

Connecticut State Department of Education

**DRAFT Guidelines for Health
Screenings: Vision, Hearing and
Scoliosis**

August 2018

Contents

Acknowledgments	2
Preface.....	3
Section A - Guidelines for Vision Screening.....	4
Introduction	4
Implementation	5
Screening Preparation	6
Screening Procedures.....	8
Referral And Follow Up	11
Glossary	12
References.....	13
Section B - Guidelines for Pure Tone Hearing Screening and Screening for Middle Ear Function ...	14
Introduction.....	14
Pure Tone Audiometric Screening.....	15
Implementation	15
Screening Preparation.....	16
Screening Procedures.....	17
Rescreening Procedures	19
Referral and Follow Up.....	19
Glossary	21
References.....	22
Appendix A	23
Section C - Guidelines for Scoliosis Screening	24
Introduction	24
Implementation	24
Screening Site and Preparation	25
Screening Procedures.....	26
Rescreening Procedures.....	27
Referral and Follow-Up.....	27
Glossary	28
References.....	28

Acknowledgments

Numerous professionals contributed to the review and development of these guidelines. The CSDE would also like to extend appreciation to the following professionals for their review of the Guidelines:

- Stephanie Knutson, Project Manager, Connecticut State Department of Education
- Christian Swenby, CT Association of Optometrists
- Donna Kosiorowski, West Haven Nursing Supervisor
- Donna Merritt, State Education Resource Center
- Elaine Matulis, State Department of Public Health
- Elsa Stone, American Academy of Pediatrics, CT Chapter
- Faraneh Carnegie, Connecticut Chiropractic Association
- Gina Carucci, Connecticut Chiropractic Association
- Jillian Wood, American Academy of Pediatrics, CT Chapter
- Louis Todisco, Connecticut State Department of Education
- Mark Lee, CT Orthopedic Society
- Mercy Hetherington, Newington Nursing Supervisor
- Nancy Smith Bruno, Connecticut Children's Medical Center
- Stephen Polezonis, CT Association of Optometrists
- Susan Levasseur, Association of School Nurses of Connecticut

For more information on the CSDE Guidelines for Health Screenings: Vision, Hearing and Postural, please contact:

Stephanie G. Knutson, MSN, RN

School Health Administrator & Education Consultant for School Nurses and School Health
Connecticut State Department of Education

Bureau of Health/Nutrition, Family Services and Adult Education

450 Columbus Blvd., Suite 504

Hartford, CT 06103

860-807-2108

stephanie.knutson@ct.gov

Preface

The purpose of the Guidelines for Health Screenings is to provide information on the rationale, proper procedures and recommendations for implementation of screening programs for vision, hearing and postural concerns. Health screenings are important strategies to promote the health and wellness of students and provide early detection of potential health concerns that may prevent them from taking full advantage of the educational opportunities provided in school. While screenings are not diagnostic, they can identify if there is a possibility of a health concern or problem (Bobo, Kimel & Bleza, 2013).

The most common problems that can be detected and for which early intervention can be successful are vision and hearing. Connecticut [statutes](#) and regulations mandate screening in these important areas as well as postural screenings.

The original 2004 guidelines are based on work by the Connecticut Advisory School Health Council, which was in existence from 1954 to 1993 and again from 1988 to 1999. Representatives from the Connecticut State Department of Education (SDE), Connecticut Speech-Language-Hearing Association, Association of School Nurses of Connecticut, Prevent Blindness and staff members from Connecticut Children's Medical Center participated in the development of the 2004 guidelines. Current revisions to the guidelines are based on the newest literature and evidence regarding screening programs in schools.

Section A - Guidelines for Vision Screening

Introduction

Vision screening as mandated under [Section 10-214](#) of the Connecticut General Statutes (CGS) consists of a screening for distance visual acuity. Vision screenings are required annually to each student in kindergarten, grades one and three to five, inclusive. Vision screenings are also mandated as part of school health assessments under [Section 10-206](#) of the CGS prior to school enrollment, in grade 6 or 7 and again, in grade 9 or 10. The purpose of these screenings are to identify children with potential visual difficulties that may affect learning ability and school adjustment.

Health assessments requirements in Connecticut schools

Each local or regional board of education shall require each child to have a health assessment prior to public school enrollment and shall require each pupil enrolled in the public schools to have health assessments in either grade six or grade seven and in either grade nine or grade ten. [Section 10-206 of the CGS](#)

Preventing vision loss and enhancing students' ability to learn are critical and implementing screening programs will help to achieve that mission. Vision screening in schools should never be considered diagnostic. Screenings identify the possibility of a need and require further evaluation by a healthcare provider to determine if a medical diagnosis is indicated (Bobo, Kimel and Bleza, 2013). Screenings should be sensitive enough to include those children with a need and exclude those that do not have a concern.

Vision screening is not an eye examination

"It is important to emphasize that the screening is not an eye examination; [vision] screening does not replace an eye examination; and the screening will not detect all potential vision disorders or diseases." (Prevent Blindness, 2015)

Any student who has significant reading difficulties or other learning problems, who experiences scholastic failure, who is suspected of being intellectually challenged, who has a hearing impairment, or who has medical problems such as cerebral palsy or diabetes should have a thorough eye examination by an eye specialist included in their physical, mental and emotional evaluation. When a student has an eye examination by an eye doctor, it may be necessary for the school nurse to interpret the findings to school staff.

Goal:

The purpose of vision screening is to identify possible vision problems and refer for possible treatment in order to reduce vision loss, especially amblyopia, at a very young age, before it interferes with the learning process.

Objectives:

1. To screen at the mandated grades in order to identify changes in vision which may occur from one grade to another.
2. To identify students with problems of visual acuity and function and refer for further evaluation and possible treatment.
3. To follow up on referrals to ensure that students receive the necessary treatment or care.

Implementation

Implementation of an effective vision-screening program depends on the communication, collaboration and cooperation of the school health services personnel, educational staff, administrators, the medical community, parents and students.

Education

1. Screening Personnel

According to [Section 10-214-5](#) of the Regulations of Connecticut State Agencies (RCSA), any individual trained in screening methods recommended by the National Center for Children's Vision and Eye Health or equivalent methods, may conduct vision screening. Individuals include volunteers or school health aides. Trained individuals who perform vision screenings must then be supervised by the school nurse, school nurse supervisor or the district's school medical advisor. Only school nurses/registered nurses should conduct any necessary rescreening assessments.

