eligibility determination (Step 3) occurs with the team involved in the assessment and the family. For children who are eligible, an individual education plan (IEP) is developed (Step 4). When children are not eligible for special education services, yet have a disability condition which may interfere with learning, they may be eligible for accommodations under Section 504.

Ages 5-21

As part of Step 1 for this age group, pre-referral occurs to determine if there are preliminary interventions that can be successfully implemented prior to the official special education referral. These interventions should also include AT devices or other adaptations when appropriate. *If the devices, adaptations, or interventions are successful, the child may be monitored but not receive special education services.* If they are not sufficient for the child to receive reasonable benefit from his/her education program, a formal special education referral is made (Step 2). At this time a multidisciplinary assessment occurs, including consideration of assistive technology and a referral to the local school district or regional SWAAAC team when appropriate. Special education eligibility is determined (Step 3) at a meeting of the assessment team. As with the 3-5 year olds, if the child is not eligible for special education and related services, eligibility under 504 should be considered. Should the child be eligible, an individual education program (IEP) is developed (Step 4).

In addition to developmental or educational services, the development of the Individual Family Service Plan (IFSP) for infants and toddlers birth to age 3 or the Individual Education Program (IEP) for children and youth ages 3-21 years includes several steps that aid in the effectiveness of assistive technology. Each of these steps are stated in Step 4 and are described further in Sections II, IV, and VI of this

document. Because inservice, training and a trial for suggested devices should be completed before a final recommendation is made in the IEP or IFSP, completion of the IEP or IFSP may be delayed. Therefore a timeline for the training and trial of recommended devices (including the devices that will be tried and length of trials) and the follow-up meeting date to finalize device usage should be incorporated into the IEP or IFSP.

Considerations in Validating the use of an Assistive Technology Device

Assistive technology is used to increase access to home, school, and community. When validating the use of AT, there are special factors that must be considered when developing the IEP (20 U.S.C. sec. 1414 (d) (3) (B).Included among those special factors is a requirement that the *IEP team specifically consider whether the student requires assistive technology devices and services.*

The IDEA's requirements regarding the contents of the IEP are very prescriptive. This is appropriate because developing the IEP is the key to delivering quality services to students with disabilities. Once all the assessment data has been collected, the IEP meeting is where services for the student will be written into the IEP document. It should be noted that all of the OSEP policy letters to date make it clear that assistive technology services must be included in the IEP (e.g. 18 IDELR 627 (OSEP 1991). "The child's IEP must include a specific statement of such (assistive technology devices or) services. 34 C.F.R. § 300.346"

While it does not state that a specific assistive technology device be identified by name (e.g. Intellikeys), it does *require that a specific statement of devices and services be included*. In some cases, children require the opportunity to trial a number of devices prior to final purchase. It is sometimes difficult to make a final selection prior to the end of the IEP process. In that case, it is imperative that the necessary identified features of the device be included in the IEP. For example, "Johnny requires an augmentative/alternative communication device which will enable him to have access to at least 32 single locations, with memory to incorporate at least 50 phrases". In other cases, school districts are sometimes reluctant to name a specific device because a child may be moving to another area. For example, most personal FM systems provide essentially the same functions, yet individual school districts may have purchased any number of brand names.
In no case, should the child remain without an assistive technology device because of the length of time required to finalize the IEP (Chapman, 1999).

Other questions that may be asked when determining the benefit of the device include:

Does the device improve the child's access to the general curriculum?
Does the child want to wear/use the device?
Does the device improve the child's ability to participate in the environments of home, school, and community?
Are the parents involved in the training and use of the device?
Is the student trained in the use of the device?
Are the teacher and service providers trained in the use of the device?

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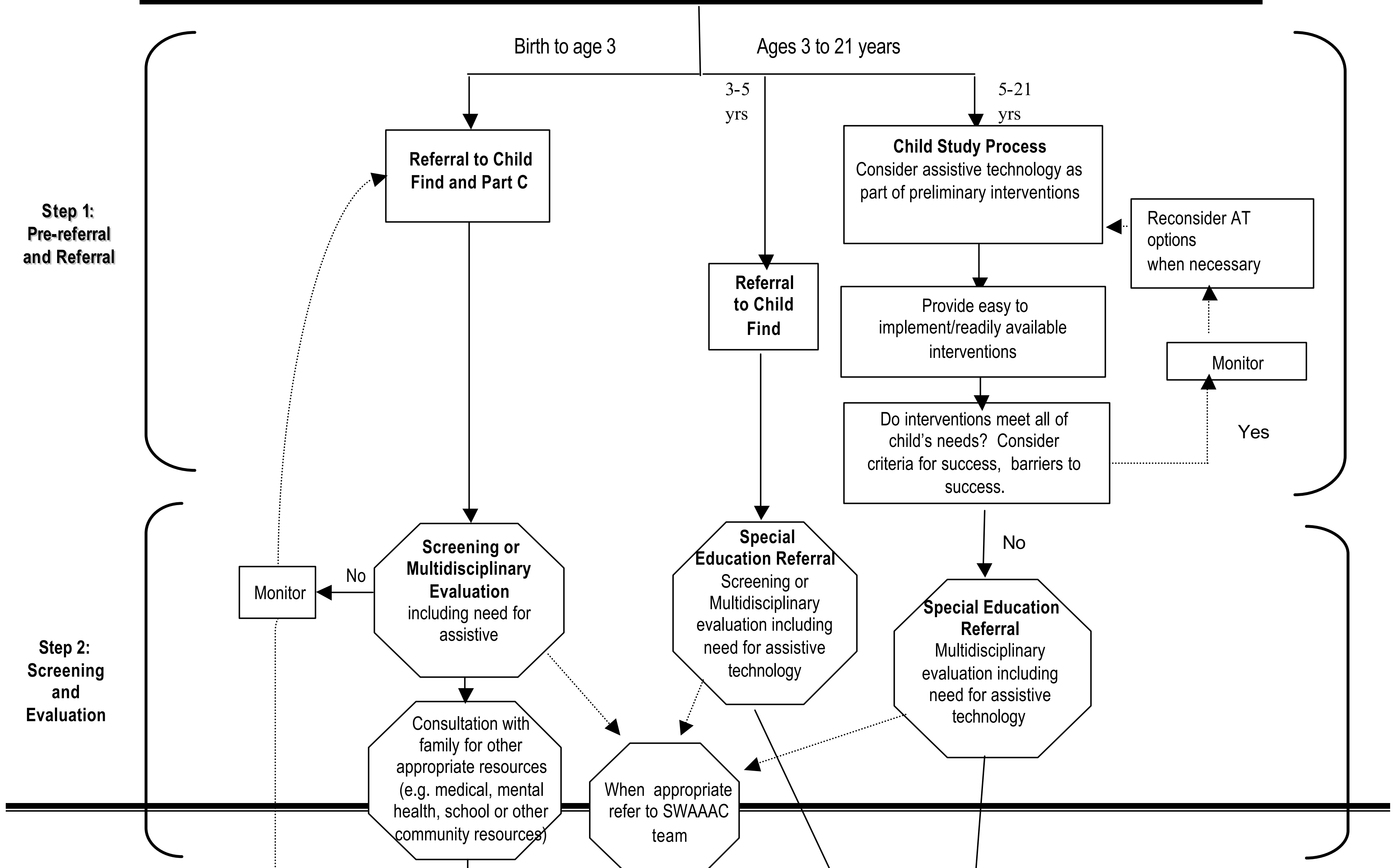
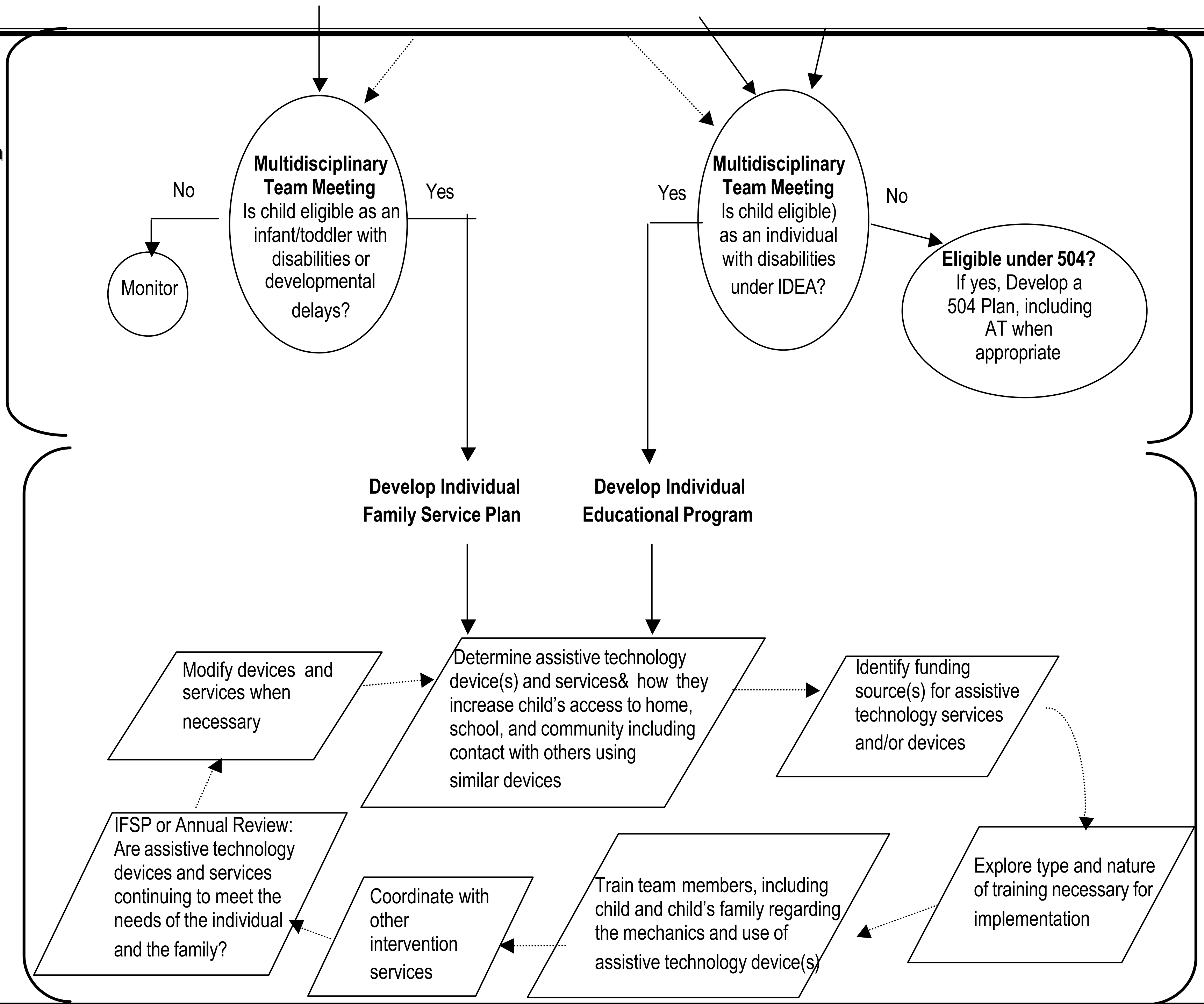
Could the individual benefit from assistive technology to increase access to home, school, and community?
Solutions may be no technology, low technology, or high technology




Step 3:
Eligibility
Determination
Multidisciplinary Team Meeting
Is child eligible as an infant/toddler with disabilities or developmental delays?
No
Yes
Monitor
Multidisciplinary Team Meeting
Is child eligible) as an individual with disabilities under IDEA?
Yes
No
Eligible under 504?
If yes, Develop a 504 Plan, including AT when appropriate
Develop Individual Family Service Plan
Develop Individual Educational Program
Modify devices and services when necessary
Determine assistive technology device(s) and services& how they increase child's access to home, school, and community including contact with others using similar devices
Identify funding source(s) for assistive technology services and/or devices
IFSP or Annual Review: Are assistive technology devices and services continuing to meet the needs of the individual and the family?
Coordinate with other intervention services
Train team members, including child and child's family regarding the mechanics and use of assistive technology device(s)
Explore type and nature of training necessary for implementation

Section II. OVERVIEW OF ASSISTIVE TECHNOLOGY

Take a quick look around your community and you will most likely notice someone using assistive technology. If you see an individual wearing eyeglasses, a hearing aid, using crutches or a cane, you have identified someone using assistive technology.

Assistive technology is everywhere. Historically, we've all thought of assistive technology as something computerized and very expensive. However, assistive technology devices actually range from very inexpensive low cost, low technology items to the more expensive, high technology devices.

Assistive technology devices range from simple, *low technology* devices like this grocery bag holder to sophisticated *high technology devices* like this electronic augmentative communication (AAC) system.

What does the law say about assistive technology?

The legal definition of assistive technology includes both **assistive technology devices** and **services.**

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. [34CFR 300.5]

An **assistive technology service** means any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device. This 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 assistive technology devices by children with disabilities;
- Selecting, designing, fitting, customizing, adapting, applying, retaining, 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 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 children with disabilities. [34CFR 300.6]

What are common assistive technology devices?

