

# **SCHOOL SCOLIOSIS SCREENING GUIDELINES**

**The University of the State of New York  
THE STATE EDUCATION DEPARTMENT  
Comprehensive Health and Pupil Services  
Albany, New York 12234  
April 1997**

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## FOREWARD

*School Scoliosis Screening Guidelines* provides local educational agencies with a framework for establishing a mandated scoliosis screening program. It explains the purpose of scoliosis screening in schools. It provides guidelines for developing effective screening procedures including planning, implementation, and process. This document is intended for use by administrators and school health personnel.

These guidelines were developed with the assistance of an Advisory Committee. Members were: Cynthia Chambers, School Nurse, West Irondequoit Central Schools, Rochester; P. William Haake, M.D., Monroe Orthopedic Associates, Rochester; Judy Logosh, President, Greater Rochester Scoliosis Association, Rochester; Ann K. Reddington, School Nurse Teacher, Pittsford Central Schools, Pittsford. The New York State Medical Society's Committee on School Health and Sports Medicine reviewed and commented.

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## **I. PURPOSE OF SCOLIOSIS SCREENING PROGRAM IN SCHOOLS**

The purpose of scoliosis screening is to identify students with spinal deformities that may cause impairment of the body's range of motion and endurance, and in advanced stages, back pain and functions of other parts of the body. With early identification and intervention, scoliosis may be prevented from progressing so that it does not interfere with mobility, activity or comfort. Today's treatment modalities include observation, bracing, bracing and exercise and/or surgical spinal fusion. Early detection may eliminate the need for surgery. Treatment begun in the later stages can also produce favorable results, although it may take longer and be less successful.

The major objectives of a school scoliosis screening program are to:

- Identify students with spinal curves.
- Notify parent or guardian of a child's screening failure and the need for further evaluation.
- Establish follow-up procedures to ensure that each identified student will receive appropriate care.
- Provide teachers with recommendations and/or restrictions to a student's educational program.

## **II. LEGISLATIVE BACKGROUND**

Education Law, Article 19, section 905 and the Regulations of the Commissioner of Education, sections 136.1 and 136.3 require schools to provide scoliosis screening at least once in each school year for each child between 8 and 16 years of age. The law further provides for certain exemptions from those requirements. The regulations define what is meant by scoliosis screening and require that such screening be provided by persons with appropriate training. Both law and regulation permit parents a religious exemption from scoliosis screening for their child.

### III. ESTABLISHING PRIORITIES

- A. Scoliosis screening must be administered at least annually to all students age 8-16 years.
- A. Scoliosis screening may be done at any time deemed necessary by school authorities. Such occasions might include students with a family history of scoliosis.
- C. Some students may not need screening if they are already under care for regular, periodic evaluation for their spinal deformity. These students should be followed by school nursing personnel to ensure that they are receiving periodic evaluations and/or care as determined by their referral source. Record of these evaluations should become part of the cumulative health record (CHR).

### IV. SCREENING PROCEDURE

These guidelines have been prepared to assist school health personnel in the development of an effective scoliosis screening program. Several key terms are defined below.

1. **Scoliosis** - a lateral or side to side curvature of the spine.
2. **Kyphosis** - an accentuated backward rounding of the upper spine, also called Scheurmann's disease.
3. **Lordosis** - an accentuated forward curvature of the lower spine, also called swayback.
4. **Scoliosis Screening** - as defined in the Regulations of the Commissioner of Education, Section 136.1, subdivision (h), means examination of the uncovered spine including the cervical, thoracic, and lumbar segments by viewing from the back, front, and sides under adequate illumination and observing the existing range of motion of the spine in all directions.

## A. Planning the Program

The focus of a school scoliosis screening program is twofold: 1) early identification of children with common spinal deviations, and 2) education. If the program is to be effective, it will require a collaborative team effort involving the resources of both school and community

The following should be considered before scoliosis screening is initiated:

1. The number of pupils in each grade level who must be screened.
2. The school personnel who will be responsible to provide the screening. These may include school physician, school nurse-teacher, school nurse practitioner, school nurse, physical therapist, and/or physical education teacher.
3. Appropriate training for school personnel who will be responsible for screening.
4. Education for parents and students to provide accurate information and allay fears.
5. Educational resources which will be needed for parents, students, screeners, and school staff.
6. Community health resources (public and private) available for referrals.
7. A referral mechanism to provide information regarding recommended restrictions.

From this information, an action plan and time lines should be developed.

## B. Program Implementation

Implementation of an effective scoliosis screening program should include the following:

1. Education Component. A well-planned educational component is necessary for the program to be successful. The following should be considered:
  - a. **Student Education** - Content should be presented at appropriate developmental levels through health education and physical education classes. Related content can be presented through elementary classroom health curricula. Content should include:
    - What scoliosis is
    - How it is detected
    - Why it is important to screen
    - What the screening procedure will be
    - What will be done for those with positive findings
    - Why it is important to act on those findings.