2. Communicating with School Staff

School nurses should annually inform administrators, teachers and other school staff of the vision screening program, as well as provide information about visual concerns that may directly impact students' educational performance. Teachers should know the importance of continuously observing students for potential vision problems. Students observed to have any of the following signs should be referred to the school nurse for a vision screening regardless of age or grade placement. The following list may assist teachers and other school staff to identify students with signs of possible vision problems.

- a. What do the student's eyes look like?
 - eyes don't line up, one eye appears crossed or looks out;
 - eyelids are red-rimmed, crusted or swollen; or
 - eyes are watery or red (inflamed).
- b. How does the student act?
 - rubs eyes a lot;
 - closes or covers one eye;
 - tilts head or thrusts head forward;

- has trouble reading, doing close-up work, or holds objects close to eyes to see;
 - blinks more than usual or seems cranky when doing close-up work;
 - things are blurry or hard to see; or
 - squints eyes or frowns.
- c. What does the student say?
- "My eyes are itchy," "my eyes are burning" or "my eyes feel scratchy."
 - "I can't see very well."
 - After doing close-up work, your student says "I feel dizzy," "I have a headache" or "I feel sick/nauseous."
 - "Everything looks blurry," or "I see double."

(Prevent Blindness, 2015)

3. Communicating with Parent(s)/Guardian(s)

Parents should be informed annually of the district's vision screening program. Information may be communicated via the school's or school district's Web site, handbooks, newsletter or by individual student notices. Written approval for screenings is not mandated; however, annual notification is required. Information should include:

- the purpose of the vision screenings;
- screening procedures;
- the approximate screening dates; and
- how parent(s)/guardian(s) will be notified if referral to a health care provider is recommended.

4. Exemption or Excuse from Screening

- Parents may **exempt** their children from screenings for religious reasons and must provide the school with a written request for exemption from screenings (see CGS, [Section 10-208](#). Exemption from examination or treatment).
- Students who have been screened by their primary care provider and/or are receiving specialist care and show documentation that it has been done, may be **excused** from school screening.

Screening Preparation

1. Environment

A quiet area free from distracting influences should be selected for testing visual acuity. Prior to screening, students should not hear other students responding to the screening or see the chart. When using a wall chart, the following criteria should be used for adequate screening:

- a. place the chart on an uncluttered wall away from windows;

- b. ensure the area is well illuminated, without bright lights or glare in the student's field of vision;
 - c. ensure that no shadows fall on the chart;
 - d. place the chart so that it is at the eye level of the student during screening; and
 - e. with ribbon or tape, measure the correct distance from the face of the chart to the heel line. If a chair is used, the student's back is at the line.
2. Equipment and Materials

The Snellen or SLOAN Letter Chart are recommended visual acuity charts. The E chart is not recommended as it tests cognitive skills, as well as vision acuity.

Vision Screening Equipment

Vision screening as mandated under [Section 10-214](#) of the Connecticut General Statutes (CGS) consists of a screening for distance visual acuity. As such, any vision screening equipment such as a chart or an automated vision screening device used in schools to screen students MUST measure distance visual acuity levels (see Section 5 of [Public Act No. 17-173](#)). Certain vision screening equipment may be effective in detecting visual abnormalities requiring referrals, and if available, may be used in conjunction with visual acuity screening charts or devices. However, the sole use of visual screening equipment that does not measure distance visual acuity, does not comply with the mandate of Connecticut State law.

When using a visual acuity chart (such as the Snellen or SLOAN Chart), the following equipment is also needed:

- a. a tape measure to measure the required distance from the chart;
- b. colored tape for marking a distance line (such as a 20-foot line or a 10-foot line) on the floor;
- c. monocular handheld plastic occluders, young child occluder glasses or a coneshaped cup;
- d. a pointer;
- e. method to clean between students;
- f. recording forms;
- g. health provider's referral forms; and
- h. informational materials for educational purposes.

Note: The HOTV or LEA symbol chart is available for preschool-age children, with the LEA symbol chart the preferred method.

Visual Acuity Chart: Distance Requirement

The examining area shall be sufficient to accommodate the distance requirement for the specific visual acuity chart being used to screen students.

3. Preparation of Students

The screening program should be explained to all students prior to the screening. Teachers can assist with the preparation of young children by practicing to name and identify letters or symbols on the chart prior to the screening. Students may also use symbol cards to identify the symbol during the actual screening.

4. Scheduling the Screening

Visual acuity screening should be completed by December 1 in order to identify any concerns early in the school year. Kindergarten students who have not been screened prior to school attendance should be scheduled first.

5. Documentation

Documentation of which children were screened needs to be maintained in order to ensure that screening are conducted for children who were absent from school or otherwise unavailable at the time of the initial screening.

Screening Procedures

1. Visual History

Prior to the screening, school nurses should review pertinent records (in particular, the health assessment record, HAR-3, previous screening results, and any parent information). When the student's record indicate a documented visual impairment or defect, other than acuity difficulties requiring glasses, a vision screening is not indicated. Instead, the school nurse should verify that the student is receiving appropriate care. Records of visual examinations from outside providers should be on file in the cumulative health record, and when appropriate in the special education file.

For children with diagnosed visual impairments who are receiving special education and related services or have a 504 plan, the planning and placement or 504 team meeting is the appropriate place for discussion about the student's ocular management. For students receiving an annual vision evaluation through an Individualized Education Program (IEP), a 504 plan or other medical recommendations, the vision screening may be omitted with evidence of a completed vision evaluation report.