Today there are over 28,000 commercially available assistive technology devices. So, how do we keep it all straight? For this discussion, we have divided assistive technology devices into a series of categories. This includes assistive technology devices for persons with

- Communication disorders
- Visual impairments
- Hearing loss
- Learning/cognitive impairments
- Mobility impairments (both upper and lower body)
- Ergonomic issues

Communication Disorders

For individuals with communication disorders, there is a wide range of assistive technology devices available. Typically called augmentative/alternative communication (AAC) systems, these devices range from very simple picture books to high-end, sophisticated electronic communication devices. Children with communication impairments, who have severe communication disorders, can benefit academically, emotionally and socially from the provision of a device that allows them to *communicate* their thoughts, learn and share information and ideas, and otherwise participate in life activities.

Visual Impairments

The term visual impairment technically encompasses all degrees of permanent vision loss, including total blindness, which affects a person's ability to perform the usual tasks of daily life. L*ow vision* refers to a vision loss that is severe enough to impede

performance of everyday tasks, but still allows some useful visual discrimination. Low vision cannot be corrected to normal by regular eyeglasses or contact lenses.

For individuals with visual impairments, there are a variety of assistive technology devices and strategies available to assist them to perform daily activities such as reading, writing, daily care, mobility and recreational activities. Low technology solutions might include a simple handheld magnifier, the use of large print or brailled text to facilitate reading, or mobility devices (e.g., long cane) for safe and efficient travel. High technology solutions might include a computer outfitted with a speech synthesizer and software that allows the written text to be read aloud to the person unable to see well enough to read the computer screen.

Hearing Loss

For an individual who is deaf or hard of hearing there are two major effects of hearing loss: lack of auditory input and compromised ability to monitor speech output. Assistive technology devices such as hearing aids and FM systems can often be used to facilitate auditory input and speech output. Other types of assistive technology devices provide a visual representation of the auditory signal. These include flashing lights to indicate an emergency (fire, tornado), the phone ringing, or someone at the door. Low technology solutions or technology-free solutions might include use of sign language or other visual representation of the spoken word or providing information in a print format. Another recent adaptation is computer-assisted translation. Referred to as the acronym CART (Computer Assisted Realtime Translation or Communication Access Realtime Technology), this solution involves a specially trained typist who captures or types the discourse of the speaker(s) on a computer that is then projected onto a monitor or other display. A variation of CART is computer assisted notetaking (CAN) when the primary purpose is to provide a written record for a student.

Learning/Cognitive Impairments

Children can present with a variety of learning and cognitive impairments resulting from either developmental or acquired disabilities. An acquired disability, such as a traumatic brain injury, can be very difficult for everyone involved simply because the individual started out functioning at a very different level from where he/she may be today. Not only can assistive technology provide important accommodations for those with acquired disabilities, it can also become a critical tool to be used during the recovery of functional skill sets. For children with learning disabilities, there is a wide range of behaviors and abilities that may require some sort of assistive technology solution. For example, many children with learning and/or cognitive impairments struggle with developing literacy skills. Fortunately there are a number of both low and high technology solutions available to assist them. Many children benefit from the use of specially designed software programs that *predict* the word or phrase they are trying to spell as they type the first letter(s) of the word. Other software programs provide highlighted text and voice output so the child is able to hear the words they are generating. Simple solutions can also include colored highlighter tape, pencil grips, enlarged text and other easy-to-provide adaptations.

Mobility Impairments (both upper and lower body)

Individuals with mobility impairments also present with unique needs and abilities. Some may demonstrate only a lower body impairment such as spina bifida with no other complications. Assistive technology solutions for this individual might be crutches or a wheelchair. Simple modifications or adaptations like rearranging a classroom may be all that is needed to ensure they have access to the general education curriculum. For someone with an upper body mobility impairment such as poor hand control, assistive technology devices might include an alternative keyboard to use with the computer or a hand splint or pencil grip to assist with writing tasks.

Some children have combined upper and lower body mobility impairments. Assistive technology device selection in these cases may include a more extensive combination of both low and high technology devices.

Ergonomic Issues

A rapidly growing area of concern for assistive technology practitioners is the development of repetitive motion disorders. Repetitive motion disorders occur when someone repeatedly performs the same motor movement to the point where injury occurs. For many children, the use of computer keyboards and other technology presents an opportunity for this to happen. Children come in all shapes and sizes. Computer desks, tables and chairs typically used in computer labs and classrooms don't always fit the sizes and abilities of children. When children with disabilities (and without disabilities) are not positioned appropriately and spend hours repetitively performing the same motor movement injuries can and do occur.

An entire industry of assistive technology devices has developed over the past few years dealing with repetitive motion disorders. Potential solutions for someone demonstrating this type of impairment include raising or lowering a chair or desk for the appropriate fit, implementing routine breaks into the activity for the children to move around or do something different, and specially designed ergonomic keyboards.

Technology Abandonment

Research has shown the number one reason for technology abandonment is "lack of consumer preference and choice" (Galvin & Scherer, 1996; Phillips & Zao, 1993). Therefore, it is critical to include the child and his/her family in the assessment, selection and implementation process. Equally important is the inclusion of a qualified assistive technology practitioner. Qualified practitioners can provide information, guidance and advice during the assistive technology process.

Section III. LOAN BANK PROGRAMS IN COLORADO THAT PROVIDE ASSISTIVE TECHNOLOGY

In addition to the loan programs described below, many vendors and manufacturers will loan equipment for short term use. In addition, Medicaid will pay for equipment for trial periods.

SWAAAC Team Assessment Loan Bank

The Colorado Department of Education, Special Education Services Unit, has purchased a wide array of assistive technology devices. These devices include numerous augmentative/alternative communication devices, voice recognition software and hardware, screen readers, switches, mounting devices, learning/cognitive software and many other items. These devices are available for loan to the SWAAAC teams for evaluation and trial purposes. Equipment may be borrowed for 30 days. Beginning with the 2000 school year, all devices will be available for loan throughout the school year and during summer sessions for year-round school districts.

- All equipment from the Loan Bank must be requested by the SWAAAC teams.
- Use of assistive technology devices must be specified in the child's IEP as well as the IFSP, if appropriate.
- The SWAAAC Team Assessment Loan Bank is housed and administered by the Colorado Department of Education's, Special Education Services Unit SWAAAC Office.

For more detailed information regarding the SWAAAC Team Assessment Loan Bank, please call (303) 864-5100 (voice), (800) 255-3477, or (303) 864-5119 (TTY).

Low Vision Device Loan Bank

An inventory of low vision devices (e.g., magnifiers, telescopes, and light obsorptive glasses) are housed at the Colorado Instructional Materials Center (CIMC), which is located on the campus of The Colorado School for the Deaf and the Blind in Colorado Springs.

- All devices must be prescribed by the clinic optometrist. The low vision clinics are available for students who are visually impaired or who have low vision.
- The devices can be loaned for a trial period of two months only for students who have been through a CDE sponsored low vision evaluation.

For more detailed information about the low vision device inventory, please contact Tanni Anthony, State Consultant of Visual Impairment, at (303) 866-6681

Assistive Listening Devices Loan Bank

The Colorado Assistive Listening Device Loan Bank was established to meet the short term assistive listening device needs of children with hearing loss in school districts and early intervention programs. School districts should plan to purchase their own equipment when long term use is anticipated. Short term is typically defined as a maximum of two academic years per child. Children, who have borrowed loan bank equipment for two years or more, may be provided equipment based on availability. Priority for access to equipment in the loan bank will be given to children who have not borrowed loan bank equipment in the past.

- ♦ All FM systems from the Loan Bank must be requested and fitted by an audiologist using proper fitting and verification procedures. Individual unit settings will not be made by the loan bank.
- ♦ Use of FM systems must be specified in the child's IEP or IFSP.
- ♦ The Colorado FM Loan Bank is housed and administered by the Colorado School for the Deaf and the Blind, Audiology Department, 33 North Institute St., Colorado Springs, CO 80903, (719)-578-2183

For more detailed information regarding the early intervention or school-age loan programs, please contact the Loan Bank at the number indicated above.

Section IV. STATE AND FEDERAL REGULATIONS GOVERNING ASSISTIVE TECHNOLOGY

State and Federal Regulations about Assistive Technology

There are several laws that define and determine the educational and civil rights of persons who require assistive technology. These include Part B and Part C of the Individual with Disabilities Education Act (IDEA); the Americans with Disabilities Act (ADA); and Section 504 of the Rehabilitation Act. Colorado has two consumer protection laws that assure reliable assistive technology.

IDEA Part B Provisions for Assistive Technology Devices and Services

[34CFR 300.5] *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 the functional capabilities of children with disabilities.

[34CFR 300.6] *Assistive technology sevices* means any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device.

[34CFR 300.308] (a) Each public agency shall ensure that assistive technology devices or assistive technology services, or both, as those terms are defined in 300.5-300.6 are made available to a child with a disability if required as part of the child's-
(1) Special education under 300.26;
(2) Related services under 300.24; or
(3) Supplementary aids and services under 300.28 and 300.550 (b) (2).
(b) On a case-by-case basis, the use of school-purchased assistive technology devices in a child's home or in other settings is required if the child's IEP team determines that the child needs access to those devices in order to receive FAPE [Free Appropriate Public Education].

IDEA Part C Provisions for Assistive Technology Devices and Services

Part C of IDEA concerns infants and toddlers with disabilities. Children with disabilities from birth to age three, who are experiencing developmental delays in cognitive, physical, communication, social/emotional development, or in self-help skills, or who have a diagnosed physical or mental condition which has a high probability of resulting in developmental delay, are eligible under this program to receive early intervention services. [20 U.S.C. 1432(5)

A comprehensive multidisciplinary evaluation of each child's strengths and needs must include assistive technology (both devices and services). Evaluations must identify resources appropriate to meet the needs of the child, including assistive technology.

Statements about early invention services, including assistive technology devices and services and how they will be delivered must be part of the Individual Family Service Plan (IFSP). Parental input is vital in the selection and implementation of assistive technology. [20 U.S.C. 1436(d)]

Unlike Part B of IDEA, Part C does not require a free appropriate public education (FAPE) be provided to each eligible child. Instead, assistive technology and other services are required as one of many early intervention services that can be provided to meet the developmental needs of the child.

When a student transitions from Part C into school, assistive technology devices or equipment used by that student may transition with him or her so that the child can continue to use the device(s) at home or in school. When the child no longer has use for the equipment, the device reverts back to the child's former early intervention program.

IDEA Disability versus Eligibility

To be considered a child with a disability under IDEA, a student must have an impairment *and* need special education and related services. In other words, the impairment must result in an adverse effect on the child's ability to obtain reasonable benefit from education. Eligibility is determined by the IEP team. Disabilities considered under IDEA are: mental retardation, hearing impairments including deafness, deafblindness, speech or language impairments, vision impairments including blindness, serious emotional disturbance, orthopedic impairments, autism, traumatic brain injury, other health impairments or specific learning disabilities. For children who have impairments that do not meet eligibility requirements, services may be provided under Section 504 of the Rehabilitation Act.

The Americans with Disabilities Act (ADA) as a Support for Students who Require Assistive Technology

The Americans with Disability Act (ADA) is a civil rights statute passed in 1990 to protect the rights of persons with disabilities in school, work, and recreation. Title II of the ADA covers state and local government services. It prohibits discrimination against qualified individuals in the services, programs, or activities of the public entity, such as public school systems and publicly operated preschool programs.

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)]

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.

In order to comply with Title II, 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)] These 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]

Title III of the ADA prohibits places of public accommodations (privately owned entities) from discriminating against persons with disabilities. Title III requires public accommodations to make reasonable modifications in policies, practices and procedures that would afford individuals with disabilities an opportunity to participate in and benefit from the goods and services of the public accommodation. "Auxiliary aids and services" may be required if appropriate and entities must eliminate architectural barriers that are readily achievable to remove. [28 CFR 36.304]

Section 504 of the Rehabilitation Act and the use of Assistive Technology

Section 504 of the Rehabilitation Act of 1973 is a civil rights statute that prohibits agencies and programs which receive federal funds from discrimination against individuals with disabilities. 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. [29 U.S.C. 706(8)(B)]

Major life activities include such items as walking, sleeping, seeing, hearing, learning, care for one's self, performing manual tasks, speaking, breathing, and working. Some children who are not eligible for special education servies may be able to receive services under the protection of Section 504.

Since public preschools, elementary and secondary schools are federally funded, they must provide students with disabilities a FAPE and ensure that students are afforded an equal opportunity to participate in all academic and extracurricular school programs.

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

Colorado's Exceptional Children's Education Act (ECEA) and the Federal Requirements

Colorado regulations for special education require that assistive technology be utilized as part of the assessment if the child needs it to complete the assessment process

[4.01 (3)(d)(iii)]. It also requires that assistive technology devices and services be documented within the child's IEP as determined by the IEP team[4.02 (4)(n)].

Consumer Protection and Assistive Technology

Colorado's Assistive Technology Lemon Law (House Bill 97-1194, 1997) and Colorado's Facilitative Technology Lemon Law (House Bill 98-113, 1998) promotes independent living and self-sufficiency for persons with disabilities and reduces their need to rely on publicly funded supports. Having safe, reliable assistive technology represents an essential need given the barriers that exist to independence and self-sufficiency.

