Websites

choa.org/scoliosis (Children's Healthcare of Atlanta Scoliosis Screening Program)
- Information and videos for parents and adolescents
- Information for healthcare professionals
- Referral forms for physicians

srs.org (Scoliosis Research Society)
- SRS, American Academy of Orthopaedic Surgeons, Pediatric Orthopaedic Society of North America and American Academy of Pediatrics position statement: School Screening Programs for the Early Detection of Scoliosis
- Information about scoliosis conditions and treatment options
- Patient and family information provided in English, Spanish and other languages
- Physician/healthcare professionals tab

nih.gov (National Institutes of Health)

nasn.org (National Association of School Nurses)

niams.nih.gov (National Institute of Arthritis and Musculoskeletal and Skin Diseases)

iscoliosis.com (sponsored by Medtronic, a surgical equipment company)
- Questions regarding scoliosis treatments from families answered by orthopaedic spinal specialists

gadoe.org/curriculum-instruction-and-assessment/ctae/pages/school-nurse.aspx
(Georgia Department of Education)
- Updated information for school nurses regarding current trends and best practices in Georgia

curvygirlsscoliosis.com
- Network and support for girls who are undergoing scoliosis treatment
- National conference and local support groups
- Online discussions

dph.georgia.gov/school-health (Georgia Department of Public Health)
- Updated information pertaining to public health

Financial assistance

Families in need of financial assistance for medical care for their child can contact the following:
- Children's Medical Services in state of residence
- Child Health Insurance Program in state of residence
- Medicaid in state of residence

Georgia references are provided as a guide:

Department of Community Health regarding Medicaid and PeachCare for Kids

- Medicaid
  dch.ga.gov
- Children's Medical Services
  dph.ga.gov/cms
- PeachCare for Kids
  peachcare.org

Chapter Sixty-two

Scoliosis

Mary Katherine Jessen, Sally Zentner Schoessler

Introduction

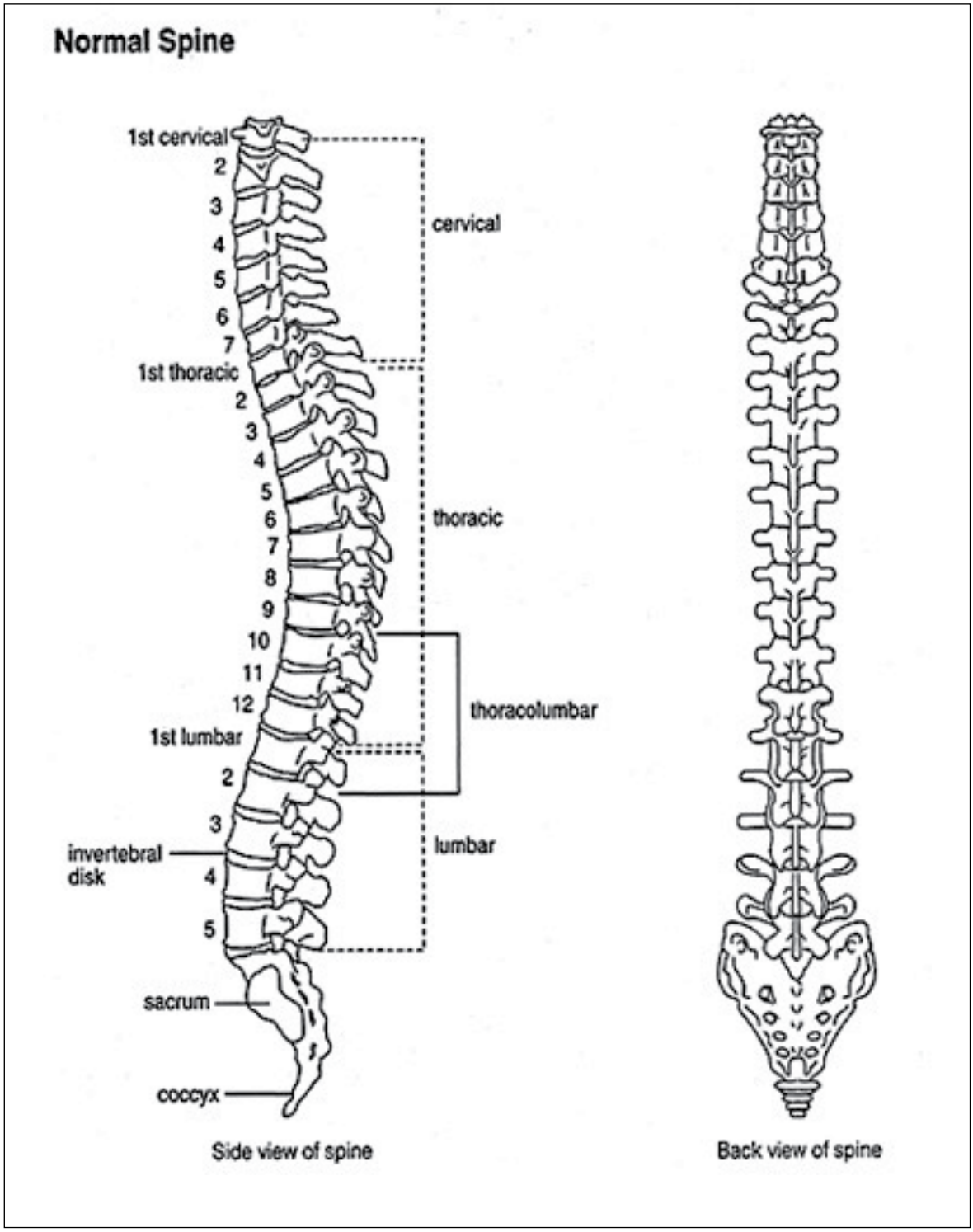
Scoliosis is the most common deformity of the spine and is characterized by spinal curvature and rotation (Wilson & Curry, 2011). The child with scoliosis is typically an otherwise healthy child, and the spinal curvature is often an isolated health concern. The cause of scoliosis is often unknown, although it can be congenital, secondary to an underlying neuromuscular disorder, or a compensatory disorder resulting from a discrepancy in the lengths of the child's legs. Scoliosis is most common in adolescents and is classified based on the age of onset (infantile, juvenile, or adolescent).