- b. **Parent Education** - Parents should be informed that scoliosis screening will take place and should be provided with the same information as students. In addition, parents should be instructed how to observe and screen their children. Parents should be made aware of the need for early diagnosis and treatment, if such is indicated; treatment modalities which are currently available; sources for diagnosis and treatment; and, most importantly, that scoliosis does not result from bad posture or anything a parent of a child did or did not do.
- c. **Staff Education** - All school staff should be provided with the same information as parents and students in addition to possible adaptations of the instructional program which may be required for children being treated for one of these spinal deformities.
- d. **Screeners Education** - Screeners may be selected to conduct the screening:
  - Health service personnel, i.e., school nurse, school physician, physical therapist, etc.

In-service training to prepare health service personnel as screeners should include:

- Initial screening procedure
- Rescreening procedure
- Instruction for use of scoliometer
- Criteria for referral
- Referral procedures
- Follow-through activities

## C. Scoliosis Screening Program

### 1. Objectives

- a. To identify pupils (8 to 16 years-old) with common spinal deformities per mandates.
  - b. To improve school management of children:
    - Monitor the child's health status
    - Deliver the prescribed treatment program and if necessary,
    - Adapt the school program.
  - a. To provide counseling, as necessary, relative to scoliosis for students and families.
  - d. To provide education for students and families related to scoliosis and other common spinal deformities.
2. **Selection of Screeners.** The following school staff may be selected to serve as screeners and should complete appropriate training:
- School nurse practitioner
  - Physical therapist
  - School nurse-teacher
  - Physician assistant
  - School physician
  - School nurse



The number of staff selected for training as screeners should be sufficient to provide a) initial screening of all students participating in the program, and b) rescreening of all students with positive findings on initial screening.

Rescreening should be done by a staff member who was not the original screener. If the initial screening was done by other than health services staff, the rescreening should be provided by a member of health services. If the initial screening was done by a member of the health services staff, the rescreening should be done by a different member of health services. Second screeners should be provided with a copy of the findings of the initial screener, after rescreening.

3. **Screening Options.** The following are screening options for district use to facilitate scheduling of pupils and staff time. Scoliosis screening may be offered as:
  - a. Part of physical examinations at the mandated grades, for interscholastic sports participation, working papers, or other such activities.
  - b. Part of the nursing assessment package, i.e., with other required screenings.
    - c. Part of the physical education program.
    - d. A separate screening activity by class or grade, or
    - e. Any combination of the above.

#### 4. **Site Selection and Preparation**

- a. The screening area should be located where the students can change clothing in privacy yet be close to the screening station. Possible sites are gymnasium, locker room, or health office.
- b. At the time screening is in process the area selected should not be used for other than the screening activity.
- c. The area selected should be warm, well-lighted, and permit screening to be done individually and with privacy.
- d. The screening stations should be equipped with a chair and desk or table for each screener. Information must be recorded as the screening progresses.
- e. A tape should be placed on the floor of each station to indicate where the student should stand during screening.

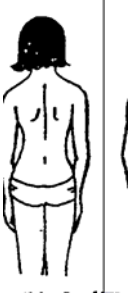
#### 5. **Preparation of Students**

- a. Boys and girls should be screened separately.
- b. All students should be seen and screened individually.
- c. Boys should strip to the waist and wear briefs or gym shorts.
- d. Girls should be requested to wear shorts and a halter or a bra. Leotards or one piece bathing suits tend to camouflage the lower spine area and prevent adequate examination.
  - e. All students should remove shoes or sneakers before screening.

#### 6. **Screening Procedure**

All students should be asked if there is a family history of scoliosis. Every child should be screened in each of the following positions:

- a. **Back View.** (The screener should be seated five to eight feet from the tape mark on the floor.
1. The student should stand erect with back to the screener, toes placed on the tape, feet together knees straight and weight evenly distributed on both feet. Arms should be at the sides and relaxed. Students should be encouraged to avoid slouching or standing at "attention."



***Normal:***

- head centered over mid-buttocks
- shoulders level
- shoulder blades level with equal prominence
- hips level and symmetrical
- equal distance between arms and body

**Possible Scoliosis**



-one shoulder blade higher with possible prominence

-head alignment to one side of mid-buttocks  
-one shoulder higher

-one hip more prominent than the other or waist crease deeper on one side than the other  
-unequal distance between arms and body

2. **Forward bend test.** The student should stand facing away from the screener. The student should bend forward at the waist 90 degrees; feet four inches apart, knees straight, and toes even. Palms of the hands are held together or facing each other, arms hang down, and are relaxed. The head is down.



**Normal**

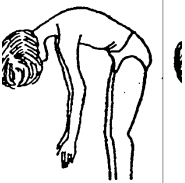
-both sides of upper and lower back symmetrical  
-hips level and symmetrical



**Possible Scoliosis**

-one side of rib cage and/or the lower back showing uneven symmetry  
-curve in the alignment of the spinous processes  
-if prominence is noted, a scoliometer measurement should be taken.

- b. **Right Lateral View** (The screener remains seated.) The student continues to stand erect, but is directed to stand first with right side toward the screener.