Assistive technology must be of quality and covered by adequate warranties and available services to maintain proper working conditions. Regarding wheelchairs, dealers must assure availability of appropriate replacement technology while the consumer's own technology is being repaired. Dealers must refund or replace wheelchairs and other facilitative technologies that are defective, not repairable, or do not conform to standards. The law encourages manufactures and dealers to cooperatively pool assistive technology resources for loan purposes. Colorado House Bill 99-143, Consumer Protection Act, requires that audiologists and hearing aid dealers provide a thirty day trial period and that the buyer is entitled to a refund. Notification must occur within thirty days. A hearing aid dealer cannot sell a hearing aid to a child under eighteen years of age unless there is written documentation that the child has seen both a licensed physician and registered audiologist.

Section V. Implications for Standards and Access

The Relationship between Assistive Technology and Standards

For diverse learners, assistive technology can provide for the service options that allow opportunities for successful learning. Based upon the text, *Making Standards Work* (Colorado Department of Education,1999), the following suggestions are recommended:

1. Involve families, community members and peers integrally in the design and implementation of educational services for all children and youth. Use the experience of the people who know the child the best to determine the most appropriate individualized services. These services might be a modified curriculum that takes into account the disability, or modified environment with accessible bathrooms, or the use of an FM system in the classroom so that the child can follow the activities through listening.

2. Use shared and flexible resources, including personnel, money, facilities, programs, time and administrative processes to meet student's needs and offer appropriate services to providers with specific expertise. This may require the purchase of appropriate equipment, materials, or devices that will travel with the child in his or her various environments, a repair allowance, itinerant teachers, or modification of the curriculum by adding special time allowances.

3. Offer curriculum and instruction that is diversified through a variety of modifications, including alternative scheduling, accessibility, optimal learning environments, grouping, accommodation of multiple learning styles, setting appropriate expectations, student-teacher ratios and a variety of instructional techniques. Individual accommodations and adaptations are made with each specific learner in mind. For example, creating accessibility for one child with vision loss might mean the adaptation of books in large print or a large print, high contrast computer screen while another child with vision impairment might require a closed circuit TV screen for magnification.

4. Support collaborative planning with individual students, team members, family members, the community and other agencies regarding the management of time and resources. Frequently a community agency may be able to provide transportation, health information, respite care or other resources for the child.

5. Design support services for students that help them with life management, including safety, health, wellness, social relationships, and learning. This may be done by collaborating with other agencies to develop a plan that provides training and mentoring. One such method might be the training and pairing of a peer tutor with the diverse learner to practice the roles in social relationships.

6. Assure students the opportunity to plan and prepare for successful life adjustment after high school, including career development, community involvement, post-

secondary education, recreation and leisure choices, and daily living activities. Some examples of how this could be done are establishing a connection with vocational rehabilitation, assuring that the learner gets to job fairs, or arranging for presentations on life choices and trainings concerning daily living or other relevant activities.

7. Maximize the use of technology for learning. To do so, school professionals, families, and students should use technology competently. For example, everyone who is part of the life of a learner who is non-verbal should be trained to use and minimally repair his/her communication device. Selected people in each of the learner's environments should be trained to trouble shoot devices and have the contact resources to obtain technical assistance when necessary.

8. Offer support services to assist students in managing behavior, expressing needs, developing friendships, resolving conflicts, making choices and planning their lives.

Adaptations

Adaptations are changes made to the environment, curriculum, instruction, and/or assessment practices in order to help a student become a successful learner. Adaptations are based on the strengths and needs of individual students and may vary in intensity and degree. Adaptations include:

1. Accommodations:
   Accommodations are adjustments made in *how* a student accesses and demonstrates learning. They do not substantially alter the content of instruction in order to provide students access to learning and an equal opportunity to demonstrate what they know. Accommodations include changes in and/or provisions for following:

   - Presentation and/or response format
   - Instructional strategies
   - Time/scheduling
   - Attitudes
   - Architecture
   - Environment
   - Durable medical or other equipment
   - Assistive technology

2. Modifications:
   Modifications are substantial changes in what a student is expected to learn and demonstrate. They are made to provide students with opportunities to participate meaningfully and productively in learning experiences and environments. Modifications include changes in the following (Colorado Department of Education, 1999):

- Instructional level
- Content
- Performance criteria

The following example of an eight year old boy with moderate vision and hearing loss contains some of the types of accommodations and modifications, which might be made:

Student: John **Grade Level**: 2nd
Accommodations: FM System, Magnifier **Standard Focus Area:** Reading & Writing

STANDARD	STRENGTHS AND NEEDS	BENCHMARKS: ACCOMMODATIONS AND MODIFICATIONS	PERFORMANCE DEMONSTRATION
Students read and understand a variety of materials	♦ Likes books and movies ♦ Understands sequence ♦ Gains meaning from visual symbols ♦ Recognizes some letters of the alphabet ♦ Hears and can repeat beginning sounds of words (m/v/b)	♦ Gains meaning from pictures and words using hand held magnifier for visual input and FM system for classroom reading activities ♦ Uses sequencing when reading allowing wait time	♦ Relate characteristics of story ♦ Identify sight words ♦ Answer simple questions about the story using pictures ♦ Identify the three initial sounds of words which were selected (m,b,v) ♦ Creates sound symbol associations for beginning sounds (m,b,v)
Students write and speak for a variety of purposes and audiences	♦ Talkative ♦ Uses one to three word responses ♦ Can communicate ideas through computer pictures ♦ Recognizes some of letters of the alphabet ♦ Needs to learn to copy ♦ Needs to use simple sentences to answer ♦ Needs beginning word processing skills ♦ Needs extra time	♦ Creates products using computer pictures and/or words with screen enlargement program ♦ Communicates ideas either verbally or graphically with the FM system in place ♦ Uses word processor ♦ Is allowed extra time	♦ Writes/copies complete simple short words and sentences on the computer ♦ Copies letters on paper and matches to sound (m,b,v)

Section VI. ELIGIBILITY, CANDIDACY, AND ASSESSMENT

Eligibility and Candidacy for assistive technology devices and services

All children with disabilities, from birth to 21 years, who are eligible to receive special education or early intervention services must be considered for assistive technology as part of their Individualized Family Services Plan (IFSP) or Individualized Education Program (IEP).

In the recent IDEA amendments, assistive technology must be considered during the development or revision of a student's IEP. The provision of assistive technology for children from birth to three is required, when appropriate, as one of 17 different services required under Part C of the IDEA.

Students not qualifying for special education under IDEA, but determined as handicapped under Section 504 of the Rehabilitation Act of 1973 are eligible for accommodations that may include assistive technology devices and/or services.

A student or young child with a disability may also be entitled to assistive technology as a reasonable accommodation under the Americans with Disabilities Act (ADA).

Assistive Technology Assessment

The use of assistive technology (AT) for children with disabilities within the educational process is an area of rapid growth and change. In fact, most of the assistive technology devices available today did not even exist when federal special education mandates took effect in the late 1970's.

With the advent of the final federal regulations implementing the Individuals with Disabilities Education Act (IDEA 97), educators, families and persons with disabilities paid particular attention to the AT provisions. These regulations enhanced the services available to children with disabilities, strengthened the role of parents and increased the reliance on AT to ensure that students receive an appropriate education (Hager, 1999).

One of the most pressing areas of concern for practitioners and families alike is the need to choose the right assistive technology devices and service for each child. In the educational arena, assistive technology devices are selected based on their ability to provide access to the general education curriculum by the child.

In Colorado, the assistive technology selection process begins with a comprehensive assessment. Referrals can be initiated by anyone (including the child) concerned about potential barriers interfering with the child's *ability to access the general education curriculum*. These barriers can be due to any number of factors. *The important point to remember is that the child is experiencing difficulty accessing the general education*

curriculum. This can include the physical plant, both indoors and out, classroom and peer activities and any extra-curricular activity sponsored by the school. Referrals should be forwarded to the appropriate personnel (e.g. SWAAAC, vision, or hearing specialist.

Once a referral is received, a team of individuals is convened to complete the assessment process. The team consists of the child being evaluated, their family members, regular and special educators, any necessary professionals (e.g. physical therapists, vision specialist, speech language pathologist), paraprofessionals, and any other person deemed central to the child's life or the activities under consideration. The initial phase of the assessment will focus on collecting data and information about the barriers limiting access to the educational curriculum. It is important for the team to recognize from the outset that a variety of solutions will be considered, including both low and high tech solutions, or some combination of both.

It is often helpful to first identify those activities the child is engaged in, as well as those activities the child is unable to participate in, but should or wants to be engaged in. The chart below identifies how some accommodations may be identified for these activities. For example, a child with fine motor impairment of the hands may be unable to engage in writing activities, but could achieve the skill with appropriate assistive technology.

Activities	**Barrier**	**Possible Solutions/Considerations**
Writing	Unable to hold pencil	Expanded computer keyboard, use tape recorder
Communicating with teachers and peers	Unable to speak, difficulty pointing to pictures	Augmentative communication device with scanning capabilities, core and fringe vocabulary
Group work at the "common table"	Unable to fit wheelchair under edge of table	Raise table height, consider alternate seating during "table activities"
Swinging during recess	Unable to stay upright on swing	Alternate seat for swing-set, investigate alternatives to swinging, consult OT/PT to consider other strategies

Once the activities and barriers have been identified, the 'specific capabilities' component of the assessment begins. It is at this point, that clinical issues such as range of motion, or significance of visual/hearing impairment are evaluated. For example, if physical access to the computer is an issue, an occupational/physical therapist would be a necessary part of the specific capabilities assessment. In conjunction with the assistive technology specialist (SWAAAC, vision or hearing

specialist, or SLP), the occupational/physical therapist will evaluate the individual to determine whether or not the identified device(s) is the most appropriate solution for the barriers. It is critical to remember that the number one reason for technology abandonment is “lack of consumer preference and choice” (Phillips & Zhao, 1993). It is vital that the individual who is going to be using the technology be involved in the selection and choice of the adaptation and/or device.

If the team determines the technology under consideration is appropriate and would presumably work well for the specified situation(s), a trial of the identified device(s) is initiated. Once the trial period has been completed and the usability of the device has been determined to be adequate, the report is finalized and the recommendations incorporated into the child’s IEP or IFSP and funding sources are identified.

Section VII. FUNDING SOURCES TO PURCHASE ASSISTIVE TECHNOLOGY

This section provides information on a variety of funding sources and specific Medicaid waivers. This may be useful for IEP/IFSP teams when considering purchase of AT devices and services. In addition, a comparison of benefits provided by medical/Medicaid services, the school, and parents is located in Appendix A.

Funding Guide[1]

This guide was developed to assist families, professionals, and consumers to locate funding resources available within the State of Colorado. In any funding system there will be eligibility criteria, identified benefits, procedures and appeals processes. This grid is intended to assist in identifying possible funding sources. In no way are we promoting organizations listed below. Omissions of possible agencies were not intentional.

***NOTE: all denials should be obtained in writing.**

√ = Benefit Available

Funding Resource	Type of Funding & Eligibility	Birth-5	5-18 Years	18-21 Years	21 years and beyond
Private Insurance	Medically related benefits, based on individual's plan. Private insurance is payer of first resort.	√	√	√	√
Medicaid Customer Service 1-800-221-3943 303-866-3513	Medically necessary benefits based on Medicaid State and Federal rules and regulations (Volume 8). Medicaid is a health care program for low income Coloradoans. Specific income guidelines contact, Medicaid customer service (303) 866-3513 or 1-800-221-3943 TDD/TTY (303) 866-3305	√ **+EPSDT** **(Early, Periodic, Screening & Diagnosis)**	√ **+EPSDT**	√ **+EPSDT**	√
Medicaid HCBS Waivers *1-800-221-3943 ext.2075 or* 303-866-3513	Colorado has 10 different Home and Community Based Waivers. Waiver programs provide additional Medicaid benefits to specific populations who meet special eligibility criteria.	√ **+EPSDT**	√ **+EPSDT**	√ **+EPSDT**	√
Medicare "Hotline" 1-800-727-7086 303-695-3333	Medicare is a health care program for Coloradoans over the age of 65. and individuals with disabilities under 65. Legal immigrants qualified aliens or US citizens. Part A-"Hospital Insurance", Part B-Physician Services	√ **Dialysis patients**	√ **Dialysis patients**	√ **Dialysis patients**	√
CHP+ Children's Basic Health Plan 1-800-359-1991 303-692-2960	A low cost insurance plan for kids, ♦ Not eligible for Medicaid ♦ Colorado residents ♦ Living in a financially qualified family ♦ US citizen or permanent US resident ♦ No other insurance	√	√	√	

[1] Adapted from C. Blakely (1999)