In 1996, the U.S. Preventive Services Task Force (USPSTF) (2004) recommended against routine screening for scoliosis in the school setting. There was insufficient evidence to prove that early screening of students provided earlier detection, along with significant variability in screening accuracy and poor follow up of positive findings. Based on these recommendations, state requirements for scoliosis screening vary. While some states require scoliosis screening for students annually (8 to 16 years), other states do not make this the responsibility of the school's health services, instead relying on screening during annual childhood physical examinations. As a result of the USPSTF recommendation and the inconsistency in school screening, data have declined and are often very limited or difficult to obtain. However, controversy regarding scoliosis screening persists. Some are concerned that school nurses are already burdened with a significant workload and increasing complex medical care of students in the schools and that preventive screening, timely referrals, and follow up may not be the most efficient use of their time (Jakubowski & Alexy, 2014). On the other hand, the school nurse is able to assess questionable spinal curvatures because he or she has a high level of contact with the student and is able to identify and confirm students at risk for problems related to scoliosis. This is particularly true in identifying individuals with idiopathic scoliosis who may otherwise be overlooked but can benefit from observation or conservative treatment (Fong et al., 2015). Despite the ongoing controversy over population-based screening, Fong et al. (2015) argued that there is still significant benefit, either in the school setting or through routine physicals via a primary healthcare provider. It is also worth noting that the U.S. Preventive Services Task Force (2015) is currently conducting research into the screening of asymptomatic children for scoliosis, with new recommendations to be published in 2017.

Pathophysiology

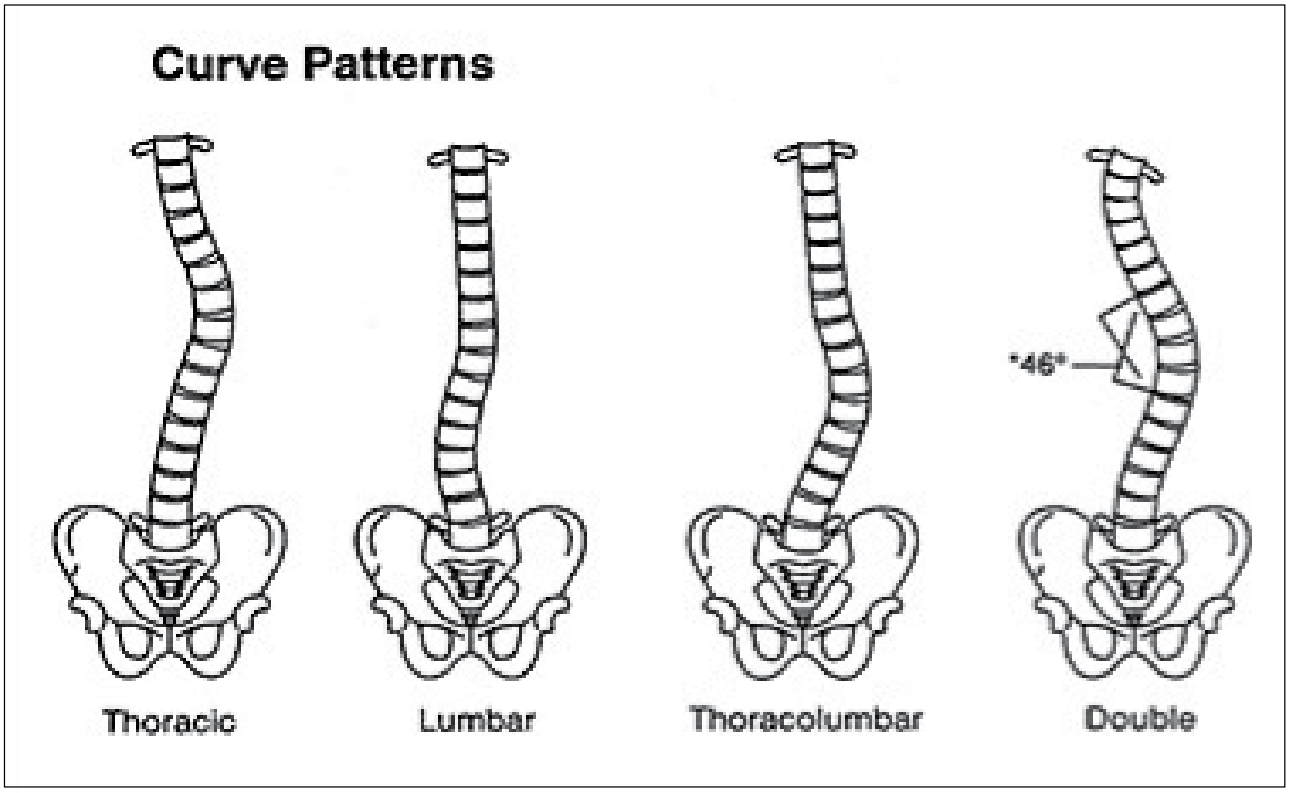
Scoliosis is defined as a "spinal deformity in three planes, usually involving lateral curvature, spinal rotation causing rib asymmetry, and thoracic kyphosis" (Wilson & Curry, 2011, p.1668). The age of onset and prevalence vary by classification of the condition, though it is usually diagnosed during adolescence, during periods of growth spurts. Two or three percent of the population have idiopathic scoliosis, as well as just over 11% of their first-degree relatives (Giampietro, 2012). Scoliosis can be a stand-alone diagnosis or identified as part of a number of other conditions such as neuromuscular disorders and can be classified as either structural or functional (Negrini et al., 2012). It is very important that the child is carefully examined to determine the origin and severity of the deformity as well as to determine if there are other related health concerns and the impact of scoliosis on the child's health. Diagnosis is made by direct observation of the child's exposed back and radiographic evaluation, which is used to determine the degree of curvature, as well as to aid in predicting the likelihood of progression (Wilson & Curry, 2011). School accommodations and assistance are based on the severity of the student's condition and any treatments required or necessary adaptive and/or medical equipment.