Warning Signs of Vision Problems in Children

- Squinting, closing or covering one eye
- Constantly holding materials close to the face
- Tilting the head to one side
- Turning head to one side
- Rubbing eyes repeatedly
- One or both eyes turn in or out
- Redness or tearing in eyes
- Premature birth
- Developmental delays
- Family history of lazy eye or “thick glasses”
- A disease that affects the whole body (such as diabetes, sickle cell or HIV)

(The Vision Council, 2009)

2. Screening

- Position the student in a chair with the back of the chair on the appropriate distance line or standing with heels on the appropriate line. Determine if the student has been prescribed glasses. If glasses are used for distance, screen with glasses. When glasses are used only for reading, screen without glasses. If glasses have been prescribed but the student doesn't wear them, test with (if possible) and without glasses. Note: Inform teacher(s) that the student has glasses but chooses not to wear them.
- Direct the student or assistant screener to occlude left eye first. Check for proper position.
- Test the right eye, then occlude the right eye and test the left eye. For students being screened for the first time, it may be appropriate for the student to first read the chart without any occlusion to put the child at ease.
- Always expose one entire line on the chart at a time. Do not use the isolated letter method or hold the pointer at each letter. The pointer is used to indicate the correct line or the letter or symbol on the chart but should not be held under the letter or symbol.
- Proceed according to the following:
 - Prekindergarten through 2nd Grade: start at 20/50 line
 - Grade 3 and Above: start at 20/40 line
 - Children Suspected of Poor Vision: start at 20/100 line.
 - A passing score is given for each line if half of the letters plus one have been correctly identified. If the student reads a line correctly, proceed to the next smaller line and reverse the direction in which symbols are presented.
 - If the student fails any line, i.e., cannot read one more than half of the letters on that line, continue moving up on the chart until the student passes a line. Then move

down the chart again until the student fails to pass a line a second time. If a student fails any line below the starting line, repeat the line in reverse order.

1. Record visual acuity in order tested (right eye, left eye). Record the last full line read correctly with ease.
2. Refer all students exhibiting the following behaviors during the screening, regardless of visual acuity:
 - a. thrusting head forward;
 - b. tilting head;
 - c. watering eyes;
 - d. frowning, scowling or squinting;
 - e. puckering the face;
 - f. blinking excessively; or
 - g. crossed eyes.

Criteria for Passing Vision Screening

Prekindergarten: (Ages 48 - 59 months)

- The student should be able to pass the 20/40 line with each eye.

Kindergarten and above: (5 years and older)

- The student should be able to pass the 20/30 line with each eye.

(American Association for Pediatric Ophthalmology and Strabismus, [Vision Screening Recommendations](#), 2014)

The student should not have more than one line difference in acuity between the eyes, even when able to pass the critical line with each eye (example, a 20/40 result for one eye and 20/20 for the other eye requires a referral)

Rescreening Procedures

Rescreening is carried out in order to minimize inappropriate referrals for medical and ophthalmological evaluation or treatments. Rescreening should be completed two to four weeks later if the above criteria for passing are not met. All rescreening should be conducted by the school nurse using a visual acuity chart at a 20-foot distance. This is especially important if the student was originally screened with a 10 foot visual acuity chart.

Referral And Follow Up

1. Parent Notification

If a student is unable to be screened or fails a second time to meet the passing criteria for either eye, then this student should be referred for a professional eye examination. Parents or guardians must be notified in writing and encouraged to take the child to an eye doctor for the examination or speak to their healthcare provider about a referral to an eye doctor. A student should also be referred regardless of the screening score if an obvious undiagnosed muscle imbalance is suspected or if symptoms of visual disturbance are observed during the screening.

According to Section 5 of [Public Act No. 17-173](#), “The superintendent of schools shall give written notice to the parent or guardian of each pupil (1) who is found to have any defect of vision or disease of the eyes, with a brief statement describing such defect or disease and a recommendation for the pupil to be examined by an optometrist licensed under [chapter 380](#) or an ophthalmologist licensed under [chapter 370](#), and (2) who did not receive such vision screening, with a brief statement explaining why such pupil did not receive such vision screening.”

2. Coordinating Referrals

The school nurse is responsible for coordinating referral and follow-up for further diagnosis. The parent/guardian or healthcare provider should return the completed healthcare provider’s report to the school nurse. If a referral form sent to the parent/guardian is not returned within a reasonable period of time (within thirty (30) days), the school nurse should contact the parent or guardian to determine follow-up plans. It may be necessary to obtain a release of information form signed by the parent to communicate directly with the health care provider. Ultimately, the results of a referral should be noted in the student’s cumulative health record.

3. Teacher Notification

All school personnel responsible for the education of a student failing a vision screening should be notified. They will also need to be informed of the outcomes of the referral and should participate in any educational evaluations, accommodations and interventions needed. Students with visual deficits affecting educational performance should be referred to the school Planning and Placement Team (PPT) to determine eligibility for special education and related services or Section 504 team.

4. Students Requiring Special Considerations

Some students may not respond appropriately to the screening procedures.

- a. Students who are unduly fearful or uncooperative, a referral to the parent and healthcare provider should be made and follow-up should be obtained as outlined in the preceding steps 1, 2, and 3 above.
- b. Students who have severe impairments that interfere with the screening (such as, pervasive developmental delays, social-emotional maladjustments or neurological impairment), and whose Individualized Education Programs (IEPs) or 504 plans do not currently include exemption from screening or medical/visual referral, in addition to the procedures in steps 1, 2 and 3, the PPT or 504 Team should be advised.

- c. Students with identified histories of visual impairments need to be monitored medically, visually and educationally, whether or not they are receiving special education or 504 services. Periodic vision screenings may be necessary in conjunction with consultation with the child's primary health care provider.

IDEA requires school districts to be fiscally responsible for medical and visual evaluations during the initial evaluation, if the PPT decides such testing is necessary to determine eligibility for special education and related services [34 C.F.R. § 300.532 (g)] or 504 services [34C.F.R. § 104.35 (a) and (b)]. IDEA also requires school districts to reevaluate a student with a disability if the child's condition warrants it, or if parents or a teacher request it, but at least every three years [34 C.F.R. § 300.536 (b)]. Additionally, districts are fiscally responsible if the PPT determines that a visual or medical re-evaluation is necessary. Families are responsible for the costs otherwise, although school personnel may be able to link the family with resources to assist with these expenses.

5. Reports

The results of the vision screening as mandated by [Section 10-214](#) of the CGS and screening done as part of the health assessment (as mandated by [Section 10-206](#) of the CGS should be recorded in the student's electronic health record or the cumulative health record (CHR-1). Referral should also be documented. If a student is receiving special education or accommodations through a 504 plan, screening information should be included in those files as well.