Funding Resource	Type of Funding & Eligibility	Birth-5	5-18 Years	18-21 Years	21 years and beyond
Community Centered Board (CCB)	Services based on Colorado Developmental Disability definition. Local CCB administers: CES Waiver, SLS Waiver, provides for residential services, Family Support and other support services for individuals w/Dev. Dis. diagnosis.	√ **EI, FSSP, CMW, CES**	√	√ **SLS (Supported Living Support)**	√
SSDI	Supplemental Security Disability Income (SSDI) Has a 24-month wait period. Based on amount paid in from employment. Individual, or disabled, retired, deceased parent (age 65)	√ **Insurance**	√	√	√
SSI	Supplemental Security Income (SSI) Based on disability. Based on income level.	√	√	√	√
TANF	Temporary Aid to Needy Families (TANF) (Formerly called AFDC) Provides cash assistance to needy families.	√	√	√	√
HCP Health Care Program for Children with Special Needs	Health Care Program for Children with Special Needs Based on income and/or Medicaid eligibility. Eligible children may receive orthodontia, hearing aids and supplies; some limited OT and PT; home interventions services for deaf and hard of hearing; inpatient services, specialist care, some nutrition screening, assessment and counseling.	√	√	√	
IDEA-Part C Community	Based on Federal IDEA Law (Individuals with Disabilities Education Act). Part C refers to a section of this act, which addresses the priorities, and concerns of families with children birth –3. There are Part C networks throughout Colorado. Part of an IFSP (Ind. Family Service Program) to assist families.	√ **Up to 3 yrs**			
Child Find Ask for the Child Find Coordinator in your local school district	A program available based upon Free and Appropriate Public Education (FAPE), identified by IDEA. This program through the public school systems is designed to identify children from birth through 21 years who may have special needs. It provides evaluations and assessments including vision, hearing, speech, and developmental and thinking skills.	√	√	√	
IDEA-Part B School District	Provides for students with disabilities to have meaningful opportunities to an education, a Free and Appropriate Education (FAPE). Child must be found eligible based on disability, testing and academic performance. Teams of professionals, including the parents, create a document called the IEP (Individual Education Plan). Education supports are to be at no cost to the family.	√ **Age 3 –5**	√	√	
504 Plan	This service is specifically for a student without an IEP or not qualifying for Special Education, yet needing support services. Based on federal law, The Rehab Act.	√ **Age 3-5**	√	√	√
IDEA-Part B Transition Services School District	Creates a plan or set of goals in the IEP which address transition from school based services to higher education, employment or community-based services. Student must have a current IEP and qualify for special education services. Based on IDEA federal law.	√ **Age 3-5**	√ **Age 14-18**	√	
Vocational Rehabilitation	Provides services for employment-based objectives. Creates an Individual Work Rehabilitation Plan (IP). Assists individual with education, training, supports and services to achieve employment goals.		√ **Age 14-18**	√	√

FundingResource	Type of Funding & Eligibility	Birth-5	5-18 Years	18-21 Years	21 years and beyond
Public and Private Agencies	Services provided and eligibility based on individual agency bylaws, mission statement and requirements. Direct service providing agencies maintain individual criteria of eligibility and fees. Contact agencies in your community to find out what services are offered and eligibility criteria. Such as: Easter Seal, United Cerebral Palsy (UCPA), United Way Organizations, Muscular Dystrophy Assoc. (MDA), Epilepsy Foundation, Multiple Sclerosis (MS), Developmental Disability Planning Council (DDPC)	√ √	√ √	√ √	√ √
Grants and Trust Funds	Funds set aside to provide for specific areas of interest. The criteria for eligibility and fundable programs and services are based on each mission statement. Processes for submitting requests are defined in the *Colorado Grants Guide*, by Community Resource Center, Inc.	√	√	√	√
Community Service Organizations	Specific requirements and organization's interest areas identified by mission statements and fund raising efforts. Examples: Elk, Lions, Sertoma, Kiwanis, Shriner's,	√	√	√	√
Independent Living Center	Colorado has 9 Independent Living Centers around the state. This funding is through Vocational Rehabilitation and assists people to increase their independence. They provide training and support. There are times throughout the year stipends of dollars are dispersed.			√	√
Church and Civic Organizations	Based on people and interests of the specific organization. Always willing to listen if approached with ideas, i.e. the garden club that helps raises money for the adaptive playground.	√	√	√	√
Workman's Compensation	Based on individual's claim and benefits. Must be a working individual and of legal age. Proof of injury related to w ork is necessary.			√	√
Veteran's Administration or Tricare/CHAMPUS	A child, individual or beneficiary of someone in the armed services. Benefits based on benefit package provided.	√	√	√	√
Support by family members	Some funders will ask if you have access to family members who could assist you financially. Be prepared to respond either with a denial from family or an amount agreed upon with parents, grandparents, etc.	√	√	√	√
Low Interest Loans	Contact your local bank or lending institution.	√	√	√	√
Other Possible Funding Sources	Railroad Retirement, HUD, Childcare subsidies, medical insurance sheltering plans, and others.	√	√	√	√

Medicaid Waivers for Children

Medicaid waivers are an optional way for the State of Colorado to provide Medicaid services to children with special challenges who would not otherwise qualify for Medicaid. This section is intended to define the different Medicaid Waivers and to describe the specific population each waiver serves.

Each state has the ability to design it's own waiver package, each with its own emphasis. It is very important to understand the intent of each waiver. Colorado and the agencies that administer these waivers understand that home placement is the best placement for most children with significant disabilities. They understand that caring for these children can be costly and can drain families' resources; therefore, these programs are intended to keep children in their home with supports, rather than placing them in Nursing Care Facilities (NCF), hospitals or Intermediate Care Facilities for the Mentally Retarded (ICF/MR). The State of Colorado also considers the cost effectiveness of these services. If a child is in the home, he or she will cost the state less, even with supports, than if the child were in an out-of-home placement or facility.

In order to qualify for a Medicaid Waiver, the child must meet financial, medical and program criteria. Not every child with a disability will qualify for a Medicaid Waiver. Usually the parent's income is counted toward the child's financial eligibility for regular Medicaid. Under these waivers, only the resources and income of the child alone are considered. The child must have less than $1,536 per month countable income and $2,000 in resources, such as a savings account, in order to qualify. A child with a large settlement, trust or money available to them may not qualify based on their assets.

Colorado has ten Medicaid waivers, four of which specifically target children ages birth through age 17. These waivers are called "Home and Community-Based Waivers" or "HCBS Waivers"; to identify that the service is delivered in the home or community setting. The following paragraphs provide a brief description of each waiver including the intended population.

"Children's HCBS Waiver"

This waiver, also referred to as the Katie Beckett or Model 200 Waiver, was created to provide Medicaid covered services in the home or community for children, birth through 17. This waiver targets the child with a disability who would otherwise be ineligible for Medicaid due to excess parent income and/or resources, but would benefit from Medicaid services, such as durable medical equipment, home health care, medical supplies or hospital benefits. The Children's HCBS Waivers offer case management services and access to Medicaid benefits. The medical criterion for this waiver (and all the waivers) is that this child would be at risk for nursing home or institutional level care, without the waiver. In other words, if the family could no longer care for the child, the child would have to be placed in a nursing home or hospital facility.

Children are very different from one another and disabling conditions vary greatly. Therefore, to qualify for this waiver, at a minimum, the child must need:

- close to 100 percent self care supports (bathing, feeding, supervision), and;
- require some level of nursing support: medications, catheterization, bowel program, breathing treatments, suctioning or be ventilator-dependent.

Children eligible for this waiver may or may not also meet the eligibility for a developmental disability. The Department of Health Care Policy and Financing administers this waiver; for more information, contact **Diana Maiden (303) 866-2823.**

The Children's Medical Waiver, "HCBS-CMW"
"*Home and Community-Based Services-Children's Medical Waiver"*
This waiver is identical to the "Children's HCBS Waiver", with one additional requirement, the child *must have* a developmental disability or developmental delay. Like the Katie Beckett or Model 200 waiver, this waiver also offers case management services and access to Medicaid benefits. If child has medical needs as described under the Children's HCBS section above and has a developmental disability, this waiver would be an appropriate choice. This waiver is administered by the Department of Human Services, Developmental Disabilities Services; for more information contact **Jay Kauffman at (303) 866-7455.**

Children's Extensive Support Waiver, "HCBS-CES"
"*Home and Community-Based Services - Children's Extensive Support Waiver"*
This waiver is different from the two above in that it was created to support children with a high level of significant behavioral and/or medical needs. It is for a child who requires 24-hour-a-day "line of sight" supervision due to a medical condition or, would be unsafe to themselves and others if not constantly watched, such as children who wander through the night. This waiver requires the child to have a developmental disability or a developmental delay. It also provides some additional funding for benefits and services to address the safety of the child and family. It also has supports for personal assistance because these children have the most significant disabilities.

Another difference in this waiver is that a family can be eligible for Medicaid and eligible for this waiver because of the supports and services necessary to provide a safe environment due to the severity of a child's disability. The child most appropriate for this waiver needs constant supervision due to life-threatening medical conditions or behaviors. This waiver is administered by the Department of Human Services, Developmental Disabilities Services; for more information contact **John Miles at (303) 866-7469 or Jay Kauffman at (303) 866-7455**.

Children's Habilitation Residential Program Waiver, "HCBS-CHRP"
Home and Community-Based Services - Children's Habilitation Residential Program"
This waiver is unique in that it is specifically charged with providing residential services (out-of-home-placement) for children and youth (age birth to 21) in foster care with developmental disabilities and/or extraordinary needs. A significant difference with this waiver is that parents must give up guardianship of the child. This allows the county to make decisions on what services will be provided.

Based on individual situations, some parents wishing to remain a part of the decision-making team may be able to do so. Again, this waiver is for children who would be at risk of an institutional placement if not for this program. It provides a way for services to be provided without the high costs of an Intermediate Care Facility (ICF/MR), while allowing children to remain in a residential community environment while providing more intense therapies or habilitative services. The HCBS-CHRP waiver is administered by the Department of Human Services, Division of Child Welfare Services under the

oversight of the Department of Health Care Policy and Financing. For more information contact **Mary Griffin (303) 866-3546.**

Medicaid Waivers for Adults

In Colorado, at the age of 18, an individual becomes "emancipated" from their parent's income. Therefore, the waivers we have discussed above are for children up to their 18th birthday. Within one month of turning age 18, the child can apply for Supplemental Security Income (SSI) as an individual, and access Medicaid. The individual must qualify for SSI, based on their income and assets, not their parent's, and receive a medical eligibility determination.

Other waivers include: **Elderly, Blind and Disabled Waiver "EBD", Supported Living Services Waiver "SLS",** and the **Comprehensive Services Waiver "HCB-DD"**, which are all home and community-based waivers for ages 18 and older; and the **Brain Injury Waiver** specifically for individuals who are between the ages of 16 and 64 with brain injury returning to the community from a hospital or rehabilitation facility. There are also waivers for persons living with **AIDS** and for individuals with **Mental Illness.**

For a chart of all the waivers, their primary purpose, how to apply, services available and contacts, call Medicaid Customer Service at 1-800-221-3943, or outside Denver Metro, (303) 866-3513.

Section VIII. FREQUENTLY ASKED QUESTIONS (FAQs) ABOUT ASSISTIVE TECHNOLOGY

.

Assistive Technology - Questions and Answers

Assessment Issues:

1. ***Who is eligible to receive an assistive technology assessment?***
2. ***What professionals are considered qualified to assess a student in the area of assistive technology?***
3. ***Who should be included within the team of professionals to assess students for assistive technology?***
4. ***Can an independent evaluation be requested to address assistive technology?***
5. ***When is it appropriate for a student to use assistive technology when participating in educational evaluations?***
6. ***Is an IEP required to receive assistive technology?***

Any student can be referred for an assistive technology assessment by any member of the team including the family and/or the child. The assessment must be tailored to the unique needs of the student and provided in an environment where the student will perform at his/her potential. There is no specific test for evaluating the need for assistive technology. Therefore, prior to conducting the evaluation, the team needs to have a well planned evaluation process (see Sections I and VI).

The school or district often has professionals available who have expertise in assistive technology assessments. It is the schools or districts responsibility to provide appropriate training for professionals in assessment techniques. Those involved in assessments might include some or all of the following: parents, child, special education teacher, occupational therapist, physical therapist, speech-language pathologist, audiologist, vision specialist, technology specialist, general education teachers, and school nurse. If the school or district does not have appropriately trained personnel, it must obtain such persons to perform the evaluation. If parents disagree with the results of a school evaluation, or they believe it is not comprehensive, they can request an independent evaluation.

Students may need to use assistive technology to participate in other assessments, such as for special education assessment, classroom-based assessments, state and local district assessments, etc. The use of assistive technology devices(s) during assessment of students with impaired sensory, manual, or speaking skills ensures their performance accurately reflects their aptitude or achievement level. or whatever the test purports to measure. For state standardized assessments, the AT must be in place at least three months prior to the administration of the test.

Some students may require simple modifications or adaptations of their environment such as bricks to raise the table height or a pencil grip to hold the pencil. Such accommodations may be provided as part of the student’s general education program,

or a 504 plan, without the necessity of an IEP. Common sense should prevail in these decisions.