Figure 1. Diagram of a normal spine



National Institute of Arthritis and Musculoskeletal and Skin Diseases, 2013.

Figure 2. Diagram of curve patterns



National Institute of Arthritis and Musculoskeletal and Skin Diseases, 2013.

Structural Scoliosis

Idiopathic

This is the most common form of scoliosis, with development of the condition occurring most often during growth spurts, with the most rapid progression of curvature happening during puberty (Negrini et al., 2012). Evidence also suggests that there may also be a genetic component. Idiopathic scoliosis is most often diagnosed following a positive finding from school or community health screenings (Wilson & Curry, 2011). The most frequent presenting symptom is back pain at the initial diagnosis, while more symptoms may develop with curvature progression (Altaf, Gibson, Dannawi, & Noordeen, 2013).

Congenital

In congenital scoliosis, spinal abnormalities develop as a result of poor fetal formation or impact to fetal growth during the first trimester (Kaspiris, Grivas, Weiss, & Turnbull, 2011). Symptoms of spinal problems are evident early in the child's life. There can be a partial or complete curvature of the spine, and the scoliosis is often found in combination with other bone or soft tissue anomalies, heart defects, or medical concerns. The risk of progression depends on many factors specific to the child's overall condition. It is more likely that the student with congenital scoliosis will require accommodations in the school setting than the student with idiopathic scoliosis.

Neuromuscular

Nonidiopathic scoliosis is frequently caused by an underlying neuromuscular disease (Canavese, Rousset, Le Gledic, Samba, & Dimeglio, 2014). Theses diseases include cerebral palsy, Charcott-Marie-Tooth disease, myelodysplasia, spinal muscular atrophy, Friedrich ataxia, and Duchenne muscular dystrophy. The frequency of occurrence varies with each disease, although as many as 80% to 100% of nonambulatory children develop scoliosis.

Children with neuromuscular scoliosis typically have similar curvatures and patterns of diseases as those with other forms of scoliosis, so treatment options remain the same. However, as a result of the primary neuromuscular disease, the degree of curvature is often greater, and the progression may be more rapid, leading to a decrease in the efficacy of nonsurgical interventions such as spinal orthotics. Surgical interventions also tend to be much more complicated, with high risks of complications and recovery times. Students with neuromuscular scoliosis undergoing

surgical interventions likely require more accommodations and assistance from the school staff to minimize disruptions in their education.

Miscellaneous

In addition to the three most common types of structural scoliosis mentioned previously, other etiologies can include:

- neurofibromatosis;
- spinal trauma (fracture, radiation, or surgical displacement);
- idiopathic spinal symptoms (tumor, inflammation, nutritional deficit [rickets], metabolic [renal osteodystrophy], and other intraspinal conditions);
- rheumatoid arthritis; and
- congenital disorders (mesenchymal disease, dwarfism, and connective tissue and bone diseases).

Functional scoliosis

Functional scoliosis is caused by a nonspinal condition such as unequal leg length, lack of activity, or poor posture. The curve is flexible, and correction is seen on bending or in compensating for the unequal leg length. However, unlike structural scoliosis, once the underlying issue is corrected, the abnormal curvature disappears.

Management

Treatment of scoliosis depends on several factors, including the age at the time of diagnosis and the degree of curvature. In cases in which the scoliosis is caused by a specific condition, treatment of that underlying condition is necessary to correct the scoliosis. In most cases, treatment begins with the most conservative measures, as appropriate, and progresses based on the etiology, individual's response, and overall complexity of the situation. Left untreated, scoliosis may progress over time, which can impact the individual's daily life and ability to function as an adult. This may include pain, difficulty sitting or standing for prolonged periods, osteoporosis, spinal degeneration, collapsed discs, and even impaired heart and lung function.