Glossary

Amblyopia (lazy eye) - dimness of vision, sometimes without known cause. Eye turns and other vision defects may lead to amblyopia, a condition in which a child unconsciously suppresses the vision of one eye and relies on the other.

Astigmatism - defects of the curvature of the cornea or lens resulting in a distorted image because light rays cannot focus on a single point of the retina

Color deficiency - inability to recognize certain colors, primarily red or green, but rarely blue

Conjunctiva - the delicate mucous membrane that lines the eyelids and covers the front part of the eye except the cornea

Conjunctivitis - inflammation of the conjunctiva

Depth perception - the blending of slightly dissimilar images from the two eyes for the perception of depth and solidity

Distance vision - ability to distinctly perceive objects at a certain distance, usually 20 feet

Legal blindness - central visual acuity of 20/200 or poorer in the better eye with corrective lenses, or limited fields of vision such that the widest diameter subtends an angle no greater than 20 degrees

Visual acuity - measurement of the ability of the eye to perceive the shape of objects in the direct line of vision and to distinguish detail.

References

American Academy of Pediatrics. (2008). Role of the School Nurse in Providing School Health Services, *Pediatrics* 121, pp.1052-1056. doi: 10.1542/peds.2008-0382.

American Association for Pediatric Ophthalmology and Strabismus. [Vision Screening Recommendations](#).

Basch, C. (2011). Vision and the achievement gap among urban minority youth. *Journal of School Health*. doi: 10.1111/j.1746-1561.2011.00633.x

Bobo, N, Kimel, L, & Bleza, S. (2013) Promoting health at school. In J. Selekman (Ed.), *School Nursing: A Comprehensive Text*. (2nd ed. p.455) Philadelphia, PA: F. A. Davis.

Connecticut General Statutes. [Chapter 169 School Health and Sanitation](#).

National Association of School Nurses. (2011) [Position statement: Role of the school nurse](#). (Accessed April 12, 2016)

[Prevent Blindness Position Statement On School-Aged Vision Screening And Eye Health Programs. \(2015\)](#).

The Vision Council. (2009). [Making the Grade](#).

[Vision Screening for Children 36 to <72 Months: Recommended Practices](#).

Section B - Guidelines for Pure Tone Hearing Screening and Screening for Middle Ear Function

Introduction

Like vision impairments, hearing loss also has educational implications. Schools are primarily auditory-verbal environments where the interpersonal interactions associated with teaching and learning depend heavily on the auditory channel. Undetected hearing loss in students, congenital or acquired, sensorineural or conductive, bilateral or unilateral, chronic or fluctuating, stable or progressive, with or without accompanying middle ear disease, presents a potentially critical barrier to academic, social and vocational success. Early identification of hearing loss and middle ear disease (which may have immediate or cumulative effects on hearing acuity) is necessary so that medical, technological and educational interventions can be implemented to avoid or reduce the adverse impact of these impairments

According to the American Academy of Audiology (2011), some of the most common behaviors that may indicate a hearing loss including that the student:

- has difficulty attending to spoken or other auditory information;
- frequently requests repetition;
- fatigues easily when listening;
- gives inappropriate answers to simple questions;
- appears isolated from peers;
- has difficulty with reading skills;
- has difficulty with spoken and/or written language; or
- is easily frustrated.

Section 10-214 of the CGS requires that each local or regional board of education shall provide annually audiometric screening for hearing to each pupil in kindergarten and grades one and three to five, inclusive. Additionally, hearing screenings are part of required school health assessments prior to entry into school, in the 6th or 7th grade and again in the 9th or 10th grade ([Section 10-206](#)). While hearing screening is not required for students enrolled in public school preschool programs, (and certain grade levels) school districts are encouraged to include hearing screening for this population because of the benefits of early identification (American Academy of Audiology, 2011). All students should be screened early in the school year to maximize early identification and intervention. Additional grades, not mandated by Connecticut law may be screened at the discretion of the local school district.

Hearing Screening Requirement for School Enrollment

“...(b) Each local or regional board of education shall require each child to have a health assessment prior to public school enrollment. The assessment shall include: (1) A physical examination which shall include...(3) vision, hearing, speech and gross dental screenings...”

[Section 10-206 of the Connecticut General Statutes. Health assessments.](#)

Pure Tone Audiometric Screening

Goal

The purpose of audiometric screening is to identify students with potential hearing loss and refer for treatment or intervention.

Objectives:

1. To identify and refer for medical and audiological follow-up those students who do not pass the audiometric screenings.
2. To document follow-up medical and/or audiological evaluation, possible treatment or intervention.
3. To refer students with an identified hearing loss to the school early intervention team (such as Teacher Assistance Team) for development, implementation and monitoring of educational strategies, to the Section 504 team for accommodations, or to the planning and placement team for evaluation to determine the need for special education and related services, as appropriate.

Implementation

1. Screening Personnel

According to the Regulations of Connecticut State Agencies (RCSA), Section 10-214-3(a), school nurses, registered nurses, speech pathologists, audiologists, trained aides to school nurses, licensed practical nurses, and trained volunteers may perform audiometric screening. All persons who conduct audiometric screening shall have completed training in this area including practice supervised by a properly trained school nurse, speech pathologist or audiologist. Specific training and experience in screening is needed when screening students with special health needs.

The school nurse supervisor or medical advisor should determine the training needs of personnel who will be conducting the screening. Documentation should be kept of dates, content and attendance at training sessions. Periodic training for screeners should be conducted and include any screening requirement changes, research based best practices and new equipment.

2. Communicating with School Staff

Personnel who will coordinate the appropriate medical, audiological and educational referrals need to be identified. Administrators need to be informed of the requirements for the hearing screening program. Teachers and administrators need to be advised about students who do not pass the screening and the type and status of follow-up referrals, so that appropriate educational management procedures can be implemented. They should be made aware of resources in and out of the school system, such as the school medical advisor, school nurse, SLP, audiologist or the child's physician, all of whom may provide additional information or direct medical or educational support for these students.

3. Communication with Parent (s)/Guardian(s)

Parents should be informed annually of the district’s hearing screening program. Information may be communicated via the school’s or school district’s Web site, handbooks, newsletter or by individual student notices. Written approval for screenings is not mandated; however, annual notification is required. Information should include:

- the purpose of the screenings;
- screening procedures;
- the approximate screening dates; and
- how parent(s)/guardian(s) will be notified if referral to a health care provider is recommended.