Funding Responsibilities and Resources:

1. ***Are schools required to pay for assistive technology devices and services?***
2. ***Can schools require parents to pay for an assistive device(s) or service(s) identified in the students IEP or require the parents to use their own private health insurance to pay for the device and/or services?***
3. ***Can Medicaid funds be used to purchase assistive technology devices?***
4. ***What other resources can be considered in lieu of purchasing assistive technology devices?***
5. ***Who determines how assistive technology will be purchased and with what available funding resources - the IEP team or administration?***
6. ***Is a school responsible for providing "state of the art" equipment for a student?***

An infant or toddler with a disability who needs assistive technology must have the need for the device listed on the IFSP. The school or district is not required to provide the device. Rather, sources of funding can include Medicaid or private insurance upon parent approval, or the utilization of Part C funds through local agencies. At age three, Part B monies from school districts are required if other funding is not secured (see Section VII).

For children ages 3 to 21 who need assistive technology, it is the responsibility of the school or district to provide the equipment, services, or programs identified in the IEP. The school may pay for the equipment, services, or programs itself, utilize other resources to provide and/or pay for the device and/or services or cooperatively fund the device(s) and or services (see Section IV).

As stated in IDEA and its regulations, all special education and related services identified in the student's IEP must be provided at no cost to the parents. Medicaid funds or private insurance can be accessed only if the parents agree. Parents are not obligated to use private insurance or Medicaid (see Section VII).

Schools or districts might consider rental or long-term lease options of equipment or devices. Computers can often be leased, but many devices do not have long term lease options. Advantages to leasing include no obligation to purchase the device, reduction of obsolete inventory, flexible leasing terms, upgrading equipment as improved technology becomes available, and upgrading of equipment as the student's needs change (see Section IV).

Once the IEP team makes the determination that assistive technology must be provided as part of the student's IEP, it is the responsibility of school administration to determine how the assistive technology will be provided and with which funding resources. The decision as to what type of assistive technology is appropriate should be based on the student's needs as determined by the evaluation recommendations and IEP team

decision (based upon "Free and Appropriate Education" e.g., FAPE) to gain access to the general education curriculum. IDEA states that "state of the art" technology is not required.

Equipment: Ownership, Use, Repair, Insurance

1. ***Who owns the assistive technology that is purchased for the student?***
2. ***Under what circumstances can assistive technology devices be taken and used in the home?***
3. ***What happens to the assistive technology device when the student moves or leaves the school system?***
4. ***Who is responsible for customization, maintenance, repair and replacement of assistive technology?***
5. ***Do assistive technology devices have warranties?***
6. ***Should assistive technology devices be insured?***
7. ***Can the school require the student to bring a personally owned assistive device, such as an augmentative communication system or laptop computer, to school?***

If the school or district purchases the equipment or device, the school or district owns the device. If the device(s) is purchased with the student's private insurance or Medicaid funds, it belongs to the student and is meant for exclusive use by the student. If the device was donated, the IEP team or the donor decides ownership.

A student can take a device home if the IEP team determines the student needs the device in order to implement the educational program. Any device belonging to the school or district remains with the school or district if the student leaves the system. The same device or a comparable device must be provided when a student moves from grade to grade or school to school.

It is the school's responsibility to customize, maintain, repair, and replace devices owned by the school or when a family-owned device is used to provide FAPE. Some assistive technology devices have warranties and some devices can be insured. School liability policies may cover devices purchased by the school for student use. Schools should check their individual policies for specific inclusions. The school cannot require the student to bring a personally owned assistive device to school, but the parents may choose to send the device because the child is most familiar or comfortable with it.(See Section IV).

IEP:

1. ***How does assistive technology get integrated into the classroom?***
2. ***How can continuity be achieved in the student's program with regard to assistive technology devices and services from classroom to classroom, teacher to teacher, school to school, year to year?***
3. ***How does one distinguish between assistive technology and personal items (e.g., wheelchairs, hearing aids, eyeglasses, etc.)?***

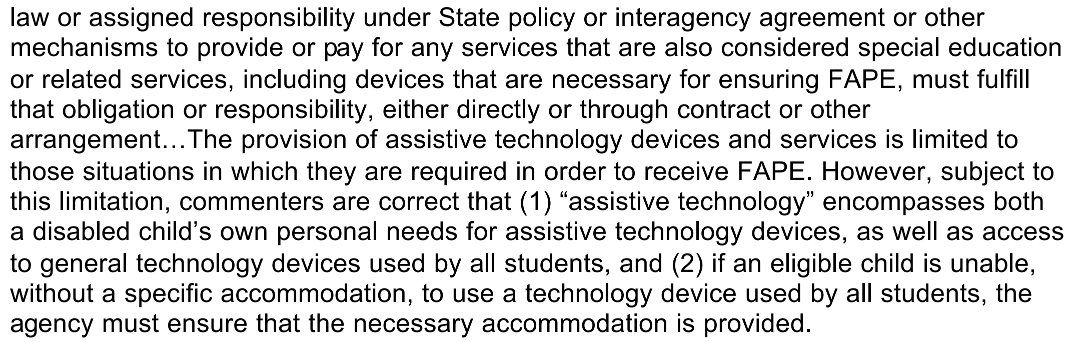
The IEP team needs to discuss how the device will be used by the student and how it will be integrated into the curriculum and used by the student in the classroom. This information should be shared with everyone impacted by the inclusion of the AT device in the student's life. Each student's IEP must be reviewed at least annually. The IEP team should discuss and identify personnel and family training needs as they relate to the student's movement through the school program.

Currently, IDEA does not make a distinction between assistive technology devices and personal items. If the IEP team determines a student with a disability needs eye glasses in order to obtain FAPE, then the school district is obligated to provide them at no cost to the parents. Generally, however, schools do not purchase personally prescribed devices such as hearing aids or glasses. The following excerpt is contained in the Appendix A to Part 300 – Notice of Interpretation section of the Final Regulations of the 1997 Amendments to IDEA (Federal Register, 64 (48) March 12, 1999, p. 12479).

> *Under what circumstances is a public agency required to permit a child with a disability to use a school-purchased assistive technology device in the child's home or in another setting?*
>
> *Each child's IEP team must consider the child's need for assistive technology (AT) in the development of the child's IEP and the nature and extent of the AT devices and services to be provided to the child must be reflected in the child's IEP.*
>
> *A public agency must permit a child to use school-purchased assistive technology devices at home or in other settings, if the IEP team determines that the child needs access to those devices in nonschool settings in order to receive FAPE (to complete homework, for example).*
>
> *Any assistive technology devices that are necessary to ensure FAPE must be provided at no cost to the parents, and the parents cannot be charged for normal use, wear and tear. However, while ownership of the devices in these circumstances would remain with the public agency, State law, rather than Part B, generally would govern whether parents are liable for loss, theft, or damage due to negligence or misuse of publicly owned equipment used at home or in other settings in accordance with a child's IEP.*

Further analysis is provided in *Attachment 1 – Analysis of Comments and Changes* Assistive Technology Devices and Services (300.5 and 300.6) (p.12539-12534)

> *Comment:..*A few commenters sated that the regulations should clarify public agency responsibility for providing personal devices, such as eyeglasses, hearing aids, braces and medications, while other commenters recommended that the regulations make explicit that public agencies are not responsible for providing personally-prescribed devices under these regulations, …Commenters also requested clarification on how school districts draw distinctions between a child's need for an assistive technology device and a parent's desire for the child to have the newest and best device on the market.
>
> *Discussion:* As a general matter, public agencies are not responsible for providing personal devices, such as eyeglasses or hearing aids or braces, that a disabled child requires regardless of whether he or she is attending school. However, if a child's IEP team specifies that a child requires a personal device in order to receive FAPE, the public agency must provide the device at no cost to the child's parents. Consistent with section 612(a)(12) of the Act, public agencies that are otherwise obligated under Federal or State


law or assigned responsibility under State policy or interagency agreement or other mechanisms to provide or pay for any services that are also considered special education or related services, including devices that are necessary for ensuring FAPE, must fulfill that obligation or responsibility, either directly or through contract or other arrangement…The provision of assistive technology devices and services is limited to those situations in which they are required in order to receive FAPE. However, subject to this limitation, commenters are correct that (1) “assistive technology” encompasses both a disabled child’s own personal needs for assistive technology devices, as well as access to general technology devices used by all students, and (2) if an eligible child is unable, without a specific accommodation, to use a technology device used by all students, the agency must ensure that the necessary accommodation is provided.

Section IX. REFERENCES

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Appendix A.

ASSISTIVE TECHNOLOGY: Benefits Comparison Chart for Medical, Educational, and Support Services for Medicaid Children Enrolled in Special Education Services - Ages Birth to Age 21[1]

Health Service	Medicaid Responsibility PCPP (Primary Care Physician Program) / FFS (Fee for Service) Medicaid	HMO	School District Responsibility	Parent Responsibility - Private Insurance, Medicaid & IDEA
Audiology & Auditory Habilitation Services	**What:** Hearing services which are provided at intervals which meet reasonable standards of medical practice … at such other intervals as medically necessary, to determine the existence of a suspected illness or condition, and includes diagnosis and treatment for defects in hearing, including hearing aids 8.287.02 AUDIOLOGICAL BENEFITS The Health Care Program for Children with Special Needs (HCP), a Title V grantee, provides, under contract with the Medicaid Division, a total care program for children under age twenty-one (2l) who have hearing loss. HCP operates on a statewide basis and provides through approved vendors: A. Audiological	**What**: Medically necessary ear exams, including audiological testing for client 0-21. Hearing aids are not required under the HMO Contract. **Payor Responsibility:** All medically necessary services are covered; hearing aids are provided under the HCP Program wrap-around service for clients 0-21. *Check with your HMO, some HMO's provide hearing aids if found to be medically necessary.	**What:** Audiology and auditory habilitation services as needed to benefit from education. Audiology must be written on the IEP as a related service. **Payor Responsibility:** To provide, if necessary, to access Free and appropriate public education (FAPE). *Part 5 of article 4 of title 26, Colorado Revised Statutes, CRS 26-4-531.* **Federal Cites:** *IDEA 34 CFR* *IDEA Sec. 602 (22) Related Services* **State Cites**: *ECEA*	**Parent Responsibility with Commercial Insurance** **What:** Audiological Services as defined by individual benefit package **Payor Responsibility:** If covered, to provide when medically necessary. Commercial pays before Medicaid. Commercial insurance is Not required to pay before accessing services through the IEP, due to FAPE *IDEA 34 CFR 300.142* **Family Responsibilities:** If there is no private insurance, and the item or service is not covered by Medicaid, Education or other funding agent, the family is responsible to seek a potential funder or pay for out-of-pocket. **Parent Responsibility identified within IDEA**

[1] adapted from C. Blakely (1999)

Health Service	Medicaid Responsibility PCPP (Primary Care Physician Program) / FFS (Fee for Service) Medicaid	HMO	School District Responsibility	Parent Responsibility - Private Insurance, Medicaid & IDEA
	assessment/evaluation. B. Selection, testing, and fitting of hearing aids. C. Auditory training in the use of hearing aids. D. Maintenance and repairs of hearing aids. E. Follow-up social adjustment related to the hearing problem. Coordination with local caseworker is arranged when necessary. Approved providers are reimbursed by the Health Care Program for Children with Special Needs, which in turn is reimbursed by the Fiscal Agent. **Payor Responsibility:** **Federal Cites:** *1905(4): Definitions (under EPSDT)* **State Cites:** *Medicaid State Rules, Volume 8: 8.290.21(4), 8.287.01-.02*			See below: *34 CFR300.142 Methods of ensuring services*.
Continual Nursing / Private Duty Nursing	**What**: Face-to-face skilled nursing that is more individualized and continuous than the nursing care that is available under the [Medicaid] Home Health benefit or routinely provided in a hospital or nursing facility. (8.540.16) **Federal Cites:** mentioned but not defined in statute **State Cites:** *Volume 8 of Medicaid Rules 8.541.12, 8.542.11, 8.544, 8.545 26-4-517,CRS*	**What:** Same as Primary Care Physician Program (PCPP), but not part of Health Maintenance Organization (HMO) contract **Payer Responsibility:** None. Medicaid wrap-around services. (FFS Medicaid pays, after commercial) Prior Authorization is required for Private Duty Nursing Services. Note: Some HMO's provide additional benefit. Call your HMO, to ask about their benefit packages.	**What:** School health services preformed by a school nurse or other qualified person IDEA 300.24(12)) **Payor Responsibility:** *To provide, if necessary, to access Free and appropriate public education (FAPE). Part 5 of article 4 of title 26, Colorado Revised Statutes, CRS 26-4-531.* **Federal Cites:** *IDEA 34 CFR Sec. 602(22)* **State Cites:** *ECEA*	**Parent Responsibility with Commercial Insurance** **What:** Continual Nursing Care or Private Duty Nursing as defined in the individual benefit package. **Payor Responsibility:** If covered, to provide when medically necessary. Commercial insurance always pays before Medicaid. Commercial insurance is Not required to pay before accessing services through the IEP, due to FAPE *IDEA 34 CFR 300.142* **Family Responsibilities:** If there