Nonoperative

While bracing used to be the gold standard for treatment, it has been found to be variable in effectiveness, due in larger part to a lack of compliance in adolescence (Davies, Norvell, & Hermsmeyer, 2011). The most conservative approach is observation only, in which the student is monitored over time to determine if the curvature is progressing and the impact on the child's daily life. The research is inconclusive on the effects of physical therapy, yoga, and other exercise programs (Mordecai & Dabke, 2012). For students requiring bracing, it is important to note that braces are not necessarily able to correct the curvature; rather, they can hold the spine in correct alignment as the child grows, with a goal of reducing the curvature or preventing progression and thereby possibly eliminating the need for surgical intervention (Davies et al., 2011). The type of brace and duration and frequency of use are determined on a case-by-case basis. Some doctors are finding an increase in compliance with use of nighttime-only bracing therapy over a longer period.

For children undergoing nonoperative scoliosis treatment, school-based interventions vary. Students may need assistance in scheduling or arranging alternate times for classes or make-up tests to compensate for time missed during the school day due to appointments. Students may come to the clinic on an as-needed basis to rest, for pain medication or, in some situations, to request assistance dealing with skin irritation from the brace.

Operative

Several surgical methods can be employed to straighten and secure the spine (Wilson & Curry, 2011). These often include the implantation of metal rods or a form of spinal fusion to correct the misalignment. Advancements in techniques in recent years have greatly improved outcomes, both in stopping progression and improving spinal alignment, providing an improvement in posture and overall appearance.

Recovery time for these procedures varies and can impact the student's mobility and physical education and/or sports program for up to a full school year. Most students can return to school 2 or 3 weeks after surgery, though some may be on a modified schedule for a time, and some may be out of school for 6 weeks or longer. The nurse and school clinic should work with the student, family, teachers, and medical staff to ensure continuation in the child's education through homebound services, work sent home, and other options as much as possible. All children undergoing spinal surgery to correct scoliosis require pain management and physical therapy and time to readjust to their daily activities and schedules.

It is the responsibility of the registered professional school nurse to develop an IHP and Emergency Action Plan (EAP) for students with healthcare needs that affect or have the potential to affect safe and optimal school attendance and academic performance. The IHP is developed by the school nurse using the nursing process in collaboration with the student, family and healthcare providers. The school nurse utilizes the IHP to provide care coordination, to facilitate the management of the student's health condition in the school setting, to inform school-educational plans, and to promote academic success. The EAP, written by the school nurse, is for support staff with an individual plan for emergency care for the student. These plans are kept confidential yet accessible to appropriate staff. (National Association of School Nurses [NASN], 2015)

Assessment

See *Chapter One: IHP Basics and Using IHPs with Other Educational Health and Home Care Agency Plans* for a comprehensive assessment list.

See the table of contents for other chapters that may contain information relevant to this health condition.

History

- Data/information source: child, parent interviews, and/or medical or school health records
- Medical diagnosis (signs, symptoms, prognosis, history of condition):
  - genetic/inherited disease
  - learning disability
  - scoliosis/related conditions
- Date of diagnosis, curvature attributes, and degree of curvature
- Progression of curvature
- Major illnesses, injuries, hospitalizations, surgeries (including those related to scoliosis)
- Pregnancy, labor and delivery, and neonatal history (gestational age, complications, or tobacco, alcohol, or chemical use)
- Growth history (pattern of growth, any concerns)
- Developmental history (age at which milestones reached)
- Last physical and/or mental health examination, including any radiographic imaging

Current status

- Health care providers, insurance, facilities used
- Data/information source: child, parent interviews, and/or medical or school health records
- Status, symptoms, management plan (note current curvature and other related findings)
- Medical treatments, including use of orthotics, therapies, planned surgeries, and medications
- Activity or mobility limitations
- Allergies
- Body system review (note any concerns in the following areas):
  - general appearance
  - head
  - eyes, ears, nose, throat
  - respiratory
  - cardiovascular
  - gastrointestinal
  - genitourinary
  - musculoskeletal (note activity tolerance and restrictions, limitations, and recommended exercise program)
  - neurological
  - endocrine skin (note issues with skin integrity)
- Sleep patterns
- Elimination/toileting
- Other

Self-care

- Data/information source: child, parent interviews, and/or medical or school health records
- Student's knowledge and understanding of health condition
- Self-care skills, decision-making and problem solving skills, motivation, participation, self-advocacy, and barriers to self-care

- Ability to self-monitor skin integrity, don/doff orthotic independently, identify barriers to self-care, and self-advocate for interventions that could improve self-care, comfort, compliance, and overall well-being
- Compliance with and participation in treatment plan (i.e., therapies, exercises, nonsurgical interventions, use of orthotic devices, postoperative care)

Psychosocial and cultural

- Data/information source: child, parent interviews, and/or medical or school health records
- Mental health (overall cognitive and emotional development and temperment)
- Student strengths and issues related to scoliosis, treatment plan, and impact on life
- Extracurricular activity involvement
- Cognitive, emotional, and social development and temperment
- Cultural or religious beliefs, practices, and considerations
- Family's perception of scoliosis
- Support systems
- Parent/guardian concerns
- Cultural or religious beliefs, practices, and needs

Academic

- Data/information source: child, parent interviews, staff interviews, absenteeism records
- Past and current academic achievement
- School health services needed (medications, specialized school health procedures, and school and classroom modifications)
- Past or current 504 plan
- Past or current special education services, including occupational, physical, and speech/language therapy
- Transportation needs
- Emergency Evacuation Plan
- Equipment needs
- Agencies and organizations involved in the student's care

Nursing Diagnoses (ND) (Herdman & Kamitsuru [Eds.], 2014)

See the front of this book for the complete listing of NANDA Nursing Diagnoses 2015–2017.