4. Exemption or Excuse from Screening

- Parents may exempt their children from screenings for religious reasons and must provide the school with a written request for exemption from screenings.
- Students who have been screened by their primary care provider and/or are receiving specialist care and show documentation that it has been done, may be excused from school screening.

Screening Preparation

1. Environment

“Screening shall be performed in an environment sufficiently quiet for a student to hear the test stimuli at the screening levels” (RCSA, Section 10-214-3(b)). It is important to address this requirement when selecting the site for the hearing screening program, in order to ensure the validity and reliability of screening results. Consideration should be given to the noise inside and outside the screening room that will occur when the screening is conducted. While personnel with documented normal pure tone thresholds may be used as a biological check, it is preferable to have a sound level meter available at the time of screening to monitor noise levels.

In addition, the environment should be well lit and have minimal visual distraction in order to facilitate the child’s attention to the task. To reduce the risk of infection, a sink, soap and disposable towels should be available for hand washing by screening personnel and appropriate cleaning solutions for disinfecting equipment prior to screening each child. Use of disposable earphone guards is another way to guard against infection. Although disposable gloves are generally not necessary, they should be used if needed to reduce the risk of infection. According to the American Academy of Audiology (2011), the maximum ambient noise levels allowable for audiometric screening at specific frequencies are as follows:

Screening Frequency	Maximum Ambient Noise Level
1000 Hz	50 dB SPL
2000 Hz	58 dB SPL
4000 Hz	76 dB SPL

2. Audiometry Equipment

Section 10-214-3 of the RCSA requires that audiometers used in the screening program to meet the current American National Standards Institute (ANSI) specifications for audiometers. Audiometers must also be assessed at least annually for adequate calibration and a statement showing the date and results of the most recent calibration must be kept with each audiometer. Prior to each screening session, hearing screeners should perform visual, listening and biological checks to ensure that the equipment is functioning appropriately (See Appendix A - Audiometer Inspection by Hearing Screeners: Checklist). If any problems present during the following examinations, the audiometer should not be used for screening and should be sent for servicing or repair.

3. Preparation of Students

The purpose of hearing screening and specific procedures that students will encounter should be explained to the students by screening personnel just prior to screening. This may be done as a whole class activity. For students in prekindergarten through Grade 1, a demonstration of the audiometric screening process to the whole class should include listening to the stimulus signal from an earphone held in the demonstrator's hand three feet away from the children, with the attenuator dial set at 100dB at 1000 Hz. This signal should be heard easily by the whole classroom. The demonstrator should then model the expected response behavior under earphones (example, hand raising by students in first grade and older or by dropping blocks into a container for younger children). This should be followed by observation of earphones being placed on one or two students and simulation of the screening (using a signal no louder than 40-60 dB HL).

4. Scheduling the Screening

It is recommended that the initial screening of all mandated grades be completed by December 1 so that early identification and referral can minimize the impact of identified hearing loss on educational performance. Preschool and kindergarten children should be screened first.

5. Documentation

Documentation of which children were screened needs to be maintained in order to ensure that screenings are conducted for children who were absent from school or otherwise unavailable at the time of the initial screening.

Screening Procedures

1. Background

Prior to the screening, school nurses should review pertinent records (in particular, the health assessment record, HAR-3, previous screening results, and any parent information). If the history indicates the presence of pressure equalizing (PE) tubes, the audiometric screening may proceed. When a medical history indicates that a student has a documented sensorineural hearing loss or a permanent conductive hearing loss, hearing screening may not be necessary or useful. Instead, screening personnel need to monitor that the student is receiving appropriate medical and audiological follow-up. Records of hearing test results should be on file in the nurse's office and, as appropriate, in special education or Section 504 files.

For students with diagnosed hearing impairments who are receiving special education and related services or have a Section 504 plan, the Planning and Placement (PPT) or Section 504 Team meeting is the appropriate place for discussions about medical and audiological management, including the frequency of reevaluation. Students receiving an annual audiological evaluation through an Individualized Education Program (IEP), a Section 504 plan or other medical recommendations, the hearing screening could be omitted with evidence of a completed audiological evaluation report.

2. Visual Inspection of the Ears

Students' ears should be inspected externally and internally for physical deformity, cerumen (wax) impaction or foreign bodies, inflammation, blood, and the physical integrity of the eardrum. Internal examination is carried out through otoscopic inspection, which can be performed only by personnel with special qualifications and training in this area. This activity is within the scope of practice for registered nurses /school nurses if properly trained and competent. Examinations of the ear by school nurses are screenings and should not be considered diagnostic.

The child with drainage from an ear, cerumen impaction, a foreign body in the ear canal, a physical deformity of the ear or a complaint of ear pain should be provided with a medical referral. The medical status of the affected ear(s) should be monitored and screening should be scheduled upon notification by the healthcare provider that the health of the ear(s) allows for screening.

3. Pure Tone Screening

Pure tone stimuli should be presented to each ear at the following frequencies and intensities, as specified in [Connecticut General Statutes Sec. 10-214-3](#), only if ambient noise levels are appropriate:

Frequency	Intensity
1000 Hz	20 dB HL
2000 Hz	20 dB HL
4000 Hz	25 dB HL

Seat the child with his or her back to the audiometer and the examiner so that he or she cannot see the examiner's face or any of the buttons or dials on the audiometer. The examiner may want to have a kindergarten or preschool child seated facing away from the audiometer at a 45 degree angle. This would allow the examiner to observe the child's face during the testing procedure and give the examiner cues as to whether or not the child is hearing the tone.

All other students should be sitting or standing facing away from the examiner. Screening personnel need to confirm that students have understood their instructions before proceeding with the screening. Restatement of the instructions, adding pictures or other visual cues or other methods may be required to ensure students' comprehension of the procedures. For children 3 to 5 years of age, it may be necessary to present each test stimulus at least twice to obtain a reliable response (ASHA, 1997).