Health Service	Medicaid Responsibility PCPP (Primary Care Physician Program) / FFS (Fee for Service) Medicaid	HMO	School District Responsibility	Parent Responsibility - Private Insurance, Medicaid & IDEA
				is no private insurance, and the item or service is not covered by Medicaid, Education or other funding agent, the family is responsible to seek a potential funder or pay for out-of-pocket. **Parent Responsibility with Medicaid Insurance** **State Cites**: ***Volume 8 of Medicaid Rules*** *8.541.12, 8.542.11, 8.544, 8.545,* **Private Duty Nursing** is based on medical necessity. **Medicaid State Rule -Volume 8** (applies to Medicaid eligible individuals) *The maximum of 20 hours of care per day for a client meeting medical criteria, as the family must provide some care, special circumstances are listed (8.544.11)* The family would act as liaison with the attending physician *The client's family and home health care agency are responsible to strive for the maximum independence for the client's benefit. The family is responsible to provide care for the child, outside of the scope of home healthcare and Private Duty Nursing. (8.545.12).* **Parent Responsibility identified within IDEA** See below: *34 CFR300.142*

Health Service	Medicaid Responsibility PCPP (Primary Care Physician Program) / FFS (Fee for Service) Medicaid	HMO	School District Responsibility	Parent Responsibility - Private Insurance, Medicaid & IDEA
				Methods of ensuring services.
Counseling Services	**What:** Counseling Services **Payor Responsibility:** **Federal Cites:** **State Cites:** *Medicaid State Rules, Volume 8: 8.290.21(4)*	**What:** Not covered under the HMO Contract **Payor Responsibility:**	**What:** Counseling Services **Payor Responsibility:** *To provide, if necessary, to access Free and appropriate public education (FAPE). Part 5 of article 4 of title 26, Colorado Revised Statutes, CRS 26-4-531.* **Federal Cite:** *IDEA 34 CFR IDEA Sec. 602 (22) Related Services*	**Parent Responsibility with Commercial Insurance** **What:** Counseling Services as defined by individual benefit package. **Payor Responsibility:** If covered, to provide when medically necessary. Commercial pays before Medicaid. Commercial insurance is Not required to pay before accessing services through the IEP, due to FAPE *IDEA 34 CFR 300.142* **Family Responsibilities:** If there is no private insurance, and the item or service is not covered by Medicaid, Education or other funding agent, the family is responsible to seek a potential funder or pay for out-of-pocket. **Parent Responsibility identified within IDEA** See below: *34 CFR300.142 Methods of ensuring services*.
Durable Medical Equipment (Including Assistive Technology Devices and	**What:** "Durable Medical Equipment (DME)" means medical equipment and disposable medical supplies are a benefit of the Colorado Medicaid Program for eligible clients, when ordered by a	**What:** Same as PCPP. **Payor Responsibility:** Listing of HMO DME coverage in section A.15b in the HMO Contract as determined by the PCP as a medical necessity. Exclusions include: wheelchair lifts for	**What:** ASSISTIVE TECHNOLOGY DEVICE- The term 'assistive technology device' means any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve	**Parent Responsibility with Commercial Insurance** **What:** Durable Medical Equipment /Assistive Technology as defined by individual benefit package.

Health Service	Medicaid Responsibility PCPP (Primary Care Physician Program) / FFS (Fee for Service) Medicaid	HMO	School District Responsibility	Parent Responsibility - Private Insurance, Medicaid & IDEA
Services)	physician within the scope of the program. The purpose is to enable the client to cost-effectively remain outside an institutional setting by promoting, maintaining, or restoring health; or by minimizing the effects of illness, disability, or a handicapping condition. (8.591.01) **Payor Responsibility:** **Federal Cites**: (none) **State Cites:** *Medicaid State Rules, Volume 8: 8.290.21(4), 8.590-8.594 (includes state medical necessity definition for DME)*	automobiles, hot tubs, Jacuzzis, exercise equipment, stairglides, ramps for use with vehicles or homes, memberships in health clubs. *Enrolled clients in a Managed Care Organization shall have the option to rent, purchase or own medically necessary durable medical equipment, as defined in Section 8.590 of the Medicaid State Plan. (8.205.41)*	functional capabilities of a child with a disability. **Payor Responsibility:** *To provide, if necessary, to access Free and appropriate public education (FAPE). Part 5 of article 4 of title 26, Colorado Revised Statutes, CRS 26-4-531.* **Federal Cites:** *IDEA 34 CFR 300.5-300.6* *IDEA Sec. 602 Related Services* *IDEA Sec. 682* *IDEA Sec. 684 (4)* *IDEA Sec. 687 Technology* **State Cites:** *ECEA*	**Payor Responsibility:** If covered, to provide when medically necessary. Commercial pays before Medicaid. Commercial insurance is not required to pay before accessing services through the IEP, due to FAPE IDEA 34 CFR 300.142 **Family Responsibilities:** If there is no private insurance, and the item or service is not covered by Medicaid, Education or other funding agent, the family is responsible to seek a potential funder or pay for out-of-pocket. **Parent Responsibility identified within IDEA** See below: 34 CFR300.142 Methods of ensuring services.

Health Service	Medicaid Responsibility PCPP (Primary Care Physician Program) / FFS (Fee for Service) Medicaid	HMO	School District Responsibility	Parent Responsibility - Private Insurance, Medicaid & IDEA
Nursing Services	**What**: "Home Health Services " includes (1) nursing service, as defined in the State Nurse Practice Act, that is provided on a part-time or intermittent basis by a home health agency; (2) home health aide service provided by a home health agency; (3) medical supplies and equipment and appliances suitable for use in the home *42 CFR 440.70(b)* **Payor Responsibility:** To provide when medically necessary. Commercial (if any) pays first. **Federal Cites:** *42 CFR 440.70(b)* **State Cites:** *Medicaid Rules Volume 8 8.290.21(1), 8.286, 8.525.10-.11, 8.540.18,*	**What:** (Skilled Nursing) Required coverage during a Client's admission to a nursing facility for extended skilled nursing services includes the supplies, accommodations, and services as listed in section A.02 of the Medicaid Contract. Clients must require skilled nursing services or skilled rehabilitation, i.e., services that must be performed by or under the supervision of professional technical personnel on a daily basis. **Payor Responsibility:** Coverage is limited to a maximum of thirty (30) days per Contract. If the client continues to be certified for nursing facility care after the 30th day, Medicaid Fee-for-Service will provide payment. **What:** (Unskilled Nursing Services) including vocational rehabilitation services; and services, supplies and accommodations. NOT part of the HMO benefit. Medicaid wrap-around services.	**What:** School health services preformed by a school nurse or other qualified person (300.24(12)) **Payor Responsibility:** *To provide, if necessary, to access Free and appropriate public education (FAPE). Part 5 of article 4 of title 26, Colorado Revised Statutes, CRS 26-4-531.* **Federal Cites:** *IDEA 34 CFR 300.24(12)* **State Cites:** *ECEA*	**Parent Responsibility with Commercial Insurance** **What:** Nursing Services as defined by individual benefit package. **Payor Responsibility:** If covered, to provide when medically necessary. Commercial pays before Medicaid. . Commercial insurance is Not required to pay before accessing services through the IEP, due to FAPE IDEA 34 CFR 300.142 **Family Responsibilities:** If there is no private insurance, and the item or service is not covered by Medicaid, Education or other funding agent, the family is responsible to seek a potential funder or pay for out-of-pocket. **Parent Responsibility with Medicaid Insurance** **State Cites:** *Volume 8 of Medicaid Rules: 8.525, 8.522, Parents are responsible for any non-covered service. Covered services include: Home Health services reimbursed by Medicaid shall be limited to skilled nursing services, home health aide services, occupational therapy services, physical therapy services, and speech/language pathology services, as defined at Section 8.525, SERVICES*

Health Service	Medicaid Responsibility PCPP (Primary Care Physician Program) / FFS (Fee for Service) Medicaid	HMO	School District Responsibility	Parent Responsibility - Private Insurance, Medicaid & IDEA
				REQUIREMENTS. **Parent Responsibility identified within IDEA** See below: 34 CFR300.142 Methods of ensuring services.
Occupational Therapy Services	**What:** "Occupational therapy" means services prescribed by a physician and provided to a recipient by or under the direction of a qualified occupational therapist. It includes any necessary supplies and equipment. (42 CFR 440.110(c)(1)) **Payor Responsibility:** **Federal Cites:** (42 CFR 440.110(c)(1)) **State Cites**: *Medicaid State Rules, Volume 8: 8.290.21(4), 8.525.13*	**What:** Services prescribed by a physician and provide to recipient by or under the direction of a qualified occupational therapist. It includes any necessary equipment. **Payor Responsibility:** Coverage is (except under Home Health Care) medically necessary visits per modality per client per contract year, for each illness, incident or injury. Medicaid wrap-around service pays after the 20th visit. Note: All medically necessary care and treatment for conditions	**What:** Occupational Therapy as needed to benefit from education. Occupational therapy must be written on the IEP as a related service. **Payor Responsibility:** *To provide, if necessary, to access Free and appropriate public education (FAPE). Part 5 of article 4 of title 26, Colorado Revised Statutes, CRS 26-4-531.* **Federal Cites:** IDEA 34 CFR 300.22 IDEA Sec. 632 (4)(F) **State Cites:** *ECEA*	**Parent Responsibility with Commercial Insurance** **What:** Occupational Therapy as defined by individual benefit package. For non-ERISA plans, benefit package must include 20 visits for children 0-5 (HB 99-1088)) Effective 01-01-2000, Benefits available to newborn children shall consist of coverage of injury or sickness, including all medically necessary care and treatment of medically diagnosed congenital defects and birth

Health Service	Medicaid Responsibility PCPP (Primary Care Physician Program) / FFS (Fee for Service) Medicaid	HMO	School District Responsibility	Parent Responsibility - Private Insurance, Medicaid & IDEA
		discovered as a result of EPSDT medical screenings including habilitation secondary to birth injury or developmental delay and rehab services following illness or injury, shall be provided to clients covered by the EPSDT program.		abnormalities for the first thirty-one days of the newborn's life, notwithstanding policy limitations and exclusions applicable to other conditions or procedures covered by the policy. Dependent on benefit package **Payor Responsibility:** If covered, to provide when medically necessary. Commercial pays before Medicaid. . Commercial insurance is Not required to pay before accessing services through the IEP, due to FAPE IDEA 34 CFR 300.142 **Family Responsibilities:** If there is no private insurance, and the item or service is not covered by Medicaid, Education or other funding agent, the family is responsible to seek a potential funder or pay for out-of-pocket. **Parent Responsibility identified within IDEA** See below: 34 CFR300.142 Methods of ensuring services.
Physical Therapy Services	**What:** "Physical therapy" means services prescribed by a physician and provided to a recipient by or under the direction of a qualified physical therapist. It includes any necessary supplies and equipment. (42 CFR 440.110(a)(1)) **Payor Responsibility:** **State Cites:** *Medicaid State*	**What:** Same as PCPP **Payor Responsibility:** To provide when medically necessary. HMO second payer after any commercial coverage. Financial responsibility (except under Home Health Care) in a contract year. Any additional medically necessary therapies are billed to FFS Medicaid. Note: All medically necessary care and	**What:** Physical Therapy is a medically necessary service to benefit educational outcomes Physical therapy must be written on the IEP as a related service. **Payor Responsibility:** *To provide, if necessary, to access Free and appropriate public education (FAPE). Part 5 of article 4 of title 26, Colorado Revised Statutes, CRS 26-4-531.* **Federal Cites:** *IDEA 34 CFR*	**Parent Responsibility with Commercial Insurance** **What:** Physical Therapy as defined by individual benefit package. For non-ERISA plans, benefit package must include 20 visits for children 0-5 (HB 99-1088) Effective 01-01-2000, Benefits available to newborn children

Health Service	Medicaid Responsibility PCPP (Primary Care Physician Program) / FFS (Fee for Service) Medicaid	HMO	School District Responsibility	Parent Responsibility - Private Insurance, Medicaid & IDEA
	Rules, Volume 8: 8.290.21(4), 8.525.12	treatment for conditions discovered as a result of EPSDT medical screenings including habilitation secondary to birth injury or developmental delay and rehab services following illness or injury, shall be provided to clients covered by the EPSDT program.	*IDEA Sect 614* *IDEA Sec. 632 (4)(F)* *IDEA Sec. 602 (22) Related Services* **State Cites:** *ECEA*	shall consist of coverage of injury or sickness, including all medically necessary care and treatment of medically diagnosed congenital defects and birth abnormalities for the first thirty-one days of the newborn's life, notwithstanding policy limitations and exclusions applicable to other conditions or procedures covered by the policy. **Payor Responsibility** If covered, to provide when medically necessary. Commercial pays before Medicaid. . Commercial insurance is Not required to pay before accessing services through the IEP, due to FAPE IDEA 34 CFR 300.142 **State Cites**: *(HB 99-1088)* **Family Responsibilities:** If there is no private insurance, and the item or service is not covered by Medicaid, Education or other funding agent, the family is responsible to seek a potential funder or pay for out-of-pocket. **Parent Responsibility identified within IDEA** See below: 34 CFR300.142 Methods of ensuring services.
Prosthetic Device	**What:** "Prosthetic Device" means replacement, corrective, or supportive devices prescribed by a physician or other licensed practitioner of the healing arts			**Parent Responsibility with Commercial Insurance** **What:** Prosthetic Device as defined by individual benefit