ND 1 Impaired physical mobility related to:

- neuromuscular impairment
- musculoskeletal impairment
- pain
- spinal surgery
- use of orthotic brace

ND 2 Risk for activity intolerance related to:

- insufficient physiological energy to complete daily activities
- musculoskeletal abnormalities
- neuromuscular impairment
- use of orthotic brace
- deconditioned state following spinal surgery
- pain
- imposed activity restrictions

ND 3 Chronic pain related to:

- chronic musculoskeletal condition
- neuromuscular impairment
- use of orthotic brace

ND 4 Ineffective breathing pattern related to:

- musculoskeletal impairment
- pain
- fatigue

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- anxiety
- body position that inhibits lung expansion
- use of orthotic brace
- spinal surgery

ND 5 Risk for impaired skin integrity related to:
- pressure over bony prominence from orthotic brace
- impaired sitting
- altered body position
- spinal surgery

ND 6 Disturbed body image related to:
- surgical procedure and resulting scarring
- altered body function due to scoliosis
- altered view of one's body/self-perception
- chronic musculoskeletal condition
- use of orthotic brace
- nonacceptance from peers

ND 7 Risk for chronic low self-esteem related to:
- inadequate respect from others
- insufficient feeling of belonging
- pain
- use of orthotic brace
- poor self-image
- perceived differences between self and others

ND 8 Deficient knowledge related to:
- insufficient information
- insufficient interest in learning
- insufficient knowledge of resources
- misinterpretation of information
- lack of understanding regarding positive assessment findings

Nursing Interventions

The school nurse will:
- help parent and student access a healthcare provider as needed for assessment of positive screening findings. (ND 8)
- communicate with healthcare providers and treatment team, with parental permission, to document treatment plan and prognosis for student's condition. (ND 1-5)
- encourage student to identify and discuss activities that are difficult and/or strenuous for him or her due to spinal abnormalities, use of orthotics, spinal surgery and recovery, and activity restrictions and limitations. (ND 1-4)
- encourage student to identify and discuss activities that are pleasurable and manageable for him or her even with activity restrictions and limitations. (ND 1-4, 6, 7)
- collaborate with physical education teachers to modify physical education activities as needed per activity limitations by physician. (ND 1, 2, 3)
- arrange for classroom/school building modifications and accommodations such as extra books, early release between classes and at the end of the day, use of the elevator, and homebound services, as needed per healthcare provider recommendations and limitations. (ND 1-5)
- encourage student to verbalize feelings about body image and self as related to the diagnosis of scoliosis and his or her treatment plan and how it relates to his or her life. (ND 6, 7)
- help student and parents understand the diagnosis of scoliosis and the scoliosis management plan and encourage information seeking and sharing of knowledge regarding: (ND 6, 7, 8)
  - screening procedure
  - screening results
  - pathophysiology of scoliosis
  - treatment options

  - personal treatment plan
  - school management plan
  - use of orthotics prescribed and self-care as related to their use, if appropriate
  - surgical procedures and recovery process, if appropriate
- discuss and revise school scoliosis management plan with parents and students, as needed, to provide collaborative student care. (ND 1, 2, 5, 8)
- discuss with student and parent the need to monitor skin integrity and proper care of areas of skin irritation. (ND 5)

Expected Student Outcomes

To make outcomes measurable, add the number of days per week, percentage of time, or specific date, as appropriate to the statement.

The student will:

- attend classes without absences and with minimal impact to learning related to scoliosis symptoms and treatment. (ND 1-4)
- participate in classroom and school activities with modifications as needed. (ND 1-4)
- participate in physical education classes with modifications in activities as needed. (ND 1-4)
- demonstrate proper use of his or her orthotic and use. (ND 1-4, 5, 8)
- express feelings about body image. (ND 6, 7)
- express positive feelings about himself or herself and what he or she is capable of doing well. (ND 1, 2, 6, 7)
- describe scoliosis, his or her treatment plan, and preventive actions and possible complications. (ND 8)
- demonstrate appropriate self-limitation of activities 100% of the time based on scoliosis management plan in physical education classes and sports activities. (ND 1-4)
- express his or her concerns related to the diagnosis, impact on his or her life, and upcoming scoliosis treatments. (ND 6, 7, 8)
- experience minimal skin breakdown due to proper use of orthotic brace, treatment plan compliance, and early identification of issues and appropriate intervention. (ND 5)

Preliminary Individualized Healthcare Plan (IHP)

The purpose of this preliminary IHP is to guide the nurse in developing a concise, initial IHP. For a child with specific health concerns, entering school for the first time or returning after a significant health event, it is imperative that the school nurse completes a nursing assessment to identify any health, emergency, or safety concerns and initiate an IHP. This preliminary IHP provides priority assessment points, nursing diagnoses, interventions, and expected student outcomes to support immediate school attendance with health needs identified and addressed.