Criteria for Passing Audiometric Screening

The child must respond to all mandated screening frequencies at the legally prescribed decibel level. Failure to respond to any one test tone constitutes failure of the screening and warrants rescreening immediately (AAA, 2011). If a student fails any part of the screening, an immediate re-screening should be conducted. Screening personnel should confirm that the equipment is operating properly, that it has been applied correctly, and the student has understood the instructions. If the child fails the immediate rescreen, procedures outlined in the rescreening section should be followed (see below).

Rescreening Procedures

Rescreening is carried out in order to minimize inappropriate referrals for medical and audiological evaluation or treatment. Coordinating audiometric rescreening whenever possible is desirable in order to minimize disruptions to children's, teachers' and screeners' schedules and to facilitate well-informed parent notification and referrals for follow-up evaluation or treatment. According to the American Academy of Audiology (2011), the following procedures should be followed for all rescreening:

- a. In order not to delay diagnosis of permanent hearing loss, it is strongly suggested that screening programs do not rescreen children who fail pure tone hearing screening and immediate rescreening. They should be referred for audiological evaluation after the mass screening date rather than wait for 8 to 10 weeks to rescreen.
- b. Hearing screening programs may choose to perform second stage screening on children failing a single frequency only in one or both ears. Children who fail two or more pure tone frequencies in one or both ears should be immediately referred for audiological evaluation.
- c. All students under medical management for conductive hearing loss should be rescreened at intervals throughout their school years. The determination of the interval for such re-screenings should be made by appropriate school personnel or teams (such as, school nurse, SLP, Child Study Team, Section 504 Team or PPT) in collaboration with the student's physician or audiologist, as appropriate. The students in this population who continue to fail rescreening and who are having academic problems may need a more comprehensive evaluation by an audiologist in order for the school district to consider the educational implications of the loss.

Referral and Follow Up

1. Parent Notification

[Sec. 10-206\(e\)](#) and [10-214\(b\)](#) of the CGS require the superintendent of schools to give written notice to the parent or guardian of each pupil found to have a hearing impairment. Districts may provide parents notice of results of the initial screening, with information about rescreening activities to be scheduled prior to initiating referrals for medical and audiological follow-up. Depending on the projected time lapse between initial screening and rescreening,

it might be more appropriate to wait to notify parents after the rescreening. Parents should also be notified if their child was unable to be screened. Timely notification is important so that parents can pursue full evaluation of their child's hearing and middle ear health status. The parent or guardian of each student who did not receive a hearing screening in the mandatory grades, must be given written notice. This written notice must include a brief statement explaining why such student did not receive a hearing screening.

2. Coordinating Referrals

The school nurse is generally responsible for coordinating referral and follow-up for possible diagnosis and treatment. This may be done via a letter to parents with an accompanying medical referral report form. Parents or healthcare provider should return the completed healthcare provider's report to the school nurse. If the healthcare provider's report is not returned within a reasonable period of time (within thirty [30] days), the school nurse should follow up. In this case, it may be necessary to have a release of information form signed by the parent in order to communicate with the healthcare provider. Parents may need encouragement and assistance in accessing medical and audiological services in the community. Documentation should be kept of parent contacts regarding referrals.

3. Teacher Notification

All school personnel responsible for the education of a student who has failed audiometric rescreening should be notified of the screening results. They should also be apprised of the outcomes of referrals for medical and audiological evaluation and should participate in planning educational accommodations, evaluations and interventions. Districts should develop procedures for this notification that address the confidentiality of health information.

4. Students Requiring Special Consideration

Some students may not respond appropriately to the screening procedures. For those who are unduly fearful or uncooperative, the procedures described in #1, 2 and 3 above should be followed. For those who have severe impairments that interfere with the screening (such as, pervasive developmental delay, emotional disturbance or neurological impairment), and whose IEPs or Section 504 plans do not currently include exemption from screening or medical/audiological referrals, in addition to the procedures in #1, 2 and 3 above, the PPT or Section 504 Team should be advised.

Students with identified hearing disabilities under IDEA or Section 504 should have annual audiological follow-up included in their IEPs or Section 504 plans, as appropriate. Medical follow-up may also be necessary.

Children with known histories of middle ear problems need to be monitored medically, audiological and educationally, whether or not they are receiving special education or 504 services. Periodic puretone screening may be necessary in conjunction with consultation with the child's primary health care provider.

IDEA requires school districts to be fiscally responsible for medical and audiological evaluation during the initial evaluation if the PPT decides such testing is necessary to determine eligibility for special education and related services [34 C.F.R. §300.532(g)] or Section 504 services [34 C.F.R. §104.35 (a) and (b)] and to develop an appropriate IEP or 504 plan for eligible students. IDEA also requires school districts to reevaluate a student with a disability if the child's condition warrants it, or if parents or a teacher request it, but at least

every three years [34 C.F.R. §300.536(b)]. Section 504 requires periodic reevaluation as well. Families however are responsible for the costs otherwise, although school personnel (such as, school nurse, school social worker, SLP) may be able to help families find resources when the evaluation or reevaluation is at their expense.

5. Reports

Results of the audiometric screening and the health assessment hearing screening should be recorded on the student's electronic or cumulative health record (CHR-1). The results of other referrals or assessments should be retained in the student's health record. If the student is receiving special education or accommodations through a Section 504 plan, screening information should be included in those files as well.

Glossary

Ambient Noise – sounds of the environment

Attenuator Dial – the part of the audiometer that is used to regulate the intensity (loudness) of the pure tone signals to be administered

Audiological Evaluation - comprehensive evaluation of hearing sensitivity (and middle ear status, as appropriate) by a licensed audiologist

Audiometer – electronic instrument used for measuring hearing sensitivity (with pure tones that sound like musical notes) through air and/or bone conduction. For purposes of these guidelines, pure tones are administered only through air conduction (i.e., to the ear canal).

Audiometric Screening – a brief administration of pure tones at fixed frequencies (pitch) and intensity (loudness) to detect possible hearing loss

Calibration – adjusting equipment to required standards of operation

Decibel (dB) – the unit of measurement for hearing levels; uses a logarithm with a base of 10, which means that, for example, using 0 dB as the base, a tone presented at 10 dB is 10 times louder; a sound at 20 dB is 100 times louder (10^2 or 10×10); a sound at 30 dB is 1000 times louder (10^3 or $10 \times 10 \times 10$) etc.