Health Service	Medicaid Responsibility PCPP (Primary Care Physician Program) / FFS (Fee for Service) Medicaid	HMO	School District Responsibility	Parent Responsibility - Private Insurance, Medicaid & IDEA
	within the scope of his practice as defined by State law to (1) artificially replace a missing portion of the body; (2) prevent or correct physical deformity or malfunction; or (3) support a weak or deformed portion of the body (42 CFR 440.120(c)) **Payor Responsibility:** **Federal Cites:** *(42 CFR 440.120(c))* **State Cites:** *Medicaid State Rules, Volume 8: 8.590 - 8.594 DME*			package. **Payor Responsibility:** If covered, to provide when medically necessary. Commercial pays before Medicaid. **Family Responsibilities:** If there is no private insurance, and the item or service is not covered by Medicaid, Education or other funding agent, the family is responsible to seek a potential funder or pay for out-of-pocket.
Social Work Services	**What:** If the (home health) agency furnishes medical social services, those services are given by a qualified social worker or by a qualified social work assistant under the supervision of a qualified social worker, and in accordance with the plan of care. The social worker assists the physician and other team members in understanding the significant social and emotional factors related to the health problems, participates in the development of a plan of care, prepares clinical and progress notes, works with the family, uses appropriate community resources, participates in discharge planning, and in-service programs, and acts as a consultant to other agency personnel. 42 CFR 484.34 **Payor Responsibility:**	**What:** Not covered under the HMO Contract **Payor Responsibility:**	**What:** Social Work Services **Payor Responsibility:** *To provide, if necessary, to access Free and appropriate public education (FAPE). Part 5 of article 4 of title 26, Colorado Revised Statutes, CRS 26-4-531.* **Federal Cites:** *IDEA 34 CFR IDEA Sec. 602 Related Services* **State Cites:** *ECEA*	**Parent Responsibility with Commercial Insurance** **What:** Social Work Services as defined by individual benefit package. (Not typically covered.) **Payor Responsibility:** If covered, to provide when medically necessary. Commercial pays before Medicaid. Commercial insurance is not required to pay before accessing services through the IEP, due to FAPE IDEA 34 CFR 300.142 **Family Responsibilities:** If there is no private insurance, and the item or service is not covered by Medicaid, Education or other funding agent, the family is responsible to seek a potential funder or pay for out-of-pocket. **Parent Responsibility**

Health Service	Medicaid Responsibility PCPP (Primary Care Physician Program) / FFS (Fee for Service) Medicaid	HMO	School District Responsibility	Parent Responsibility - Private Insurance, Medicaid & IDEA
	Federal Cites: *42 CFR 484.34* **State Cites:** *Medicaid State Rules, Volume 8:*			**identified within IDEA** See below: 34 CFR300.142 Methods of ensuring services.
Psychology Services	**What:** The MHASA shall provide or arrange for the provision of all necessary mental health services to Program recipients seeking mental health services. The MHASA shall assess the need for services, develop a service plan, provide or arrange for necessary services, coordinate mental health services rendered by multiple providers, coordinate mental health services with other health care and human services agencies and providers, and refer recipients to other health care and human services agencies and providers as appropriate. ******Educational testing not covered by Medicaid.*** **Payor Responsibility:** **Federal Cites:** **State Cites**: *Medicaid State Rules Volume 8: (8.212.03)*	**What**: Psychiatric services including, but not limited to, inpatient, outpatient, physician, assessment and case management services. Services are provided by the MHASAs, and not required under the HMO Contract. Autism is treated as a physical disorder and is covered under the HMO Contract. **Payor Responsibility:** Coverage falls under the MHASA wrap-around service. Prescription medications are covered under the HMO benefit as directed by the psychiatrist.	**What:** Psychiatric Services **Payor Responsibility:** *To provide, if necessary, to access Free and appropriate public education (FAPE). Part 5 of article 4 of title 26, Colorado Revised Statutes, CRS 26-4-531.* **Federal Cites:** *IDEA 34 CFR IDEA Sec. 602 Related Services* **State Cites:** *ECEA*	**Parent Responsibility with Commercial Insurance** **What:** Psychological services, as defined by individual benefit package. **Payor Responsibility:** If covered, to provide when medically necessary. Commercial pays before Medicaid. Commercial insurance is Not required to pay before accessing services through the IEP, due to FAPE IDEA 34 CFR 300.142 **Family Responsibilities:** If there is no private insurance, and the item or service is not covered by Medicaid, Education or other funding agent, the family is responsible to seek a potential funder or pay for out-of-pocket. **Parent Responsibility identified within IDEA** See below: 34 CFR300.142 Methods of ensuring services.
Speech-Language Therapy Services	**What:** Services for individuals with speech and language disorders means diagnostic, screening, preventive and corrective services provided by or under the direction of a speech-language pathologist for which a patient is referred by a physician. It includes any	**What:** Services for individuals with speech, hearing, and language disorders including: diagnostic and preventive services provided by or under the direction of a speech-language pathologist for which a patient is referred by the client's PCP. **Payor Responsibility:**	**What:** Speech-language therapy as needed to benefit from education. Speech-language therapy must be written on the IEP as a related service. **Payor Responsibility** *To provide, if necessary, to access Free and appropriate public education (FAPE). Part 5 of article 4 of title 26, Colorado Revised Statutes, CRS 26-4-531.*	**Parent Responsibility with Commercial Insurance** **What:** Speech-language therapy as defined by individual benefit package For non-ERISA plans, benefit package must include 20 visits for children 0-5 (HB 99-1088))

Health Service	Medicaid Responsibility PCPP (Primary Care Physician Program) / FFS (Fee for Service) Medicaid	 HMO	School District Responsibility	Parent Responsibility - Private Insurance, Medicaid & IDEA
	necessary supplies and equipment. (42 CFR 440.110(c)(1)) **Payor Responsibility:** **Federal Cites:** (42 CFR 440.110(c)(1)) **State Cites**: ***Medicaid State*** *Rules, Volume 8: (8.520 - 8.539)*	Coverage is (except under Home Health Care) medically necessary visits per modality per client per contract year, for each illness, incident or injury. Medicaid wrap-around service pays after the 20th visit. Note: All medically necessary care and treatment for conditions discovered as a result of EPSDT medical screenings including habilitation secondary to birth injury or developmental delay and rehab services following illness or injury, shall be provided to clients covered by the EPSDT program.	**Federal Cites:** *IDEA 34 CFR IDEA Sec. 632 (4)(F)* **State Cites:** *ECEA*	Effective 01-01-2000, Benefits available to newborn children shall consist of coverage of injury or sickness, including ~~the~~ all medically necessary care and treatment of medically diagnosed congenital defects and birth abnormalities for the first thirty-one days of the newborn's life, notwithstanding policy limitations and exclusions applicable to other conditions or procedures covered by the policy. Dependent on benefit package. **Payor Responsibility:** If covered, to provide when medically necessary. Commercial pays *before* Medicaid. Commercial insurance is Not required to pay before accessing services through the IEP, due to FAPE IDEA 34 CFR 300.142 **Family Responsibilities:** If there is no private insurance, and the item or service is not covered by Medicaid, Education or other funding agent, the family is responsible to seek a potential funder or pay for out-of-pocket. **Parent Responsibility identified within IDEA** See below: 34 CFR 300.142 Methods of ensuring services.
Transportation Services	**What:** Transportation services may be reimbursed by Medicaid are defined as those services rendered at a hospital,	**What:** Not covered under the HMO Contract, coverage falls under the Medicaid wrap-around service.	**What:** Transportation to be provided by the school district if determined eligible by IEP team. Must be written on IEP.	**Parent Responsibility with Commercial Insurance** **What:** Transportation as defined

Health Service	Medicaid Responsibility PCPP (Primary Care Physician Program) / FFS (Fee for Service) Medicaid	HMO	School District Responsibility	Parent Responsibility - Private Insurance, Medicaid & IDEA
	physician's office, or medical treatment center. (8.680) **Payor Responsibility:** **Federal Cites:** **State Cites**: *Medicaid State Rules, Volume 8: 8.290.21(5)*	**Payor Responsibility:**	**Payor Responsibility:** *To provide, if necessary, to access Free and appropriate public education (FAPE). Part 5 of article 4 of title 26, Colorado Revised Statutes, CRS 26-4-531.* **Federal Cites:** *IDEA 34 CFR* *IDEA Sec. 602 (22) Related Services* *IDEA Sec. 632 (4)(E)* *IDEA Sec. 632 (4)(F)* **State Cites:** *ECEA*	by individual benefit package. **Payor Responsibility:** If covered, to provide when medically necessary. Commercial pays before Medicaid. Commercial insurance is Not required to pay before accessing services through the IEP, due to FAPE IDEA 34 CFR 300.142 **Family Responsibilities:** If there is no private insurance, and the item or service is not covered by Medicaid, Education or other funding agent, the family is responsible to seek a potential funder or pay for out-of-pocket. **Parent Responsibility identified within IDEA** See below: 34 CFR300.142 Methods of ensuring services.

Appendix B. ASSISTIVE TECHNOLOGY-RELATED GLOSSARY

NOTE: all underlined references or words link to websites that provide additional information.

Assistive Technology Device 34CFR 300.5: 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

Assistive Technology Service 34 CFR 300.6: means any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device. This 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 assistive technology devices by children with disabilities;
- Selecting, designing, fitting, customizing, adapting, applying, retaining, 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 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 children with disabilities.

CFR: Code of Federal Regulations

EPSDT: The Early Periodic Screening and Diagnostic Test is a federal program that provides necessary health care, diagnostic services, treatment and other measures to correct or ameliorate, defects and physical and mental illness and conditions discovered by the screening services, whether or not such services are covered under the State plan.

Free appropriate public education (FAPE) 34 CFR 300.13: The term 'free appropriate public education' means special education and related services that- (a) are provided at public expense, under public supervision and direction, and without charge; (b) meet the standards of the state education agency (SEA), including the requirement of this part; (c) include preschool, elementary, or secondary school education in the State; and (d) are provided in conformity with an individualized education program (IEP) that meets the requirements of 300.340-300.350.

HMO: Health Maintenance Organization

Individualized Education Program (IEP) 34 CFR 300.15: The term 'individualized education program' means a written statement for each child with a disability that is developed, reviewed, and revised in accordance with section 614(d)

Individualized Family Service Plan (IFSP) 34 CFR 303.340: The term 'individualized family service plan' means a written plan for providing early intervention services(birth to age 3) to a child eligible under Part C of IDEA in accordance with 303.341(Policies and procedures on natural environments), 303.342(Development, review, and revision of the IFSP), 303.343(IFSP team-meetings and periodic

reviews), 303.344(Content of IFSP), 303.345(Provision of services before evaluation and assessment are completed), and 303-346((Responsibility and accountability).

IDEA: Individuals with Disabilities Education Act

Health services - provision by school districts Colorado Revised Statutes 26-4-531:
Part 5 of article 4 of title 26, Colorado Revised Statutes, CRS 26-4-531
Concerning Contracts To Receive Federal Matching Funds For Amounts Spent In Providing Health Services To Students In Public School

MHASA: Mental Health Assessment and Services Agency

PAR: Prior Authorization- a written approval given, upon request, prior to the provision of certain covered medical services that are deemed to be medically necessary by the PCP or specialist/provider requesting the service.

Related Services 34 CFR 300.24: The term 'related services' means transportation, and such developmental, corrective, and other supportive services (including speech-language pathology and audiology services, psychological services, physical and occupational therapy, recreation, including therapeutic recreation, social work services, counseling services, including rehabilitation counseling, orientation and mobility services, and medical services, except that such medical services shall be for diagnostic and evaluation purposes only) as may be required to assist a child with a disability to benefit from special education, and includes the early identification and assessment of disabling conditions in children.

Supplementary Aids And Services 34 CFR 300.28: The term 'supplementary aids and services' means aids, services, and other supports that are provided in regular education classes or other education-related settings to enable children with disabilities to be educated with nondisabled children to the maximum extent appropriate in accordance with section 612(a)(5).

SWAAAC Teams: Statewide school teams in Colorado focused on assistive technology devices and services for infants, toddlers, children and youth, birth-21 years, with disabilities

Technology-dependent (Volume 8 of Medicaid Rules, 8.540.19):
A. Dependent at least part of each day on a mechanical ventilator;
B. Requiring prolonged intravenous administration of nutritional substances or drugs; or
C. Dependent daily on other respiratory or nutritional support, including tracheostomy tube care, suctioning, oxygen support, or tube feeding.