The preliminary IHP is then expanded into a more comprehensive IHP based on data from the full nursing assessment. The nursing diagnoses, nursing interventions, and expected student outcomes in this preliminary IHP have been chosen to fit most situations for a student with this health condition. In the preliminary IHP form, space has been included for items not specifically listed yet needing immediate attention. *To make expected student outcomes measurable, add the number of days per week, percentage of the time, or specific date, as appropriate to the statement.* **The nurse is encouraged to expand the preliminary IHP in the very near future in order to care for the student's full range of health concerns requiring attention in the school setting.**

Preliminary Individualized Healthcare Plan

Name_____ D.O.B._____

Address_____ Homephone_____

Parents/guardians _____ Grade_____

School_____

Healthcare provider(s)_____

Insurance provider_____ ICD-10-CM_____

IEP Date_____ 504 Date_____ EAP Date_____ EEP Date_____

Medical Diagnosis: Scoliosis

Nursing Assessment

See the master list in this chapter and *Chapter One: IHP Basics and Using IHPs with Other Educational, Health and Home Care Agency Plans* for additional assessment points.

❏ Skin breakdown
❏ Impaired mobility
❏ Negative body image
❏ Fatigue
❏ Decreased self-confidence
❏ Activity restrictions
Other: _____

Nursing Diagnoses

❏ Impaired physical mobility
❏ Disturbed body image
❏ Deficient knowledge
Other: _____

Nursing Interventions

The school nurse will:
❏ communicate with healthcare providers and treatment team to document treatment plan and prognosis.
❏ arrange for modifications and accommodations per treatment plan recommendations and student limitations.
❏ encourage student to verbalize feelings about body image and self.
❏ help student and parents understand the diagnosis and treatment plan.
❏ discuss and revise school scoliosis management plan with parents and students as needed.
Other: _____

Expected Student Outcomes

The student will:
❏ attend classes without absences and with minimal impact to learning, as evidenced by attendance record and teacher reports during the current academic term.
❏ participate in classroom and school activities with modifications as needed, as evidenced by observation, student report, and teacher report.
❏ demonstrate proper use of his or her orthotic and us as prescribed, as evidenced by verbalization, reciprocal demonstration, observation, and parent/student report between initial receipt of the brace and the next healthcare provider follow-up visit.
❏ describe scoliosis, his or her treatment plan, and preventive actions and possible complications, as evidenced by verbalization, reciprocal demonstration, school nurse observation, and parent/student report between initial receipt of treatment plan and the next healthcare provider follow-up visit.
❏ express his or her concerns related to the diagnosis, impact on his or her life, and upcoming scoliosis treatments.
Other: _____

Plan initiated by _____ Date: _____

Case Study

Stephanie, 16, was screened annually for scoliosis from age 8 until the current time. Her screening results were negative until age 12, at which time the school nurse found her to have an 8- to 9-degree thoracic spinal curvature using a scoliometer. A referral was sent home and returned with the report that an orthopedic scoliosis specialist had already seen her after the curvature was noticed by her healthcare provider at her seventh-grade physical. She has had a series of x-rays as well as a computed tomographic scan. At the time of examination, the specialist did not restrict her activity. During a follow-up visit, Stephanie was prescribed a Milwaukee brace and physical therapy to prevent progression of her curvature. However, the restrictive nature of the brace, social stigma, and near-constant use led to low compliance. Her curvature has continued to progress and reached a measurement of greater than 50 degrees. Her parents indicated that they were seeking a second opinion and that she would be evaluated for possible surgical intervention.

In the summer preceding this school year, Stephanie underwent surgery to have a full metal rod inserted along her spine. She has been recuperating in a brace and can expect to wear the brace for 2 to 4 months. A section 504 meeting was held and she was found eligible for accommodations based on her limitations and recommendations from the surgeon, including no physical education classes or sports for the full school year, as well as to avoid lifting heavy objects. It has been arranged to issue her three sets of books so that she will not need to carry any textbooks. She has been given permission to sit in the back of the class to move and adjust her position as needed, and a chair is available in each classroom that she is comfortable sitting in. She has a clinic pass that can be used for periods in which she needs to rest or obtain assistance with pain management. Her doctor has said she may use the stairs, but an elevator pass has been issued for use as she feels the need. She is also allowed to leave class 2 or 3 minutes early to avoid being bumped in the hallway and to allow extra time to navigate between classes.