Frequency – cycles per second of a sound wave; perceived by humans as pitch

Hearing Level (HL) – decibel level at which an individual indicates that he or she has received a particular pure tone sound stimulus; usually referenced to a particular frequency (e.g., 20 dB at 1000 Hz)

Hearing Loss – failure to respond to normal hearing levels at one or more frequencies; may vary in type, severity and cause and have varying outcomes

Hertz (HZ) – measure of the frequency (pitch) of a sound, measured in cycles per second. For purposes of these guidelines, pure tone screening is done at 1000, 2000 and 4000 Hz.

Impaction – blockage; usually of the external ear canal from wax (cerumen) accumulation

Intensity – energy in a sound wave; perceived as loudness by humans

Middle Ear Disease – an abnormal condition of the middle ear that may manifest as inflammation with or without infection and that may vary in type, severity, frequency and duration and may or may not be accompanied by hearing loss

Otoacoustic Emissions – acoustic signals generated by the inner ear that are used to evaluate inner ear function; can be measured by placing a microphone at the opening of the ear canal; may be spontaneous (occur in the absence of acoustic stimuli) or evoked (occur in response to acoustic stimuli)

Otoscope – instrument used to visually inspect the ear canal and the eardrum

Otosopic inspection – use of an otoscope to inspect the ear canal and eardrum

Pressure Equalizing (PE) Tube – tube surgically inserted into the eardrum to equalize pressure in the middle ear with that in the external ear canal

Pure Tone – a single pitch sound

Pure Tone Threshold - lowest intensity at which a person responds to a pure tone stimulus at a specific frequency

Sound Level Meter – instrument for measuring the intensity (loudness) of sound in a specific environment (e.g. screening room, classroom)

Sound Pressure Level (SPL) – ratio of sound intensity to a reference sound of 0.0002 dyne/cm²; recorded in decibels

Threshold Evaluation - The process by which a licensed audiologist determines an individual's minimal response levels for pure tone stimuli at varying frequencies following a referral for failing audiometric screening.

References

American Academy of Audiology Task Force. (2011). [Childhood hearing screening guidelines](#). Retrieved on May 31, 2016.

American Speech-Language-Hearing Association (ASHA). [Childhood Hearing Screening](#). Retrieved on May 31, 2016.

ASHA. [School-Age Hearing Screening](#). Retrieved on May 31, 2016.

ASHA. [Guidelines for Audiologic Screening: ASHA Panel on Audiologic Assessment](#). Retrieved on May 31, 2016.

Appendix A

Audiometer Inspection by Hearing Screeners: Checklist

Type of Examination	Red Flags	Rationale
Visual inspection of equipment	<p>Cracked or frayed cords</p> <p>Cords not tightly connected</p> <p>Broken earphones</p> <p>Static or unwanted noise during presentation of test signal</p>	Valid screening results depend on proper transmission of acoustic signal.
Listening check of audiometer	<p>Static or intermittent signal when cords are moved</p> <p>Mechanical noise when attenuator control (HTL) is moved</p> <p>Failure of test signal to increase or decrease when attenuator level is increased or decreased</p> <p>Audibility of test signal in nontest phone</p>	Valid screening results depend on the student responding to the acoustic test signal in the test ear, instead of to mechanical noise.
Biologic check of test signal intensity	Inability of screener with documented normal hearing to hear all the test signals (1000, 2000 at 20 dB HL; 4000 Hz AT 25 dB HI) in a quiet environment.	Valid screening results depend on the test signal's audibility at the mandated intensity level and ruling out noise as an explanation for screening failure.

Section C - Guidelines for Scoliosis Screening

Introduction

Postural screening consists of screening for postural abnormalities. [Section 10-214](#) of the Connecticut General Statutes (CGS) specify that postural screening be done for (1) each female student in grades five and seven, and (2) each male student in grade eight or nine. Additionally, [Section 10-206](#) of the CGS requires that each local or regional board of education require each student enrolled in the public schools to have health assessments, that include postural screenings, in either grade six or grade seven and in either grade nine or grade ten.

“Scoliosis is a condition that causes the bones of the spine to twist or rotate so that instead of a straight line down the middle of the back, the spine looks more like the letter "C" or "S." Scoliosis curves most commonly occur in the upper and middle back (thoracic spine). They can also develop in the lower back, and occasionally, will occur in both the upper and lower parts of the spine. There are several different types of scoliosis that affect children and adolescents. Scoliosis is rarely painful—small curves often go unnoticed by children and their parents, and are first detected during a school screening or at a regular check-up with the pediatrician” (The Pediatric Orthopaedic Society of North America and the Scoliosis Research Society, 2015).

Goal

The purpose of this screening program is early identification of postural abnormalities so that treatment can be initiated to prevent, if possible, the need for surgery and the discomfort and complications which occur with these abnormalities.

Objectives:

- To identify students who have physical signs of postural abnormalities.
- To provide appropriate evaluation and possible treatment to students with postural abnormalities through the collaboration of school health services and health care providers.

Implementation

Effective implementation of a postural screening program involves collaborative effort and support among screeners, school personnel, the medical community, parents and students. To ensure success, all involved must understand the goals and objectives of this screening program. The educational program for postural screening is a major component of implementation and should include the following:

1. Screening Personnel

Adequate preparation of all personnel conducting the screenings is necessary. According to [Section 10-214-4\(a\)](#) of the Regulations of State of Connecticut Agencies (RCSA), only properly trained school nurses, registered nurses or physical education teachers may perform the screenings.

2. Communication to Students

The screening program should be explained to all students prior to the screening. This may include: what curvature of the spine is, how postural abnormalities are detected, the importance of early recognition, who will do the screening, how it will be done, and what to expect if physical signs are noted.

3. Communication to Parent(s)/Guardian(s)

Parents should be informed annually of the district's postural screening program. Information should include:

- the purpose of the screenings;
- screening procedures;
- the approximate screening dates; and
- how parent(s)/guardian(s) will be notified if referral to a health care provider is recommended.

4. Exemption or Excuse from Screening

- Parents may exempt their children from screenings for religious reasons and must provide the school with a written request for exemption from screenings.
- Students who have been screened by their primary care provider and/or are receiving specialist care (for example, from their orthopedic surgeon) for postural abnormalities and show documentation that it has been done may be excused from school screening.