**Normal**

-smooth symmetrical even arc of the back

**Possible Kyphosis (round back)**

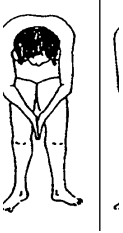


-accentuated prominence of the spine  
(angular kyphosis of spine)

-grossly accentuated swayback (when in upright  
position)

-lack of smooth arc with prominence of shoulders and  
round back

- b. **Frontal View.** Have the student turn and face the screener and repeat the Forward Bend Test.



**Normal**

-even and symmetrical on both sides of the upper and lower back



**Possible Scoliosis**

-unequal symmetry of the upper back, lower back, or both  
-if prominence is noted, scoliometer measurement should be taken

- c. **Left Lateral View.** Have the student turn and stand with his/her left side toward the screener and repeat lateral view test.

1. **Recording.** The data and results of the screening should be recorded as normal or using terms that describe any detected discrepancy (i.e., right shoulder higher than left; left arm-to-body distance greater than right) on the student's Cumulative Health Record (CHR).
8. **Rescreening.** In order to avoid the possibility of unnecessary referral, all students with positive findings for any part of the screening should be rescreened at a separate session by someone other than the original screener. (See section IV. C. 2. paragraph 3.) In addition, a scoliometer reading should be obtained and recorded.

## Guidelines for Use of Scoliometer

- Ask student to bend forward slowly, stopping when the shoulders are level with the hips. View the student from the back. For best view, the screener's eyes should be at the same level as the back. Note any rib elevation and/or asymmetry in the flank (low back) area.
  - Before measuring with the scoliometer adjust the height of the person's bending position to the level where the deformity of the spine is most pronounced. This position will vary from one person to another depending upon the location of the curvature. For example, a curve low in the lumbar spine will require that the person bend further forward than one which is present in the thoracic or upper spine.
  - Lay the scoliometer across the deformity at right angles to the body, with the "O" mark over the top of the spinous process. Let the scoliometer rest gently on the skin, do not push down. Read the number of degrees of rotation.
  - **NOTE:** If there is asymmetry in both the upper and lower back, two (2) scoliometer readings will be necessary. The curves will almost always go in opposite directions with the one in the thoracic spine usually to the right and the other in the lumbar spine usually to the left.
  - The screening examination is considered positive if the reading on the scoliometer is seven degrees or more at any level of the spine. Lesser degrees of rotation may or may not indicate a mild degree of scoliosis. In such cases rescreening is recommended within three to six months.
9. **Referral.** After the rescreening, any child with an identified spinal deformity should be referred for further evaluation.

### *Criteria for Referral*

Refer for one or more of the following:

- Unequal shoulder height
- Unequal distance between arms and body
- Prominence of one hip
- Scoliometer reading greater than seven degrees
- Accentuated prominence in thoracic or lumbar region of the spine on forward bend
  - Accentuated sway back
  - Unequal symmetry of the upper back, lower back, or both.

Parents should be personally contacted if a positive finding has occurred. Age appropriate counseling for the student should also take place with parental permission. It is important that every one involved understands that a positive screening result does not constitute a diagnosis of scoliosis but does indicate the need for further evaluation.

During this initial session a member of the school health services staff should:

- a. Explain the results of the screening and their significance.
  - a. Answer all questions and provide an opportunity for student and parent to ventilate concerns, anxieties, and other problems.
  - a. Provide a written referral form and review it to be certain that the information being given to and the information being sought from the evaluator is understood by the family.
  - b. Initial referral should be to the family's health care provider. In the event that the family does not have a health care provider, an alphabetical listing of areas health care providers and clinics should be provided. Offer assistance in obtaining follow-up if necessary or desired.
  - e. Request that the parent return the completed referral form from the evaluator to the school health office.
  - f. Discuss with the family, the child and the health care provider the health care plan including the expectations for the school.
  - a. Encourage parents to have the child's siblings screened since scoliosis tends to run in families.
10. **Follow-through.** Students with questionable findings who are not referred to private health care providers, should be rescreened in four to six months. Therefore, it is important to keep a list of these students to facilitate scheduling this follow-up session. Both students and parents should be kept fully informed.

Students, referred for evaluation, and their parents will need support during this period, both to allay their fears and to reinforce the need for completing the evaluation process. In addition, the school nurse should:

- a. Provide in-school support services for those students with diagnosed problems. These might include:
  - adaptation of the physical education program
  - supervision of brace care
- counseling for students or parents related to the prescribed treatment program
- education of peers and staff
- consultation with physical therapist, if available in district or BOCES.
- b. Include all pertinent information relative to scoliosis screening, referral, evaluation results, treatment regimen, status, and monitoring process on the CHR.
- c. Advise parents of students leaving the school district to have the new school send for this health information.

## **IV. RESOURCES**

National Scoliosis Foundation  
93 Concord Avenue  
P. O. Box 547  
Belmont, Massachusetts 02178  
617-926-0397

The Scoliosis Association, Inc.  
P. O. Box 51353  
Raleigh, North Carolina 27609

Scoliosis Research Society  
222 South Prospect  
Suite 127  
Park Ridge, Illinois 60068