Case Study IHP

Nursing Assessment	Nursing Diagnoses	Nursing Interventions	Expected Student Outcomes
Stephanie has difficulty ambulating and maneuvering with brace in place at school	Impaired physical mobility related to spinal surgery and use of orthotic brace	Communicate with healthcare providers and treatment team, with parental permission, to document treatment plan and prognosis for Stephanie's condition Encourage Stephanie to identify and discuss activities that are difficult and/or strenuous for her due to use of the orthotic brace, spinal surgery and recovery, and based on activity restrictions and limitations Arrange for a 504 plan that includes classroom/school building modifications and accommodations such as extra books, early release between classes and at the end of the day, and use of the elevator, as needed per healthcare provider recommendations and limitations	Stephanie will attend classes 90% of the time without absences and with minimal impact to learning through the current marking period Stephanie will participate in classroom and school activities with modifications as needed 90% of the time Stephanie will demonstrate appropriate self-limitation of activities based on scoliosis management plan 100% of the time
Stephanie is embarrassed by the attention her brace draws and the postoperative accommodations and restrictions She feels left out by her friends and peers	Disturbed body image related to altered chronic musculoskeletal condition; alteration of body function/physical mobility; use of orthotic brace, surgery; altered view of her body/self-perception; and the disruption to her school schedule	Encourage Stephanie to identify and discuss activities that are pleasurable and manageable for her even with activity restrictions and limitations Encourage Stephanie to verbalize feelings about body image and self as related to the diagnosis of scoliosis and her treatment plan and how it relates to her life	Stephanie will express feelings about body image during each meeting with the school nurse and/or educational team, as needed, over the next 2 months Stephanie will express her concerns related to the diagnosis, impact on her life, and her treatment plan over the next month
Stephanie does not consistently follow through with her treatment plan and often questions the reason behind it	Deficient knowledge related to insufficient information; being unfamiliar with terminology; and resources and misinterpretation of information	Help Stephanie and her parents understand the diagnosis of scoliosis and the scoliosis management plan and encourage information seeking and sharing of knowledge Arrange for a 504 plan for Stephanie and review with student and parents to provide further information and understanding	Stephanie will demonstrate appropriate self-limitation of activities based on scoliosis management plan 100% of the time Stephanie will express her concerns related to the diagnosis, impact on her life, and her treatment plan over the next month Stephanie will accurately describe scoliosis and her treatment plan during the next two meetings with the nurse and/or educational team

Related Services and Supplementary Aids and Services for the Case Study for IEP Billing

The student in this case study does not have an IEP, but if IEP services are initiated, this statement could be used: Nursing service is a necessary related service to assess and monitor the student's health condition/status, communicate with parents and healthcare providers, and provide healthcare planning, medications, and treatments as needed to minimize the impact of the health condition on the attainment of his or her IEP goals (St. Paul Public Schools, 2015).

See these chapters for additional information:

- *Chapter Three: Special Education – Description, Process and Using the IHP Information*
- *Chapter Four: Special Education – Other Health Impairment (OHI)*
- *Chapter Five: Reimbursement for Healthcare Services Provided in Schools*

504 Accommodations for Case Study

Stephanie, 16, has recently undergone corrective spinal surgery for scoliosis. She is currently recuperating in an orthotic back brace, which she will wear for the next 2 to 4 months.

Stephanie's physician has advised that she should not participate in any physical education classes or sports for 1 year and must avoid lifting heavy objects. Due to the nature of her brace and post-surgery discomfort, she requires the ability to move and reposition herself frequently, as well as alternative seating to accommodate the brace. She is progressing well but still finds herself easily fatigued and needing assistance with pain management, necessitating visits to the school nurse and clinic. She is not restricted from using the stairs but may find the elevator easier to help her transition between classes, particularly with crowded hallways and limited time. Due to her mobility limitations, it is often difficult for her to move between classes in the allotted time.

Generally, students with scoliosis require varying levels of accommodations based on the severity of their illness, comorbid conditions, and specific treatment plan. These needs and accommodations may change over time based on complications, healing, and student response to treatment. Accommodations may be classroom-based, such as alternative or adapted equipment to ease the student's discomfort, and allow them to focus on their learning, a reduction in workload or assignments, or issuance of an additional set of textbooks. These students may have a decreased level of activity tolerance or limited physical mobility and may also require assistance and/or extra time to transition between activities or classes. Students may be unable to carry their bag alone or may need an alternative bag. Those with more intensive treatment plans or recovering from surgery may require a reduction in the school day or homebound instruction.

Based on Stephanie's treatment plan, allowances should be made in advance for her to have access to the school nurse or clinic. Stephanie may require assistance or care in terms of pain management, monitoring for complications, rest breaks, or aid with her orthotic device. Depending on the impact of the illness and treatment plan, Stephanie may also have emotional and mental needs that can be addressed through visits to the school counselor or psychologist.

The school nurse will work collaboratively with Stephanie, her parents, her medical team, and school treatment team to ensure that the restrictions and recommendations of the healthcare provider(s) are followed, considering the capabilities of the student. Stephanie's needs will fluctuate over time with the treatment plan, and the nurse will work to ensure that she is able to receive equal access to education and a positive learning environment in the least restrictive ways possible.

504 Accommodations for Case Study
• Allow her preferential seating in the classroom (i.e., sitting in the back for easy entrance/exits, sitting in a place where movement within the classroom is easier and less distracting) • Give alternative seating type to accommodate brace and positioning postoperatively (i.e., sitting on cushions or chairs instead of the floor, allowing Stephanie to use a chair with a cushion, finding a wider chair or one that is easier for the student to get in and out of) • Allow Stephanie to get up and move around during class to alleviate discomfort or change positions to avoid impaired skin integrity • Give Stephanie an additional set of textbooks for home use to lessen the physical burden of carrying them back and forth to school • Allow Stephanie to use alternative backpack or rolling bag to alleviate strain on back • Allow for extra time transitioning between classes to avoid being jostled in the hallway and to accommodate for limited mobility • Provide an elevator pass for Stephanie to lessen strain of transitioning between classes • Provide alternate physical education curriculum for Stephanie (i.e., written assignments) • Give pre-approved visits to the school clinic (for assistance with donning/doffing brace, rest breaks, pain management, assistance with skin integrity management) • Pre-approve visits to the school counselor and/or psychologist as needed if she is having difficulty managing the social, emotional, and mental well-being impact of her diagnosis and treatment plan • Adjust class schedule postoperatively as needed based on Stephanie's ability to manage current workload • Pre-approve excused tardy, absent, and/or missed classwork due to medical appointments • Reduce classroom assignments as needed, based on Stephanie's ability to manage current workload • Request approval for homebound instruction services, if necessary

See these chapters for additional information:

- *Chapter Two: 504 Plans and Accommodations - Using the IHP Information*
- *Chapter Five: Reimbursement for Healthcare Services Provided in Schools*

Emergency Action Plan (EAP) for Case Study

For his case study, an EAP is not applicable.