Appendix C. WEB RESOURCES

Colorado State Agencies

Colorado Department of Education
http://www.cde.state.co.us/

Colorado Department of Public Health and Environment
http://cdphe.state.co.us/

Commercial Sites

ADCO
http://adcohearing.com/

Beyond Sight Home Page
http://www.beyondsight.com/

Saltillo Corporation
http://www.saltillo.com/

Berkeley Systems Online
http://www.berksys.com/index.html

Don Johnston Home Page
http://www.donjohnston.com/

Dragon Systems, Inc.
http://www.dragonsys.com/

Gus Communications
http://www.gusinc.com/

Humanware
http://www.humanware.com/

Intellitools
http://www.intellitools.com/

Kensington
http://www.kensington.com/

Madentec
http://www.madentec.com/

Prentke Romich
www.prentrom.com/

Telesensory
http://www.telesensory.com/

Darci Institute
http://www.darci.org/

Mayer-Johnson
http://www.mayer-johnson.com/

Youcan Toocan
http://www.youcantoocan.com/youcantoocan/Pages/home.cfm

Computers

Apple Computer
http://www.apple.com/default.html

Hewlett-Packard
http://www.hp.com/cposupport/eschome.html

IBM Special Needs Home Page
http://www-3.ibm.com/able/index.html

Disability Sites

DO-IT Program
http://www.washington.edu/doit/

Access By Design
http://www.access-by-design.com/

American Council of the Blind
http://acb.org/

Americans with Disabilities Act Document Center
http://janweb.icdi.wvu.edu/kinder/

Colorado Talking Book Library
http://www.cde.state.co.us/ctbl

Gallaudet University Home Page
http://www2.gallaudet.edu/

JAN on the Web
http://janweb.icdi.wvu.edu/

National Information Center for Children and Youth with Disabilities
http://www.nichcy.org/

National Library Services for the Blind
http://www.loc.gov/nls

New Mobility Magazine Home Page
http://www.newmobility.com/

School to Work National Office
http://www.stw.ed.gov/

Yahoo - Society and Culture: Disabilities
http://dir.yahoo.com/Society_and_Culture/Disabilities/

Education

Kids Web - a World Wide Web Digitial Library for School Kids
http://www.kidsvista.com/index.html

NCIP Home Page
http://www2.edc.org/NCIP/

Family Resources

CPSC Home Page
http://www.cpsc.gov/

Family Village
http://www.familyvillage.wisc.edu/index.htmlx

MIPEDIATRA
http://www.mipediatra.com.mx/

Colorado Parent Information and Resource Center
http://cpirc.org/

Kid Source Online Welcome Page
http://www.kidsource.com/

NICHCY
http://www.nichcy.org/index.html

Occupational Therapy

Occupational Therapy Alliance for Technology Access
http://www.aota.org/

OT/PT Pages, Puget Sound
http://otpt.ups.edu/

Organizations

Alliance for Technology Access
http://www.ataccess.org/

American Academy of Audiology
http://www.audiology.org/

American Speech-Language Hearing Association
http://www.asha.org/

AT Funding System and System Change Project
http://www.assisttech.com/

Center on Information Technology Accommodation
http://www.itpolicy.gsa.gov/cita/

Educational Audiology Association
http://www.edaud.org/

National Center for Accessible Media
http://www.wgbh.org/wgbh/index.html

Tools for Life AT Center
http://www2.gasou.edu/tools/tools.htm

Colorado Assistive Technology Project
http://www.uchsc.edu/catp

Software

Super Kids Educational Software Review
http://www.superkids.com/

Edmark Corporation
http://www.edmark.com/

Educational Resources
http://www.edresources.com/

Judy Lynn Software
http://www.castle.net/~judylynn/

R J Cooper's Special Needs Home Page
http://www.rjcooper.com/

Simtech Publications
http://www.hsj.com/

Trace's Adaptive Computer Toolbox
http://trace.wisc.edu/world/computer_access/

Sports/Recreation

USABA
http://www.usaba.org/

Toys

Crestwood Company, Augmentative
Communication Aids for Children and Adults
http://www.communicationaids.com/

TFH
http://www.tfhusa.com/

TSC & ED - Toys for Special Children and
Enabling Devices, Main Page
http://www.enablingdevices.com/

Other

Closing the Gap
http://www.closingthegap.com/

Trace Research Center
http://www.trace.wisc.edu/

Web Resources and Interesting Links
http://www3.ibm.com/able/snslinks.html#navskip

Appendix D. FM and ASSISTIVE LISTENING SYSTEMS: CHARACTERISTICS AND CONSIDERATIONS

The purpose of assistive listening systems in the education setting is to improve the audibility of the speaker's voice within the classroom or listening space.

The typical measured loudness level of a teacher's voice in a classroom averages 65dB (decibels); classroom background noise levels average 60dB yielding a signal to noise ratio of +5dB (noise levels are 5dB higher that the teacher's voice). Children with hearing loss require a signal to noise ratio of +20dB (teacher's voice 20dB higher than the background noise) in order to achieve sufficient speech recognition for comprehension of auditory information. By improving the audibility of the speaker's voice, access to verbal information and discourse in the classroom increases, and consequently the opportunity for improved academic performance of the student results. Therefore students with compromised auditory function should be considered candidates for assistive listening systems unless determined otherwise. Specific factors that would lead to the consideration of an assistive listening system include:

- Presence of hearing loss
- Poor speech recognition in background noise
- Difficulty hearing soft or distant speech
- Limited competence with language of classroom
- Auditory processing problem characterized by poor auditory decoding skills (auditory closure) or difficulty hearing in background noise
- Attention difficulties
- Poor classroom acoustical environment (high ambient noise levels, high reverberation, noisy class)
- Teacher's speech soft or poorly articulated
- Teacher frequently moves about the room during instruction

While the use of assistive listening systems for most children with hearing loss has been well documented in the literature, efficacy data should be obtained to insure that the prescribed device is the most appropriate listening option. Children for whom auditory processing or attention difficulties (in the presence of normal hearing sensitivity) is the presenting concern, a listening evaluation and trial period to document benefit with the system should always be conducted prior to identifying the device as assistive technology on the child's IEP. Several tools are available that are designed to document the benefit of the use of an assistive listening systems[1]. These are available through school district audiologists.

[1] *FM Fitting Protocol* (1996). English. In Educational Audiology Handbook, Johnson, Benson, & Seaton, (1997), pp 392-401, Singular Publishing Group, Inc
Functional Listening Evaluation (1993). DeConde Johnson & VonAlmen. In Educational Audiology Handbook, Johnson, Benson, & Seaton, (1997), pp 336-339, Singular Publishing Group, Inc.
Listening Inventory for Education (L.I.F.E.), 1996. Anderson & Smaldino. Distributed by the Educational Audiology Association, 1-800-460-7322.
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Recent advancements in the technology of hearing aids and assistive listening systems have resulted in “high tech” options and improved signal reproduction. While the essential features of signal to noise enhancement from conventional assistive listening systems are maintained, the advanced signal processing capabilities of the newer hearing aids require compatible FM systems which maintain the integrity of the hearing aids with which they are coupled. In addition, the advanced technologies are often incorporated into more functional and cosmetically- appealing ear level devices rather than body-worn styles. When determining the appropriate system for a child, consideration must be given to providing enhanced signal reproduction as well as conditions that may affect the child’s ability or desire to utilize the device.

Typical options for assistive amplification, candidacy, advantages and disadvantages are described in the following chart.

NOTE: While this document discusses FM and assistive listening systems, there are many visual enhancement devices that are appropriate for individuals with hearing loss or with otherwise compromised auditory function. These include computer-based notetaking and captioning, captioned television, movie, and videos, TTY for phone access, and flashing lights for alarms, bells and other auditory signals.

ASSISTIVE LISTENING SYSTEM OPTIONS

Type	Description	Candidates	Advantages	Problems
FM Systems	• FM (frequency modulated) radio wave wireless transmitted signal • FM signals can be transmitted from remote microphone transmitter to a variety of receiver arrangements	• Children with hearing impairment • Selected children with other auditory learning problems & attention deficits	• Reduces noise, distance & reverberation factors	• May eliminate input from other talkers unless environmental microphones are part of system • Possible interference from other radio & cell phone signals
	PERSONAL FM: Body-worn: • FM receiver is coupled to hearing aids or cochlear implant	• Children who wear hearing aids that are FM compatible • Most children who have cochlear implants	• In direct audio input mode, maintains output & frequency response as well as other signal processing characteristics of hearing aid • Provides consistent amplification signal between HA and FM • Useful with a variety of levels of hearing loss • Different FM frequency options available	• Cumbersome for infants & some toddlers • When utilized with telecoil: • signal is compromised • strong telecoil necessary for coupling with teleloop or silhouette to be effective • Malfunction common due to cords & connections • Children with cochlear implants must be monitored carefully to insure integrity of signal
	Ear level: • Receiver is in miniature unit or boot which couples to bottom of ear level hearing aid; no other couplings necessary	• Children who wear compatible hearing aids, especially when elimination of body-worn devices/cords is desired	• Advantages as noted above for body-worn FM • Inconspicuous (a particular benefit for older students) • Fewer couplings for breakdown • Compatible with a variety of ear level hearing aids	• Use with some digital hearing aids problematic

Type	Description	Candidates	• Advantages	Problems
FM Systems (cont.)	SELF-CONTAINED FM Body-worn: • Typically have settings for FM only, HA only, or FM/HA & operate without personal hearing aids • Ear level microphones are preferred • Separate microphone transmitter for FM mode • Individual ear adjustments can be made for output, gain, and frequency response • Newest models available in ear level style and utilize some of the advanced signal processing features of hearing aids	• Children with all degrees of hearing impairments	• Hearing aid & FM in single unit provides maximum flexibility & consistency in amplification • Button-type receiver at ear allows for greater power due to distance from microphone • FM mode eliminates reception problems due to noise, distance, & reverberation factors	• Body-worn units heavy & cumbersome for small bodies • Cord breakage & maintenance • Clothing noise interferes with signal • Body location of microphones when used in hearing aid mode results in poor acoustic signal
	Ear Level: • Receiver/processor system contained in ear level unit • Available in moderate & power models • Wide-band or narrow-band signal transmission • Microphone/transmitter	• Children with all degrees of hearing impairments	• Eliminate cords, loops, connectors, body-worn components, & receiver charging • Several microphone options (boom mic style provides most consistent signal) • Some models permit FM frequency options • Some models have programmable features	• Ear level/FM technology is still being refined • Wide band transmission has distance and spill-over considerations
	"WALKMAN"-STYLE: • All utilize a body-worn FM receiver, which may contain adjustments for output & frequency response, coupled to a headset or earbud	• Children with unilateral, high-frequency or intermittent (OM) hearing loss where FM signal is desirable • Selected children with auditory processing problems or attention deficits	• Moderate cost • Easy to operate	• Too cumbersome for infants & most toddlers • Headsets short out easily • May be uncomfortable for lengthy use

Type	Description	Candidates	• Advantages	Problems
FM Systems (cont.)	CLASSROOM: • Signal is picked up by receiver/amplifier & broadcast through speakers • Speakers may be portable, desktop, or mounted in the ceiling or on the walls • Requires knowledge of room acoustics and sound transmission properties to install properly	• Children with mild, unilateral, high-frequency, or intermittent hearing losses • Selected children with auditory processing problems or attention deficits • Children with cochlear implants who cannot utilize direct-wired FM	• Moderate cost • Easy to operate • No cumbersome apparatus to wear • Provides signal enhancement for all students • Signal processing capabilities available in some units • Desktop model may be taken from class to class	• Not appropriate for moderate, severe & profound hearing losses due to insufficient improvement in signal to noise • Signal-to-noise ratio can be adversely affected by poor classroom acoustics, speaker placement & classroom set-up
Induction Systems	HARDWIRE INDUCTION LOOP: • Room circumference (or desired listening area) is wired for signal transmission; signal is received via hearing aid telecoil	• Children who wear compatible hearing aids, except infants and toddlers	• Inexpensive • Easy to operate • No cumbersome apparatus for small children to wear	• Requires strong telecoil • Head position affects signal strength (hearing aid must be vertical) • Limited portability • Requires environmental mic on hearing aid to access talkers other than teacher
	3-D MAT: • Floor of room (or desired area) is covered with an induction mat through which the signal is transmitted & received via hearing aid telecoil	• Children who wear compatible hearing aids, especially infants & toddlers	• Consistent signal transmission • No cumbersome apparatus to wear • Durable • Low maintenance	• Costly for home use • Not portable • Requires strong telecoil • Requires environmental mic on hearing aid to access talkers other than teacher

Infrared Systems	• Infrared light utilized to transmit signal • Utilizes multiple sensors to permit sound transmission to areas out of direct visual range • Operates on wide-band infrared frequencies	• Children with all degrees of hearing impairments • Selected children with auditory processing problems or attention deficits	• No interference problems from radio and cell phone signals	• Objects in line of visual signal transmission interrupts signal
	CLASSROOM: • Signal is picked up by receiver/amplifier & broadcast through speakers mounted in the ceiling or on the walls	• Children with mild, unilateral, high-frequency, or intermittent hearing losses • Selected children with auditory processing problems or attention deficits • Children with cochlear implants who cannot utilize direct-wired FM	• Eliminates spill-over of signal between classrooms • Multi-mics for team -teaching • Can be connected to FM transmitters • Compatible with AV, computers, video	
	INDIVIDUAL • New systems nder development			