Screening Site and Preparation

1. Environment

The screening area should be private, warm, well lighted and free of visual distractions. A chair and desk may be provided for recording of findings.

2. Equipment

If available, scoliometers may be used to provide quantitative measurement with five to seven degrees threshold for positive screening (Scoliosis Research Society, 2015).

3. Preparation of Students

- Boys and girls must be screened separately.
- Each student should be screened individually, in private.
- Prior to the screening procedure, students should be informed of the screening process, who the screener will be, and the date of screening.
- Shoes or sneakers should be removed before screening.
- The entire back, from shoulders to hips, should be visible to the screener.

- Boys should be required to remove shirts and to lower pants to hips, or wear gym shorts, so that waistline and hips can be observed.
- Girls should be observed wearing a two-piece bathing suit top or bra and to lower pants to hips, or wear gym shorts, so that waistline and hips can be observed.
- Students who have been screened by their primary care provider and/or are receiving specialist care (such as, from their orthopedic surgeon) for spine deformity and show documentation that it has been done may be excused from school screening.

Screening Procedures

Each student should be screened in the following manner:

1. The student should be directed to stand erect, with back to screener, feet together, knees straight, arms relaxed at sides, head up and looking straight ahead. Encourage the student to avoid standing “at attention” or slouching. The screener should observe for the following key signs:
 - Shoulder height discrepancy as may be reflected by asymmetric shoulder blade prominence or unequal height.
 - Waistline or hip asymmetry.
 - Unequal arm-to-flank distances.
 - Obvious curve or trunk asymmetry.
2. Next, the student should be directed to place palms together and bend forward at the hips at 90°, while keeping knees straight. Viewing from behind, from in front and again from the side, the screener should observe for:
 - Rib or thoracic fullness on one side.
 - Lumbar or muscle mass fullness on one side.
 - A fullness or sharp angle of the thoracic spine from the side view.
3. The screener should record the specific findings of the examination, e.g., right shoulder higher, right scapula more prominent, left hip more prominent, right thoracic fullness on forward bend, etc., on a form, in order to maintain accurate records and documentation.
4. Use of Scoliometer (Optional)
 - Adjust the height of the student’s bending position to where the curve of the spine is most pronounced.
 - Lay the scoliometer across the curve at a 90 degree angle to the body, with the "0" mark over the top of the spinous process. Allow the scoliometer to rest lightly on the skin, do not push down. Read the number of degrees of rotation.
 - If there is asymmetry in two locations of the back, two scoliometer readings will be necessary.

- Screening is positive if the scoliometer reads five to seven degrees or more at any level of the spine. Lesser degrees may or may not indicate a mild degree of scoliosis and rescreening is recommended within three to six months.

Rescreening Procedures

All students with positive findings from the first screening should be rescreened to validate the findings before a referral is made, thus decreasing the possibility of unnecessary referrals. The second screening should be conducted by the school nurse and/or the school medical advisor.

Referral and Follow-Up

1. Parent Notification

Any student who is unable to be screened, refuses to be screened, or is observed to have rib or flank fullness upon forward bend or any three of the other key signs should be referred for further evaluation. Parents should be informed by the school nurse or the school medical advisor of any findings that requires a referral to a health care provider. Written and verbal referrals should include the specific physical findings by the screener, with a recommendation for further evaluation for possible treatment and diagnosis.

Key Signs of Postural Abnormalities:

- a. Rib or thoracic fullness on one side.
- b. Lumbar or muscle mass fullness on one side.
- c. A fullness or sharp angle of the thoracic spine from the side view.
- d. Shoulder height discrepancy as may be reflected by asymmetric shoulder
- e. blade prominence or unequal height.
- f. Waistline or hip asymmetry.
- g. Unequal arm-to-flank distances.
- h. Obvious curve or trunk asymmetry.

The referral options includes:

- Pediatricians or health care providers; and
- Orthopedists.

Note: According to [Section 10-208a](#) of the CGS, "Each local and regional board of education shall honor written notice submitted by a licensed practitioner which places physical restrictions upon any pupil enrolled in the public schools of such board of education. For purposes of this section, licensed practitioner means any person who is licensed to practice under [chapter 370](#) (medicine and surgery), [372](#) (chiropractic), [373](#) (naturopathy) or [375](#) (podiatry) or [section 20-94a](#) (advanced practice registered nurse).

2. Coordinating Referrals

The school nurse is responsible for coordinating referral and follow-up for further evaluation. If the referral form is not returned within a reasonable amount of time (three to four months), the school nurse should contact the parent or guardian to determine follow-up plans. Documentation following a medical evaluation should be provided to the school nurse for inclusion in the student's health record.

3. Students Requiring Special Considerations

For those who are unduly fearful or uncooperative, the procedures described in #1 and #2 above should be followed.

For those who have severe impairments (such as, pervasive developmental delays, social-emotional maladjustments or neurological impairment), and whose IEPs or –Section 504 plans do not currently include exemption from screening, the procedures described in #1 and #2 should be followed.

4. Reports

The results of the scoliosis/postural screening and the screening done as part of the health assessment should be recorded in the student's cumulative health record. The referral report and results of the referral should also be documented in the student's cumulative health record.

Glossary

Scoliosis - lateral curvature of the spine.

Kyphosis - a rounded curve in the upper spine when viewed from the side.

Idiopathic scoliosis - spinal deformity of no known cause.

Scoliometer - a standardized instrument used to measure lateral curvature of the spine.

References

American Academy of Orthopaedic Surgeons. (2015). [Idiopathic Scoliosis in Children and Adolescents](#). Retrieved on April 18, 2016.

Connecticut General Statutes (CGS). [Chapter 169. School Health and Sanitation](#).

CGS. Chapter 370, Medicine and surgery.

CGS. Chapter 372. Chiropractic.

CGS. Chapter 373 Natureopathy.

CGS. Chapter 375 Podiatry.

CGS. Section 20-94a, Advanced Practice Registered Nurse.

Scoliosis Research Society. (2015). [Position Statement - Screening for the Early Detection for Idiopathic Scoliosis in Adolescents](#) (SRS/POSNA/AAOS /AAP Position Statement)