Emergency Evacuation Plan (EEP) for Case Study

The school nurse and educational team should be familiar with all standard school emergency evacuation procedures. These guidelines are in addition to such protocols and are designed to reflect the special needs of students who are nonambulatory or have limited mobility.

Emergency Evacuation Plan for Case Study

Name __ Stephanie _____ D.O.B._____
Address_____Homephone_____
Parents/guardians _____Grade_____
School_____
Healthcare provider(s)_____
Insurance provider_____ICD-10-CM_____
IEP Date_____504 Date_____EAP Date_____EEP Date_____

Medical Diagnosis: Scoliosis

This student may require assistance during a school emergency that involves school building evacuation. Follow the steps below.

Before an emergency

- The school nurse and Stephanie's educational team will meet to review the best evacuation routes for her class location and schedule, considering her mobility limitations.
- Determine if any special equipment, other than her brace, must accompany Stephanie upon evacuation. Develop a list and update it as necessary.
- Identify all accessible exits, areas for shelter in place, and areas where the student can await rescue assistance.
- Based on Stephanie's location and the available emergency exits, determine the minimum number of staff needed to assist in an emergency.
- Set up an emergency communication plan and personnel responsible for assisting Stephanie.
- The written plan will be distributed on a need-to-know basis to her educational team and the school nurse.
- The plan will be reviewed with Stephanie, the nurse, and her team, and rehearsed to ensure smooth communication and a safe exit in an emergency.

In an emergency

- Only persons who have had appropriate rescue/evacuation training, per the written plan, should assist Stephanie, unless it is a life-threatening situation.
- Help clear the exit route of debris so that a clear path is available for evacuation.
- Ensure that Stephanie has any necessary medical equipment with her that cannot be left behind.
- Be aware, that in most situations, elevators are out of service, and Stephanie must be evacuated via the stairs.
- Evaluate the situation to determine if evacuation or shelter in place is the more favorable option for Stephanie based on location and her mobility limitations at the time.
- Shelter in place.
- It is unlikely that Stephanie would need to shelter in place unless she was experiencing complications or pain further limiting her mobility. However, a plan should be in place in case such a situation arises.
- Select a room with an exterior window, telephone, and solid and/or fire-resistant door.
- A chosen staff member should remain with Stephanie in this room and send someone to the evacuation assembly area to notify emergency personnel of the location and request for assistance.

Evacuating persons with limited mobility

- Even with Stephanie's limited mobility, she can walk, either alone or with assistance, and safely evacuate using the stairs.
- Stephanie should be assigned a staff member to assist her during each portion of the school day. In some cases, ancillary school staff or an administrator may be most appropriate.
- Stephanie should wait until evacuation traffic has slowed or cleared to begin her exit. This will allow personnel time to clear a path and will enhance her safety as well as that of others.

Initiated by School Nurse _____ Signature _____ Date _____

Although caution has been exercised to develop this EEP template accurately and in accordance with professional standards, the information herein does not serve as a substitute for nursing judgment or professional direction from a physician/advanced practice nurse. It does not outline an exclusive course of treatment and must be individualized to the student's safety needs.

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Resources

American Academy of Orthopedic Surgeons
9400 West Higgins Road
Rosemont, IL 60018
Phone: 847-823-7186
Email: orthoinfo@aaos.org
www.aaos.org
Monthly Journal: *Journal of the American Academy of Orthopedic Surgeons*

Boston Children's Hospital – Spinal Program
School Nurse's Guide to Scoliosis
300 Longwood Avenue
Boston, MA 02115
Phone: 617-355-6021
www.childrenshospital.org/~/media/centers-and-services/programs/o_z/spinal-program/scoliosisebook.ashx?la=en

National Association of the State Boards of Education
State School Health Policy Database (for information on scoliosis screening mandates)
333 John Carlyle Street, Suite #530
Alexandria, VA 22314
Phone: 703-684- 4000
www.nasbe.org/healthy_schools/hs/map.php

National Institutes of Health
National Institute of Arthritis and Musculoskeletal and Skin Diseases
1 AMS Circle
Bethesda, MD 20892-3675
Phone: 301-495-4484
Email: NIAMSInfo@nih.mail.gov
www.niams.nih.gov

National Scoliosis Foundation
5 Cabot Place
Stoughton, MA 02072
Phone: 800-673-6922
Email: NSF@scoliosis.org
www.scoliosis.org
Biannual newsletter: *The Spinal Connection*

The Pediatric Orthopedic Society of North America
9400 West Higgins Road
Rosemont, IL 60018
Phone: 847-698-1682
Email: posna@aaos.org
www.posna.org

Scoliosis Research Society
611 East Wells Street, Suite 1100
Milwaukee, WI 53202-3892
Phone: 414-289-9107
Email: info@srs.org
www.srs.org

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